

# Amateur Radio

45241

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COMMUNICATIONS & TECHNOLOGY

AUGUST 2007

# CQ

**HOT Stuff  
at Dayton  
Hamvention,  
p. 28**

- **First-Time QSL Manager, p. 13**
- **SSB Results, 2006 CQ  
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- **Riley Says: "Lighten Up!" p. 32**

**On the Cover: Students from Auburn University in Auburn, Alabama, prepare to launch a balloon carrying ham radio to the edge of space. See "VHF-Plus," page 83, for details.**

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73s,



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**ON THE COVER:** Members of the Auburn University Student Space Program launch high-altitude balloons with ham radio aboard and are building a satellite. Story on p. 83. (Cover photo by Steve Martinez)

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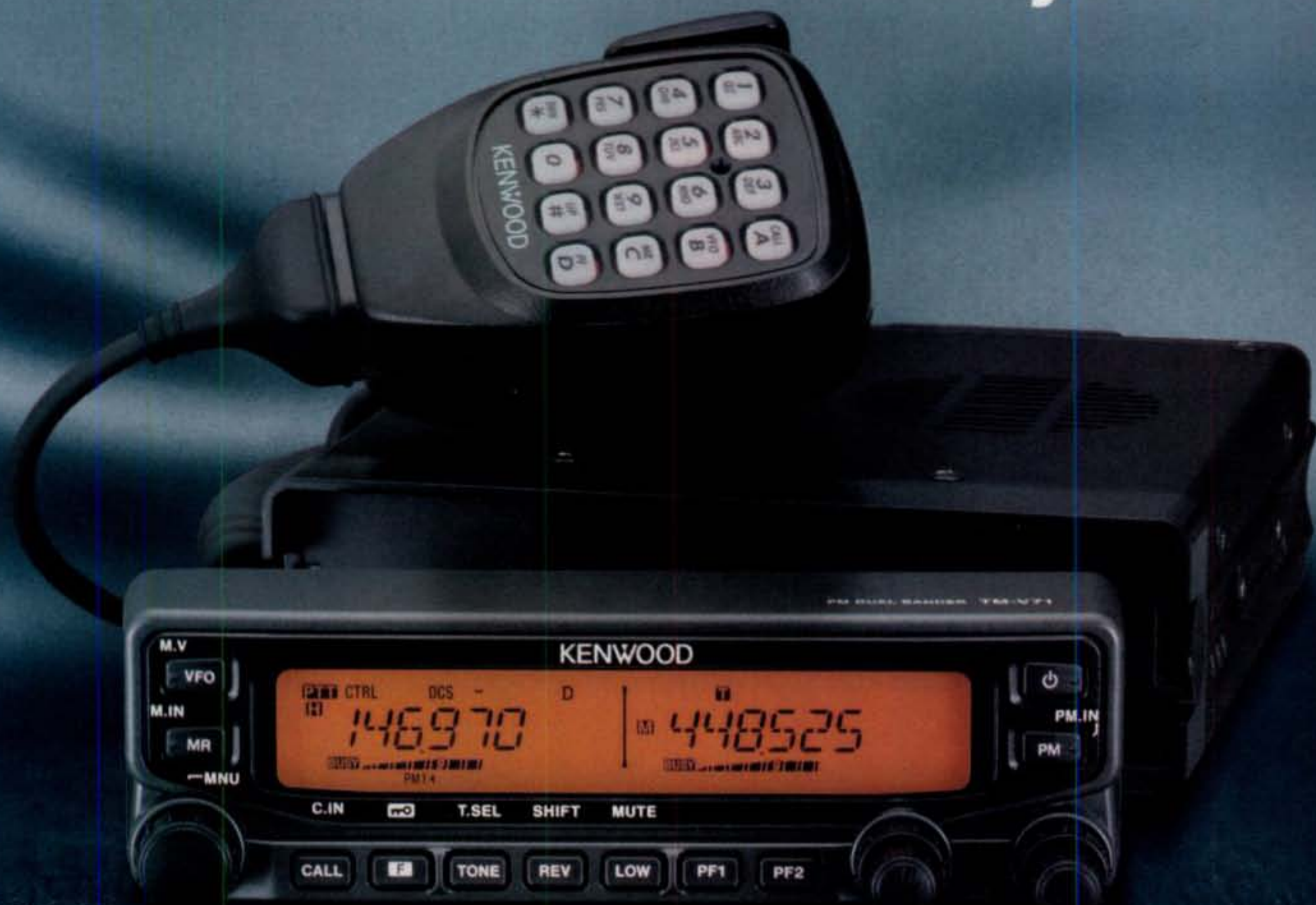
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## BPL Battle Continues on Several Fronts

There are developments in Congress, the federal courts, and at the FCC in the ARRL's ongoing battle against interference caused by Broadband over Power Lines, or BPL. On Capitol Hill, Sen. Mark Pryor (D-AR) has introduced S. 1629, the Senate version of a bill previously filed in the House by fellow Arkansas Rep. Mike Ross. The bill would require the FCC, within 90 days, to study specific factors relating to interference by BPL to licensed radio users, and to report back to Congress with options for "new or improved rules" to "prevent harmful interference to public safety and other radio communication systems." The bill is in committee in both houses.

At the U.S. Court of Appeals in Washington, the ARRL has filed a brief outlining its arguments for having the court review the FCC's decisions on BPL. Among the League's arguments is that, by permitting unlicensed users to operate in bands already occupied by licensed users even if they cause interference, the FCC is reversing "nearly seven decades of consistent statutory interpretation ... without so much as acknowledging the reversal, let alone justifying it." The FCC had until July 2 to respond to the ARRL's brief.

Meanwhile, the *ARRL Letter* reports that the League has again called on the FCC to shut down a BPL system in Briarcliff Manor, New York that it says has been out of compliance with the terms of its experimental license for more than two and a half years. On May 21, the FCC called on the system operator to demonstrate that it's complying with all the terms of its license, but the ARRL called the move "too little, too late." No response as yet from the FCC.

## New Chapter in Ham "Identity Theft" Case

If you're a regular reader, you'll recall a bizarre FCC enforcement case in which Frank C. Richards of New York allegedly tried to "steal" the ham license of Frank C. Richards, KB4VU, of Florida by filing to change the address for KB4VU from Florida to New York and change the callsign to the next systematically assigned call. Now, it seems, the New York Richards has taken and passed his Technician Class license exam, but the FCC is saying "not so fast." It has designated Richards' license application for hearing, saying the record raises questions as to "whether he possesses the requisite character qualifications to be a Commission licensee."

The same questions are raised regarding the application of Jack Sharples for a new amateur license. According to the FCC, Sharples, who applied for his license in 2005, is a twice convicted child-sex offender and has been designated by the state of Florida as a sexual predator. While noting that his convictions—in 1996 and 1999—were more than seven years ago, the FCC says "the nature of his criminal misconduct and the fact that the amateur radio service is particularly attractive to children call into serious question whether he should be permitted to obtain an amateur radio authorization." His application was also designated for a hearing.

One more application designated for hearing was the renewal application of David Castle, WA9KJI. Castle, the Commission says, has caused intentional interference, transmitted without communicating with any particular station and used "slanderous, harassing and indecent language on amateur frequencies." This continuing misconduct, says the FCC, raises questions as to his qualifications to remain a Commission licensee.

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

## Trying to Resolve the "Pave Paws" Dilemma

The ARRL is working with the FCC and the Department of Defense (DoD) to try to resolve interference problems between more than 100 amateur repeaters on the 70-centimeter (440 MHz) band and the Air Force's "Pave Paws" radar system. According to the *ARRL Letter*, the Pave Paws system is used, among other things, to detect water-launched missiles, and is in use around the clock. Government radiolocation has the primary allocation on 70 centimeters and hams are secondary, meaning we cannot cause interference to this system. After talking with DoD and the FCC, the ARRL sent a letter to the owners/trustees of all the repeaters near two Pave Paws installations, asking them to immediately reduce power to 5 watts transmitter power output. The letters also stated that the ARRL would provide the DoD with Longley-Rice calculations (a method of predicting signal loss over irregular terrain) for all affected repeaters by June 15. Those calculations would then be jointly reviewed by DoD, the ARRL, and the FCC to determine any additional measures that may be required for each individual repeater, with the goal of resolving all interference by August 1 while permitting all of the repeaters to remain in operation.

## State Legislative Action Affecting Hams

Governor Brad Henry of Oklahoma has signed a law enacting the FCC's "PRB-1" antenna rules for amateurs into state law. The new law defines amateur radio antenna support structures as "removable" structures for assessment purposes and states, "A municipal ordinance regulating amateur radio antenna or amateur radio antenna support structures shall comply with the requirements of 47 C.F.R., Section 97.15(b) ... by allowing for the erection of an amateur radio antenna or an amateur radio antenna support structure at a height and dimension sufficient to accommodate amateur radio service communications." The law takes effect November 1.

At press time, North Carolina's legislature was poised to give final approval to a similar bill, with the added provision that a city or county may not restrict amateur antenna installations to heights below 90 feet "unless the restriction is necessary to achieve a clearly defined health, safety, or aesthetic objective..."

In New Jersey, the legislature was "fast-tracking" a bill designed to restrict text-messaging while driving, but whose original language banning the use of all "electronic communications devices" threatened to outlaw mobile ham rigs. ARRL Northern New Jersey Section Manager Bill Hudzik, W2UDT, reports that hams were able to get the sponsor to add language specifying that "electronic communications devices do not include amateur radios." It remains unclear how CB radios and scanners would be affected.

## PVRC Forfeits Sweepstakes Victory

The Potomac Valley Radio Club (PVRC) has voluntarily forfeited the Club Gavel Award for the 2006 ARRL Sweepstakes contest after discovering that some participating members were spread out over too great an area. Club president Jim Nitzberg, WX3B, explained in a letter to members (posted on the PVRC website) that club competition rules clearly state that all participants must be within 175 miles of "a center," and that close examination of participants' locations showed that "there was measurable activity that occurred from areas that were clearly beyond any ... competition boundary." Subtracting the scores of those stations resulted in "losing the contest by a wide margin," Nitzberg reported. He emphasized that this was an internal decision, "consistent with our high ethical standards," and that the club had not been challenged or asked to forfeit. He concluded by congratulating the new gavel winners, "our worthy competitors and good friends at the Northern California Contest Club."

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11-Elements, 4.0 kW PEP.  
10, 12, 15, 17, 20 Meters

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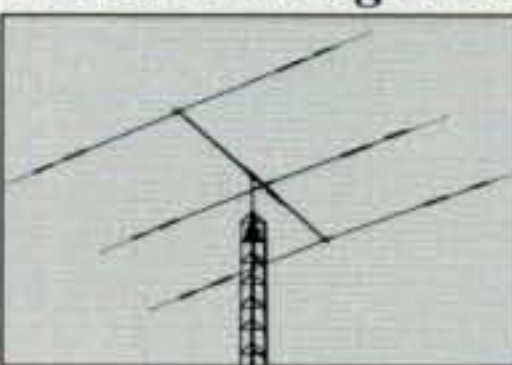
less than 2:1 VSWR. 1.5kW PEP. BetaMATCH™ provides DC ground to eliminate static. Includes BN-86 balun. Easily assembled.

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TH-11DX	11	For Gain and F/B ratio--See...		4000	10,12,15,17,20	12.5	100	24	37	22	88	1.9-2.5	T2X	\$1159.95
TH-7DX	7			1500	10, 15, 20	9.4	100	24	31	20	75	1.5-2.5	HAM-IV	\$869.95
TH-5MK2	5	• www.hy-gain.com • Hy-Gain catalog • Call toll-free 800-973-6572		1500	10, 15, 20	7.4	100	19	31.5	18.42	57	1.5-2.5	HAM-IV	\$759.95
TH-3MK4	3			1500	10, 15, 20	4.6	95	14	27.42	15.33	35	1.9-2.5	CD-45II	\$469.95
TH-3JRS	3			600	10, 15, 20	3.35	80	12	27.25	14.75	21	1.25-2.0	CD-45II	\$359.95
TH-2MK3	2			1500	10, 15, 20	3.25	80	6	27.3	14.25	20	1.9-2.5	CD-45II	\$369.95
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**FTM-10R**

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

Actual Size

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High-Capacity Super-thin tiny  
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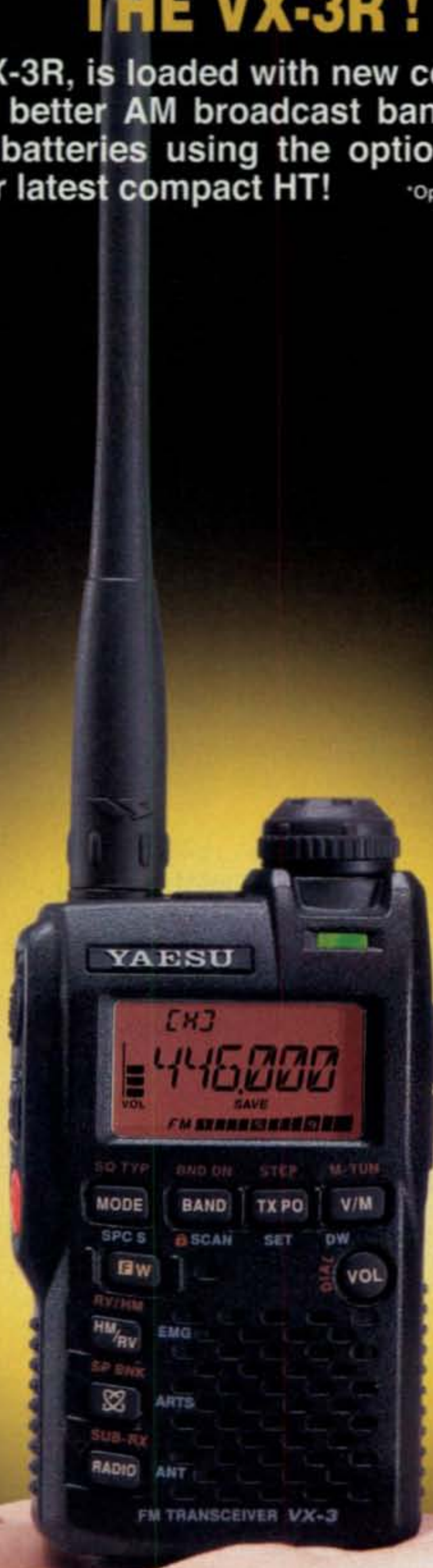
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BY RICH MOSESON,\* W2VU

# Something Old, Something New . . .

**S**omething Borrowed, Something Blue. No, I'm not getting married (my wife wouldn't like that idea), nor am I—yet—planning a wedding for either of my children. But a cartoon in an old issue of *CQ*, my yearly new product tour at Dayton, and a chance QSO on 40 meters kind of got me going on that theme.

On the air the other day for one of my all-too-rare CW QSOs, I talked with K9TTM, who was running a vintage Heathkit DX-60 transmitter and a Collins 75S3B receiver. I can't speak for the receiver, but the DX-60 sounded great—perhaps better than the DX-60s I remember using and hearing back in the '70s.

It's interesting that he was running both Heathkit and Collins gear, since they were the impetus for an interesting discussion I had at Ham-Com in Dallas in mid-June. A ham was looking through our book, *Heathkit — A Guide to the Amateur Radio Products*, and lamenting Heath's departure from the ham radio world.

"Well, those folks are doing a pretty good job as their spiritual successors," I said, pointing across the aisle to the Elecraft booth.

"Oh, but they're so expensive," the ham replied.

"Are they really?" I asked. "Let's find out." Having wireless internet access in the convention center, I fired up my laptop and went to the U.S. Bureau of Labor Statistics inflation calculator website (<<http://data.bls.gov/cgi-bin/cpicalc.pl>>). We started entering the listed prices of various Heathkits along with the years they were introduced and seeing what they would cost today. A retired Collins engineer joined the discussion and gave us the price of a KWM-1 when it was introduced. Into the inflation calculator it went, and guess what? Today's top-of-the-line \$10,000–\$15,000 transceivers are right in line with what a KWM-1 would cost in 2007 dollars. And the Elecraft kits started to look like real bargains.

I don't remember exactly which Heathkits we looked up, but one of my finds in the Ham-Com flea market was a stack of old *CQ*s, and I bought three of them for 50 cents apiece (double the cover price of the oldest one). Wow! There were some great values back in the "good old days" (or were there?). For example, in 1946, a brand new Hallicrafters S-38 receiver set you back only \$39.50! And a Globe Trotter transmitter from World Radio Labs was \$59.95 as a kit and \$75.00 factory-built. Prices were a little higher by 1951, when a Johnson Viking I transmitter cost \$209.50 and a Hallicrafters S-76 receiver sold for \$169.50.

But let's plug those prices into the inflation calculator. The S-38, in 2007 dollars, would cost you \$421. And that's just a receiver! Add the \$59.95 Globe Trotter (\$640 today for a kit, \$800 wired) and that not-too-fancy station would cost you between \$1000 and \$1200 today. Looking at the 1951 gear, the Viking I would now go for \$1675 and the S-76 would be \$1355—or about \$3000 for the pair in today's dollars. You can get some very nice gear today for \$3000, and something equivalent to the S-76/Viking combo would probably be under \$2000.

## Something New (and Something Blue)

There was no shortage of "new" stuff at this year's Dayton Hamvention®. In fact, there was so much new stuff introduced at Dayton that we had to split our annual "Hot Stuff at Hamvention®" roundup into two parts—radios and amplifiers this month (pg. 28), antennas and accessories next month. Among those new radios is an HF transceiver from Hilberling, a German company new to the U.S. ham market, for which the buyer has the choice of three cabinet colors—black, red, and, yes, blue! See "Hot Stuff..." for details.

## Something Borrowed

For more than a quarter century now, we've been borrowing some time every month from Karl Thurber, W8FX, who started out as our antennas columnist in 1980 and has been here every month since, most recently as editor of our "What's New" column. And while it makes us a bit blue, Karl has decided that



This cartoon from the October 1951 issue of *CQ* led me to the general theme for this month's editorial.



Karl Thurber, W8FX, seen here with his wife, Millie, is retiring as a *CQ* columnist after 27 years.

after 27 years, the time has come for him to pass along the pen to someone else. Karl's final column appears in this issue. We'll be introducing his successor next month. Karl, mere words (even in print) are not enough to thank you for your time, effort, and friendship over the years. Our columnists are *CQ*'s lifeblood, and having people of your caliber, month after month, year after year, is part of what makes it so much fun to be this magazine's editor. On behalf of all of our readers and editors, past and present, thank you, Karl, for a job well done.

## Closing Note

Our discussion earlier about how much things cost in the past vs. the present brings us to one closing note. The combination of the latest postal increase and higher fuel costs passed along in the prices of paper and ink (and just about everything else one buys today) is forcing us to raise our subscription price for the first time in nearly seven years. First-class postage has gone up 24% in that time period (second class, which we use, has gone up even more), and we all know the price of gasoline has gone up a whole lot more than that. As of next month's issue, a one-year subscription to *CQ* will cost \$36.95, or \$5 more than it does now. The bind-in card elsewhere in this issue will give you more details, along with a final opportunity to subscribe or renew at the current price.

73, W2VU

\*e-mail: <[w2vu@cq-amateur-radio.com](mailto:w2vu@cq-amateur-radio.com)>

— More Fine Products from TOKYO HY-POWER —

## HL-1.2KFX

### HF 750W Linear Amplifier



QSK compatible!

#### Features

- Our solid-state broadband design engineers worked to make the HL-1.2 KFX, the lightest and most compact self-contained 750W out amplifier in the industry. This world-class compact 750W HF amplifier is the easiest to handle and operate, and is perfect for DXpedition also.
- The broadband characteristics require no further tuning once the operating band is manually selected.
- Full break-in CW mode compatible, using high speed antenna relays.
- The fan's quiet operation allows for even the weakest DX signals to be heard.

#### Specifications

**Freq.:** 1.8-28 MHz all HF amateur bands including WARC bands, complies with new FCC rules

**Mode:** SSB, CW, RTTY

**RF Drive:** 75-90 W

**Cooling Method:** Forced Air Cooling

**Output Power:** SSB 750W PEP max.  
CW 650W RTTY 400W

**AC Power:** 1.4kVA max. AC  
110/115/120/220/230/240 V

**Dimension & Weight:**  
9.1 x 5.6 x 14.3 inches (WxHxD), Approx. 33 lbs.



## HL-350VDX

### VHF 330W Amplifier

#### Features

- 144 MHz band 330W amp for RF drive of 10W, 25W, and 50W. Multimeter for power out, auto-SWR, DC line voltage etc. GaAs Low noise RX pre-amp included.

#### Specifications

**Freq. Band:** 144-148 MHz amateur band.

**Mode:** FM/SSB

**DC Power:** 13.8V 48A max. (negative ground.)

**RF Out:** 330W max.

**RF Drive:** 10W/25W/50W (Manual select)

**In/Out Connectors:** Type N

#### Others:

Low noise RX pre-amp., Meter for RF out, auto SWR etc.

Protection for DC reverse polarity, high SWR etc.

Terminal for remote controller (HRC-60)

**Dimension & Weight:** 9.6 x 3.9 x 14 inch (WxHxD), approx. 12.5lbs.



## HC-1.5KAT

### HF 1.5kW Auto Antenna Tuner

#### Features

- A high power HF auto antenna tuner designed to work with Tokyo Hy-Power HL-1.5KFX and HL-2.5KFX linear amplifiers.
- When interconnected with these THP amplifiers, the band change is automatically made through the band data signal from the radio and the amplifier. It also works with other amplifiers as well, if band setting only is made manually.

#### Specifications

**Freq. Range:** 1.8-29.7 MHz

**Output Impedance Range:** 12.5-200 Ω: Reduced range at lower band edges

**Maximum Handling Power:**  
1.5kW (P.E.P./CW): RTTY 1kW

**Input Impedance:** 50Ω

**Tuning Power:** 50W (80W max.)

**Tuning Time:** 1 sec. (typ.)

2.5-4 sec. (max.) under worst SWR condition

**DC Power Voltage:** DC 12V-14V: from External AC adaptor (1.5A)

**Display:** LCD Module : 16 characters x 2 rows

**Driving Motors:** Stepping Motors for Two Air Variable: 0.25 deg. resolution/step

**Matching Algorithm:** Analog Control with MPU: Phase and |Z| Magnitude Detected

**Dimension & Weight:** Approx. 8 x 5.6 x 12 inches (WxHxD), 11lbs.

**Output Connectors:** Three SO-239's

World Class Tuning Speed!



## HC-200AT

### HF/50MHz 200W Auto Antenna Tuner

#### Features

- HC-200AT works with variety of antennas, tuning with lightning speed.
- Large analog meter automatically displays SWR status as well as forward power.

#### Specifications

**Freq. Range:** 1.8-54 MHz

**Impedance Range:** 5-500 Ω (3.5-54 MHz) / 15-500 Ω (1.8MHz)

**Handling Power:** 200W max. PEP/CW

**Input Impedance:** 50Ω (SO-239)

**Output Connectors:** Two SO-239's and one wire antenna terminal

**Tuning Time:** 1.5 sec (typ.), 4 sec max, 0.2 sec for memory tuning mode

**DC Power:** 12-14 V 0.8A max. 0.1A after tuning is finished.

**Dimension & Weight:** 7.7 x 2.4 x 9.5 inches (WxHxD), approx. 2.3lbs.

**Optional Parts:** Radio Interface Cable (ICOM)

HTC-100AT/ICOM5(17ft.)

HTC-100AT/ICOM10(33ft.)

HBL-100: 1:4 Balun (Unbal. to Balance, current type)

The following Special Event stations are scheduled for August:

**N1P**, commemorating the 400th anniversary of the Popham Colony, from near the original colony site, Phippsburg, Maine; Merrymeeting ARA; 1601Z August 17 to 2359Z August 19 on SSB 7.262 and 3.985 MHz, CW 7.032 and 3.532 MHz, other bands/modes possible. For certificate send QSL and SASE to Joseph B. Randall, W1ZE, 1 Smithfield Crossing, Phippsburg, ME 04562 ([www.ks1r.net](http://www.ks1r.net)).

**NA2DX**, from International Lighthouse/Lightship Weekend, Sea Girt Lighthouse, New Jersey; North American DX Assn. and Neptune ARC; 1300Z August 18 to 2100Z August 19 on 7.260 and 14.260 MHz. For QSL send QSL and #10 SASE to NADXA, P.O. Box 359, Bradley Beach, NJ 07720.

**N4J**, from Farm Day at Thomas Jefferson's Poplar Forest, Forest, Virginia; Lynchburg ARC; 1400-2200Z August 18 on 7.260, 14.260, 14.070 PSK, 21.360, 28.460 MHz. Send QSL and SASE to Dick Hiner, W4HMK, 9485 Battler Ct., Columbia, MD 21045.

**N7C**, from The Navajo Code Talkers, Widow Rock, Arizona; 1400-0000Z daily, August 11-14, on 14.265 and 7.265 MHz ±. QSL to Herb Goodluck, N7HG, P.O. Box 3611, Widow Rock, AZ 86515.

**W8AL**, from Pro-football Hall of Fame Festival, Canton, Ohio; Canton ARC; 1300Z August 3 to 2359 August 6 on 7.265, 14.265, 21.365, 28.365 MHz. For certificate send QSL 9x12 SASE with 80 cents postage to Donald E. Perry, WQ8J, 968 Culverne Ave. NW, Massillon, OH 44647 ([www.w8al.org](http://www.w8al.org)).

**W8VY**, commemoration of the founding of the Kalamazoo ARC in 1932, Kalamazoo, Michigan; 1700Z August 18 to 0500Z August 19 on SSB 7.275 and 14.250 MHz, CW 3.575 and 10.110 MHz, PSK31 21.070.15 MHz. QSL via John Mathieson, KC8ZTJ, 1926 Lauralwood, Portage, MI 49002 ([www.w8vy.net/75](http://www.w8vy.net/75)).

**N0C**, from dedication of the Center of the National Monument, Belle Fourche, South Dakota; 1400-2300Z August 20-22 on 14.240/.040, 7.240/.040, 3.855/.555 MHz, and PSK. For certificate send QSL and SASE to Craig Nickisch, W0WN, 316 Yellowstone Place, Spearfish, SD 57783.

**W0ZSW & W0EQO**, from celebration of 40 years of Handihams, Minnesota; 9 AM August 25 to 9 PM August 27, central time, on SSB 14.340 and 7.240 MHz ±, CW 14.140 and 7.040 MHz ±. For certificate send QSL and SASE to Handihams, c/o Avery Finn, 3915 Golden Valley Rd., Golden Valley, MN 55422.

The following hamfests, etc., are slated for August:

Aug. 3-5, **WIMU 2007 Four-State Convention**, Virginian Lodge, Jackson, Wyoming. For more information, contact Eugene or Carol McWherter, <n7ovt@arrl.net> or <kc7llw@arrl.net>, or go to <[home.comcast.net/~wimuhamfest/](http://home.comcast.net/~wimuhamfest/)>. (Exams)

Aug. 4, **U.P. Hamfest**, Joseph Heiman Center, Bay de Noc Community College, Escanaba, Michigan. Contact Richard Thompson, N8OYR, e-mail: <n8oyr@dcars.org>; <[www.dcars.org](http://www.dcars.org)>. (Talk-in 147.24+, 107.2 Hz)

Aug. 5, **Bolingbrook ARS Hamfest & ARRL Illinois State Convention**, Bolingbrook High School, Bolingbrook, Illinois. Contact Tom Ballard, N9LJY, 630-739-3740 (before 9 PM Central); <[www.k9bar.org](http://www.k9bar.org)>. (Talk-in 147.33+, 224.54-)

Aug. 17-19, **Duke City Hamfest & ARRL Rocky Mountain Division Convention**, University of New Mexico Continuing Education Center, Albuquerque, New Mexico. Contact Mike Pendley, K5ATM, 505-238-6060, e-mail: <k5atm@arrl.net>; <<http://www.dukecityhamfest.org>>. (Talk-in 145.330-, 100 Hz PL; exams)

Aug. 18-19, **Huntsville Hamfest & ARRL National Convention**, Von Braun Center, Huntsville, Alabama. Contact Don Tunstill, W4NO, e-mail: <donstill@hamfest.org>; <[www.hamfest.org](http://www.hamfest.org)>. (Exams) See us at the CQ Booth.

Aug. 19, **Adams, MA Hamfest**, Adams Agricultural Fairgrounds, Bowe Field, Adams, Massachusetts. Contact Al Vigiard, K1SAV, e-mail: <k1sav@nobar.org>, 413-743-1619, <[www.nobar.org/hamfest.htm](http://www.nobar.org/hamfest.htm)>. (Talk-in 146.91, PL 162.2; exams)

Aug. 19, **Lapeer County ARA Hamfest & Computer Swap**, Lapeer Center Building, Lapeer, Michigan. Contact Bill Miller, KD8VP, e-mail: <kd8vp@arrl.net>, 810-797-5329, <[www.w8lap.com](http://www.w8lap.com)>. (Talk-in 146.620- 100 Hz tone)

Aug. 26, **East Central Illinois Hamfest**, Vermilion County fairgrounds, Oakwood, Illinois. Contact Josh Kittle, N9WEW, e-mail: <n9wew@arrl.net>, 217-442-0578, <<http://www.vcara.org>>. (Talk-in 146.820, PL 88.5)

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## our readers say

### "Secret Society" Response

We heard from many readers in response to June's editorial about secrecy at the ARRL. Many letters were quite long and, in some cases, we could only print excerpts. Here is a sampling:

Editor, CQ:

Thanks for enlightening folks about the ARRL. I got into ham radio in 1938 and I have a long memory of those guys saying that we "owe" our radio privileges to "them." A 180-degree flip is nothing; they have done some 360s and 720s and ...

Another gang with the same mentality is the Red Cross. Of course there is some good accomplished, but my experiences with those folks, like with the ARRL, "you don't get much bang for your buck."

Bob "Plum" Plumskey, W6LAC

Editor, CQ:

As larger non-profit organizations go, I'd give the ARRL an "A" for openness—and for vetting directors for real and potential conflicts of interest. Yet, with a broad brush you smeared the League and its board for not keeping you in the loop on a couple of politically sensitive negotiations? I've come to expect that sort of mindless League bashing from a few anonymous bloggers, but not from CQ. And you call that Zero Bias?

Walt Stinson, W0CP  
(Walt is a former ARRL Director)

Editor, CQ:

I have read your article and found it to be a really great read. This is the reason that I stopped my subscription to QST years back. The ARRL does not represent radio amateurs, but their own around the Secret Offices at headquarters. I wish that all hams would read your writings. Thanks.

George Crenshaw, K6VX

Editor, CQ:

Congratulations on your June editorial! I've been an ARRL member continuously since 1952 and a staffer during the John Huntoon and Dick Baldwin management era under ARRL presidents Bob Denniston and Harry Dannels ... Your editorial was spot on and overdue.

Bill Smith, W0WOI  
Former ARRL HQ staffer  
and "World Above" QST Editor

Editor, CQ:

Having been on the Board of AMSAT for a number of years, I had always thought the League Board operated in generally the same fashion. For example, the AMSAT Board meetings are not only open to the general membership, they are, or were while I served, open to the general public, too! The only exceptions were when private matters such as staff pay or delicate negotiations required some discretion in regards to information...

Not so with the League! I am currently an Assistant Director ... comparable to being a

member of a senator's staff. Now my director is an outstanding and dedicated individual to the cause and I have no doubts about his work ethics. Nonetheless, my recent request to attend the Board meeting at my own expense simply to observe ... was met with complete silence.

John Champa, K8OCL  
Former ARRL HSMM  
Working Group Chair

Editor, CQ:

A brief note to say "bravo" for your June CQ magazine and online editorials. Living in Washington, DC and working in the telecommunications regulatory arena, I am continu-

ously amazed by the League's miscues, inaction, or general ignorance. While their staff here is talented and well-respected, the organization as a whole seems to have little sense of politics, how government runs, and how to get what you want on your terms. I've been to too many ARRL gatherings here to believe that this will change anytime soon.

Eric Rosenberg, W3DQ

Editor, CQ:

This month's article on the "Secret Society" took some courage to publish, but it needed to be said and it was fully correct.

Hal Kennedy, N4GG

## New from West Mountain Radio

### RIGblaster plug & play

The fastest and easiest to hookup RIGblaster ever, with the minimum time to the first QSO! Built in USB interface provides rig control, CW keying plus Echolink operation. Unlike other RIGblasters the plug & play works only with a radio's data or aux jacks, not a mic jack and may be ordered for your particular radio. The plug & play is the only USB sound card interface that has fully isolated audio and keying circuits for a clean, hum free signal.

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### CBA Amplifier 10X

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A CBA can test any battery at up to a 100 watt continuous discharge rate but with the new CBA Amplifier accessory connected to a CBA you can test at 500 watts continuously!

Intended for lab or commercial use in emergency communications, aerospace and medical applications the CBA amplifier is the solution.



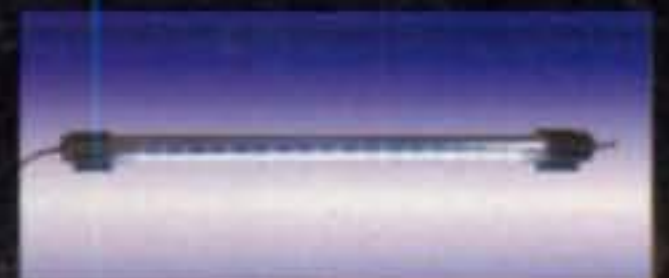
### RIGrunner 8012

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- Auto repeater • 107 alphanumeric memories



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- 160-10M\* @ 100W • 12V Operation • Simple to Use
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### ID-800H

Digital Dual Band Mobile

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- Analog/Digital Voice & Data • Callsign Squelch • CTCSS & DTCS Encode/Decode w/tone scan



### IC-7800 All Mode Transceiver

- 160-6M @ 200W • Four 32 bit IF-DSPs+ 24 bit AD/DA converters • Two completely independent receivers • +40dBm 3rd order intercept point



### IC-756PROIII All Mode Transceiver

- 160-6M • 100W • Adjustable SSB TX bandwidth • Digital voice recorder • Auto antenna tuner • RX: 30 kHz to 60 MHz • Quiet, triple-conversion receiver • 32 bit IF-DSP • Low IMD roofing filter • 8 Channel RTTY TX memory • Digital twin passband tuning • Auto or manual-adjust notch with 70 dB attenuation



### IC-2720H Dual Band Mobile

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### IC-746PRO All Mode 160M-2M

- 160-2M\* @ 100W • 32 bit IF-DSP+ 24 bit AD/DA converter • Selectable IF filter shapes for SSB & CW • Enhanced Rx performance



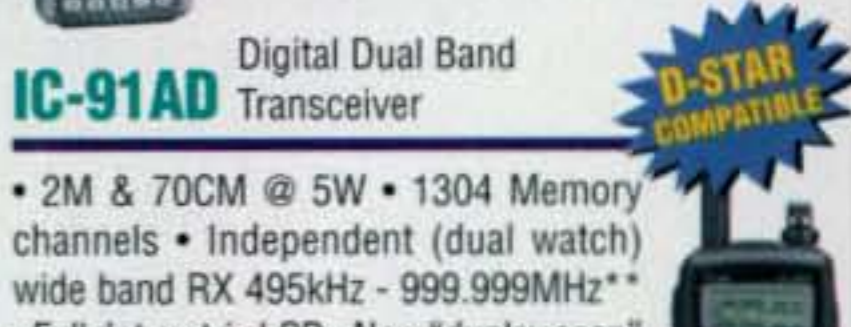
### IC-2820H Dual Band FM Transceiver

- D-STAR & GPS upgradeable 2M/70CM • 50/15/5W RF Output Levels • RX: 118-173.995, 375-549.995, 810-999.99 MHz\*\* • Analog/Digital Voice with GPS (optional UT-123) • 500 Alphanumeric Memories



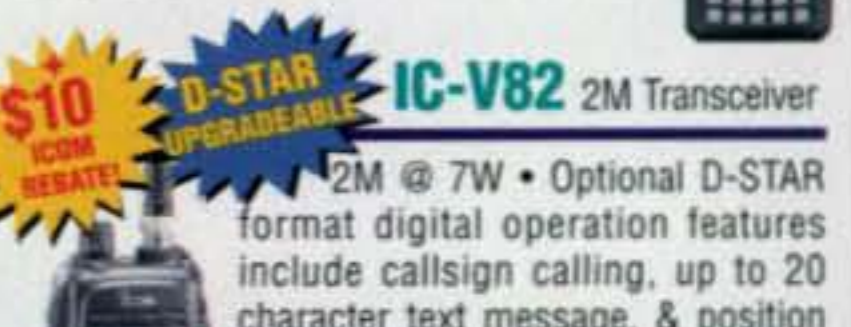
### IC-T90A Triple Band Transceiver

- 6M/2M/70CM @ 5W • Wide band RX 495kHz - 999.999MHz\*\* • 500 alphanumeric memories • Dynamic Memory Scan (DMS) • Backlit keypad & display • CTCSS/DTCS encode/decode w/tone scan • Weather Alert



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- 2M @ 7W • Optional D-STAR format digital operation features include callsign calling, up to 20 character text message, & position exchange\*\* • CTCSS/DTCS encode/decode w/tone scan • Also available in a sport version and a 70CM version (IC-U82)

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*QSL managers perform an invaluable service for the DXing community, but all too often are taken for granted. K3IXD discovered what the job entails and shares his experiences and suggestions after handling the cards for two recent DXpeditions.*

## A First-Time DX QSL Manager

BY ED STEEBLE, K3IXD

*Photo A— Bird Rock Lighthouse (BAH-005), one of two lighthouses activated by the group on two visits to the Bahamas. A station needs only to be within sight of a lighthouse to “activate” it. (All photos courtesy of the author)*

I have just finished answering all the direct QSL requests for the C6APR and W2GJ/C6A QSL cards. Most of those seeking a card have filled out the cards correctly, but there were a few areas for improvement. I have chased DX QSLs for over 30 years, and I just learned a few new things by being a QSL manager. I also had some observations as I processed the incoming cards and answered the e-mail queries.

For the 2006 IOTA (Islands On The Air) contest, Pete Radding, W2GJ, and “Randy” Hargenrader, K4QO, using the call C6APR, activated Crooked Island, Bahamas, IOTA NA-113. For lighthouse enthusiasts, the QSOs were also good for Bird Rock Lighthouse, BAH-005 (photo A). Just after the contest, there was a great 6-meter opening and more than 300 stations worked grid FL22. There were also excellent grey-line conditions on 40 meters CW. They also handed out C6 on the “WARC bands”—30, 17, and 12 meters. This was the first DXpedition for W2GJ and K4QO together, and my first time as a QSL manager for a DX station.

For the 2006 CQ World-Wide DX SSB Contest Pete, Randy, and I went to the same location, the Crooked Island Lodge, Pittstown Point, Crooked Island, Bahamas <<http://www.pittstownpoint.com/>> (photo B). On this trip, using the call W2GJ/C6A, W2GJ and K4QO also activated Castle

Island Lighthouse, BAH-001 (photo C) for the first time ever. After the contest we made a limited number of RTTY QSOs (because of rig problems) and did CW grey-line DXing as well as working the WARC bands. We also monitored 6 meters during the entire time, but the opening of the prior trip never materialized.

### Back Home—The Real Work Begins

For many of the stations who contacted us, this was a new country, a new band-country, a new mode, and/or a new grid. The QSL cards poured in. As I processed the incoming cards (photo D), I made these observations:

\*Roughly 99% of direct QSLs came with an SASE (self-addressed, stamped envelope) or an SAE (self-addressed envelope) with either an IRC (International Reply Coupon) or US\$1 enclosed. That was highly considerate and appreciated. Some envelopes even arrived with an extra dollar or an extra IRC. Thanks for the unsolicited donations above and beyond the return postage. A two-sided, photo DXpedition QSL card is expensive!

Virtually all of the cards (photo E) were properly filled out. Everyone was clear about the mode, band/frequency, date (i.e., spelling out the month, using a Roman numeral for the month, and/or having the date block contain DD MM YYYY). Probably the print format by the QSL suppliers has solved this

\*202 Huntington Rd, Summerville, SC 29483  
e-mail: <[k3ixd@arrl.net](mailto:k3ixd@arrl.net)>



Photo B— The group's operating location at Crooked Island Lodge on Crooked Island in the Bahamas. That's an R5 multiband vertical antenna in the foreground.

area of confusion. I don't remember that anyone used their local time instead of GMT (Zulu). However, one ham did forget to write in the QSO time altogether.

There was one DXer who became impatient when I didn't respond with a month. He sent a follow up SASE with a card made out to him; all I had to do was sign the card and put it in the envelope and mail it back to him. I understand the county hunters often do this, although this card was for a 6-meter QSO. For the 1% who didn't send an SASE, per our policy as stated on <www.qrz.com>, your card was sent via the QSL bureau system.

Other reasons, beyond cost, for sending an SASE were that it is very time consuming to address outgoing envelopes and there was not enough space on our two-sided QSL cards for both the report and the address.

I haven't used self-sealing envelopes in the past, but I came to really appreciate them. Sealing hundreds of envelopes becomes tiring. The self-sticking ones were welcomed and I am going to get some for my direct QSLing.

Today computers are used for logging, tracking awards, and printing labels. If you used a portable or mobile designator when working us, please use that call on your QSL card. With computers, "W1XXX" isn't the same as "W1XXX/2." It takes extra time to look for possible matches. Remember that no QSL manager wants to return your card with "Sorry, not in the log." You don't need to get a separate set of cards for portable and/or mobile work. It is permissible to add a "/2" or "/mobile," etc., in ink to your callsign.

For the couple of hams who sent 6-meter QSL cards without their grid on the card, remember that DXpeditions and DX stations are also interested in VUCC. If you forgot to have it printed on your card, or you are new to 6-meter grid chasing, it is OK for you to write it in, using ink. (We encourage everyone to include their grid on their QSL cards as an aid to those stations pursuing not only the VUCC award on VHF, but also the CQ DX Field Award on HF and VHF.—ed.)

Envelopes get separated from the incoming QSL cards. Sometimes it is by accident. The system I used was to queue the return envelopes in one box, while the cards were queued in a separate box. Therefore, please put your call on the return envelope. If you didn't, I did, since I don't know that "John Doe" is W1XXX. (In some countries, having a callsign on an envelope is an invitation to have the envelope stolen by those looking for a dollar bill or an IRC presumed to be inside or for unwanted government scrutiny. If a station outside the U.S. or Canada has not included a callsign on a return envelope, it is probably for a good reason, and the QSL manager should find a different notation method for these cards, such as a sticky note with the call that can be removed from the envelope before mailing.—ed.)

For a first-time DXpedition group, we wanted a very nice photo card. The delays in getting the card for the first trip were numerous! After trying three local printers, none of which could get the colors right, we went with a commercial QSL card printer. My thanks to all for

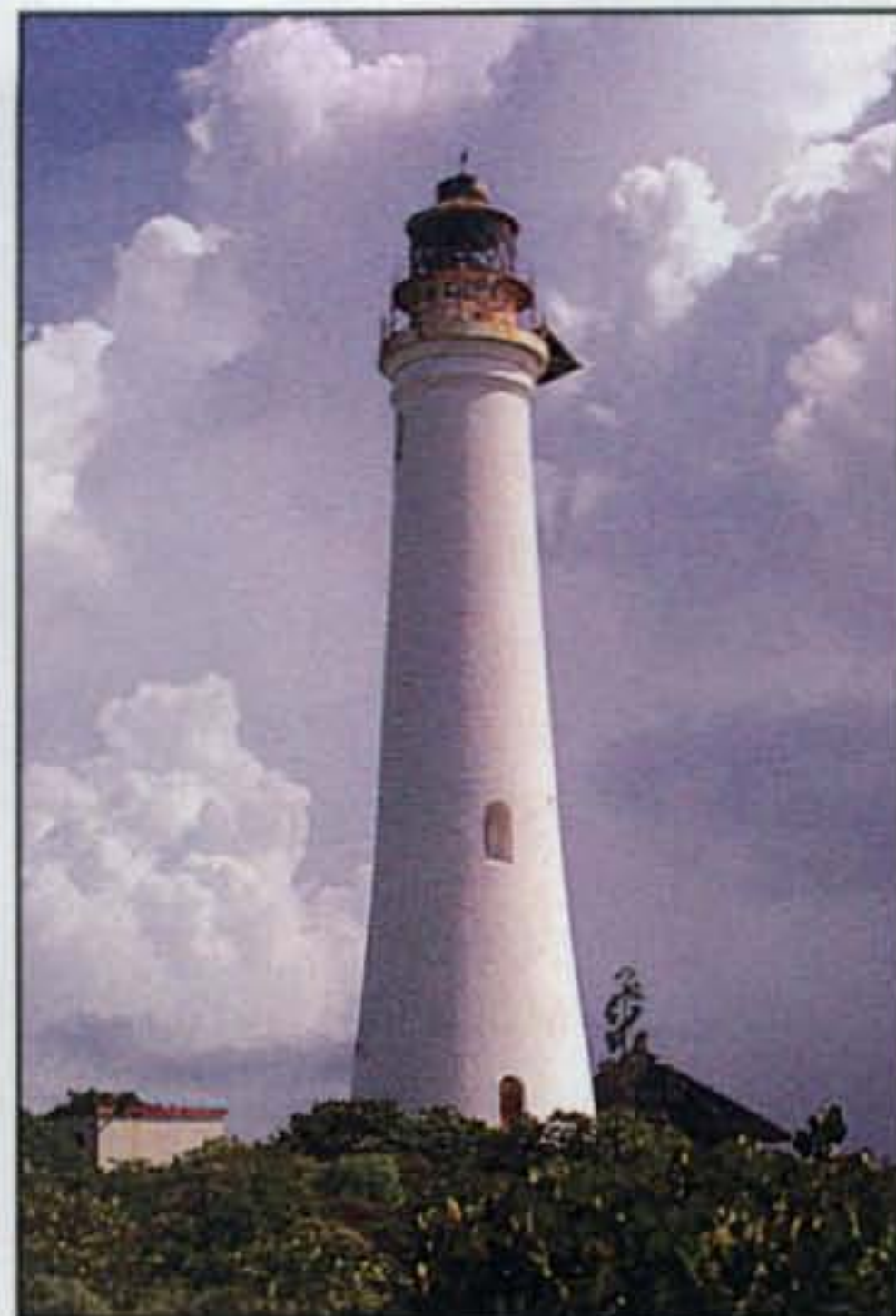


Photo C— The Castle Island Lighthouse (BAH-001) activated during the second trip. This time the group actually operated from the lighthouse grounds.

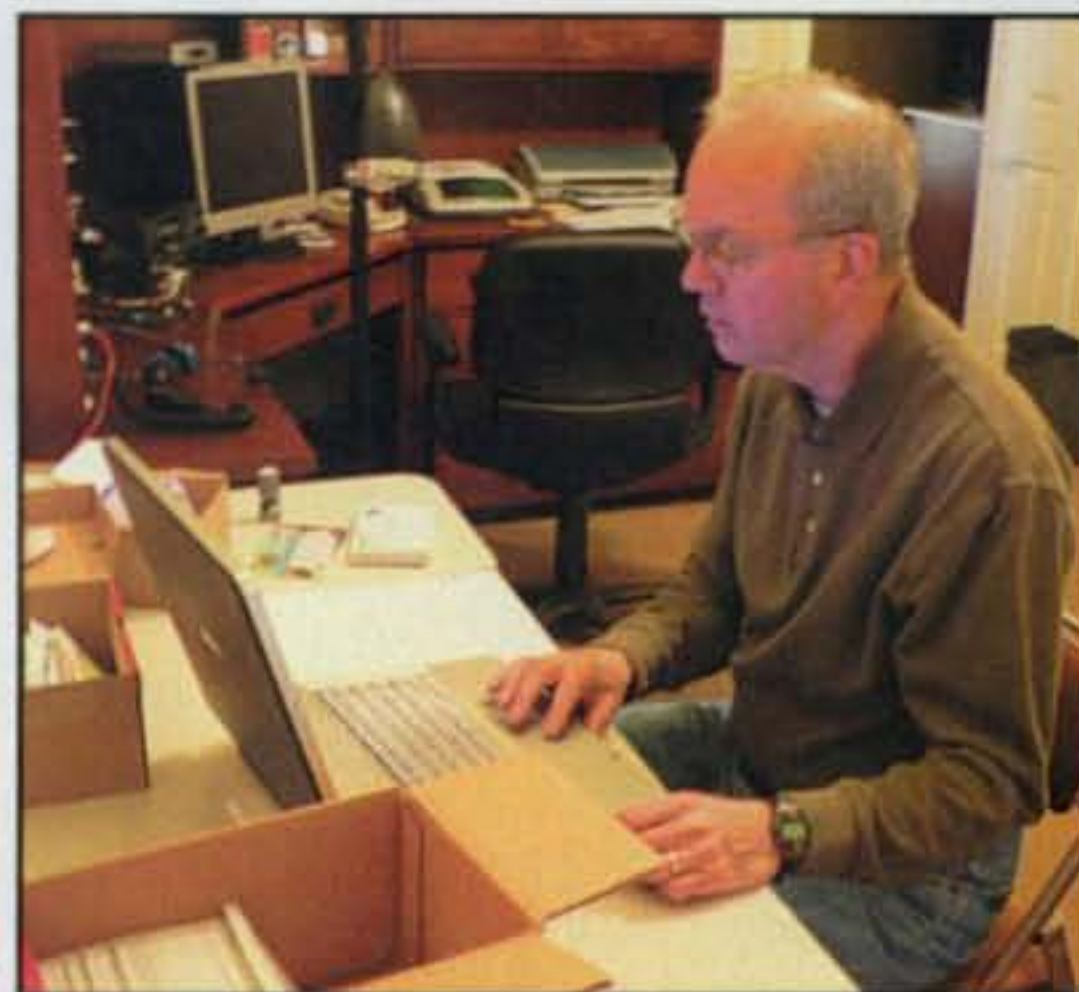


Photo D— The author, back home again, scans the log as he works on responding to QSL cards.

patiently waiting for the IOTA contest C6APR card, especially to the newer hams working C6 for the first time and on the quest to obtain DXCC or 6-meter VUCC. We were smarter regarding the second trip's QSLs and they were sent out in much less time.

I can empathize with those who sent an e-mail asking about the status of their QSL—i.e., "Was it received?" or "Had I mailed them one?" I had nice e-mail exchanges with them. I do remember what it was like to be working towards DXCC and VUCC. In fact, I am working on my own RTTY DXCC now. The days drag by, waiting for return cards. Thanks for waiting.



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\*Shipping is additional. TN residents add 9.5% sales tax



*Photo E— Shoeboxes of QSLs, The box on the left contains completed cards heading out to QSL bureaus, the center box contains incoming cards waiting to be processed, and the right-hand box contains blank C6APR QSL cards.*

I do have to admit that I, as the QSL manager, made mistakes, too. One was that somehow only two of the three cards for one station were sent, yet the software showed three labels were printed for him. He sent a nice inquiring e-mail about the missing card. I replied and sent him the missing QSL the next day.

While I could easily keep track of the incoming QSLs, since I am only handling one DX station's QSLs, one very considerate ham deserves special mention. He is John, K4OP. He sent three separate envelopes, each with a single QSL card, an SASE, and a dollar bill. Some QSL managers handle many active DX stations and require only one card per envelope. I didn't, so I put the extras into one of his SASEs

along with his three QSLs. He also enclosed a short, typed note thanking QSL managers and explaining he was helping offset expenses.

For some of those whose card was returned with "Sorry, not in the log," I had several polite e-mail exchanges. We hope to work them on a future trip to C6.

Regarding bureau cards, hopefully no one sent a bureau card to the C6 bureau, since we don't have any envelopes on file there. To aid QSLers, we did put the QSL instructions on QRZ.com <<http://www.qrz.com/>>, the IK3QAR QSL manager page <<http://www.ik3qar.it/>>, The GO List <[http://www.golist.net/fr\\_index.htm](http://www.golist.net/fr_index.htm)>, etc. Our DXpedition announcements were in many DX bulletins. Many cluster spots listed the QSL route, as



*Photo F— Some of the nicest and most interesting QSLs received were taken by the group to be passed around at their local ham group's weekly Saturday morning breakfast. After all, what good is having really cool QSLs if you can't show them off?*

well. If you are going to QSL, use those references. It will help ensure that you get a card in return.

Nearly six months after the first DXpedition, 30 cards arrived via the bureau. I had gotten a bureau mailing earlier, so the cards were not in queue very long waiting for my envelope to fill up. Hopefully everyone is following our guidance on <<http://www.qrz.com/w2gj>> and <<http://www.qrz.com/k3ixd>> and did not send any cards to W2GJ via the bureau. He hasn't gotten any bureau cards in years.

Nearly seven months after the first DXpedition and four months after the second DXpedition, I received an envelope of cards from the WF5E QSL Service <<http://www.qsl.net/wf5e/>>. It contained 15 cards, one of which was from an SWL. While a very few managers won't accept QSLs from the WF5E's QSL Service, I have used him and his predecessors for many years. This a great service for DX QSLing started by W3KT, then taken over by N7RO, and now continued by Les Bannon, WF5E. I have found this QSL service to be reliable and effective. The downside is that it is slower than QSLing direct, but it is inexpensive and it's faster than sending cards via the bureau.

It has been enjoyable processing those 99% of QSLers who make the manager's job easier. Hopefully the others will change their procedures when QSLing other DX stations. All three of us enjoyed looking at the cards received, reading the notes on them, and especially looking at the customized cards. The really impressive ones were taken to the local, weekly Saturday morning breakfast and passed around (photo F).

Becoming a QSL manager has let me see QSLing practices from the other side and has given me some new insights into the process. I hope that I have passed on some QSLing tips that will be useful for you next time you work a DX station or DXpedition. The three of us—Pete, W2GJ, Randy, K4QO, and I—hope to go on more DXpeditions. When we do, I plan to continue to be the team's QSL manager. As a holder of WPX with numerous endorsements, WAZ, 5BWAS, 5BDXCC, 6M VUCC, and the Challenge award, I believe that serving as a QSL manager is one way of returning a little something to the hobby.

Thanks to Pete, W2GJ, for asking me to participate in his idea for a DXpedition, and for his handling of the logistics for both DXpeditions. Also thanks to both W2GJ and K4QO for reviewing this article and providing valuable comments. ■

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### HAM IV and HAM V Rotator Specifications

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Turning Power	800 in.-lbs.
Brake Power	5000 in.-lbs.
Brake Construction	Electric Wedge
Bearing Assembly	dual race/96 ball bearings
Mounting Hardware	Clamp plate/steel U-bolts
Control Cable Conductors	8
Shipping Weight	26 lbs.
Effective Moment (in tower)	2800 ft.-lbs.

### TAILTWISTER Rotator Specifications

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

### CD-45II Rotator Specifications

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

## HAM-V

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### AR-40 Rotator Specifications

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

## AR-40

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

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### HDR-300A Rotator Specifications

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

### AR-35 Rotator/Controller



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# Results of the 2006 CQ WW DX SSB Contest

BY BOB COX,\* K3EST

## Expanded CQ WW Contest Results on the Web

A few additional elements of our contest reporting are on the CQ website, including **Station Operators** of Multi-Op stations and expanded **QRM**.

To view these additional and expanded elements of the 2006 CQ WW SSB results, go to <http://www.cq-amateur-radio.com/cqwwhome.html>, then click on "Expanded Results, 2006 CQ WW SSB" and select the category you want to see. You may also get there by going to our home page at <http://www.cq-amateur-radio.com>, clicking on "Contest Rules & Info," then clicking on "CQ World Wide DX Contest" and selecting "Expanded Results, 2006 CQ WW SSB."

**T**he 2006 CQ WW DX SSB Contest once again made its own propagation. All over the world as the starting hour approached final preparations were being made to take part in contesting's big event—the CQ WW. The time before the contest is utilized differently depending on where you are located. In Japan a contester is just getting up after a night's sleep. In California, a contester is perhaps taking off work a few hours early in order to start at 4 PM. In A6-land, the entrant is waking up at 2 AM to get ready for the 4 AM start. In Europe, where the contest starts between midnight and 2 AM, a participant may have had to stay awake from Friday morning until 2 AM. No matter what the local time is where you live, everyone started the 2006 CQ WW fun at the same world time. The sun was predicted to not cooperate and the sunspot cycle was rapidly approaching bottom. That did not stop over 25,000 operators from going all out to enjoy the weekend.

As you have probably noticed, when you tune across the bands on most days you hear activity here and there and a lot of empty space. The CQ WW changes all that. You may have to tune for several minutes in order to find a place to call CQ. This worldwide event brings out many, many contesters trying their hand at working stations. An hour before zero UTC on Saturday, you can feel the ever-increasing crescendo of activity as contesters try out the conditions and their stations. At 0000 UTC the bands explode with activity.

The CQ WW is a fantastic competition, which brings out the best in amateur radio: team work, station construction, antenna erection, and operating skills. The CQ WW is a celebration of ham radio skill and effort. Each year a new group of hams discovers the CQ WW, and they begin to develop friendships that will last a lifetime. Both new hams and old who try the CQ WW often become addicted. Below are the results of the 2006 CQ WW SSB. Everyone who enters the contest ends up taking away memories and vivid experiences.

## High Power All Band

John, W2GD, pushed P40W to the top of the pile. Winning the toughest category by 1.5 million points is not easy. In addition, he also had the most single operator QSOs in the contest. John travels to Aruba so often to operate it might as well be his second home, and he comments, "For an absentee station owner like myself the problems are further compounded when it is only possible to visit the station a few times each year. Every trip becomes an adventure, never knowing exactly what you will find working (or broken) upon arrival." It seemed to work quite well, John. Jorge, EA9LZ, really put in a great effort to take second place from Ceuta. Jorge made a lot of people happy by passing out the EA9 multiplier. Olli, OH0XX, operating from OA4WW, was just behind in third place. Olli can be found these days as HP1WW.



John, KK9A, was world #1 Single Op, All Band, low power as P40A.

European top honors went to CU2A operated by Timo, OH2UA. Timo comments, "It was one of the toughest contests for me so far. Before the contest I got the flu and only a couple of hours after the beginning of the contest I felt like losing my voice. I was quite sure not to be able to make a full 48 hours, but fortunately I was wrong." OE4A was operated by Braco, OE1EMS. The hard work of building up this super station paid off with a big signal. Pasi, OH6UM, talked OH8X to third place under less-than-favorable conditions.

It has been a long time since the first two positions in the U.S. were filled by stations not from New England. Richard, NN3W, took top honors in the U.S. from the N3HBX super station located just over the Potomac River in Maryland. Not far away was Ken, K4ZW, who always ends up at or near the top. He took second place. Third place went to Randy, K5ZD/1, who always makes a big score.

Masa-san, JH4UYB, was #1 in Asia and Japan from his hilltop QTH. Al, F5VHY (NH7A), made a big noise from 6W1RY, and John, VE3EJ, broke into the world top ten.

The continental winners were: North America VE3EJ, Africa EA9LZ, Asia JH4UYB, Europe CU2A (OH2UA), Oceania AH7C, South America P40W (W2GD), Japan JH4UYB, and U.S. NN3W.

## Low Power All Band

If you want to go on a DXpedition and carry everything in one suitcase, barefoot is the way to go. A small transceiver, wire and vertical antennas near a beach somewhere and you are all set. If you choose the right QTH, you can run stations almost as fast as the higher powered stations.

Located on the northwest tip of Aruba is the station of P40A. John, KK9A, has now taken back-to-back world low power trophies. This is quite an achievement. Second place went to Ted, HI3TEJ. Ted is an enthusiastic ham on all levels. Third place world went to 9N7JO! A fine job was turned in by Stig, LA7JO. His excellent skills were enhanced by the Nepalese altitude, allowing him to put a rare one in many logs.

CT6A operated by José, CT1CJJ, was first place in Europe. This is the second year in a row that José took the plaque. Second place went to Dan, LY6M, and third place went to Zlatko, 9A2EU. In the U.S., we have another repeat winner—Ed, N1UR. However, this is Ed's third year in a row! Second place went to Texas, where Marvin, N5AW, put his considerable skills to work. Rounding out in third place was Peter, K2PS.

\*e-mail: [k3est@cqww.com](mailto:k3est@cqww.com)

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VP9I, 7Z1SJ, and 3XM6JR all did an excellent job to finish in the world top ten from interesting locations.

The continental winners were: North America HI3TEJ, Africa CN8SG, Asia 9N7JO (LA7JO), Europe CT6A (CT1CJJ), Oceania YB4IR, South America P40A (KK9A), Japan JA7LMZ, and U.S. N1UR.

### QRP

The CQ WW offers QRPers a very good opportunity to work rare DX that would otherwise prove elusive. This category sharpens your searching skills and the rewards are very satisfying. The world winner this year is a real dedicated QRPer. Bill, W8QZA, even states, "I only operate QRP." Bill talked TI5N to the #1 position. Taking second place in the world, and first place in the U.S., was Chris, KA1LMR. Chris's multiplier count was outstanding. The third spot went to DF1DX, helping out the Rhein-Ruhr DX Association.

Second place in the U.S. was taken by Anthony, K8ZT, another committed QRPer. Third place with under 5 watts was Tom, N1TM. Following DF1DX, who was #1 Europe and #3 in the world, in second place Europe and #5 in the world was Simone, IK5RUN, who turned in a fine effort. Third place in Europe and #6 in the world was Angel, EA3FF. Special mention must be made of the fine score of Izuno-san, JR4DAH, #4 in the world and #1 in Asia. Toiling away a long way from anyplace was Tom, VK4HTM, the #1 Oceania entry.

The continental winners were: North America TI5N (W8QZA), Africa EA8IK, Asia JR4DAH, Europe DF1DX, Oceania VK4HTM,

South America LW3DC, Japan JR4DAH, and U.S. KA1LMR.

### Assisted

There are lots of reasons to enter the Assisted category. If you are casual contester, you can make the most of your time. If you want to help your club, assisted allows you to maximize your effort. Finally, if you just want the challenge of pushing QSOs and knowing when to use packet, then this category is for you.

The number one scorer was Mike, operating as FM/K9NW. Taking advantage of his location and racking up the largest QSO total in this category, Mike took away the trophy. Ondra, OK1CDJ, traveled to Algeria to activate 7W2W. He pushed this interesting call to world second place. Third place was taken by Wanderley, PY2MNL, operating from ZX2B.

In Europe there was a real battle in central Italy. The final #1 position went to IR4M operated by Fulvio, IK4MGP. What a beautiful setting for a contest station. Second place went to the famous water-tower QTH of IR4T operated by Fabio, I4UFH. Third place went to World-Wide Young Contester, Philippe, LX2A, operating his contest call of LX7I.

In the U.S. John, WE3C, took first place. He really made the difference in the multiplier department. Second place went to perennial top finisher Rick, K11G, while third place also went to a long-time Assisted top scorer, Charles, K3WW. Special mention should be made of the great job turned in by two stations: RG9A (UA9AM) and 9M6DXX.

The continental winners were: North America FM/K9NW, Africa 7W2W (OK1CDJ), Asia



Alex, PA1AW, talked 5Z1A into a lot of logs.

RG9A (UA9AM), Europe IR4M (IK4MGP), Oceania 9M6DXX, South America ZX2B (PY2MNL), Japan JF2SKV, and U.S. WE3C.

### Multi-Single

The Multi-Single category attracts the second largest group of contesters, after low power. You can bring a group of friends together to have a good time. You can also bring a group from France, travel to French Guiana, put in a lot of work, and you have this year's winner of the Multi-Single trophy, FY5KE. Operating not far from the European space port at Kourou, they outdistanced the competition by 3.5-million points. In second place was CN3A, an all Italian team plus CN8WW. They did a remarkable job. Third place went to the Russian team on Cyprus using 5B/AJ2O. They were also #1 in Asia. In Europe the number one score went to Radio Club Porec, 9A1P. Second place went

## TROPHY WINNERS AND DONORS

### SINGLE OPERATOR

**World All Band**  
P40W (Opr. John Crovelli, W2GD)  
Donor: Dave Rosen, K2GM  
WA2RAU and W2SKE Memorial

**World Low Power**  
P40A (Opr. John Bayne, KK9A)  
Donor: Slovenian Contest Club

**World QRP**  
T15N (Opr. William Parker, W8QZA)  
Donor: Jeff Steinman, N5TJ

**World Assisted**  
FM/K9NW (Opr. Michael Tessmer, K9NW)  
Donor: N1JJ Johnson Joules Contest Club

**U.S.A.**  
Richard F. Di Donna, NN3W  
Donor: Potomac Valley R.C. - KC8C Memorial

**U.S.A Low Power**  
Edward Sawyer, N1UR  
Donor: North Coast Contesters

**U.S.A QRP**  
Christopher M. Merchant, KA1LMR  
Donor: Patrick Collins, N8VW

**U.S.A. Zone 3**  
Mitch Mason, K7RL  
Donor: Dave Pruett, K8CC & Greg Surma, K8GL

**U.S.A. Zone 4**  
Mike Wetzel, W9RE  
Donor: Dave Pruett, K8CC & Greg Surma, K8GL

**Canada**  
John Sluymmer, VE3EJ  
Donor: Contest Club Ontario  
VE3WT Memorial

**Caribbean/C.A.**  
Ted Jimenez, HI3TEJ  
Donor: Alex M. Kasevich, VP2MM

**Europe All Band**  
CU2A (Opr. Toni Linden, OH2UA)  
Donor: Potomac Valley R.C. - W4BVV Memorial

**Europe Low Power**  
CT6A (Opr. José Manuel Farto Lopes, CT1CJJ)  
Donor: Scott Jones, N8OA & Tim Duffy, K3LR

**Russia**  
Igor I. Burykh, UA3QDX  
Donor: Roman Thomas, RZ3AA

**Africa**  
Jorge Taboada Pareja, EA9LZ  
Donor: Gordon Marshall, W6RR

**Asia**  
Masaki Masa Okano, JH4UYB  
Donor: 2 AM Dayton Pizza Gang

**Japan**  
Yasuyuki Inoue, JR1AIB  
Donor: Tack Kumagai, JE1CKA

**Japan Low Power**  
Fumi Konno, JA7LMZ  
Donor: Western Washington DX Club

**Oceania**  
Tetsuo Tanaka, AH7C  
Donor: Northern California DX Club

**South America**  
OA4WW (Opr. Olli Rissanen, OH0XX)  
Donor: Yankee Clipper Contest Club

**SINGLE OPERATOR, SINGLE BAND**  
**World - 28 MHz**  
Juan Manuel Morandi, LU1HF  
Donor: Joel Chalmers, KG6DX

**World - 21 MHz**  
ZX5J (Opr. Sergio Almeida, PP5JR)  
Donor: Bob Naumann, W5OV

**World - 14 MHz**  
5Z1A (Opr. Alex Van Hongel, PA1AW)  
Donor: North Jersey DX Assn. - K2HLB Memorial

**World - 7 MHz**  
OK5R (Opr. Jiri Sanda, OK1RI)  
Donor: Fred Laun, K3ZO - K7ZZ Memorial

**World - 3.7 MHz**  
CN2R (Opr. James Sullivan, W7EJ)  
Donor: Fred Capossela, K6SSS

**World - 1.8 MHz**  
VY2ZM (Opr. Jeffrey Briggs, K1ZM)  
Donor: Robert Wruble, W7GG

**USA - 28 MHz**  
Charles Dietz, W5PR  
Donor: Donald Thomas, N6DT

**USA - 21 MHz**  
Larry Pace, N7DD  
Donor: Worldradio

**USA - 14 MHz**  
Daniel Handa, W7WA  
Donor: Southern California DX Club

**USA - 7 MHz**  
Zeljko Repic, W2T98T  
Donor: Stanley Cohen, W8QDQ

**USA - 3.7 MHz**  
Joseph Gagliardi, AA1BU  
Donor: Alex Jozsa, KG1E

**USA - 1.8 MHz**  
Theodore Demopoulos, KT1V  
Donor: N1JJ Johnson Joules Contest Club

**Carib./C.A.(14 MHz)**  
Hugo Bergamo, XE1CQ  
Donor: Nate Moreschi, N4YDU

**Europe - 28 MHz**  
Danijel Voncina, S58D  
Donor: Charles Dietz, W5PR

**Europe - 21 MHz**  
9A1A  
Donor: Tine Brajnik, S50A

**Europe - 14 MHz**  
Daniel Horvat, T93M  
Donor: Charlie Wooten, NF4A

**Europe - 7 MHz**  
Ivica Matkic, T96Q\*  
Donor: John Warren, NT5C

**Europe - 3.7 MHz**  
Ranko Boca, YT6A  
Donor: Ted Demopoulos, KT1V

**Europe - 1.8 MHz**  
SN2B (Opr. Kaz Drzewiecki, SP2FAX)  
Donor: Robert Kasca, S53R

**Oceania (14 MHz)**  
KH7Q (Opr. James Neiger, N6TJ)  
Donor: Bruce D. Lee, KD6WW

**Asia - 14 MHz**  
Vakhtang Mumladze, 4L8A  
Donor: Al Teimurazov, 4L5A - JA4FWM Memorial

**Japan - 21 MHz**  
Shinya Hatakenaka, JA5FDJ  
Donor: CQ magazine

**Japan - 14 MHz**  
Hiroyuki Inaba, JS3CTQ  
Donor: Take Yokoyama, JL1BLW

**MULTI-OPERATOR, SINGLE TRANSMITTER**  
**World**  
FY5KE (Oprs: F1HAR, F5HRY, F5MZN, F6FGZ, F6FVY, FY5FY)  
Donor: So. Calif. DX Club - W6AM Memorial

**U.S.A.**  
K1KI (Oprs: K1KI, K1CC, KM1P)  
Donor: Carolina DX Association

**Carib./C.A.**  
6Y1V (Oprs: KY1V, K1LZ, W2GB, CT1ILT, K3LP, PY5EG)  
Donor: Bob Raymond, WA1Z

**Africa**  
CN3A (Oprs: I2WIJ, IK2QEI, IK2SGC, IK8UND, IZ2FFK, IZ4DPV, CN8WW)  
Donor: CQ magazine

**Asia**  
5B/AJ2O (Oprs: RX9TL, UA2FZ, RW4RW, RW3QC, UA9CDV, RA3AUU)  
Donor: Edward L. Campbell, NT4TT  
AA6BB and KA6V Memorial

**Japan**  
JA7YAA (Oprs: JH0NZN, JE7HLZ, JG7PSJ, JO7DJT, JO7FTJ, JI5RPT, JJ5DWF)  
Donor: Bob Epstein, K8IA

### Europe

9A1P (Oprs: 9A1UN, 9A2CW, 9A2RD, 9A3ASF, 9A4M, 9A5CW, S55M (9A8WW), S59KW)  
Donor: Bob Cox, K3EST

### Oceania

AH2R (Oprs: JI3ERV/NH2C, JR7OMD/WI3O, JG3RPL/N1BJ, JE8KKX/AH2K, KH2/JH7QXJ)  
Donor: Junichi Tanaka, JH4RHF

### South America

PJ4E (Oprs: K0RAY, N0KE, N0VD, WA4PGM)\*  
Donor: Victor Burns, K16IM  
The Cuba Libra Contest Club

### MULTI-OPERATOR, TWO TRANSMITTERS

**World**  
3V6T (Oprs: YT1AD, YU1AU, YU1DW, YU1KX, YZ1EW, 4N1EA, 4N1NM, RX9UA, N2OW, Lotfi-3V8BB, Alea-3V8BB)  
Donor: Array Solutions

### U.S.A.

N3RS (Oprs: N3RS, N3RD, N3ED, N3NA, N2SR, W8FJ, N3DXX, K3IPK)  
Donor: Kimo Chun, KH7U & Mike Gibson, KH6ND  
Dan Robbins, KL7Y Memorial

### Europe

IR4X (Oprs: I4EAT, I4IKW, I4AVG, I4VEQ, I4TJE, I4IND, IZ3EYZ, IK2NCJ, IZ4BOY, N5GN)  
Donor: Aki Nagi, JA5DQH

### Oceania

VK4WR (Oprs: VK4WR, ZL2MF, VK4FI, VK4TU, HA3LN)  
Donor: Japan CQ Ham Radio

### MULTI-OPERATOR, MULTI-TRANSMITTER

**World**  
CT3YA (Oprs: CT3BD, CT3DL, CT3DZ, CT3EE, CT3EN, CT3HK, CT3IA, CT3IQ, CT3KU, CT3KY, CT3YA, CT3NT, CT1BOP)  
Donor: Dave, W6NL & Barb, K6BL Leeson

### U.S.A.

K3LR (Oprs: K3LR, N2NC, K8CX, W9ZRX, K8GL, W2RQ, K14MTU, K3LA, N9RV, K1AR, K3UA, N2NT, N3SD, N3GJ, LU7DW, LW8EXF, WA4ILO)  
Donor: Jim Lawson, W2PV Memorial

### Europe

DR1A (Oprs: 5B4AFM, DB6JG, DF6JC, DG3FK, DH1NFL, DJ7EO, DK1FW, DL1EJA, DL2AA, DL6FBL, DL6LAU, DO1ET, HA1AG, PA1TT)  
Donor: Finnish Amateur Radio League

### Japan

JA3YBK (Oprs: JG3KIV, JG3MRT, JG3WDN, JI3OPA, JP3PZD, JH4NMT, JR4ISF, JF4FUF, JS1PWV)  
Donor: Ryozo Goto, JH3JYS

### CONTEST EXPEDITIONS

**World Single Operator**  
6W1RY (Opr: Al Crespo, F5VHJ)  
Donor: National Capitol DX Assn.  
Stuart Meyer, W2GHK Memorial

### World Multi-Single

CN3A (Oprs: I2WIJ, IK2QEI, IK2SGC, IK8UND, IZ2FFK, IZ4DPV, CN8WW)  
Donor: Gail Schieber, K2RED

### World Multi-Multi

XX9C (Oprs: XX9TAC, XX9TDC, XX9TDS, XX9TEG, XX9TIA, XX9TJA, XX9TIB, XX9TJG, XX9TKK, XX9TLO, XX9TMY, XX9TNI, XX9TPT, XX9TPX, XX9TSA, XX9TTR, XX9TTK, XX9TRR, XX9TUI, XX9TUQ, XX9TVR, XX9TREM, XX9TYYW, XX9TTEK)  
Donor: Tachio Yuasa, JA9VDA

### SPECIAL CQ AWARD

XF4DL (Oprs: DF7TH, DJ5IW, DK2WV, DL3DXX, XE1AY, XE1FRF, XE1GRR, XE1UN, XE2K)  
Donor: CQ magazine

*\*second place*



Bill, W8QZA, took TI5N to #1 world QRP.



Tetsuo, AH7C, Single Op, All Band, took first place in Oceania.



Olli, OH0XX, was world #3 Single Op, All Band, high power as OA4WW.

to the Slovak Contest Group, OM8A; what an antenna farm on the group's website! Third place in Europe went to the East Cork Radio Group, EI7M.

Here in the U.S. Tom's crew at K1KI took away the top spot. The fight for the next two positions was very tough between two stations from Texas. K5NA edged out K5TR for second place. AH2R continues to do an outstanding job from zone 27, and JA7YAA repeated as the top Multi-Single in Japan.

The continental winners were: North America 6Y1V, Africa CN3A, Asia 5B/AJ2O, Europe 9A1P, Oceania AH2R, South America FY5KE, Japan JA7YAA, and U.S. K1KI.

### Multi-Two

3V6T operated by a Yugoslavian team finished first in the world. They commented, "We used new hardware this time, some new antennas, and new towers, too." EA8AH fielded quite an

experienced team, with perhaps 15 CQ WW single operator championships among them. They won the second-place position Third place went to long-time top finisher, IR4X. They also finished first in Europe. Second place in Europe went to 9A7A, the Varazdin Contest Team. Third place went to the top score in zone 16, the UU7J contest team located in the eastern Crimea.

Sig's crew at N3RS dominated the M2 category in the U.S. What a fantastic, very professional effort they turned in. Second place was a real battle between the Winston Salem Courteous Operators Club, W4WS, and the W4RM crew. When the smoke settled, W4WS won second place over third-place W4RM.

The continental winners were: North America VP5DX, Africa 3V6T, Asia B7P, Europe IR4X, Oceania VK4WR, South America PS2T, Japan JA6ZPR, and U.S. N3RS.

### Multi-Multi

A lot of hard work, months and months of planning, is the standard for the Multi-Multi category. Integrating the stations together and connecting them to the internet without a hitch is not an easy task. Many entries in this category have operators come from all over the world.

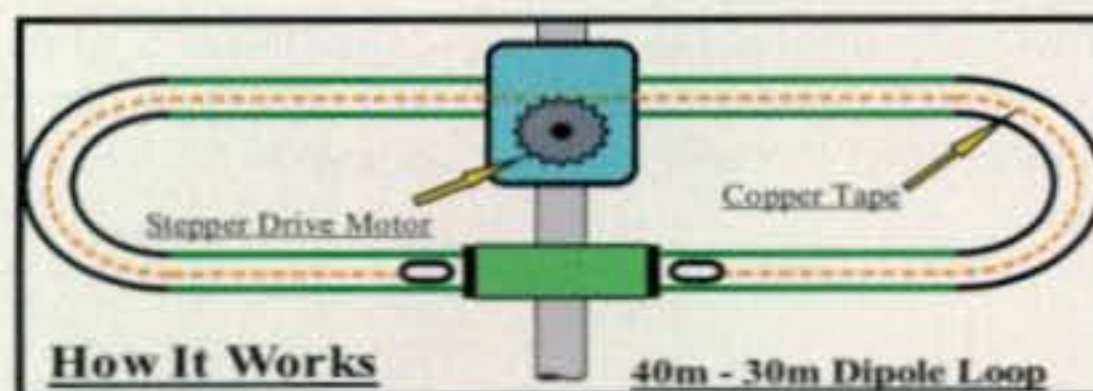
Reprising their role as the number one Multi-Multi in the world was the team at CT3YA. The Madeira Team was made up of 99% CT3 stations. Their location overlooking the ocean sure helped their fine effort. Finishing in the second position in the world was CT9L, a team headed by the Rhein-Ruhr DX Association. It looks like the Madeira Islands was the place to be. Third place went the Caribbean Contesting Consortium, PJ2T.

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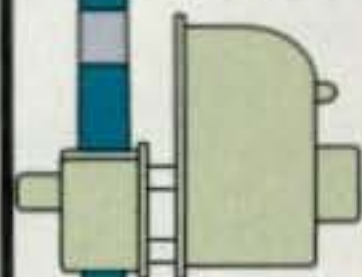
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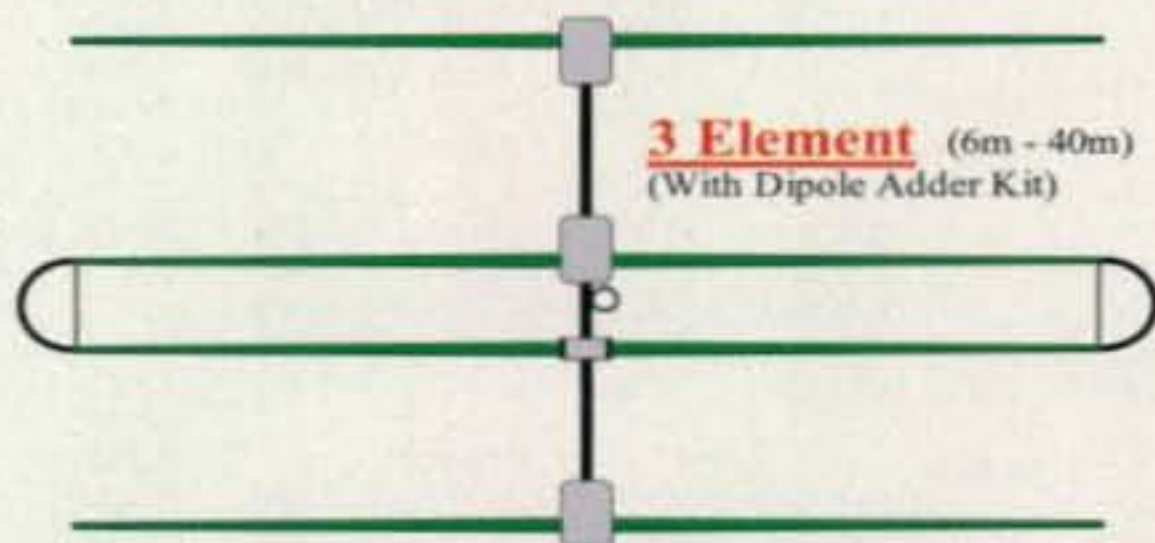


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The Multi-Single 6Y1V station has a nice ocean view.

hand up through 2000. Once that was accomplished, keeping up yearly updates was not as difficult. You can QSY to <cqww.com> to check the records for every country that has entered the CQ WW since 1948. If you discover an error, please let us know at <questions@cqww.com>. Below are the outstanding efforts of super operators which resulted in setting new SSB records during the 2006 contest. Congratulations to all!

- World:** 3.7 CN2R (W7EJ), L1.8 YM0T
- North America:** 1.8 VY2ZM (K1ZM), L14 XE1CQ, L3.7 WP3C
- Africa:** 3.7 CN2R (W7EJ), Q14 EA8ARG
- Asia:** L1.8 YM0T, A3.7 RT9W (RX9WR)
- Europe:** 7 OK5R (OK1RI), L3.7 IO1T (IK1RQT), L1.8 IS0/K7QB
- Oceania:** 3.7 KH7X (KH6ND), A21 VK9AA (VK2IA), A14 KH6RZ (W6YM), A3.7 KH6/ AF7DX
- U.S.:** A1.8 K3BU/8

### Team Contesting

Five contesters from anywhere in the world can join together to form a team. As you can see below, the World-Wide Young Contesters QRO Lids team rose to the top and took away top honors. The team operated from four different countries. Second place went to the Carolina DX Association, who had a member travel to 4X-land. Third place went to the famous Kaunas Technical University Radio Club. Congratulations on 50 years of activity! Besides sending a fax or mail to CQ, you can submit your team list to <teams@cqww.com>. You will receive an acknowledgement.

1. **WWYC QRO Lids:** SJ2W (SM3WMV), NN3W, OH1F (OH1NOA), LX7I (LX2A): 11,110,820.
2. **Carolina DX Association:** 4X/AA4V, AA4S, N1GC, N4PQX, W4WTB: 9,078,007
3. **KTURC – 50 Years Anniversary Celebration:** LY1R, LY4CW, LY5R, LY6A, LY9A: 4,291,025
4. **WWYC QRP Lids:** DM2SR, CT6A (CT1CJJ), DM7A (DJ1YFK), F4BKV: 3,720,607
5. **Australis:** 9M2CNC, VK8AA, VK4LAD, VK4CZ: 3,443,411
6. **Minnesota #1:** VB4MWA, K0SR, AC0W, KH6FI: 2,845,547
7. **Stafford DX Association:** K2PT, K4HR: 1,971,057
8. **WWYC Single Band Lids:** OQ5M (ON5ZO), SM6U, E21EIC, S550, T96Q (9A5K): 1,649,466
9. **Minnesota #2:** W0GJ, WA2MNO, K0KX: 515,946
10. **Yaroslavl Contest Club:** RV3MI, RX3MA, UA3MEJ: 421,138

### Special Mention

The following are some of the many who made the contest more interesting for everyone by going on DXpeditions or providing rare callsigns: 3A/IZ2EID, 3DA0WW, 3V6T, 3W9JR, 3XM6JR, 5B/AJ2O, 5H3EE, 5R8FU, 5Z1A, 6W1RY, 6W1SE, 6Y1V, 7W2W, 8R1EA, 9G5A, 9M6BRC, 9M6DXX, 9M8YY, 9N7JO, 9N7MV, A41MX, A45WD, A61C, A61M, A71EM, A92GR, AH2R, AT0D, B1Z, B7M, B7P, BA4DW, BA4RF, BA4VE, BA6IV, BA6QD, BD1DQU, BD1DRJ, BD3AIE, BD4ALC, BD4BTB, BD4IXA, BD4SI, BD4SQ, BD7IBN, BG1LKK/4, BG1QMU, BG3MZX/3, BG4AGK, BG4QGO, BU2AI, BU2AO, BV2B, BV6GU, BY1BZH, BY1DX, BY1QH, BY1TT, C4M, C52T, C6APR, C6AQC, CN2R, CN2ZR, CN3A, CN8NK, CN8SC, CT3/HA5PP, CU2/ OH1VR, CU2A, DU9/N0NM, DU9SS, DV1AV, DV1EG, DV1JSB, DX1DBT, E20PFE, E21EIC, E21YDP, EA8/OH1VR, EF8A, ES1QMA, EX7ML, EY7AF, EY8BA, EY8MM, FK8GM, FM1HN, FM5AN, FM5FJ, FM5JC,

### TOP SCORES IN MOST ACTIVE ZONES

<b>Zone 3</b>		
K7RL.....2,654,568	W3BGN.....2,917,044	LY6M.....1,945,800
K6XX.....1,192,985	*VP9I.....2,905,112	II4A.....1,911,455
W7WA.....922,374	AA1K/3.....2,671,484	*9A2EU.....1,815,312
K7ZZ.....838,134	K3ZO.....2,362,175	
K4XU/7.....639,232	K3ZM/4.....2,101,464	<b>Zone 16</b>
K6NA.....573,540	N6AR/4.....1,381,863	UA3QDX.....2,453,457
N7DD.....505,448	AA4S.....1,078,056	US5D.....2,284,295
*K7ACZ.....328,440		*UA4FER.....1,496,315
KV7DX.....290,997	<b>Zone 14</b>	UV5U.....1,270,816
W8AEF/7.....290,799	CU2A.....6,598,032	UY0ZG.....1,104,414
	GW4BLE.....4,215,978	UY5ZZ.....1,097,370
	EA4KR.....3,815,724	RW1ZA.....1,065,858
<b>Zone 4</b>	GM7V.....3,054,301	*UA4FRL.....988,500
VE3EJ.....6,293,430	LB8IB.....2,734,453	RN4AA.....886,410
VE3RM.....3,699,630	OZ7X.....2,523,900	EU1PA.....875,812
W9RE.....3,556,816	GM0F.....2,175,762	
WB9Z.....3,055,964	*CT6A.....2,026,357	<b>Zone 25</b>
N2IC/5.....3,040,045	*DL4MCF 1,422,655	JH4UYB.....4,067,140
VE6SV.....1,611,360	GW3NAS.....1,383,046	JR1AIB.....1,726,725
VC3R.....1,250,058		JM1XCW.....1,500,638
VE3CX.....1,160,700	<b>Zone 15</b>	JA7NVF.....1,045,584
N5AW.....1,128,320	OE4A.....6,108,386	J12KXK.....764,712
*VA7RR.....956,532	OH8X.....5,477,608	8J3YAGI.....669,369
	S50A.....5,418,576	JS3CTQ.....647,642
<b>Zone 5</b>	ES5TV.....5,064,255	*JA5FDJ.....637,670
NN3W.....4,674,356	SO6X.....2,835,448	JF1SEK.....497,376
K4ZW.....4,528,022	SN7Q.....2,366,812	JA2BNN.....448,632
K5ZD/1.....3,764,880	YL6W.....2,068,041	*Low Power

FS/WY3P, FY1FL, FY5KE, GU4EON, H2T, H7A, HB0/HB9AON, HD2A, HI3C, HI9L, HQ4R, HQ9R, HR1RTF, HR2RCH, HR4/ EW1AR, HS0/EA4BKA, IF9A, IG9C, IG9R, IH9YMC, J3A, J43J, J48RT, JD1/JE1LCK, JD1BIA, JT1C, JU1DX, JV800CJ, JW5E, JW7QIA, JY4NE, LX6T, LX7I, MD4K, MU5W, OA4WW, OH0Z, P40A, P49Y, PJ4E, PZ5RA, R1ANC, S9SS, ST2M, ST2T, SV9COL, SX5P, T40M, T6EE, T70A, TC2T, TF/DL2JIM, TF/ DL2JRM, TF60IRA, TG0AA, T15N, UK8AKK, UP5G, V26HS, V31FB, V49A, V73RY, VK9AA, VP2MHX, VP2MQD, VP5DX, VP5T, VP8NO, VP9I, VQ9X, VR2/AA1ON, VR2BG, XF4DL, XU7MDY, XV2LH, XW1A, XX9C, YE0X, YE1ZAT, Y19QJ, YM0T, ZA/UT7DW, ZA/ Z35M, ZC4T, ZD8I, ZF2AH, ZL6QH, ZS9X.

Please check out the dramatic increase in activity from China, Panama, Honduras, Indonesia, Thailand, and the Philippines, to name a few places where an increase is very welcome. The number of European entries continues to increase dramatically, as you can see by reading the results.

### Comments

Fall of 2006 was seeing us nearing the bottom of the sunspot cycle. The conditions were far from excellent. In spite of this, the number of entrants in the SSB contest was at an all-time high! Over 4500 logs were received. Of those, 4310 were electronic! Your continued submission of an electronic log allows for a more detailed database and fairer adjudication. As has been mentioned many times before, your UBN/NIL report is just an aid to help you pinpoint how to improve your copying skills. Submitting an electronic log is easy. Send your SSB log and summary sheet to <ssb@cqww.com> (CW to <cw@cqww.com>). Please send your log in Cabrillo format. Remember to name your file with your call with .cbr extension—e.g. JT1BV.cbr. If you did everything okay, you will get back an acknowledgment. If there is something wrong, you will get a message telling you what to do to correct the error. The messages are presented in numerous languages. If you don't see your language and you would be willing to help out by translating for your fellow countrymen, please contact <k3est@cqww.com> for more information. If you are still having problems, we can help you at <questions@cqww.com>. If you make a mistake on your first log submission, you can resubmit your log. It will replace the first submission.

We continue to receive logs where the entrants forget to change bands on the computer logging program. A lot of time is spent correcting these potential "not in log" problems. Please be careful to log all of your QSOs on the correct band.

It bears repeating that packet use without claiming Assisted is against the rules. Also remember that the use of alerting networks to self-spot is against the rules. Self-spotting can be broken down into doing it yourself or trying to hide the fact that you are doing it by using other callsigns. The first case is almost always ignorance of the rules. The second case is a deliberate attempt to hide the spot by the entrant or by someone

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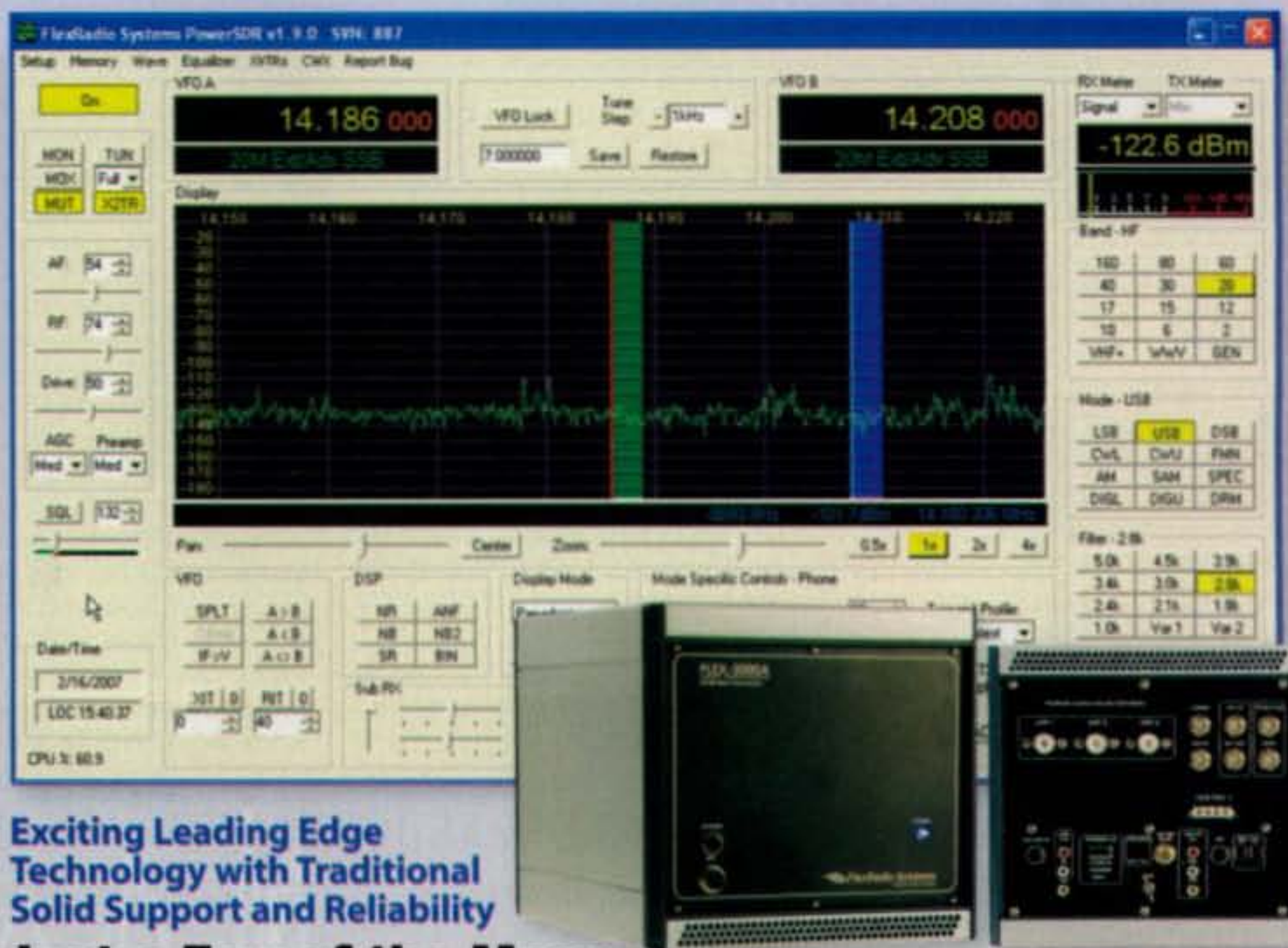
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**Mike, KM0T** – I had always dreamed about a radio and interface like this; but never thought it would ever happen. I sometimes catch myself staring at the screen showing the microwave band frequencies thinking "Man this is awesome!" Seems every time I turn around, there is something new coming down the pipe to make the whole setup better.

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associated with the entrant. There is nothing wrong with coming across a station and spotting it, but *self-spotting is not allowed*. Repeating from a few years ago, the CQ WW has few requirements: write down the call sign of the station you are talking to, claim the correct category, and do not self-spot. Not so hard. The contest is for the entrants to have fun, meet friends, perhaps work some new ones, and fairly compete.

When we provided a trophy for the 21 years and younger category, we did not anticipate a bookkeeping problem: Almost no one indicates his or her age on the summary sheet. If you want to be eligible to perhaps win this trophy, please indicate your age under the "comments" section of the summary page.

### Thanks

The CQ WW Contest Committee thanks all of the entrants who make the CQ WW the event each year. We do our best to assure that the results are true and accurate. The results that appear here each year require hundreds of hours of work by a lot of people. The members of the CQ WW CC who provided labor and insight in creating these results were: K1DG, K1AR, K3WW, K3ZO, K3LR, KR2Q, N2AA, N2NC, N3ED, N9RV, W3ZZ, KM3T, KT3Y, W5OV, N5KO, K6AW, and N8BJQ. The logs were received and processed by Larry, N6TW, and the scores listings were developed by Dick, N6AA. A special thanks to these hard workers. The CQ WW uses software that was developed by N6TR. Additional software was provided by WT4I. The CQ WW records are maintained by N2NC and K3EST. The All-time continental records are maintained by K6SSS. Thanks to K1AR for his advice and hard work to make the CQWW so successful. Our CQ WW CC members who are DX advisors were very helpful in offering advice, providing information, and sorting out potential problems: CT1BOH, DL6RAI, EA3DU, F6BEE, G3SXW, I2UIY, JE1CKA, OH2KI, OH2MM, OK2FD, PY5EG, S50A, UA9BA, VA7RR, VE3EJ, and E21EIC. Translation of the rules into Spanish, Japanese, German, Turkish, and French were done by EA3DU, JE1CKA, DL6RAI, TA3J, and F6BEE.

It is with a heavy heart that we move forward after the untimely loss of our friend Phil, N6ZZ (a long-time CQ WW CC member). Phil exemplified a full and active life in every way, including contesting. Among his many

accomplishments, he was one of only two people to have operated the CQ WW contest from all 40 zones. His last CQ WW contest operation was from PZ5RA in November 2006. You can honor his memory by taking part in contests, which he loved. Operating the 2007 CQ WW by trying your best and being respectful of others will honor his memory.

Congratulations to all the participants and winners on all levels! CU in the 2007 contest!  
73, Bob, K3EST

### DX QRM

**2E8TLB:** Great fun. This is how contests should be. **6W1RY:** Big surprise was the opening on 10 meters at this point of the sunspot cycle. Pity that I worked so few JA stations. I miss their excellent operating skills. **8P2K:** What terrible conditions. Still it was great to work lots of good DX. **9W6RAY:** My first CQ WW contest. Had fun, though my vertical has big ears but small mouth. Heard lots of stations but most didn't hear me. Will be back next year. **C52T:** Great signals from all parts of the world on all bands. Shame I couldn't get heard with my low power. Good openings on 10m. Spent all of Sunday running from a battery with just 50W out. **CT3YA:** The Madeira team would like to give a special thank you to each of the stations that came to our QRG to work us or at least tried to work us. We would like to congratulate all the teams that made the CQ WW DX SSB a great contest. **DL1XAS:** I didn't take part for more than 15 years, and I had a lot of fun testing my new QTH. Perhaps next year with beam to get more countries. My little son, 6 years old, enjoyed listening to what papa did. Propagation was not so good mostly. **DP6A:** Multi Two forever! **E21YDP:** Nice to work stations from SA and Caribbean: LU7HN, OA4WW, YV4A, and 5K4DX. Also nice to work Larry Jr., XW1X, from Vientiane. Trx for all QSOs.

**EA3EJI:** For sure, despite forecasts, the CQ WW made its own propagation! Ten meters became glorious! **EI2JD:** Great contest, great conditions on all bands. **F5KSE:** First participation in CQ WW DX, and not the last. Many thanks to F5KSE Radio Club for loaning their station. **G2B:** Our first attempt at CQ WW SSB and we enjoyed ourselves greatly. We had a few dramas, like a PC crash, which lost rig and SteppIR control. Maybe a few mistakes there. Our FT-1000MP went wrong at 2235 UTC. **G4MKP:** My technique improves every year. All I need for next year is a 200 ft. tower for me and two weekend tickets to Paris for my XYL and daughter. Outstanding contest.

## BAND-BY-BAND BREAKDOWN—TOP ALL BAND SCORES

Number groups indicate: QSOs/Zones/Countries on each band

### WORLD TOP SINGLE OPERATOR ALL BAND

Station	160	80	40	20	15	10
P40W	34/8/18	434/17/71	829/20/74	1724/31/97	2048/29/103	1110/20/54
EA9LZ	125/6/43	526/14/76	672/22/77	1515/33/105	1121/29/106	498/18/68
OA4WW	10/7/9	125/19/43	841/29/86	1326/35/106	2146/29/108	537/19/54
6W1RY	2/2/2	167/13/43	504/19/70	1442/36/112	1846/27/93	1078/19/87
CU2A	183/10/46	352/16/63	1055/22/79	1479/27/94	1546/27/100	972/18/82
VE3EJ	264/10/34	512/23/64	532/27/83	1998/37/122	807/27/102	323/18/47
OE4A	185/6/48	596/13/74	862/31/96	1723/35/116	1305/34/114	437/21/79
LT1F	2/2/2	12/8/8	406/23/42	1090/33/90	1755/29/106	1224/23/92
OH8X	129/8/43	272/19/75	702/30/105	1833/35/110	947/30/115	306/16/73
S50A	108/6/48	531/20/76	966/30/106	1467/34/120	827/33/107	282/19/79

### WORLD MULTI-OPERATOR SINGLE TRANSMITTER

FY5KE	152/14/61	583/25/88	597/31/116	2406/38/150	3062/35/146	1396/29/116
CN3A	145/10/55	435/20/87	1142/30/119	1844/39/136	2876/37/160	626/26/112
5B/AJ20	252/9/60	551/17/89	1444/29/112	1947/35/135	2207/36/140	1217/27/95
PJ4E	35/8/19	430/18/72	1268/30/109	2110/33/128	2109/34/133	1115/23/71
ZY7C	1/1/1	339/16/71	696/31/100	2033/37/143	2248/33/139	331/24/94
9A1P	141/8/58	595/18/85	1123/35/123	2307/38/153	1398/38/152	649/25/111

### WORLD MULTI-OPERATOR TWO TRANSMITTER

3V6T	246/9/58	1524/25/98	1837/33/120	3157/37/125	2689/36/140	1529/27/95
EA8AH	130/11/49	822/24/97	1848/30/111	2271/37/148	3049/36/144	1348/24/110
IR4X	152/10/59	1029/26/106	1684/35/126	2171/38/149	2181/38/160	1048/29/119
9A7A	357/8/56	1155/23/98	1598/35/131	2721/38/155	2201/38/153	663/25/107
PS2T	3/2/2	46/13/16	795/29/85	1755/37/124	3085/37/144	1289/27/115
UU7J	296/11/63	656/28/93	1322/36/124	2183/40/149	1812/36/143	731/27/105

### WORLD MULTI-OPERATOR MULTI-TRANSMITTER

CT3YA	163/10/56	841/24/92	1920/34/126	2782/38/150	2924/38/156	1123/31/117
CT9L	157/8/49	474/16/76	1623/33/118	2648/37/137	3337/37/149	1186/27/100
PJ2T	225/10/26	883/25/95	1387/29/109	3141/34/118	2957/30/114	1059/16/42
DR1A	755/11/64	1864/24/103	2491/36/137	3361/40/163	1817/37/161	1002/27/117
V26B	239/10/33	741/23/95	1945/29/118	2924/34/116	3848/33/125	1030/17/58
YV4A	93/7/17	553/18/72	1316/30/111	2766/37/135	2947/29/110	802/25/80

### USA TOP SINGLE OPERATOR ALL BAND

Station	160	80	40	20	15	10
NN3W	70/11/34	243/18/73	298/23/82	1580/38/134	640/27/101	156/17/45
K4ZW	45/9/26	286/23/81	369/23/78	1391/37/125	596/24/93	133/18/49
K5ZD/1	85/11/34	288/18/69	199/22/72	1170/29/113	709/30/104	69/12/26
W9RE	53/11/22	292/23/77	276/26/79	1104/36/121	605/32/100	80/11/30
WB9Z	39/8/20	236/19/67	182/27/81	914/38/123	597/30/100	85/14/36
N2IC/5	12/6/8	165/23/45	311/26/65	669/35/107	922/33/107	149/18/41
W3BGN	53/9/33	139/18/58	238/20/72	1071/36/115	413/24/95	110/13/49
AA1K/3	33/9/16	101/16/50	223/22/71	1143/34/120	350/27/87	198/18/54
K7RL	16/7/8	256/23/41	323/28/68	1327/37/123	365/27/63	54/12/21
K3ZO	21/8/11	335/16/71	216/20/76	651/28/106	537/21/88	90/8/23

### USA MULTI-OPERATOR SINGLE TRANSMITTER

K1KI	85/12/48	187/22/77	586/31/108	1219/35/136	772/31/121	155/19/76
K5NA	19/10/18	105/21/67	347/28/95	637/36/137	1143/33/128	146/19/59
K5TR	63/9/17	97/21/60	337/29/96	911/36/131	1054/34/126	114/20/49
N0NI	39/10/21	134/24/66	211/25/83	902/38/136	761/33/118	99/15/44
K0RF	19/8/11	86/24/51	417/32/98	870/37/137	603/29/111	96/14/40
N4RV	53/8/29	152/18/66	207/25/85	541/33/127	699/31/118	124/18/49

### USA MULTI-OPERATOR TWO TRANSMITTER

N3RS	68/10/41	470/21/88	564/28/110	1304/37/144	1073/32/125	206/19/69
W4WS	28/7/8	205/19/67	360/27/100	1367/34/136	688/30/114	96/13/35
W4RM	59/10/34	394/21/80	404/26/88	1259/35/117	543/26/98	73/13/26
NK7U	33/8/14	395/27/59	429/31/85	1293/38/146	438/29/80	100/12/32
K0TV/1	52/10/25	440/22/92	215/26/91	872/32/130	521/26/108	95/14/32
W6YI	10/5/4	123/20/37	532/29/81	924/37/129	753/32/97	96/16/34

### USA MULTI-OPERATOR MULTI-TRANSMITTER

K3LR	305/16/57	991/28/104	1054/31/118	3047/40/165	1384/32/135	481/23/87
KC1XX	273/11/48	893/25/105	953/29/114	2108/39/153	1694/32/138	272/21/71
W3LPL	367/15/63	837/28/106	1077/29/119	1962/39/155	1190/32/137	421/24/86
NQ4I	181/11/37	295/25/80	843/30/115	2118/37/146	809/36/133	249/19/51
K3NA/1	217/13/56	599/24/101	640/27/108	1157/32/136	639/30/123	328/21/79
K1RX	147/13/42	517/23/93	561/27/107	1380/35/138	666/28/119	304/21/72

Thank you. **G4OCO**: As always CQ WW makes its own propagation. My first HF contest in several years. Must improve my LF antennas. **GI4SJK**: Lots more time this year even though I had to work on Saturday. Worked mostly Europe with very few W/VE stations on 15 and 20m worked. 10m was open which was a change. Great fun but very tiring. QRM was very heavy. **GM2T**: Enjoyed the contest as always. Great to see Foundation license holders, some of them entering a contest for the first time, having a real go and coping with heavy QRM. **GW3YDX**: Very hard work on Sunday. No USA at all!

**HR2RCH**: Tnx fer nice contest and allowing our radio club to participate. Tnx to all the stations that make this contest so great because of the pile-ups. **IO4T**: Our best WW DX SSB. Nice team, good Es openings on 10 and 15 Sunday. **IW0HOU**: My first CQ WW SSB. Definitely an exciting experience. Only 506 QSOs but a good start for the future. **JM1LPN**: The propagation was better than expected on 15m on Saturday. Sunday was poor with the path to the polar areas very limited. We do not remember working so few stations from Scandinavia during the CQ WW. **KH7U**: Good conditions. It was great running stateside in the morning and having FG5FU breakthrough, then a few QSOs later, 6W1SE. **KL1V**: Great openings into the Pacific, but where was the rest of the world? **LU8SAN**: My first entry log in CQ WW. I'm blind and automatize with a pulser to take QSO time to record in tape. Some LU hams helped me to write software that permits logging more easy in real-time QSO logging. I'm very happy. New doors were opened and enjoy this moment. **M4A**: A very fun contest entry with a large team made up almost entirely of current students or recent graduates of Cambridge University.

**OH2TI**: Demonstration of contesting at club. Also first little bit of proper contesting in ages. Had fun. Must start to do this more often (OH5JOC). **OK4DZ**: I am newcomer, having one year ham licence now. First time in CQ WW for a few hours. Excellent propagation. **OT6L**: New location in the fantastic shack of ON4HIL with lots of new operators. Had a lot of fun and learned a lot, especially what you are allowed to work as multiplier station in MOST class! **P40A**: Awesome contest with conditions better than predicted, again! **PE2KP**: It was great DXing with my 4.5 watts QRP and working a few new ones on 160 meter band. All the bands were open for DXing. **PI4COM**: After a few years, back to multi-operator contesting. Our mix of experienced and new contesters sure enjoyed this contest. CU in the next one. **RZ6MO**: Very big surprise, good conditions on 28 MHz after 5 years of silence. **S50D**: Team of youngsters led by op S59D was introduced into world of contesting.

**SE5S**: Much fun on first day when 10m and 15m were open. I got many new DXCC in this contest. Thanks to all who heard my "Swedish call"! 75W works okay! **SN1X**: Next year will be better. Sunday without NA and SA was just like tea time. **T6EE**: This was my first CQ WW; it was not my first amateur radio venture into Afghanistan. Fortunately, two years earlier I set up an amateur station to mark Afghanistan's first presidential election. **TF4M**: The magnificent aurora made conditions very difficult. **U1BA**: Anniversary contest. My first CQ WW phone was in 1956 (club station UA1KBB). **VE3MGY**: You could actually hear the aurora in the headphones and signals were down by a factor of 20! It would have been an excellent weekend for the CQ WW VHF contest! **VK1AA**: I am 9 years old and this was my first contest. My dad and I operated from the car, running 60 watts to mobile antenna. I liked it very much. **VP2MQD**: This was my first trip to Montserrat. We ran low power with limited antennas. It was tough on low power from the Caribbean, but I enjoyed the contest. **VY2ZM**: Solar minimum low band condx not optimal but reasonably good. Nice to see so many old friends.

**XE2S**: Thanks to all of you who gave me the chance to QSO and hope to see you next contest. **YI9QJ**: Dipole in a war zone. **YM125ATA**: It was very tiring to work with 10-character callsign. It was a pleasure for me to remind everybody about Turkish leader with YM125ATA/4 special callsign during contest. **YO2IS**: Pleased to find 10 meters wide open, not too many participants. Was running my "Retro-Rig," GU29 (Russian 829B) PA, 75W and trap gp. **ZL2AWH**: Conditions not good. Had trouble getting stations to turn their beams down under. **ZM2M**: Enjoyed our first as ZM2M operating from a farm workshop with two wires and two Yagi antennas erected for the contest. **ZS9X**: First M2 from the new ZS9X contest station!

## USA QRM

**AA5RO**: First time for most of the operators. **AB7E**: Wow, what a grind. Operating low power with a dipole on 40m in an SSB contest is an exercise in perseverance. Lots of calling, lots of time between contacts, and all S&P, at least here from Arizona. **AC5ZS**: Thank God for 10 meters! **AF7DX**: Just changed my call from AH6RF to AF7DX as I am moving to WA soon. Boy, was it a pain to sign "portable KH6" for the contest! Guess this will be my last CQ WW from Hawaii. Thanks for the fun! **K0DD**: They say I have awoken from a 15 year coma. **K0IZ**: Surprisingly good band conditions. Five more multipliers than last year. Using my Collins vintage station adds a fun element to contesting. **K2HN**: QTH had snowstorm and power outages which limited operations. Special thanks to all the stations that took the time to pull me out of the noise (5W). **K2MFY**: Contest off to a good start: first QSO was B7P! **K3MQ**: My first SSB DX contest. Great fun! But some ops spoke so fast I thought I had picked up a RTTY signal! **K3ZT**: Lots of great DX contacts on 15 meters! **K5RX**: 80 meter signals from Europe way below normal. Heard no Scandinavia at all. Big surprise to be called by 9M6DXX. First time for our club to participate. We enjoyed it! **K7ACZ**: Heard some Asia stations S&P but not running. Would have loved to log them. Thanks to 3XM6JR for asking for the West Coast, otherwise would not have been able to get through to him past the East Coast curtain.

**KA1C**: Wow! The first contest I worked where I was able to make contacts on all bands, 160 through 10m. Nice to see 10, 15, and 160 open on the same weekend. **KB0FHP**: Oh, I wish I had had a couple of more dB! This was undoubtedly the hardest time I have had in a contest, low power and on 80m, using only a cheezy wire vertical strung in the trees, with only minimal radials. I think I got really tired of "again again?" I want to thank everyone who was patient with my puny signal. **KG4VPC**: My first CQ WW contest ever! Had fun and worked a lot of new countries. **KU4V**: My tree wires seemed more directional and gray-line dependent than I anticipated. **JH4UYB** and **V73RY** were surprises as much as hardly no Europe! **KY6LA**: I love this contest. I only wish I had more time to play at it. 10m was open and lots of DX contacts during the supposedly low sunspot cycle. **NE1RD**: High winds and a couple of power brown-outs threatened but did not affect the weekend's operation. I was able to sneak up a G5RV at 55 feet and make it a flat-top (instead of the inverted-V like last year) and that helped considerably. QRP phone is still a challenge, especially with wire antennas, but that's what makes it fun! **NJ9Z**: Very challenging conditions with lots of QRN/QSB. Being able to bust through a few pile-ups with low power and a vertical made it all worth it. **NN7SS**: This was multi-operator from my "new" Vashon Is. QTH with the members of the Vashon-Maury Island Radio Club (W7VMI), many of whom were brand new to CQ WW.

**W1CTN**: 20 meters was like a knife fight in a telephone booth, no quarter given. **W4CEO**: Hit my goal of 200 QSOs. Not bad using Hamsticks on the car in the driveway. Highlight was working the FK8 on 15m. **W4WS**: First try at M/2. So much fun, yet so different in terms of strategy from M/S. If you can have this much fun at the bottom of the cycle, there is no doubt this is the best contest out there. **W8KNO**: With 12 minutes to go, reached my goal of working all continents. **W9LYN**: Was great to see 15 meters so good near the bottom of solar cycle 23 that one could catch VK4CZ with 100 watts to a 160 meter inverted-L. **WN3R**: My first contest from new QTH known as "Ham Heaven." Score would have been better if the beam directions were not set by the 40 mph winds. **WU9B**: My best effort so far from my little pistol station!

## EUROPE TOP SINGLE OPERATOR ALL BAND

Station	160	80	40	20	15	10
CU2A	183/10/46	352/16/63	1055/22/79	1479/27/94	1546/27/100	972/18/82
OE4A	185/6/48	596/13/74	862/31/96	1723/35/116	1305/34/114	437/21/79
OH8X	129/8/43	272/19/75	702/30/105	1833/35/110	947/30/115	306/16/73
S50A	108/6/48	531/20/76	966/30/106	1467/34/120	827/33/107	282/19/79
ES5TV	361/9/55	578/22/82	869/30/95	1769/38/133	804/31/116	384/15/72
GW4BLE	100/8/46	501/12/70	654/22/80	1236/29/97	816/21/80	317/19/75
EA4KR	26/5/21	498/17/82	525/21/76	1342/28/100	1118/27/93	118/17/61
GM7V	247/7/45	632/19/78	692/26/95	1249/31/105	750/28/92	244/13/60
S06X	153/8/38	616/16/77	538/28/95	1225/33/97	307/29/99	181/21/75
LB8IB	388/6/52	760/12/73	378/13/71	1362/32/116	507/22/85	159/10/55

## EUROPE MULTI-OPERATOR SINGLE TRANSMITTER

9A1P	141/8/58	595/18/85	1123/35/123	2307/38/153	1398/38/152	649/25/111
OM8A	370/12/62	417/22/92	1288/34/125	2265/39/160	1187/38/153	280/23/104
E17M	231/9/57	858/19/95	568/25/100	2317/40/145	1386/33/134	985/20/100
TM6M	191/7/52	468/19/87	761/30/103	2502/38/151	709/32/132	479/20/94
HG1S	113/8/53	553/19/83	960/33/117	1835/38/149	945/37/155	642/24/112
RK2FWA	367/9/61	599/19/82	999/33/117	1786/37/161	848/36/140	569/21/92

## EUROPE MULTI-OPERATOR TWO TRANSMITTER

IR4X	152/10/59	1029/26/106	1684/35/126	2171/38/149	2181/38/160	1048/29/119
9A7A	357/8/56	1155/23/98	1598/35/131	2721/38/155	2201/38/153	663/25/107
UU7J	296/11/63	656/28/93	1322/36/124	2183/40/149	1812/36/143	731/27/105
HG6N	429/8/62	1147/20/95	1289/32/121	1771/36/145	1584/37/144	614/25/100
OE2S	405/7/56	872/18/83	898/32/119	1636/40/148	1667/35/145	705/27/111
DO4W	224/6/46	815/19/83	1013/31/112	1971/36/133	1585/37/144	371/22/91

## EUROPE MULTI-OPERATOR MULTI-TRANSMITTER

DR1A	755/11/64	1864/24/103	2491/36/137	3361/40/163	1817/37/161	1002/27/117
DF0HQ	867/10/61	1737/27/106	2516/36/143	2755/39/168	1554/37/154	983/26/123
OT6A	733/8/56	1741/20/95	1944/34/126	2421/39/157	1515/35/148	990/25/111
MD4K	936/11/65	1270/16/82	2815/31/117	2443/39/153	2134/30/134	1669/21/93
OH0Z	939/9/59	1467/23/94	2057/31/113	2443/40/155	1159/33/139	767/21/84
TM2Y	344/11/53	1003/20/87	873/26/90	2046/39/142	1662/34/125	563/21/91

(Continued on page 103)

The recently-sleeping ham radio marketplace is waking up again, with this year's Dayton Hamvention® featuring so many new transceivers and other goodies that we had to break this report into two parts. We'll look at radios and amplifiers this month, and finish our "what's new at Dayton" tour next month.

## Hot Stuff at Hamvention® – Part I

BY RICH MOSESON,\* W2VU

**T**here is a new excitement in the air about ham radio, and it's showing up in the marketplace as well. Last year, we saw four new radios introduced at Hamvention®, and only one the year before. This year, there are ten! Not only that, but many of them include groundbreaking innovations that promise to move us forward into the next generation of ham technology. As usual in this annual marketplace survey, we'll start out with transceivers, receivers, and amplifiers. Then next month we'll look at antennas and antenna accessories, followed by general station accessories.

### Radios

We'll start off with the five new HF transceivers (six, counting one introduced earlier in the year), and we'll take these alphabetically by manufacturer, starting with Elecraft, which actually previewed its new K3 transceiver (photo A) at the Visalia International DX Convention in late April. This rig breaks with a few Elecraft traditions. First of all, it's big, by Elecraft standards, 4" x 10" x 10", and you have the option of purchasing the radio factory-assembled or as a kit—but a different kind of kit. All the modules are pre-assembled and tested, and your job as the builder is to put the modules together inside the radio. No soldering is required. Performance-wise, the rig covers 160–6 meters with your choice of two power output levels, 100 watts or 10 watts (which you can later upgrade to 100 if you want). The rig includes two totally independent receivers, each with 32-bit digital signal processors and crystal roofing filter bandwidths as narrow as 200 Hz. (The high-performance receiver is standard for the main receiver, an option for the subreceiver.) If you connect the radio to an internet-enabled computer, you can download software updates with one click, using the included downloader software. Speaking of computers, the rig includes dedicated jacks for connecting to computer sound cards as well as an RS-232 jack (with USB adapter available) for making other computer connections. One unique feature is the built-in Anderson PowerPole™ connectors for DC power. No proprietary 18-pin power sockets, just simple PowerPole connectors. Options include an internal autotuner and a transverter interface that can be built into the radio. Costs range from \$1400 to about \$3000, depending on power level, major options, and whether you buy it assembled or as a kit.

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Photo A— The Elecraft K3 transceiver is a "modular kit" in which all the circuit boards are pre-assembled. It covers 160–6 meters at either 10 or 100 watts. (Photos by the author unless otherwise noted)

Next up is FlexRadio's Flex-5000, representing a new generation in software defined radios, or SDRs. The 5000 (photo B) is a "black box" with connectors on it, as all settings are controlled from your computer. It puts out 100 watts on all ham bands from 160–6 meters and includes a general-coverage receiver, plus a jack for a separate receive antenna that's particularly useful on 80 and 160 meters. The receiver can monitor the transmitter's spectrum, and includes a high-resolution spectrum display and panadapter to see



Photo B— FlexRadio's Flex-5000, representing a new generation in software defined radios, is a "black box" with connectors on it, as all settings are controlled from your computer.

Photo C— The Hilberling PT-8000 transceiver covers 160–2 meters, is offered at three different HF power levels, and, unlike any other radio on the market today, comes in a choice of three cabinet colors—black, blue or red! (Photo courtesy Array Solutions)



Photo D— ICOM bills its new IC-7700 as “the contester’s rig,” and has a DSP unit dedicated to the spectrum scope. Power output is continuously adjustable from 5 watts to 200 watts at full duty-cycle and there’s a low-noise switching power supply built in.



Photo E— Yaesu’s new FT-450 is a compact rig covering 160–6 meters with 100 watts out on CW, SSB, and FM (25 watts on AM). Eight bandpass filters at the RF input help eliminate interference from out-of-band signals.

where activity is on a band (or where there’s a quiet spot). You can point and click to retune to the frequency of your choice. The magic here is in the software, though. The DSP filters are fully adjustable from 10 Hz to 16 kHz, and are mode-specific. No hardware filters are required. On the transmit side, you have full control of transmit bandwidth, audio equalization, and digital compression. And the radio is never “finished.” The open-source PowerSDR™ software is regularly updated and upgraded, and a simple download from the internet gives you new features with each new version. Finally, if you don’t want to dedicate a computer to running this radio, the Flex-5000C model (\$2000 more than the basic 5000A) includes a built-in computer with a gigabyte of RAM, a 160 GB hard drive, Windows® XP operating system, standard internet connectivity, and a wireless keyboard and mouse.

A new entrant to the ham market in the United States is Germany’s Hilberling GmbH, whose high-end PT-8000 transceiver (photo C) is being marketed in the U.S. by Array Solutions. The PT-8000 covers 160–2 meters, is offered at three different HF power levels (10, 100, or 600 watts; 10 watts VHF on all models), and unlike any other radio on the market today, comes in a choice of *three cabinet colors*—black, blue, or red! It’s also huge, weighing in at a very solid 52 lbs. (Elecraft’s K3, by comparison, weighs 8 lbs.). The PT-8000’s receiver features seven 16-pole ladder filters, working in combination with DSP filters in the second IF stage, resulting in ultra-sharp filtering at 10.7 MHz. The same filters are used in the transmitter as well. The unit is also designed to serve as an IF for UHF and microwave transverters, for the very serious VHF weak-signal enthusiast. One other unique feature of the PT-8000 is the inclusion of the ISB, or independent sideband, mode, originally used to send live audio on the same frequency as a slow-scan TV picture, but now finding new uses in the HF digital world.



Photo F— The Ten-Tec Omni-VII is the first ham rig that can be remotely operated over the internet via a home computer network and an Ethernet cable connection on the radio’s back panel. It puts out 100 watts on 160–6 meters.

ICOM has a new player on HF (plus 6 meters), the IC-7700, which it bills as “the contester’s rig” (photo D). The IC-7700 comes with two 32-bit floating-point DSP units (the same type used in the IC-7800), one for the transmitter and receiver, and the other dedicated to the spectrum scope. The power output of the IC-7700 is continuously adjustable from 5 watts to 200 watts at full duty-cycle (5–50 watts on AM), and has a low-noise switching power supply built in. The 7700 also includes a built-in digital voice recorder (DVR) and is equipped for no-computer RTTY and PSK-31 operation simply by plugging in a USB keyboard (there are two USB ports on the front of the radio, one for a keyboard and the other for a flash drive to which you can save your digital QSOs and transfer them to your PC). The spectrum scope, with its dedicated DSP chip, lets you adjust the bandwidth resolution and monitor the width



Photo G— Italian manufacturer SPE has introduced the Expert 1K-FA fully solid-state 1-kilowatt PEP amplifier covering 160 to 6 meters (700 W PEP on 6) with a built-in power supply and automatic antenna tuner. (Photo courtesy Array Solutions)



Photo H— Tokyo Hy-Power's HL-2.5KFX is a 1500-watt PEP solid-state amplifier covering 160–10 meters. It's shown here next to another new unit, the HC-1.5KAT automatic antenna tuner.

and distortion of incoming signals. The scope range may be set independently from the current receive frequency. Finally, the 7700 includes a separate preamp and mixer specifically for its 6-meter receiver, making it easier to pull out weak signals during openings on "the magic band." Like the Hilberling, the IC-7700 sits solidly on your desk at 50+ pounds.

Returning to the world of lightweight and compact HF rigs, Yaesu's new FT-450 (photo E) weighs less than 8 pounds and is only 9" x 8.5" x 3.3" (plus knob depth). It covers 160–6 meters and puts out 100 watts on CW, SSB, and FM (25 watts on AM). Eight band-pass filters at the RF input help eliminate interference from out-of-band signals, and its DSP features include IF shift control with a "contour filter" for shaping the passband, as well as a

manual notch filter, digital noise reduction, and variable IF width. On the transmit side, the DSP provides a digital microphone equalizer, DSP VOX, and two voice memories of up to 10 seconds each. In addition, the radio can be set to read out frequency, mode, and S-meter readings in voice, a great help for the visually impaired operator. An internal automatic antenna tuner is an option, and the radio's light weight and small size make it ideal for mobile or portable operation as well as home-station use.

Finally, while it was formally introduced earlier this year, Ten-Tec's Omni-VII (photo F) deserves a mention here, if for no other reason than the fact that it is the first ham rig that can be remotely operated over the internet via a home computer network and an Ethernet cable connection on the



Photo I— ICOM's IC-2820 is a dual-band 144/440 MHz transceiver which (with an optional digital unit) features D-Star digital voice capability and internal Global Positioning System capability, the first ham rig to do so.

radio's back panel. It puts out 100 watts on 160–6 meters, has separate equalization controls for both received and transmitted audio, and features a distributed roofing filter system to enhance noise-figure numbers and minimize intermodulation distortion.

## HF Amplifiers

Two new HF amplifiers debuted at Dayton this year. The Expert 1K-FA (photo G) by Italian manufacturer SPE (marketed in the U.S. by Array Solutions) is a fully solid-state 1-kilowatt PEP amplifier covering 160 to 6 meters (700 watts PEP on 6; new FCC rules again permit the sale of amps including 10 and 12 meters) with a built-in power supply and automatic antenna tuner. It is said to connect easily to all current ICOM, Kenwood, and Yaesu transceivers, and is fully automatic, retuning itself in response to frequency changes in the transceiver. It will run off either 120 or 230 volts AC, and can be driven by as little as 20 watts of input power.

The next is actually a family of amplifiers from Tokyo Hy-Power (marketed





*Photo J— The control head of the new Kenwood TM-V71A is detachable and reversible, so you can mount the rig with the speaker facing either up or down, and still have the head right-side-up. It includes a weather-alert feature and is compatible with the ARRL's Travel-Plus repeater mapping program*



*Photo K— The weather-resistant Yaesu FTM-10R is designed with the motorcycling ham in mind. One unique feature is that the mic and push-to-talk switch are located in the detachable front panel, so you can hold the whole front panel in your hand and talk into it. The radio will also be Bluetooth-compatible.*

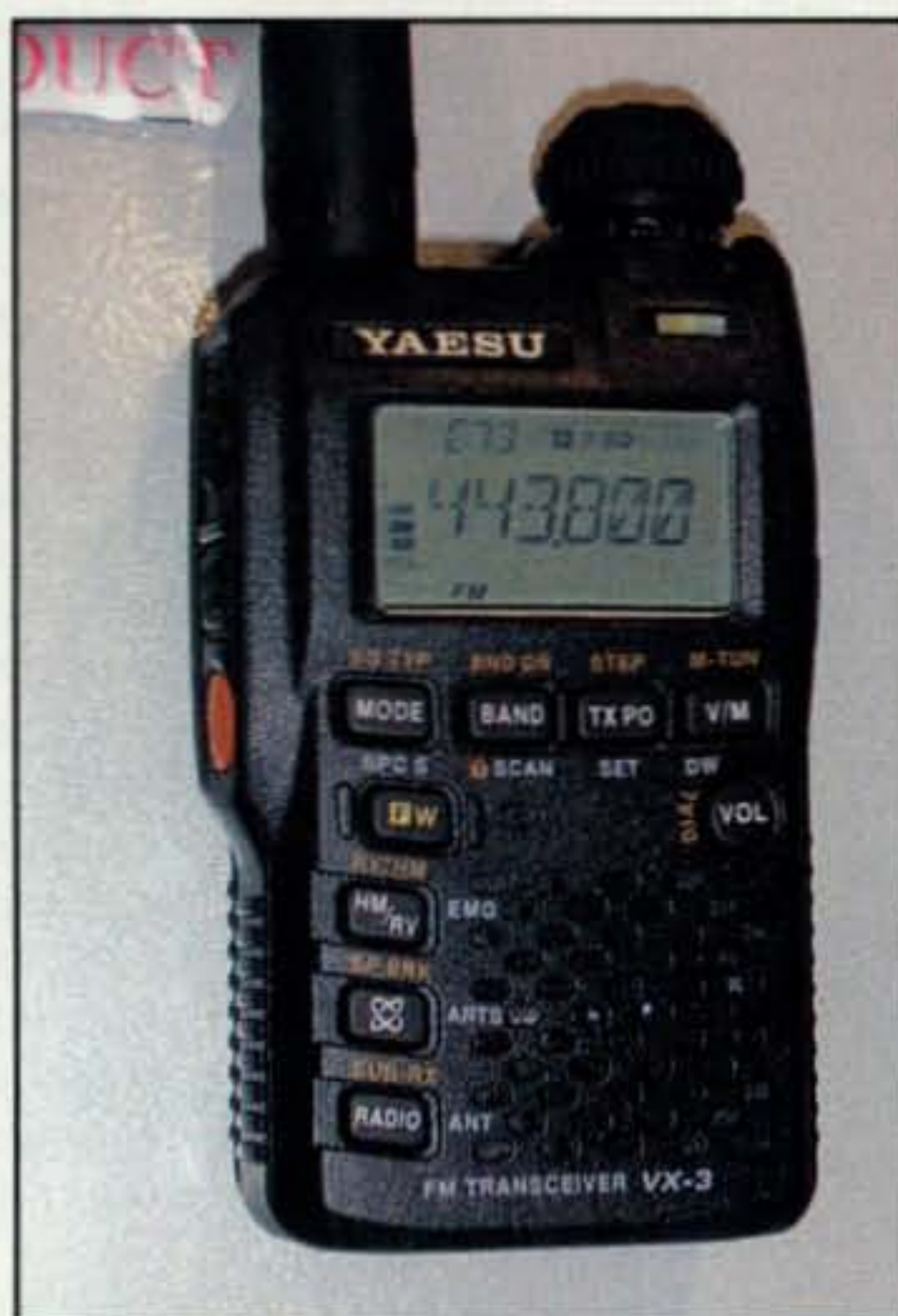
in the U.S. by Ham Radio Outlet). The "jewel in the crown" is the HL-2.5KFX (photo H), which, despite its name, is a 1500-watt PEP amplifier covering 160–10 meters. Fully solid-state and micro-processor-controlled, it changes bands automatically when receiving frequency information from most ICOM, Kenwood, and Yaesu transceivers. The company also introduced a companion automatic antenna tuner, the HC-1.5KAT. Tokyo Hy-Power's other new amps include the HL-1.5KFX (1 kW, 1.8–28 MHz + 650 W on 50 MHz), HL-1.2KFX (750 W, 1.8–28 MHz), HL-450B (400 W, 3.5–28 MHz), and the VHF HL-500V (500 W on 2 meters).

### VHF/UHF Transceivers

This year's Hamvention saw the introduction of five new VHF/UHF transceivers, including one with built-in GPS capability, one that can be reprogrammed from ARRL repeater mapping software, and one designed with the motorcycle-riding ham in mind.

ICOM's IC-2820 (photo I) is a dual-band 144/440-MHz transceiver that, if you add the optional UT-123 digital unit, features not only D-Star digital voice capability in addition to standard analog FM, but also Global Positioning System location information, making the 2820 the first ham rig to include internal GPS capability.

Kenwood's TM-V71A (photo J) has an interesting feature to help give you more flexibility in deciding where to mount the rig. The control head is not only detachable but also reversible, so you can mount the rig with the speaker facing either up or down, and still have the head right-side-up. It also features 1000 memories and ten weather channels, includ-



*Photo L— Yaesu's VX-3R is the only new handheld introduced at Dayton this year. Unique features include an internal bar antenna for AM broadcast reception, a stereo headset jack for listening to FM stereo broadcasts, and a CW learning and training feature.*

ing a weather-alert capability to sound an alarm in response to a warning from the National Weather Service. In addition, you can store five separate memory "profiles," such as groups of repeaters for different areas; plus it is compatible with the ARRL's TravelPlus® repeater mapping program. You can plot out a route in the program, and then dump all of the repeaters along that route into the 71A's memory.

Kenwood also introduced the TM-D710A mobile rig, which is APRS and Echolink-ready and has an input/output port for an outboard GPS receiver, along with all the functions of the TM-V71.

Vertex-Standard's Yaesu FTM-10R (photo K) is a tiny dual-bander with a detachable head that's designed with the motorcycling ham in mind. In fact, Yaesu even had it mounted on a motorcycle in its booth. The FTM-10R is capable of being submerged for up to 30 minutes in as much as 3 feet of water and is dust-resistant as well. One unique feature is that the mic and push-to-talk switch are located *in* the detachable front panel, so you can hold the whole front panel in your hand and talk into it. The radio will also be Bluetooth-compatible.

The only handheld on the Dayton intro list this year is Yaesu's VX-3R (photo L). It weighs less than five ounces yet can put out as much as 3 watts (with external power; 1½ watts on the internal battery) on 2 meters and 70 centimeters. In addition, its wideband receive coverage has led to the inclusion of an internal bar antenna for AM broadcast reception, plus a stereo headset jack for listening to FM stereo broadcasts. Finally, it includes a CW learning and training feature.

### Receivers

Two big receivers were introduced at Dayton, the AOR AR-Alpha and the ICOM IC-R9500. Both are very high-end professional-quality receivers with price tags to match. For more information on these receivers, see the August issue of our sister magazine, *Popular Communications*.

Next month, in Part II, we'll cover antennas and accessories. ■

# FCC Remarks at the 2007 Dayton Hamvention®

The FCC Forum on May 19th at the 55th Dayton Hamvention® attracted a huge crowd. The Commission sent two speakers: William Cross, W3TN, of the Wireless Telecommunications Bureau, and Riley Hollingsworth, K4ZDH, of the FCC Enforcement Bureau. We will summarize Bill's remarks below and provide Riley's comments in full elsewhere in this column.

Bill Cross works in the WTB's Mobility Division in Washington, D.C. This is the office that is responsible for the day-to-day administration and the overseeing of the Amateur Radio Service and much of its rulemaking. The division also has staff members in the Gettysburg, Pennsylvania licensing facility. Riley Hollingsworth's office is also in Gettysburg.

Cross's presentation covered current and pending rulemaking activities. He began by covering the two main Report and Orders (R&O's) that became effective since the last Dayton Hamvention®. These are WT Docket No. 04-140, commonly known as the "Novice refarming" or "phone band expansion" decision, and WT Docket No. 05-235, the no-code proceeding. The remainder of the text of this month's column is Bill's presentation at the forum (words in italics represent this editor's lead-ins and comments).

## The Phone Band Expansion

First I want to tell you what we did in the Report and Order in WT Docket No. 04-140. This is sometimes called the phone band expansion proceeding, but the decision actually had a much greater impact than just authorizing more frequencies for phone operation. It resolved 20 petitions for rulemaking.

*Bill summarized the main rule changes of what the Commission decided:*

- Eliminate the Novice and Technician Plus Class telegraphy bands, and used some of that spectrum to expand the bands for phone operation in the 80-, 40-, and 15-meter band.

- Authorize Novice and Technician Plus Class licensees CW privileges in what you all refer to as the General (and Advanced) Class CW bands, and CW, RTTY, and data emissions privileges in 28.0–28.3 MHz.

- Allow licensees to express their desire as to which radio club receives their callsigns in memoriam if they wished to do so. A recipient club would still have to be the first applicant for the callsign to get it, however.

- Prohibit acceptance of more than one application per applicant per vanity callsign. Only the first application received is now being considered.

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This should end the gaming of the vanity callsign system.

- Allow commercial manufacturers to market amplifiers to amateur radio operators that are capable of transmitting on the 10- and 12-meter amateur bands. The Commission also clarified and simplified the exceptions in its rules that applied to HF amplifiers and deleted the definition of an external RF power amplifier kit because it was vague.

Other rule changes in this decision were to:

- Allow your station to transmit an image emission 500 Hz or less on the data and RTTY frequency segments.

- Allow auxiliary stations (these are stations used for repeater and "remote base" control links, among other things) to transmit on certain parts of the 2-meter band. *This change eliminates any doubts about the legality of Kenwood's "Sky Command" remote-control system.*

- Allow spread spectrum emissions on 222–225 MHz (1.25-meter band.).

- Allow retransmission of communications between a manned spacecraft, such as the ISS *International Space Station* and its associated Earth stations.

- Delete the frequency bands and segments specified for RACES stations and clarify that during certain emergencies, RACES operation would be authorized pursuant to FCC Rules Part 214. *Note: Part 214 covers procedures for the use and coordination of the radio spectrum during a period of—or threat of—war or a state of public peril.*

- Make some changes to a few administrative rules in the examination system.

## The "No Code" Proceeding

Second, I want to tell you what we did in the Report and Order in WT Docket No. 05-235. This is sometimes called the no-code proceeding because "that darn 5 wpm code test" received all the attention. But the decision also more or less restructured the license classes, because it changed the privileges for a couple of hundred thousand licensees. This decision resolved 18 petitions that requested rule changes based on the WRC-03 changes to the international Radio Regulations.

*Cross said the two major rules changes in Docket 05-235 were:*

- to eliminate the Morse code requirement for the Technician Plus, General, and Amateur Extra Class operator licenses, and

- to authorize Technician Class licensees the same HF operating privileges that Novice and "Tech Plus" Class licensees have.

We did not automatically upgrade anyone's licensee class or change the operating privileges

# 10 Bands -- 1 MFJ Antenna!

*Full size performance . . . No ground or radials*

*Operate 10 bands: 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 Meters with one antenna  
Separate full size radiators . . . End loading . . . Elevated top feed . . . Low Radiation Angle . . . Very wide bandwidth . . . Highest performance no ground vertical ever . . .*

Operate 10 bands -- 75/80, 40, 30, 20, 17, 15, 12, 10, 6 and 2 Meters with this MFJ-1798 vertical antenna and get full size performance with no ground or radials!

Full size performance gives high efficiency for more power radiated. Results? Stronger signals and more Q-5 QSOs.

Full size performance also gives you exceptionally wide bandwidths so you can use more of your hard earned frequencies.

Full size performance is achieved using separate full size radiators for 2-20 Meters and highly efficient end loading for 30, 40, 75/80 Meters.

Get very low radiation angle for exciting DX, automatic bandswitching, omni-directional coverage, low SWR. Handles 1500 Watts PEP SSB.

MFJ's unique *Elevated Top Feed™* elevates the feedpoint all the way to the top of the antenna. It puts the maximum radiation point high up in the clear where it does the most good -- your signal gets out even if you're ground mounted.

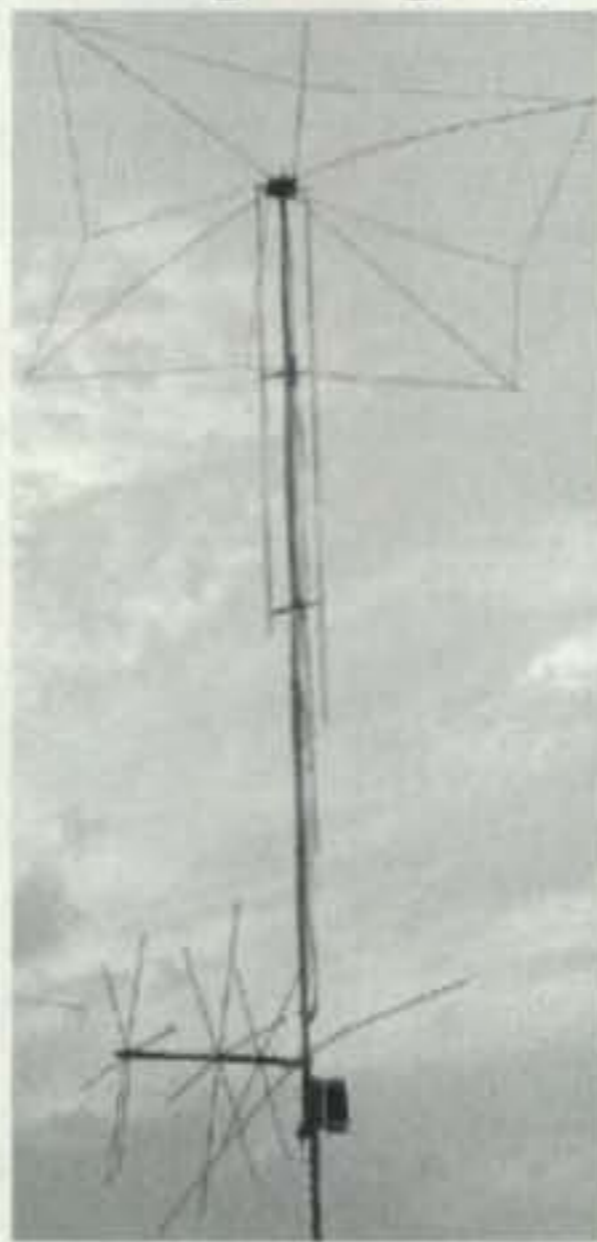
It's easy to tune because adjusting one band has minimum effect on the resonant frequencies of other bands.

Self-supporting and just 20 feet tall, the MFJ-1798 mounts easily from ground level to tower top -- small lots, backyards, apartments, condos, roofs, tower mounts.

### Separate Full Size Radiators

Separate full size quarter wave radiators are used on 20, 17, 15, 12, 10 and 2 Meters. On 6 Meters, the 17 Meter radiator becomes a 3/4 wave radiator.

The active radiator works as a stub to decouple everything



MFJ-1798

**\$289<sup>95</sup>**  
Ship Code F

beyond it. *In phase* antenna current flows in all parallel radiators.

This forms a very large equivalent radiator and gives you incredible bandwidths.

Radiator stubs provide automatic bandswitching -- absolutely no loss due to loading coils or traps.

### End Loading

On 30, 40, 75/80 Meters, end loading -- the most efficient form of loading -- gives you highly efficient performance, excellent bandwidth, low angle radiation and automatic bandswitching.

MFJ's unique *Frequency Adaptive L-Network™* provides automatic impedance matching for lowest SWR on these low bands.

Tuning to your favorite part of these bands is simple and is done at the bottom of the antenna.

### No Ground or Radials Needed

You don't need a ground or radials because an effective counterpoise that's 12 feet across gives you excellent ground isolation.

You can mount it from ground level to roof top and get awesome performance.

### No Feedline Radiation to Waste Power

The feedline is decoupled and isolated from the antenna with MFJ's exclusive *AirCore™* high power current balun. It's wound with *Teflon®* coax and can't saturate, no matter how high your power.

### Built to Last

Incredibly strong solid fiberglass rod and large diameter 6061 T-6 aircraft strength aluminum tubing is in the main structure.

Efficient high-Q coils are wound on tough low loss fiberglass forms using highly weather resistant *Teflon®* covered wire.

## MFJ's Super High-Q Loop™ Antennas



MFJ-1786  
**\$399<sup>95</sup>**

MFJ's tiny 36 inch diameter loop antenna lets you operate 10 through 30 MHz continuously -- including the WARC bands!

Ideal for limited space -- apartments, small lots, motor

homes, attics, or mobile homes. Enjoy both DX and local contacts mounted vertically.

Get both low angle radiation for excellent DX and high angle radiation for local, close-in contacts. Handles 150 watts.

Super easy-to-use! Only MFJ's super remote control has *Auto Band Selection™*. It auto-tunes to desired band, then beeps to let you know. No control cable is needed.

Fast/slow tune buttons and built-in two range Cross-Needle SWR/Wattmeter lets you quickly tune to your exact frequency.

All welded construction, no mechanical joints, welded butterfly capacitor with no rotating contacts, large 1.050 inch diameter round radiator -- not a lossy thin flat-strip -- gives you highest possible efficiency.

Each plate in MFJ's tuning capacitor is welded for low loss and polished to prevent high voltage arcing, welded to the radiator, has nylon bearing, anti-backlash mechanism, limit switches, continuous no-step DC motor -- gives smooth precision tuning.

Heavy duty thick ABS plastic housing

has ultraviolet inhibitor protection.

MFJ-1788, \$449.95. Same as MFJ-1786 but covers 40 Meters-15 Meters continuous. Includes super remote control.

MFJ-1782, \$359.95. Like MFJ-1786 but control has only fast/slow tune buttons.

MFJ-1780, \$259.95. *Box Fan* Portable Loop is about the same size (2x2 foot) as a box fan, complete with handle. Covers 14-30 MHz. Control has fast/slow tunes.

### MFJ Apartment Antenna

MFJ-1622 **\$99<sup>95</sup>** Covers 40 thru 2 Meters.

Mounts outdoor to windows, balconies, railings. Works great indoors mounted to desks, tables, bookshelves. Highly efficient air wound bug catcher loading

coil and telescoping 5 1/2 foot radiator lets you really get out! Radiator collapses to 2 1/2 feet for easy storage/carrying. Includes coax RF choke balun, coax feed line, counterpoise wire, safety rope. 200 Watts PEP.

### MFJ's G5RV Antenna

MFJ-1778 **\$39<sup>95</sup>** Covers all bands, 160-10 Meters with antenna tuner. 102 feet long, shorter than 80 Meter dipole. Use as inverted

vee or sloper to be more compact. Use on 160 Meters as Marconi with tuner and ground. Handles full legal limit power. Add coax feedline and some rope or other nonconductor and you're on the air!

## MFJ halfwave vertical

6 bands: 40, 20, 15, 10, 6, 2 Meters . . . No radials or ground needed

Only 12 feet high and has a tiny 24 inch footprint! **\$219<sup>95</sup>**

Mount anywhere -- ground level to tower top -- apartments, small lots, trailers. Perfect for vacations, field day, DXpedition, camping.

Efficient end-loading, no lossy traps. Entire length is always radiating. Full size halfwave on 2/6 Meters. High power air-wound choke balun eliminates feedline radiation. Adjusting 1 band has minimum effect on others.

MFJ-1792, \$179.95. Full size 1/4 wave radiator for 40 Meters. 33 feet, handles 1500 Watts PEP. Requires guying and radials.

MFJ-1793, \$199.95. Like MFJ-1792 but has full size 20 Meter 1/4 wave also.



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**MFJ . . . the world leader in ham radio accessories!**

for any of the license classes. Novice and Tech operating privileges were changed in the earlier docket."

### Implementing Certain WRC-03 Final Acts

The last proceeding that I want to mention is the Bureau Order that implemented certain WRC-03 Final Acts. The WRC-03 Final Acts became effective at

the end of the WRC (*the 2003 World Radio Conference*). The Part 97 rules needed to conform with these acts. Because these were conforming amendments, notice and comment were not required under the Administrative Procedure Act, so we were able to, as Nike says, "just do it." The rule changes eliminated obsolete rules or gave you more flexibility. *The changes:*

- Eliminated the reference to codes

and ciphers. Now the radio regs prohibit transmitting messages encoded for the purpose of obscuring their meaning;

- Allow you to transmit emergency or disaster relief communications for a third party to any station within the jurisdiction of any foreign government even if the administration does not have a third-party arrangement with the U.S.; and
- Allow any communication incidental to the purposes of the Amateur Service,

## "You Still Need to Lighten Up!"

Remarks by Riley Hollingsworth, K4ZDH, Enforcement Bureau, FCC

I want to talk to you about what bothers me most about amateur radio. ...You still need to "lighten up." I said that last year, but you need to take it to heart more. All of you can learn from each other. And you need to work together more and show a little more respect for your diverse interests and for the service as a whole. It isn't about you. It isn't about enforcement. It's about amateur radio.

Every time you get on the air, you need to decide what's most important to you ... the best interests of amateur radio as a whole, or your own pride or ego or "rights." I realize I may be preaching to the choir here, but on the air you need to be more cooperative and less argumentative.

In a nutshell, I have good news and bad news. The good news: Nothing is wrong with amateur radio. It is a good service that is showing its value to the public on a daily basis. The bad news is that there is an element of amateur radio that too often reflects present society in general. Whatever the phenomenon behind road rage—whatever that is—that's what I am talking about. All of you need to work together and depend upon the FCC less to solve your operating problems. We live in a rude, discourteous, profane, hotheaded society that loves its rights, prefers not to hear about its responsibilities, and that spills over in to the ham bands.

I can't really say it any better than Dave Sumner, K1ZZ, did in May 2007 *QST*, page 9: "Most of the unpleasantness that erupts from time to time on the most popular HF bands can be avoided if we're willing to be flexible in our frequency selection."

Lots of you are like people in a parking lot arguing over a parking space when there are hundreds available. We are all ordinary people, and even on the best days, probably work and think at around 60% efficiency. We are not the greatest nation on Earth. We think we are but we aren't, and we aren't the greatest people. Look at the evening news for about a week if you don't realize that. And think about what the rest of the world sees going on in America.

What we *are* is this: "We are rude, self-important, cell-phone yapping, road raging, and stressed-out monsters behind the wheel." And all too often behind the microphone. You are increasingly calling upon the FCC too much to solve your problems. Remember: "Most of the unpleasantness that erupts from time to time on the most popular HF bands can be avoided if we're willing to be flexible in our frequency selection."

You are the only service that has thousands of frequencies and hundreds usable at any given time of day or year. It was designed that way to give you alternatives, to have fail-safe back-up plans, and to experiment and lead technology. Even the public safety services don't have thousands of frequencies.



Riley Hollingsworth, K4ZDH (at far right), listens as colleague Bill Cross, W3TN (at the microphone), speaks at the Dayton Hamvention@ FCC Forum in May.

Now some frequencies are like bad neighborhoods. They are being cleaned up, but it will take more time and it's just not something that happens overnight. We will get there. Take 14.275, for example. Probably in the future it will be determined that RF radiation does indeed cause brain damage, but *only* at 14.275. It is a bad neighborhood. Stay away. I get calls every week from the same group of people who went to 14.275 and got abused.

Now if you had three alternative streets you could take to work every day but when you used one you always got a rock thrown at your windshield, wouldn't you decide to take one of the other streets after, say, five or six windshields? After several windshields the logical question would arise as to who is the biggest fool—you or the person throwing the rocks! Why don't you take the same approach to amateur radio?

There are good operators and poor operators, just like everything else in life. There is a Canadian that Canada considers mainly a fruitcake and doesn't take him seriously. Their amateur rules are more lax than ours and so are some of their laws. It's an international problem and we can do very little about it. But when you go there and take the bait (and you *always* seem to take the bait!) ... you get into arguments, you make the problem *worse*, and you make it an American problem as well and amateur radio gets a black eye. There is a bad operator in Italy, too, but these are not problems we can correct.

and remarks of a personal character, when your station is making transmissions to a different country.

### What About the Future?

There's a lot coming down the pike that you need to watch and know about. Some of these items are rulemaking requests that have been filed with us but that have not yet been acted on by the Commission.

We have three petitions that ask for changes to the station identification rule. These are RM-11346 and RM-11347, each of which received over 100 comments, and a request from the Quarter Century Wireless Association.

One petitioner wants the "once every 10 minutes" part of the rule changed to once every 30 minutes. Another petitioner requested that we change the station identification rule back to what it

was in the late '50s by requiring a station to transmit its callsign and the callsign of the station it is communicating with, and by requiring the use of specific words when identifying. The QCWA wants certain letter combinations reserved so that the station may be identified as that of a veteran.

There are two petitions that deal with regulation of emissions by bandwidth instead of emission type. These are

The other day I was talking to one of the complainants about 14.275 and I asked why he insisted on going there. He said, "Well, old (name deleted) likes to talk there and he doesn't have any other antennas." Well, that must be a hell of a precisely cut antenna to only operate on the 20-meter frequency of 14.275! I heard an argument there the other afternoon and one operator was saying, "I'm not going to be driven off the frequency. I got rights!"

The Orientals have a saying about Americans; they say an American will lose his butt to save face. Just go somewhere else. The world is ugly enough ... don't add to it. People make mistakes, and 90% of interference perceived as deliberate is accidental or at least unintentional.

Most of the unpleasantness that erupts from time to time on the most popular HF bands can be avoided if we're willing to be flexible in our frequency selection. Again, in a problem like 14.275, just leave. Report it to us if it is a violation. But just use one of the hundreds of other usable frequencies you have and enjoy radio!

As Dave Sumner said in his May article: "It is unfair to your fellow amateurs to assume every instance of interference you may encounter is a hostile act." You can help us and help amateur radio by making this contribution: Don't respond. Don't become the problem. Report it to us, then use the big knob. It is possible that with current society being rude and hotheaded, this is as good as your service can get for a while anyway. That remains to be seen, but defuse problems, don't add heat to them.

"We can enforce our rules, but we can't enforce kindness and courtesy or common sense. And a very wise person, who happens to be standing to my left (*Bill Cross*), once told me: "You just can't regulate stupid." If we could, we'd be working for the United Nations instead of the FCC.

"Now I have specific messages for more of you.

To the nets: Just because you have been on the same frequency for 75 years, that doesn't mean you own it. All frequencies are shared. If you vary your frequency, or even if you don't have a net one night, the radio world isn't going to end.

To repeater owners: Just because you are coordinated doesn't mean you own the frequency. Coordination is a recommendation, not a frequency assignment. It's your callsign on the repeater and it's your station and your responsibility ... just as if you had left the door open to your station at home. If there is abuse, lock the door. Don't ask us to be baby-sitters or hall monitors of your repeater. That's what control operators are for. Nobody asked you to start a repeater. If you shut it down tomorrow, what would happen? People would use other repeaters!

To the contesters: Be more courteous. You are responsible for the frequency you are operating on and realize that's true even when you operate split. All frequencies are shared.

To those who don't like contesters: Lighten up! Contests are short lived. Use the WARC bands. Wash the car. Cut the grass. Learn from the contesters. And this applies to you traffic net folks, too—learn from the contesters. They pass information a lot faster and more efficiently than you do. Contesters are some of the best radio operators on planet Earth. If the contesters operated at the same pace as some of the emergency traffic nets, the contest would be over after the first few dozen signal strengths were exchanged!

To the widebanders: If you want to be a broadcaster, apply for a broadcast license. Using extraordinarily wide bandwidth on crowded frequencies at peak operating time is rude, selfish, and inconsiderate.

To the QRPers: Thank you, thank you, thank you for your vitality, inspiration, enthusiasm, and for being builders again! I wish I could take your enthusiasm and spread it over all segments of amateur radio. When I watch you folks, I see the excitement and magic of my first contact.

To those who don't like QRPers: Lighten up! Anyone can use a linear amplifier as a crutch.

To the ragchew nets: Four or five people meeting on the same frequency every night for 50 years using 1200 watts to talk a few hundred miles when 100 watts would do just fine is not a net. It's an informal roundtable. It ain't going to hurt you either to vary your frequency or skip a night. And the so-called "net" on 75 that bills itself as an "Oasis of Amateur Radio"—give us all a break. You are an ordinary roundtable. And no net is an "oasis of amateur radio."

To those of you who don't like DXpeditions: Lighten up! If a group of people wants to spend a lot of money to go to a rock or sandbar in the ocean, live in a tent, and swat flies and scorpions for a week and talk over ham radio 24 hours a day, so what? Let 'em do it! DXpeditions, too, are short lived, and such operation must be important to someone. Scarborough Reef drew over 50,000 contacts, didn't it? And weren't over half of them CW, by the way? Nobody would have even known about it had it not been published in popular radio magazines.

And to those of you who have been continual problems and we just haven't gotten to you yet, you now have a problem yourselves. Your renewals are coming up. You have the burden of proof in showing that you should have a license and you have to come to Washington to make your case. And we are going to have a lot of questions for you.

And finally, to all of you who will no doubt moan about the code being eliminated, I say this:

- If it was such an earthshaking issue, why did less than 1% of you even file comments during the decision-making process?? Why is it important now but it wasn't important then?

- How can it be a "filter" when the worst enforcement problems we have are all those who passed a 13- or 20-wpm code test?

- It wasn't eliminated; it just isn't required anymore. For a driver's test, did you have to know how to drive a five- or six-speed transmission? Well, those are some of the coolest cars on the road!

- The idea of eliminating the code requirement has been kicking around for years, yet there is more code equipment today than ever before: keyers, keys, straight and bug, and readers ... you name it.

We won't know the effect of eliminating that requirement for ten years. I personally won't be here ... years of hamfest hotdogs will have taken their toll. But I honestly don't see it as an enforcement problem.

I'm loyal to the code. I wish we could have kept it at 13. But my bet is that dropping the requirement will turn out to be a stroke of genius.

Only time will tell, but if we don't do something to draw in more people, and appeal to greater numbers, in a few years at Dayton we'll all be bumping into each other with our walkers! Let's face it, folks—look around. We're getting old!

We all need to try new things and always work towards keeping amateur radio dynamic. Know the issues; participate in it. But most of all, enjoy!

And thank you again for all the incredible support you give our enforcement program. The self-regulating aspect of your service never ceases to amaze me!

RM-11305 from the Communications Think Tank and RM-11306 from the ARRL. Both petitioners have filed requests to withdraw their petitions.

The ARRL also has pending a petition, RM-11325, that requests that we amend the rules that apply to the power stations may use when transmitting spread-spectrum emissions.

A group that calls itself Hams for Action wants us to take another look at

a decision denying its request that we preempt certain covenants, conditions, and restrictions (CC&Rs) in deeds.

Two individuals have requested that we reconsider certain aspects of the no-code decision. One petition is concerned about whether the Electronic Comment Filing System (ECFS) is working properly. It requests that we stay the decision, fix ECFS, re-open the comment period, and then put out a new

decision. The other petition argues that failure to keep the Morse code telegraphy requirement, at least for the Amateur Extra Class license, does not take into consideration the significant national security implications that the future viability of Morse code provides. We also have received a petition for rule-making from Mark Miller, N5RFX. This petition requests, among other things, that the CW/RTTY/digital bands be divided into 1.5-kHz and 2.4-kHz segments, and that automatically controlled digital stations be limited to certain frequency segments.

**Broadband over Power Lines:** The ARRL and other user groups have filed an appeal with the DC Circuit Court of the FCC's final BPL rules. Appeals of Commission decisions are handled by our General Counsel's office. Those petitions are pending and whatever is decided on them, I am sure, will be well publicized on your websites when the Court makes a decision.

There also may be items coming out of other bureaus that will affect the Amateur Service. OET (*Office of Engineering & Technology*) probably will handle an ARRL petition that requests we swap one channel in the 60-meter band for another channel.

OMD (*Office of the Managing Director*) handles matters such as the vanity callsign application fee. It has a proposal on the street that would reduce the application fee from \$20.80 to \$11.70.

You may see decisions on some of these items coming out later this year. On the international front, planning is well under way for the next World Radio Conference, WRC-07. That conference has a couple of items that could affect the Amateur Service. One item is a request for an allocation in the LF part of the spectrum, around 135 kHz. Another item concerns HF allocations which could impact our 40- and 60-meter bands.

Lastly, keep your eye on legislation that has been introduced on Capitol Hill. A couple of bills have been introduced that may be of interest to you. One could help you with antenna installation issues.

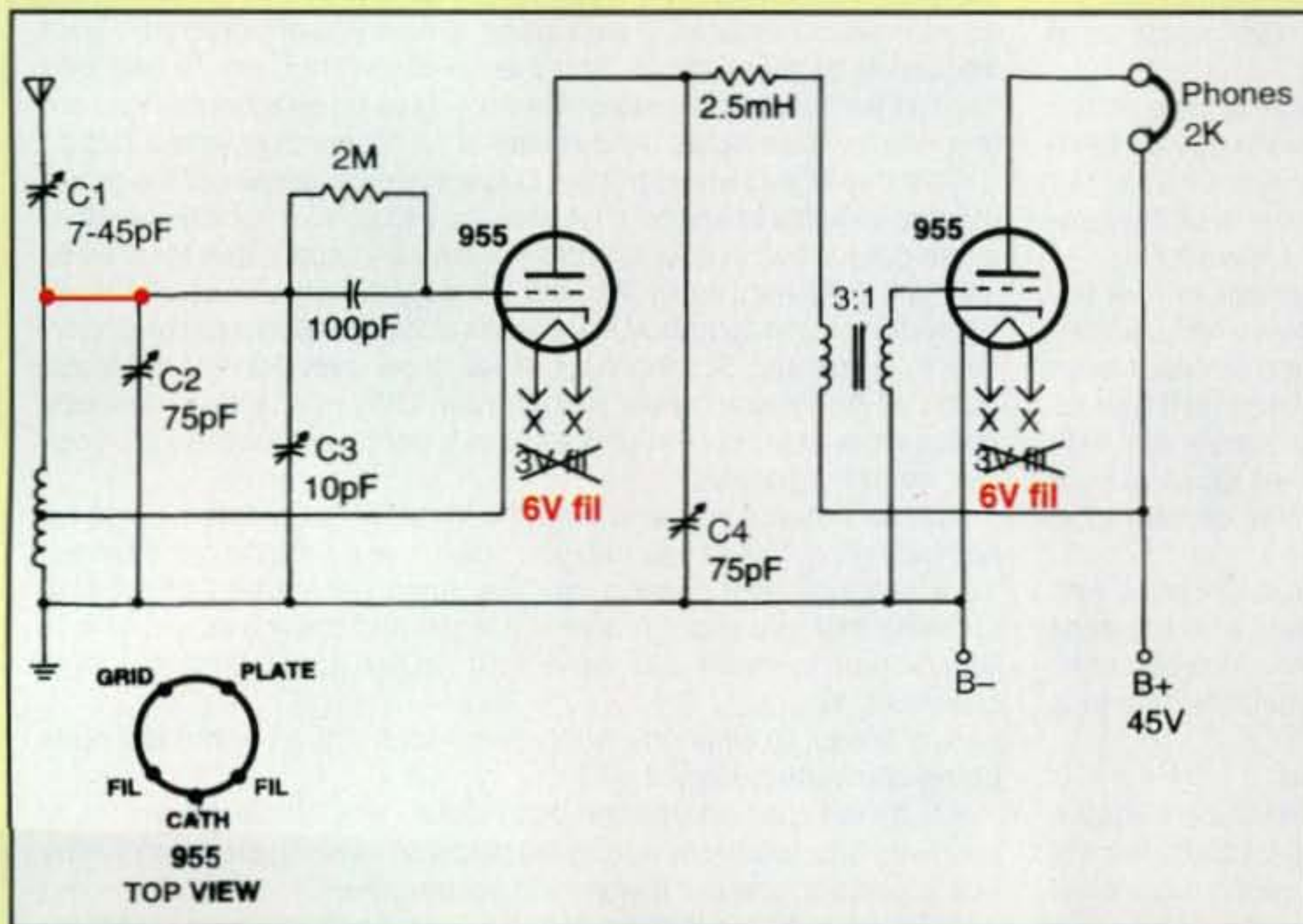
There also has been talk that Congress may want to take another look at parts of the Communications Act later this year. I'm sure that the amateur radio press will keep you informed on these issues.

We at *CQ* will be certain to keep you posted on the above issues and other subjects that affect the Amateur Radio Service and your participation in our hobby.  
73, Fred, W5YI

## Oops...

Well, the schematic gremlins are at it again, and they had a lot of fun with the June issue...

In the "QRP" column on page 70, the schematic in fig. 1 left out a connection between the top of C2 and the top of the coil to its left; and the 955 "acorn" tubes run much better at their rated 6 volts of filament power than on 3. A corrected schematic is shown here.



And in "The Weekender" (page 54), we didn't make any mistakes in the schematic ... we just left it out altogether! So, with our apologies, here it is...

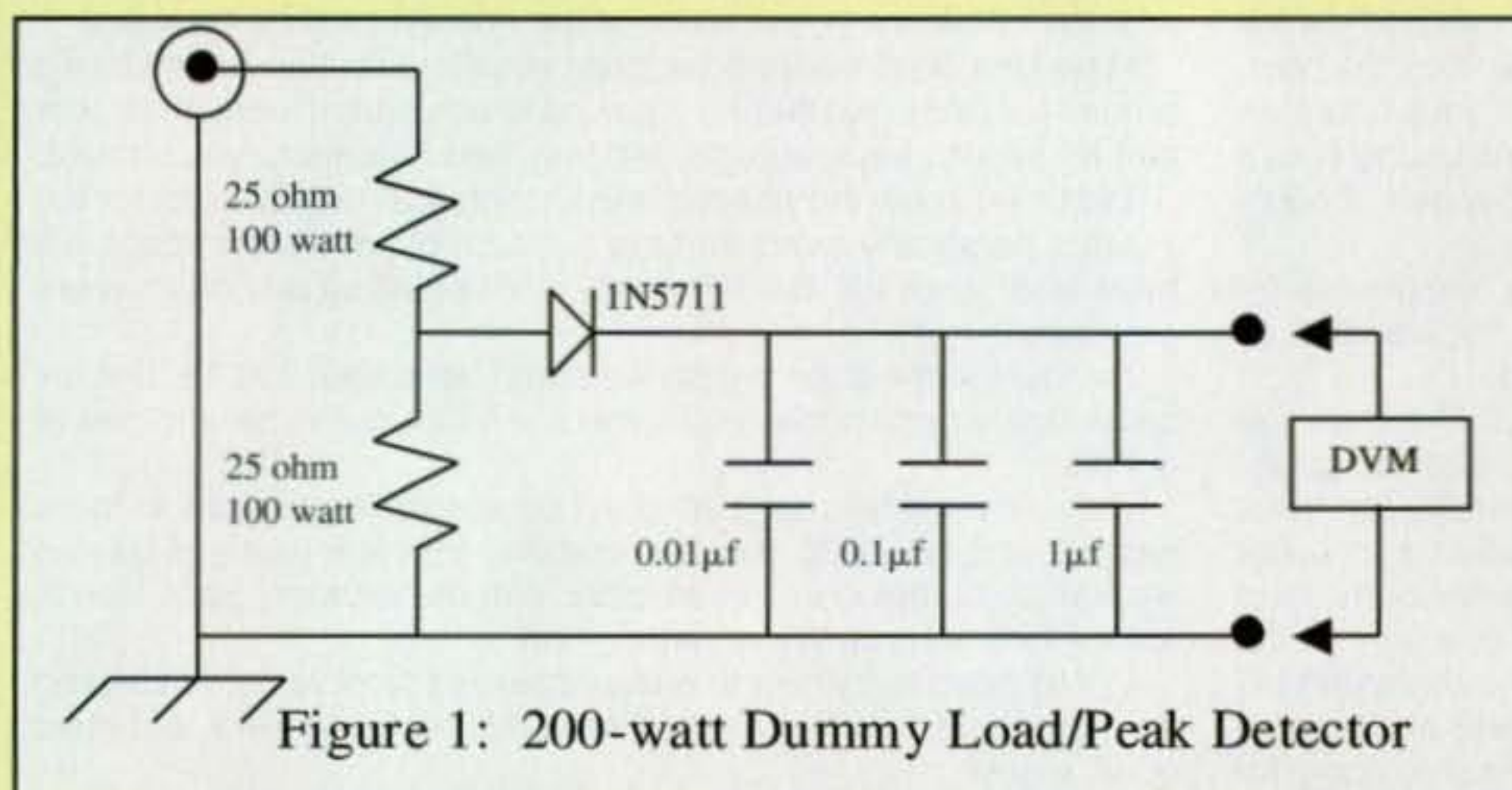


Figure 1: 200-watt Dummy Load/Peak Detector

Our thanks to our many eagle-eyed readers who caught the errors and brought them to our attention.—*The editors*

# AMERITRON 600 Watt no tune FET Amp

Four rugged MRF-150 FETs at 50 Volts give high efficiency... No deterioration with use



ALS-600  
Suggested Retail \$1299  
Ameritron ALS-600 Solid State FET compact desktop station amplifier is only 4 dB below 1500 Watts -- less than an S-unit!

There are no tubes, no tube heat, no tuning, no worry rugged -- just turn on, select band and operate. 600 Watts PEP/500W CW -- lets you talk to anyone you can hear!

Covers 1.5-22 MHz, (10/12 Meters with \$29.95 kit, requires FCC license), instant band-switching, SWR/thermal protected, extremely quiet, lighted peak reading Cross-Needle SWR/Wattmeter, front panel ALC control, operate/standby switch. 12.5 lbs., 9 1/2" W x 7 1/4" H x 12" D in.

Includes ALS-600PS transformer AC power supply for 120/220 VAC, inrush current protected. 32 lbs., 9 1/2" W x 6" H x 12" D inches.

ALS-600 Amp with Switching Power Supply New! ALS-600S, \$1428. ALS-600 amplifier with 10 lb. ALS-600SPS switching power supply combo.



## Switching Power Supply

ALS-600SPS Works with all ALS-600 amplifiers. Extremely lightweight, just 10 lbs. Superb regulation, very low radiated noise. 9Wx6Hx14 1/2 D in.

## From QST Magazine, March, 2005

"... the amplifier faulted only when it was supposed to. It protected itself from our boneheaded, sleep-deprived band changing maneuvers..."

"I found myself not worrying about damaging this amplifier. It seems quite capable of looking out for itself. ... Kudos to Ameritron."

"I couldn't hear any noise at all from the SPS (switching power supply) on the vertical or quad..."

"I came to greatly appreciate the size, weight, reliability and simplicity of this amplifier."

"The ALS-600S makes it possible to pack a transceiver and a 600 Watt amplifier, that together weigh less than 30 pounds."

# AMERITRON mobile 500 Watt no tune Solid State Amp

Instant bandswitching, no tuning, no warm-up, SWR protected, 1.5-22 MHz, quiet, compact



ALS-500M 500M amplifier anywhere and gives you full control. Select desired band, turn On/Off and monitor current draw on its DC Current Meter. Has power, transmit and overload LEDs. RJ-45 cables plug into Amplifier/Remote Head.

Covers 1.5-22 MHz, (10/12 Meters with \$29.95 kit, requires FCC license).

Virtually indestructible! Load Fault Protection eliminates amplifier damage due to operator error, antenna hitting tree branches, 18-wheeler passing by. Thermal Overload Protection disables/bypasses amp if temperature is excessively high. Auto resets.

Typically 60-70 watts in gives full output. ON/OFF switch bypasses amplifier for "barefoot" operation. Extremely quiet fan comes on as needed. Excellent harmonic suppression, push-pull output, DC current meter. 13.8 VDC/80 Amps. 3 1/2" x 9" x 15 in. 7 lbs.

ALS-500M, \$849, 500 Watt mobile amp.

ALS-500MR, \$879, ALS-500M/Remote Head

ALS-500RC, \$49, Remote head for ALS-500M (for serial # above 13049).

ARF-500K, \$179.95, Remote kit for ALS-500M serial # lower than 13049. Includes AL-500RC Remote Head, filter/relay board for ALS-500M, cables, hardware, instructions.

Ameritron's ALS-500M solid state mobile amp gives you 500 Watts PEP SSB or 400 Watts CW output! Just turn on and operate -- no warm-up, no tuning, instant bandswitching. Fits in very small spaces.

New ALS-500RC, \$49 Remote Head lets you mount ALS-

## Free online manuals! Ameritron brings you the finest high power accessories!

ARB-704 amp-to-rig interface... \$59<sup>95</sup>

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

RCS-4 Remote Coax Switch... \$149<sup>95</sup>

Use 1 coax for 4 antennas. No control cable needed. SWR < 1.25, 1.5 - 60 MHz. Useable to 100 MHz.

RCS-8V Remote Coax Switch... \$159<sup>95</sup>

Replace 5 coax with 1! 1.2 SWR at 250 MHz. Useable to 450 MHz. < 1 dB loss, 1kW @ 150MHz.

RCS-10 Remote Coax Switch... \$169<sup>95</sup>

Replace 8 coax with 1! SWR < 1.3 to 60 MHz. RCS-10L, \$209.95 with lightning arrestors.

New! RCS-12C Fully Automatic Remote Coax Switch Controller... \$229<sup>95</sup>

Band data from transceiver auto selects antennas. Antenna memories. No hotswitching. Rig-to-amp interface. For 3/4 BCD, 1 of 8 relay boxes. RCS-12, \$299.95, auto controller with 8 coax relay box, to 60 MHz. RCS-12L, \$339.95, with lightning arrestors.

AWM-30 Precision SWR Wattmeter... \$149<sup>95</sup>

Active circuit gives true peak/average readings on lighted cross-needle meter. 3000/300 Watt ranges, Remote sensor.

AWM-35 Flat Mobile SWR Wattmeter... \$159<sup>95</sup>

1 1/2 in. thin on dashboard. Remote sensor, 25' cable. True peak, Cross-Needle, 1.5 kW, 1.8-30 MHz. High-SWR LED.

ATP-100 Tuning Pulser... \$59<sup>95</sup>

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

ADL-1500 Dummy Load with oil... \$74<sup>95</sup>

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

ADL-2500 fan-cooled Dry Dummy Load... \$199<sup>95</sup>

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

SDA-100 Mobile Screwdriver Antenna... \$379<sup>95</sup>

80-10M, fiberglass form, Pittman motor, CNC parts, magnetic sensors, #14 wire, 1.2 kW PEP. 6' whip, \$24<sup>95</sup>

800 Watts... \$849 with four 811A tubes



AL-811H, \$849. Plugs into 120 VAC outlet. All HF bands. Hi-silicon transformer, heavy duty tank coils, tuned input, operate/standby switch, Xmit LED, ALC, lighted meters, 32 lbs. 13 3/4" W x 8" H x 16" D in. AL-811, \$699. Like AL-811H, but three 811A, 600 W.

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## Basic Inexpensive Test Equipment

Last time we described two simple semiconductor testers. This month we would like to present a couple of additional devices that may be of use to you. In keeping with the theme of last month's column, these offerings are inexpensive but useful, so don't hesitate to dig in.

### A Simple Battery Tester

We all use batteries, and if you are like me, you probably have a box (or kitchen drawer) full of them, but with little or no knowledge of which are good and which are not. Well, the circuit described in fig. 1 should help. This is a schematic of a simple battery tester that can evaluate batteries from the tiniest 1.2-volt "button batteries" cells all the way up to batteries that produce 20 volts. Furthermore, it will test the batteries under load to give you a better idea of their condition.

The circuit consists of an inexpensive digital panel meter (available from many surplus sources, such as All Electronics <[www.allelectronics.com](http://www.allelectronics.com)>) set to the 20.00-volt range (actually, 19.99 volts). The instructions that come with the particular meter you use will indicate just how to set the decimal point and range to achieve this, as well as how to power the unit.

Connected across the input of the meter is a series of three resistors. Pressing the appropriate button places a load (in milliamperes) equal to the terminal voltage of the battery in volts or a multiple thereof. For example, a 1.5-volt battery will draw 1.5 milliamperes on the  $\times 1$  position, 15 mil-

liamperes in the  $\times 10$  position, and 150 milliamperes in the  $\times 100$  position. Similarly, a 12-volt battery will draw 12 milliamperes, 120 milliamperes, and 1.2 amperes, respectively. A 20-volt battery will draw 20 milliamperes, 200 milliamperes, or 2 amperes. These currents are roughly within the type of normal load with which these batteries are used and will give a reasonable indication of the state of the battery being tested.

As a result of higher voltage batteries drawing significant current, the resistor wattage ranges must be chosen carefully. The 1K resistor can be a standard  $\frac{1}{2}$ -watt carbon or carbon-film type. The 100-ohm resistor, however, should be a wire-wound device rated at 5 watts (or more), such as a Mouser Electronics ([www.mouser.com](http://www.mouser.com)) 280-CR5-100-RC, and the 10-ohm resistor should be a 50-watt (or more) device made up of two 20-ohm Mouser 280-CR25-20-RC resistors in parallel. These all are standard resistors, and the Mouser part numbers are only given for reference. Most distributors will have equivalent choices, and any resistor type with the correct ratings will work fine.

To use the tester, first connect the battery to the terminals with the proper polarity and push the ON button. I will leave the details of the type of probe or arrangement you come up with to you. Note what the battery voltage should be (according to the manufacturer) and what the digital panel meter indicates that it actually is. In this position, very little current is drawn from the battery and the full terminal voltage should be displayed. If it is well below the rated value, the battery is bad.

Now press the  $\times 1$  push button, the  $\times 10$  button, and finally the  $\times 100$  button, depending on the type

\*c/o CQ magazine

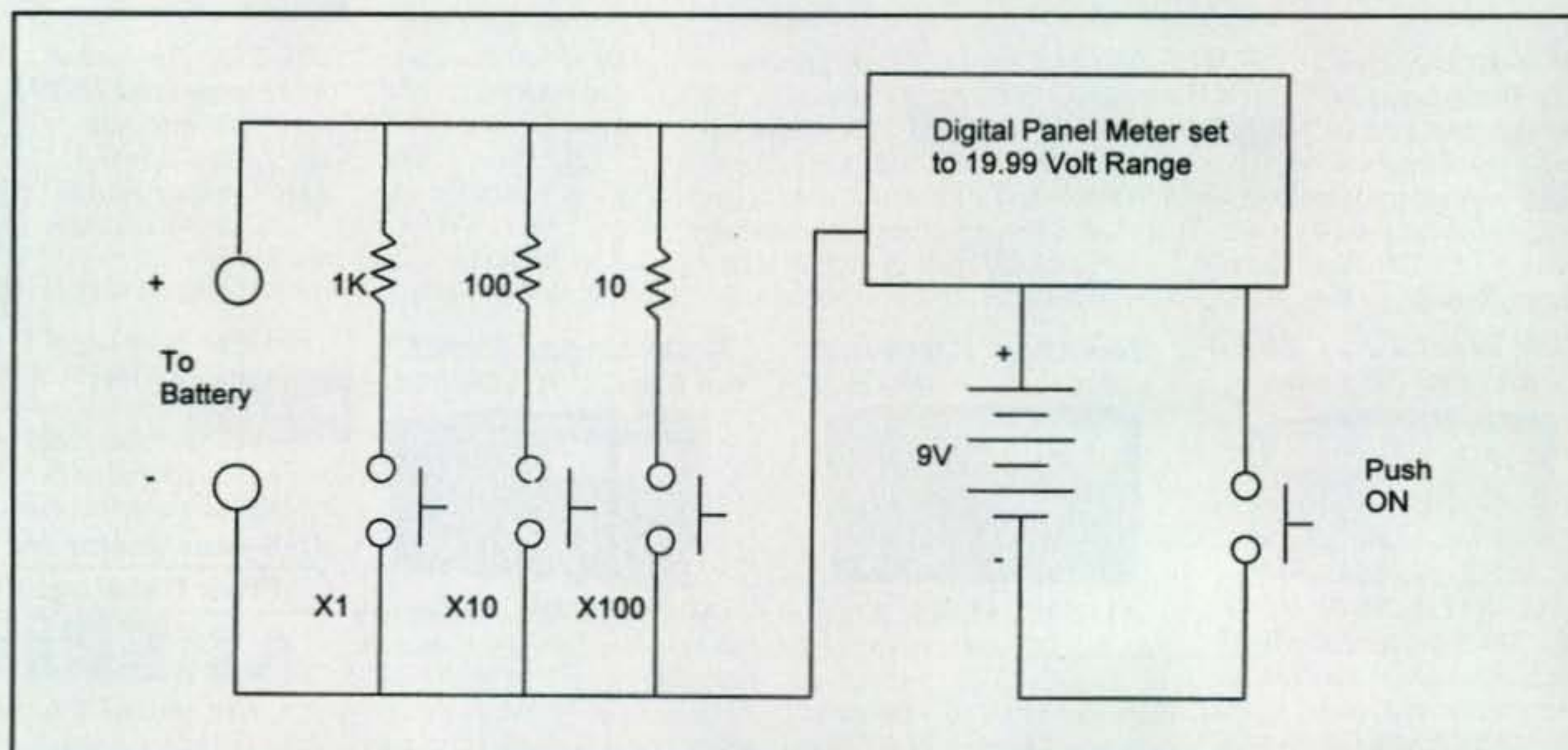


Fig. 1—A simple battery tester.



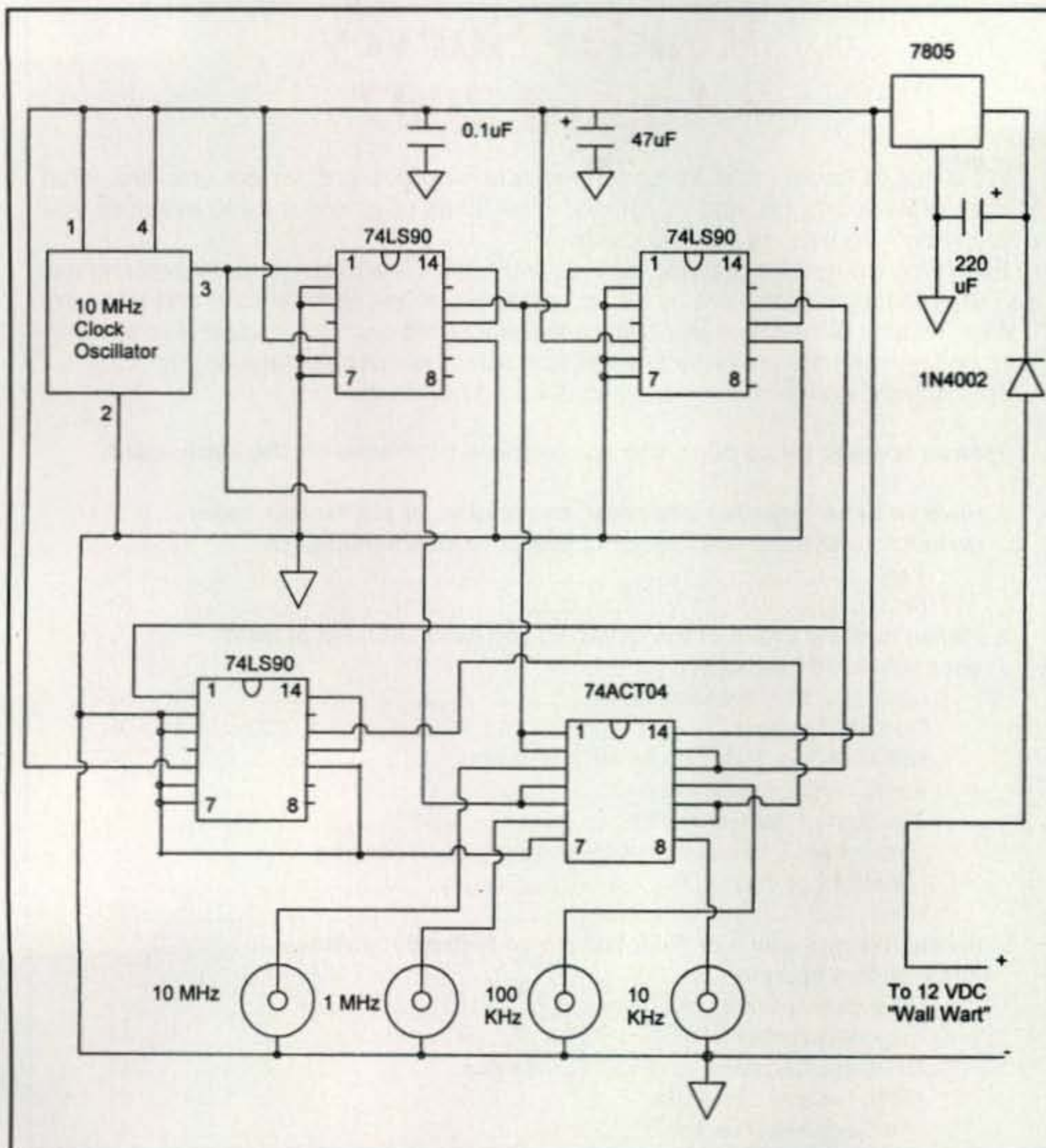


Fig. 2—A simple frequency standard. (Note: All ICs are top view. There is no connection to other pins.)

of battery you have. Note the change in battery voltage for each case. Depending on the battery and its normal current capacity, the terminal voltage should not drop more than about 10 percent. If it does, the battery should be suspect. Keep in mind that this tester really only gives a relative test, since it has no way of actually knowing the current draw of the circuit in which you plan to use the battery. However, the fact that there is a load is more meaningful than simply measuring the terminal voltage alone.

### A Frequency Standard

Fig. 2 is a simple frequency standard that has a multitude of uses. A commercial, low-cost clock oscillator (Mouser 520-TCF1000-X) at 10 MHz produces a highly stable and accurate TTL signal. The output of this oscillator is then applied to three 74LS90 decade dividers and a 74ACT04 quad NAND

gate used as a driver connected to four BNC output connectors. This circuit provides accurate outputs at 10 MHz, 1 MHz, 100 kHz, and 10 kHz. If you were to connect a short length of wire from the center pin of the appropriate BNC connector and place it near your receiver,

er, you would have a stable marker signal to calibrate your receiver's dial. Such a time base is extremely useful for older equipment without a digital dial, as well as for checking more modern rigs.

The 74ACT series was chosen for output drivers, as they can easily drive 50-ohm coax. For best results, you should build this circuit in a small aluminum enclosure so that only the signal you want is present at the output. Cost for the clock oscillators is under \$2.00, and the chips are less than a dollar each. As a result, this is not a high-cost device.

As a point of information, changing the oscillator to a 1-MHz unit (Mouser 520-TCF-100-X) will drop all outputs by a factor of 10. Alternately, an additional 74LS90 divider can be added if necessary. You will also note that we used 74LS90 decade divider chips. These are somewhat old but are still readily available, and we happened to have them on hand.

Another use for the frequency standard is to calibrate a low-cost oscilloscope. If you connect the probe to the 10 kHz output, you can trim up the probe's response for the best square wave. If you connect a DVM (digital voltmeter) across the 10-kHz output and read the average DC voltage, the reading you get (about 2.5 volts) will be equal to exactly half of the peak-to-peak output. You can now use this value to calibrate a low-cost scope.

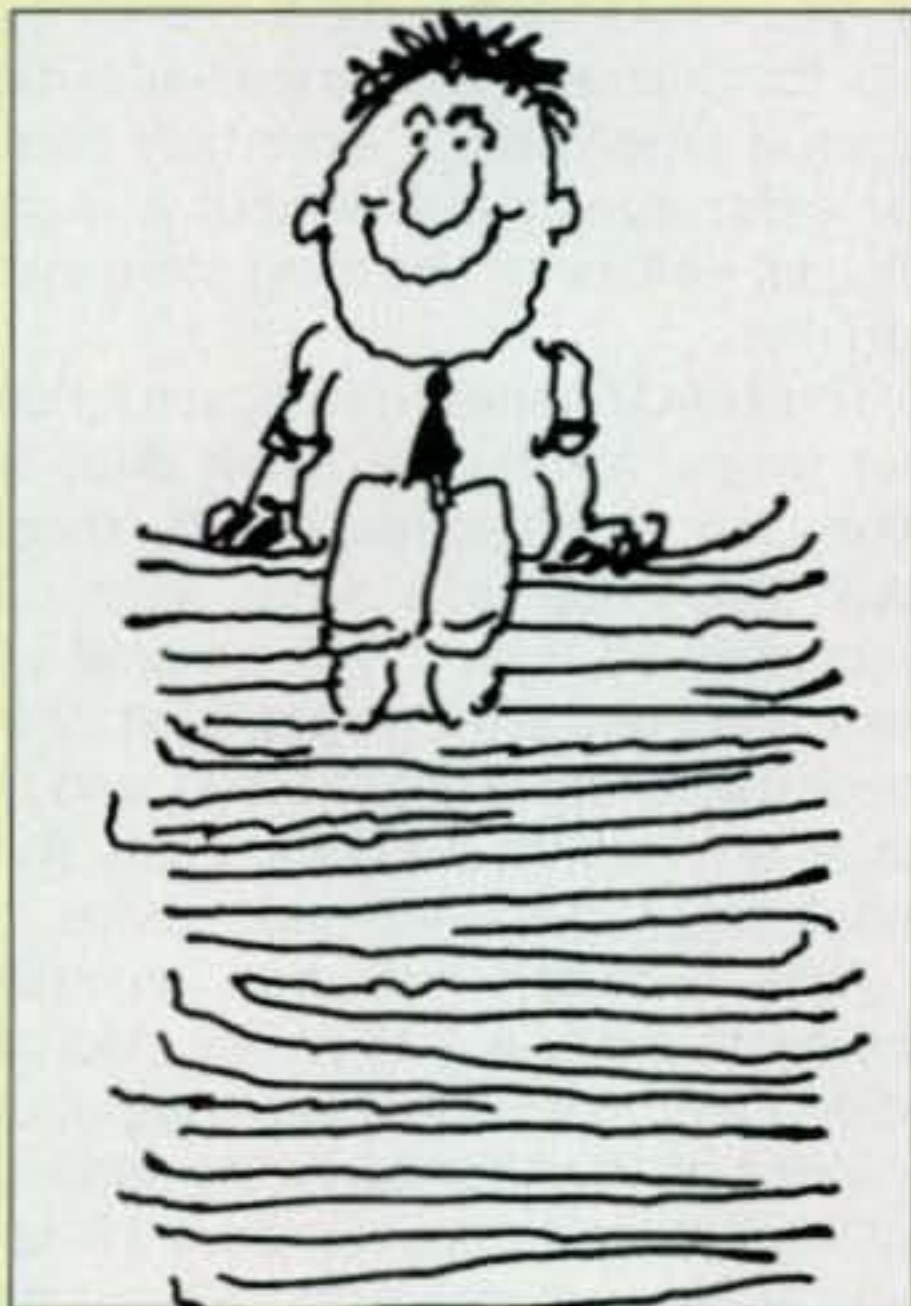
I hope the circuits we discussed last month and this month help to show you that reasonable test equipment is within the reach of the average experimenter, so don't be afraid to attempt to "roll your own."

73, Irwin, WA2NDM

### Clarification

In the June column we spoke about the potential energy stored in super capacitors, and it seems that our description may have misled some readers. We stated that the energy available from the capacitor could be calculated by the formula  $E = \frac{1}{2} CV^2$ . While this is true, the total amount of energy present is not exactly continuously available, but has a time factor associated with it. The energy calculated by the formula is in "watt-seconds" (or joules), not simply watts. For reference, one joule is equal to one watt-second. Let me explain:

If the charged capacitor has a potential energy of 2 watt-seconds (or 2 joules), then that is the total power it can provide in 1 second—no more. If the load across the capacitor only requires 0.1 watt, the power will last for 20 seconds. If, on the other hand, the load requires 20 watts, the power will only last for 0.2 seconds. Furthermore, the power will degrade logarithmically. The various circuit examples given all will operate properly, but we thought it important for readers to understand that a super capacitor is really not quite a battery for loads that are close to its watt-second charge. However, for very small loads, such as CMOS memory backup, super capacitors can be a useful source of standby power.



### What You've Told Us...

Our May survey asked about your favorite bands, modes and activities on HF, and we certainly got plenty of responses. First of all, three-quarters of you (76%) have been active on the HF ham bands for more than 15 years; followed by 12% 5–15 years, 4% each 1–5 and less than one year, and 3% who are not active on HF.

Anyone who thinks change comes quickly in ham radio needs only to look at your band choices ... seems those "new" WARC bands, which have been with us for over 20 years now, are finally starting to catch on. Asked which HF bands you enjoy using, 83% said 20 meters, 80% said 40, 65% enjoy 10, 64% enjoy 15, and 63% enjoy 80/75 meters. The WARC band with the biggest following is 17 meters, at 54%, followed by 30m (42%) and 12m (38%). In addition, 32% of you enjoy "top band" (160 meters) and only 12% like operating our actually-new 60-meter band.

Not surprisingly, single sideband (SSB) is king on HF, with 79% of you saying you regularly use it, followed by CW at 61%, then a steep drop to keyboard modes at 22%, FM at 12%, AM at 11%, and 2% each on digital voice, slow-scan TV, and "other."

Finally, your favorite HF operating activities include: DXing (69%), rag-chewing (56%), contesting (41%), award-chasing (29%), net operation (26%), technical experimentation (21%), county hunting (14%), "other" (8%), and SSTV (2%).

This month's free subscription winner is Paul Franson, W2LE, of Flemington, New Jersey.

## Reader Survey August 2007

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

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

This month, we have some questions about hamfests.

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

1. Have you ever attended a hamfest, convention, or similar ham radio gathering (not including operating events or club meetings)?
  - Yes .....30
  - No.....31
2. Please indicate which of the following you have attended at least once (circle all that apply):
  - Local club hamfest/swap meet .....32
  - Regional hamfest .....33
  - ARRL section, state, or division convention .....34
  - ARRL national convention.....35
  - The Dayton Hamvention®? .....36
  - Other regional or national conference or convention (e.g., AMSAT or Visalia DX) .....37
  - None.....38
3. Please indicate which of the following you attend regularly (circle all that apply):
  - Local club hamfest / swap-meet.....39
  - Regional hamfest .....40
  - ARRL section, state, or division convention .....41
  - ARRL national convention.....42
  - The Dayton Hamvention®? .....43
  - Other regional or national conference or convention (e.g., AMSAT or Visalia DX) .....44
  - None.....45
4. Please indicate your usual reason(s) for attending hamfests (circle all that apply):
  - To shop for equipment and accessories .....46
  - To sell equipment and accessories .....47
  - To attend forums and talks.....48
  - As a social event .....49
  - To help as a volunteer.....50
  - Do not attend hamfests .....51
5. Please indicate which *one* statement below best reflects your feelings:
  - "I go to hamfests to browse, even if there's nothing particular that I need." .....52
  - "I go to hamfests to buy; I know what I want and go home if I don't find it." .....53
  - "I go to hamfests to sell, and might bring something new home with me as well." .....54
  - "I go to hamfests to socialize, and if I happen to see something I like, I'll buy it." .....55
  - "I go to hamfests mostly for the forums; I'm not really interested in buying or selling." .....56
  - "I don't go to hamfests." .....57
6. Please indicate how you've felt after leaving the hamfests you've attended recently.
  - Generally exceed expectations .....58
  - Generally meet expectations.....59
  - Generally do not meet expectations .....60

Thank you for your responses. We'll have more questions for you next month.

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- Autodial memories
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DR-235 25/10/5w  
DR-435 35/10/5w
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- AM Airband RX on DR-135
- Extended receiver on all models  
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DR-235 216 ~ 280 MHz (FM)  
DR-435 350 ~ 511 MHz (FM)
- DR-235 capable of packet operations on 219 ~ 220 MHz (see FCC Rules)



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- Extended receive from 108.000 ~ 173.995MHz  
335.000 ~ 479.995MHz  
87.5 ~ 107.995MHz, transmits from 144.000 ~ 147.995MHz  
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## Reflections on Dayton

**A**s I write this, I have gotten back from the Dayton Hamvention®, having missed the past few for various reasons. All the wonder and magic are still there, though. It's difficult to describe the atmosphere of such a large gathering of hams; there's such an excitement in the air. I've been fortunate to attend the second-largest amateur radio gathering (Dayton being the largest), the ham radio *treffen* (meeting) in Friedrichshafen, on the shores of Lake Constance in southern Germany, and the same kind of feeling is there, too. Maybe it's all the RF...? Anyway, there seemed to be an abundance of digital things at Dayton this year, and this time we'll take a look at some of them.

### Modulation and Overmodulation

Before I start on the subject of Dayton, though, I want to mention the topic of modulation and overmodulation, in the context of PSK-31 and other digital modes. Like any signal, just the right amount is best, too little and you are wasting carrier, too much and distortion creeps in. Digital signals are somewhat more sensitive to distortion than analog modes, and so properly setting the output of your sound card is more important than, say, speaking into the microphone in a not-too-loud voice.

In my getting-started guide last time (June 2007 CQ), I mentioned that it is critical that the transmit modulation be set properly, but I didn't mention how exactly to best do that. Part of the reason was that

it's covered well in the documentation of every variety of PSK-31 software I've ever looked at, and part of the reason is that I was running out of space.

In general, for digital modes you are better off undermodulating rather than overmodulating, and it's not always possible to hear what the best settings might be. That being said, if the signal *sounds* distorted, it likely is, so turn down the audio output to the radio to a point audibly below the point where the distortion seems to have gone away. That's a good starting point. Then get on the air and ask someone to tell you what your IMD (inter-modulation distortion) number is; the PSK-31 software reports this value when it receives a signal with no text. A good value is -20 dB, and lower (say, -24 dB) is better. Make small adjustments and check again, and once you've hit the best number, make a note of the setting and use that every time.

### Software Defined Radios

Now back to Dayton. The big thing this year was SDRs (software defined radios). Regular readers of this column already know about this, but for any newcomers, an SDR is a radio that actually performs the modulation and demodulation in software, as opposed to hardware. This is very different from a software-controlled radio, where you can tune or change modes from a computer. An SDR is literally defined by software, with the hardware somewhat generic in form and function.

**FlexRadio.** The new FLEX-5000™ series is the latest addition to the FlexRadio family. While some may hesitate at the price—around \$2500 for the base model *without* a computer—one only has to review the specifications to see that this radio outperforms modern radios costing four times as much. The mid-range version, FLEX-5000C, incorporates an Intel Core2 Duo processor running Windows® XP and comes with a speaker, wireless keyboard, and mouse. The base model should be available by the time you read this, while the FLEX-5000C is expected in the third quarter of 2007. No word on the deluxe FLEX-5000D, which incorporates a big 300-watt RF output. Learn more and get the latest news (and download the latest radio!) at <http://www.flex-radio.com>.

**SoftRock.** For those of us with smaller ambitions, and pocketbooks, there are the SoftRock radios. For about \$30, you can purchase a SoftRock 1-watt transceiver kit for the 30/40, 40/80, 80, or 160 meter bands, or for about \$10 you can get a receive-only kit for 20, 30, 40, 80, or 160 meters. Of course, you need a modern computer with a sound card (and USB port), since the radio resides in software, but at this price there are no excuses if you're interested in experimenting.

While they are kits, assembly appears to be fairly simple. The hardest part for some may be soldering a few surface-mount devices, for others winding few toroids, but in general it seems to me

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



Scott Cowling, WA2DFI, and Steve Bible, N7HPR, describe the test fixture used to test the Atlas boards from the first run of HPSDR modules at the TAPR Forum at this year's Dayton Hamvention® as David Toth, VE3GYQ, looks on.

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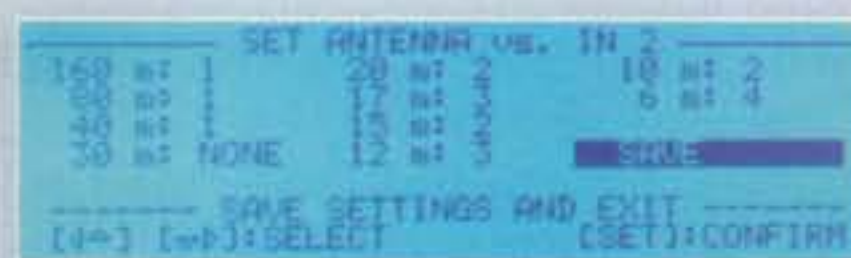
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**We've got your stuff!**



Taka Nakayama, KW6I, and Jeff Reinhardt, AA6JR, answer a question during the HF Digital Forum as Mel Whitten, KØPFX, looks on.

that an advanced beginner could assemble one in a weekend. I haven't taken a look at the assembly instructions, as the kits just became available this weekend, but the majority of components are ordinary resistors and capacitors. Find out more, including how to order and support forums, at <http://softrockradio.org/>.

**HPSDR.** The High-Performance Software-Defined Radio (HPSDR) project we discussed last October is in full swing now, with the Janus, Ozy, Atlas, and Pinocchio modules shipping as this is written (June 2007). At least 17 different modules have been named, and it's a safe bet that even more are on their way. As Lyle Johnson, KK7P, said during his presentation at Dayton, "If you want to design a module, go right ahead. You even get to name it."

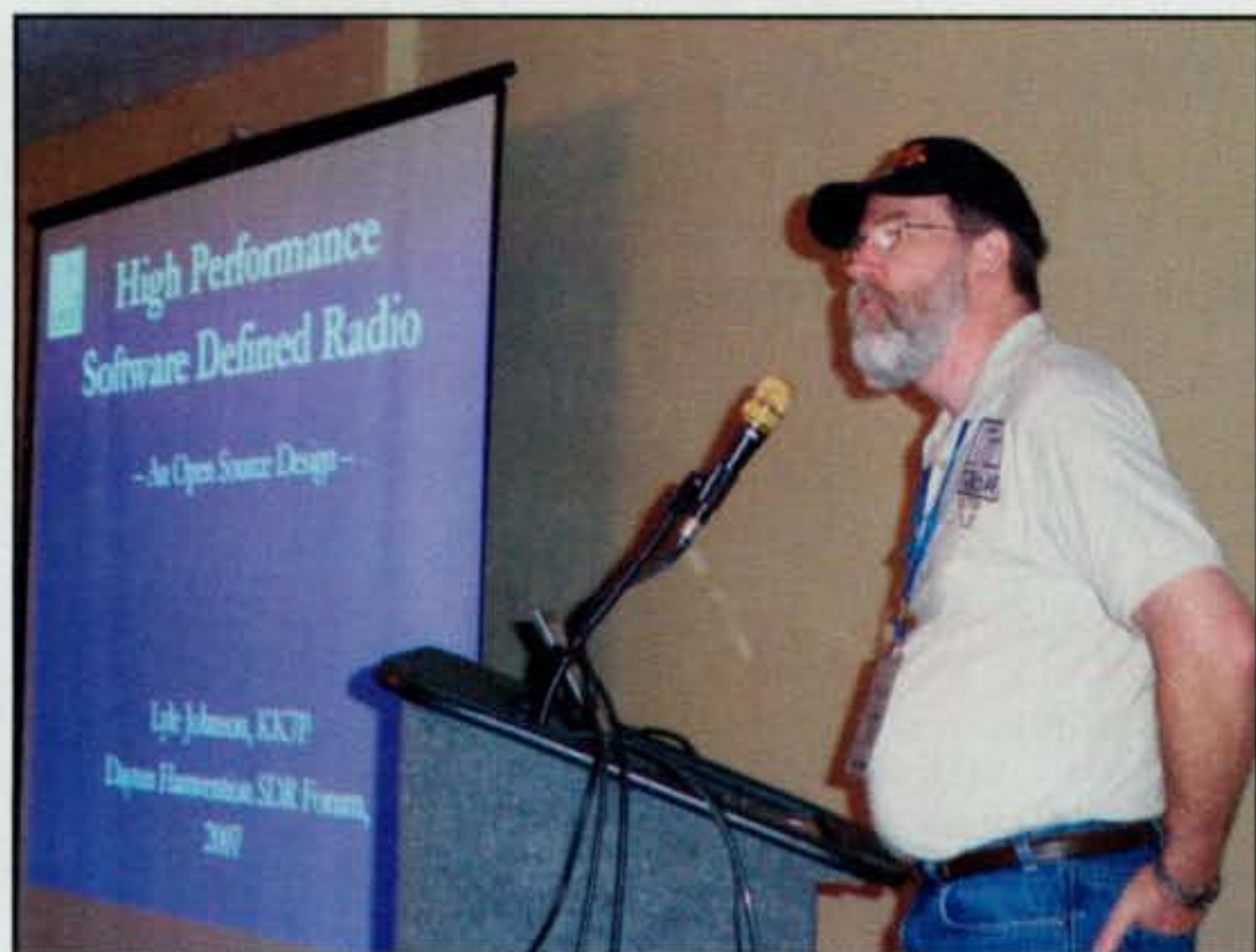
## 26th Annual ARRL/TAPR Digital Communications Conference

On September 28-30, 2007, the 26th annual ARRL/TAPR Digital Communications Conference will be held right in the ARRL's back yard, in Hartford, Connecticut. This is an international conference devoted to digital communications, and in the past it has never failed to deliver on the promise of a range of presentations, both highly advanced and perfect for beginners. If you live anywhere within driving distance of Hartford, you really should plan on attending, and it's still worthwhile even if air transportation is necessary. Visit <http://www.tapr.org/dcc.html> for more information.

The key words are *high performance*. This is being designed to be the best radio most amateurs have ever seen. AMSAT plans to use it, or something very much like it, on its next "big" satellite. In space, where it's really difficult to modify the hardware, an SDR is just perfect, since new modes and performance parameters can be uploaded.

The cool part of the HPSDR project is that the hardware is released under the OHL (Open Hardware License) pioneered by TAPR. Similar to open-source software licenses, the OHL allows you full access to the design documentation and hardware, with enough information so that you can make your own copy, as long as you agree to follow the terms of the OHL. You can even go into business selling Atlas boards if you want!

All of the public information related to the HPSDR project is found at the group's website, <http://hpsdr.org/>. All distribution and sales are being handled by Tucson Amateur Packet Radio Corp. (TAPR); visit <http://www.tapr.org> for more details.



Lyle Johnson, KK7P, speaking at the SDR (software defined radio) Forum, early Saturday morning of the Dayton weekend.

**WINRADIO.** I spent quite some time at the WINRADIO Communications booth, playing with its line of software defined receivers. While these are not transceivers, they are still SDRs and, as such, they certainly deserve attention from the amateur community. Nor are these “just” receivers. They are awesome receivers with astounding capabilities, from the eight-channel MS-8101/G3 and the moderately priced (\$500) G303i, to the G315e with its astounding 9 kHz to 1800 MHz (!) frequency range.

Of course, these are receivers, but because of their SDR architecture, they also make fine near-lab-quality spectrum analyzers, can measure a host of signal parameters such as SINAD, THD (total harmonic distortion), frequency deviation, and more, making them versatile pieces of test equipment. The housing, the same for most of the company’s products, is durable and well-shielded. Visit <http://www.winradio.com/> for more information.

**RFspace.** RFspace offers two models of software defined receivers, both able to handle spectrum analysis as well. The SDR-14, with a direct bandwidth of 230 MHz, and the new SDR-IQ, which covers 500 Hz to 30 MHz, are also moderately priced for SDRs, with quite good performance specifications nonetheless. Their ability to record a band segment—yes, record everything that happens to a hard disk—and play it back later (with full tunability and demodulation-mode selections) is really quite interesting. For example, imagine recording a 150-kHz segment of 20 meters for a whole week, about 500 GB of data, and being able to play it back at any time, as many times as you like. If you can’t pull that station out of the noise, it’s not there! Visit <http://www.rfspace.com> for details.

## Digital Signal Processing

Another kind of digital system that seemed to really take off this year is the use of DSP to make for better audio. Instead of the built-in DSP, as with the IC-706 and most other radios, I’m talking about stand-alone DSP speakers. Products from West Mountain Radio (CLRspkr), bhi Ltd (NEDSP1062), and SGC (ADSP2) all deliver on their promise to make communications speech far more intelligible.

From listening to these products at Hamvention®, these all are nothing like you have ever heard before. The difference when the DSP is switched on is remarkable. Other than FM or digital voice communications, which have hardly any

added noise, any voice communication mode goes from “straining to hear” to “armchair copy” with the press of a button. I think these surely will prove to be must-have products in the coming months. I’m hoping to borrow a sample of each of these to try them for myself, and I’ll be sure to let you know what I learn.

## Digital Voice

Last but not least are the digital voice products. ICOM continues to successfully promote the D-STAR system, which now (according to a map ICOM distributed) boasts over 60 systems on the air, about 36 of which are “full systems,” meaning 2-meter, 70-cm, 23-cm DV and 23-cm DD (digital data) capable. ICOM has a good range of transceivers that operate under the D-STAR standard, although I am disappointed that to my knowledge no other manufacturer has yet come on board with a D-STAR offering.

AOR continues its lead in the HF digital voice arena with the ARD9000 MK2 DV modem and the ARD9800 fast modem. The ARD9000 MK2 incorporates FEC (forward error correction), which considerably increases the ability to receive weaker or fading signals, while the ARD9800 also allows for fast data (up to 3600 bps) on the HF bands. (Note: *On-the-air data rates may be limited in certain jurisdictions.*) Both use the G4GUO open protocol.

What’s nice about the AOR modems is that you can use them with virtually any SSB rig you might have. The FEC capabilities definitely make the signal more robust than with-



The TinyTrak4 Beta, from Byonics, is the latest incarnation of a family of APRS-ready modules. This one serves as an APRS tracker, KISS TNC, and digipeater and is the size of a small box of matches. If you’re not the beta-version type, the TinyTrak3 is still available.

out them. To me it is a matter of opinion, but DV with FEC has a slight edge over SSB under poor band conditions, and of course DV sounds more like FM with its stunning lack of background noise. No DSP speaker needed!

Unlike when I looked at this issue a few years ago, now there is a regular DV net for the G4GUO protocol (e.g. AOR equipment) on 14.236 (QRG, USB) every Sunday at 1800 UTC, followed an hour later by the WinDRM net.

Ah, yes, WinDRM. While not a product in the strict sense, lots of folks see WinDRM as having the potential to unseat PacTOR III as the HF data transfer protocol of choice. It's free for the download, comes with decent documentation and several support files, and seems to be quite highly respected by hams who know better than I. At this point, I haven't tried it, but rest assured that it's one of my priorities. For those interested, visit <<http://n1su.com/windrm/>> for more info, downloads, etc.

My only regret at this year's Hamvention® is that I didn't get to see any information about the APCO P25 protocol. I've been wanting to get a better idea about this DV mode, which is fairly mature in the commercial world, but I suppose that will have to wait at least another month or two.

## Digital Ham Group

Some digitally minded hams from Illinois have formed a digital ham group on Yahoo, found at <<http://groups.yahoo.com/group/illinoisdigitalham/>>. From the main page of the website: "This group is dedicated to the discussion and development of amateur/ham radio use of digital voice & data communication techniques utilizing Digital Voice (D-STAR and APCO P25), HSMM/Wi-Fi, Packet Radio, PSK/FSK/MFSK, APRS, WinLink, HF Digital Voice, digital satellite, digital SSTV, WSJT meteor scatter, and other digital modes on HF, VHF, and UHF. Hams from all areas are welcome."

Sounds like my kind of group! Joining is easy, especially if you already have a Yahoo account, so if you are of the digital persuasion, drop in and see what's there!

That's all for now, just an overview of what's been happening and my overall impression of the digital scene at Dayton. As the cooler weather starts to set in upon us, and sunspots start their upward swing, it's time to try a few new modes. That's what I have in mind for next time, so until then . . .

73, Don, N2IRZ

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# Every Picture Tells a Story

It's my humble opinion that the antenna is the single most important element to successful mobile operations, with the qualifier that the lower you go in your operating frequency, the greater the importance of the antenna system and the greater the "degree of difficulty."

Of course, grounding, electrical connections, antenna feed-line routing, and more are also key factors in achieving good performance from your mobile setup. However, the antenna is going to be the most critical element in how you measure your mobile system's performance and, of course, your enjoyment.

Many seasoned hams will tell you that nearly every antenna installation has some faults; in other words, it's compromised in some way. The "ideal" location for a mobile antenna is in the center of the roof of the vehicle, offering the greatest ground plane beneath the radiating element and keeping RF above and away from the vehicle's occupants. For numerous reasons, few vehicles operate in the "ideal" configuration.

\*5904 Lake Lindero Drive, Agoura Hills, CA 91301  
e-mail: <aa6jr@cq-amateur-radio.com>

This time I'll share with you several candid photos taken in and around Dayton during the annual gathering of hams at the Hamvention®. You may see some good ideas. You may also see reinforcement of some concepts and practices you already employ.

## Dayton was a Bit Different

This year's gathering at Dayton was terrific in many ways—a good crowd, good weather, and a great job by the Dayton Amateur Radio Association (DARA) volunteers in pulling together the million details that go into a good show. A bit of let down for me was that there were no vehicle manufacturers present. In the past, I've always enjoyed a chat with some of the engineers and reps from Detroit who devoted some time to sharing installation tips with the amateur radio community. Sadly, this year none were to be found.

On the other hand, it was good to see many antenna manufacturers showing their wares and the diversity in designs, from simple to complex, offering the mobile enthusiast a wide range of choices. It's really encouraging to see the variety of "tunable" antennas that allow the operator to achieve optimal performance without having to



*N9FPR took advantage of the area behind and above his license plate to mount a good-performing HF antenna that did not require drilling conspicuous holes in his vehicle.*





*To drill or not to drill, that is the question. Both are effective means of mounting, but the no-hole mount may require periodic maintenance. On the other hand, the holes could depreciate the value of the car if sold to anyone but another ham!*

leave the vehicle to retune the antenna each time one changes frequencies or bands. The range of choices varied from simple monoband "stick" antennas for around \$20 to tunable configurations that could cost hundreds.

I'm always impressed with the ingenuity of hams when it comes to mounting their antennas. From last year's humor-

ous "porcupine" car (strangely not in evidence this year; perhaps it returned to its home planet) to vans, motor homes, luxury cars, and motorcycles, you could see examples of each type in and around Dayton.

CQ Editor Rich Moseson, W2VU, and I had an enjoyable chat with Richard, N9FPR, in the Hara Arena parking lot fol-



*I don't think anyone will question W0KWM's commitment to mobile operations!*



*There's a lot to be said for simplicity!*



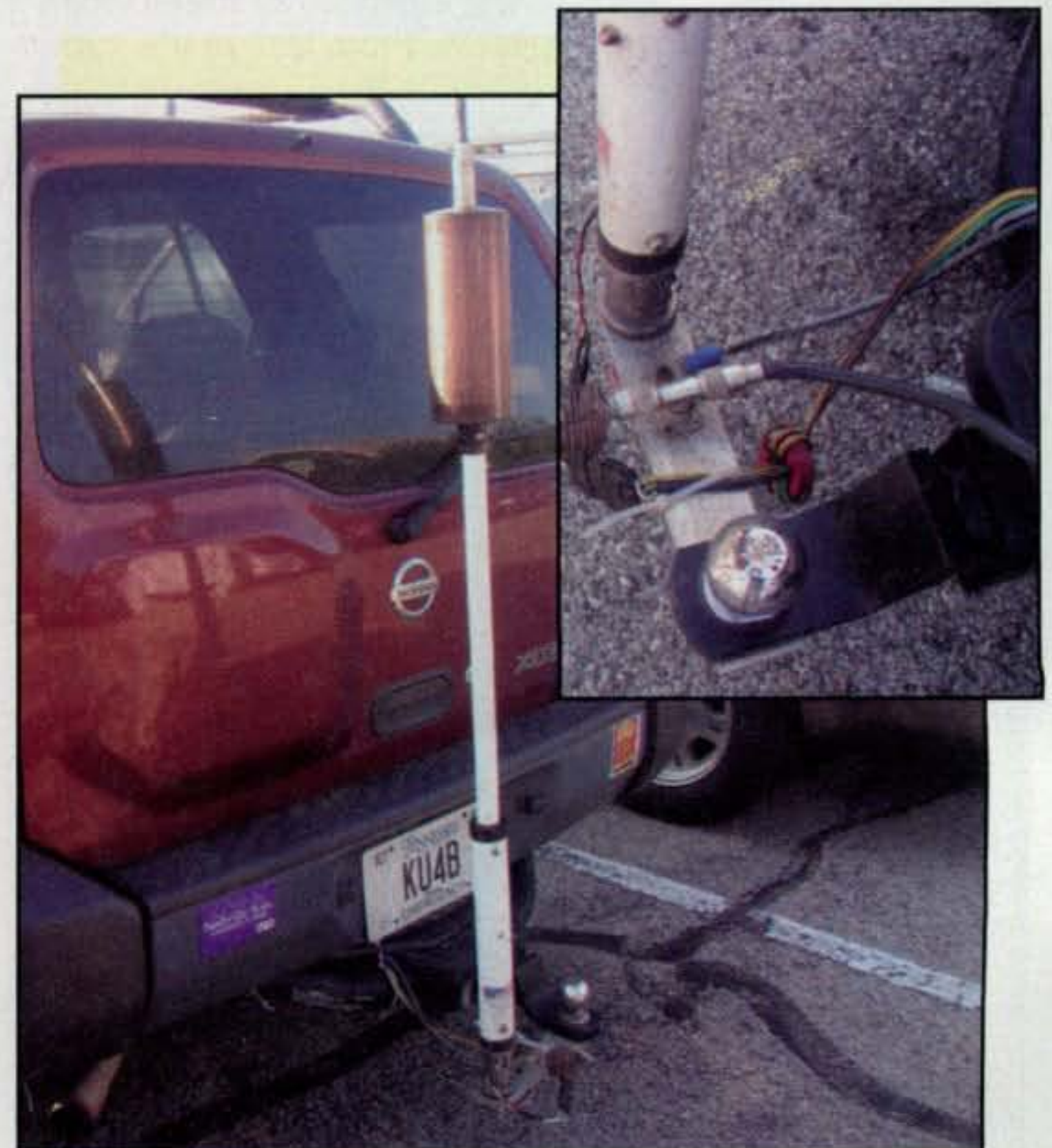
*Sturdy is the key word to this mount, an important factor when one considers the weight of the antenna and the wind loading it may have at 70 mph. Note that the antenna is also clear of the tail lights and tailgate.*



Following a long day on the convention floor. Despite being tired and hungry, we couldn't resist chatting it up with the owner of the vehicle, who did a first-rate installation of his antenna on a luxury sedan. Some experience as a metal worker helped bring the concept to reality, but just about anyone



*Here's an array of "clean" antenna installations that are well thought out.*



*KU4B also uses a strong mount, which is needed for the big antenna and the capacitance hat that you can't see in this photo.*



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could replicate the idea in his own shop, or you probably know someone who could. Richard's clean installation around the license-plate frame of his car is some creative metalwork, a simple ball mount, and a quick-disconnect. However, note the attention given to grounding the antenna base.

Pickup trucks and vans offer more versatility and less concern with aesthetics, but as you'll see in the photos, there are many ways to mount an antenna that's not offensive to the eye.

### Look and Learn

Take a look at the examples in the rest of the photos. The variety of ideas, styles, and mountings should provide you with some inspiration to upgrade your mobile antenna system into one that not only performs well, but looks great, too!

Please e-mail a photo of your attractive or innovative antenna design to me at <aa6jr@cq-amateur-radio.com>. I'd be pleased to share ideas an upcoming column.

### Errata

In the May issue, when writing about traveling with ham radio, I said, "...be sure you have a copy of your FCC license with you (which is required per the rules)." Bob MacDougall, KC9JUB, wrote to say, "You are no longer required to carry your license or a photocopy of it with you when you are the control operator of a station." Bob is correct. Changes in the FCC rules no longer mandate carrying the license or logging contacts, but I have found both helpful when explaining my presence to law-enforcement personnel who wondered why I was parked at remote locations when operating.

73, Jeff, AA6JR

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## Mobiling to the Max – Part II

**T**he fun times and clever ideas for top-notch mobiling continue to flourish, so we continue this month with more notes and views you surely will find appealing. Also, we have noticed a marked increase in mobile CW operations since the Morse code requirement was dropped from license exams. Actually, I have noticed overall interest and use of CW has been flourishing, and more folks are operating CW from their vehicles. I am not referring to sending and copying CW while driving in traffic, but rather while riding as a passenger or operating while stopped. Remember, safety first!

Even at this low point in the sunspot cycle and even while running 50 watts to an inexpensive antenna such as a Hamstick, folks are having a ball DXing on CW from the car. The key is good timing, good sending, and a sharp ear for copying signals amidst a deluge of band noise, power-line noise (every city and every parking lot within cities are different), and ignition noise (other vehicles, not yours; ground strapping minimizes your noise). Practice these techniques at your home station before trying them in your car, and fuel your interest with two or three special paddles just for mobiling. You will have a ball!

If you need more encouragement, just take a look at the mobile CW setup of Marshall Emm,

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



*Photo A—The clean and effective mobile CW setup of Marshall Emm, N1FN, consists of Yaesu FT-100D remotely mounted in the trunk of a Chevy Impala, with a Palm Radio mini paddle and the rig's control panel attached to the console via hook-and-loop strips. This arrangement allows the panel and paddle to rotate in position for operation from either seat or be quickly removed. The antennas include an ATAS-100 plus several Hustlers. (Photo courtesy of N1FN)*



*Photo B—Interior view of the Land Rover mobile setup belonging to Bob Widman, KH6/W7UEA, in Hawaii. The control panel of the IC-706MKIIG sits on the console (and hides in the console box when the vehicle is unattended). The main body of the transceiver is mounted behind the rear seats only a couple of feet from the antennas. (Photo courtesy of KH6/W7UEA)*

N1FN (photo A). Both the transceiver and the paddle are set for operation from either front seat, and the paddle even has enough cable to allow operation from the back seat. There are also two antenna mounts on the car—one for an ATAS-100 plus one for a hefty ball mount that can support a tall antenna for serious CW DXing. Does it get out? Yes, indeed. During a past return trip from the Dayton Hamvention®, N2WW worked all continents mobile/CW/QRP in approximately 90 minutes while N1FN drove. Nice!

### Phased Mobile Pair

Now shifting views farther west, to the big island of Hawaii, we spotlight Bob Widman, KH6/W7UEA, and his cool Land Rover mobile setup shown in photos B and C and fig. 1. Bob runs an ICOM IC-706MKIIG and a pair of 20-meter Hamsticks that he quickly phased, as I discussed in this column two or three years ago. The antenna system did not perform as expected, so Bob asked my opinion, and I'm sure many of you can benefit from my investigation and the results.

Like many modern mobileers, Bob mounted the front/control panel of his IC-706 on the Land Rover's center console and installed the rig's main body in the back, behind the rear seat. The transceiver was then close to the antenna(s) and only two short lengths of coax (6.5 feet each, to be precise) were required for interconnections. Whether Bob connected one or two antennas, they were difficult to match, the SWR was a bit high, and signal gain or directivity was not noticeable. What was wrong?

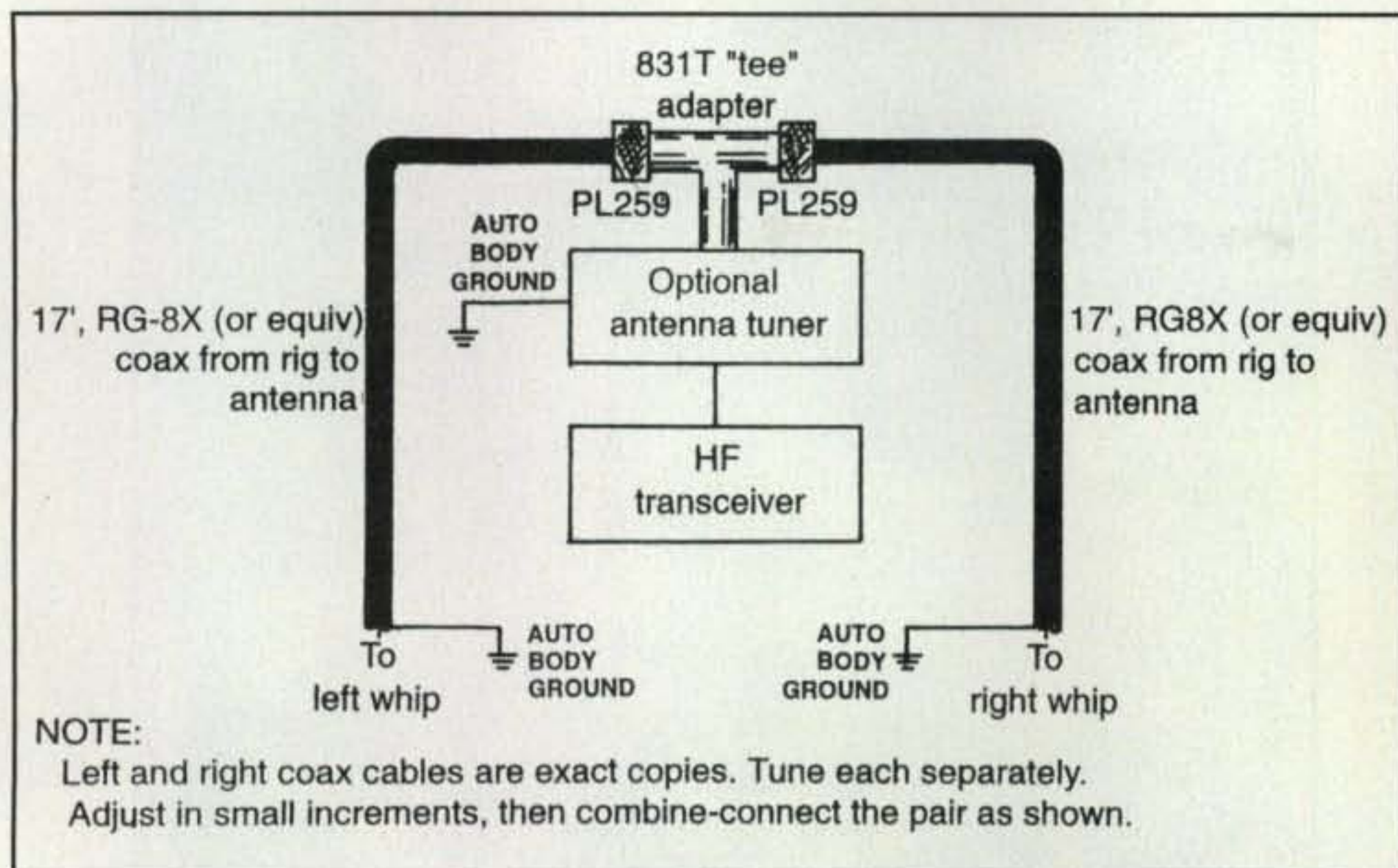
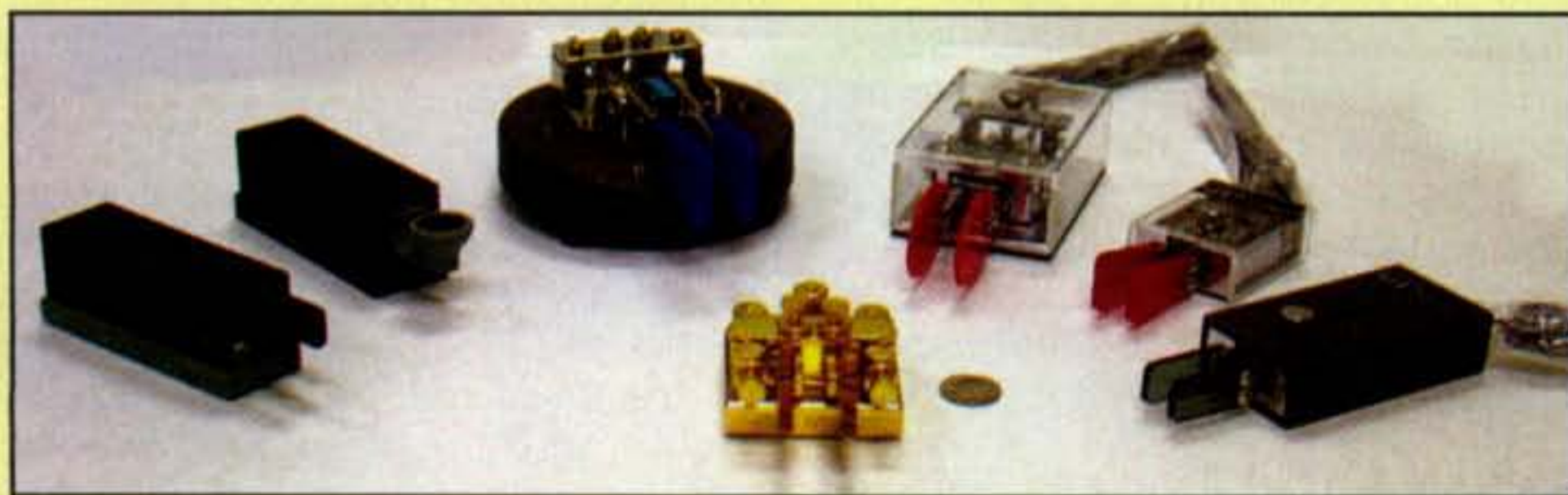


Fig. 1—Outline of the phased antenna system used by KH6/W7UEA—with one exception. Since the transceiver is mounted near the antennas, the feedlines for each are coiled into four turns 5 inches in diameter as discussed in the text.

Acquiring a good match or low SWR is always difficult when the transmission line between a rig and antenna is less than one-quarter wavelength. An antenna tuner can overcome this problem, but I always prefer fine-tuning the antenna itself and avoiding an antenna tuner when possible. Second, the phasing line connecting each antenna must

be long enough for phasing to occur—17 feet in this case. I have always suggested routing the cables on each side of the vehicle and “zigzagging” them slightly if necessary. However, until now I had not considered a rear-mounted transceiver. I suggested that Bob change the feedlines from 6.5 to 17 feet, which he did, and the antenna system

### Mobile CW: The Keys Make It Fun



Operating CW from a vehicle can prove to be a delightful experience, especially when done with one or two (or three!) just-right-for-you keys such as the ones shown here in this collection put together by Marshall Emm, N1FN, of <www.MorseX.com>.

If you are space limited, Palm Radio's popular mini paddle and matching portable straight key (left) are slim, trim, and easily mounted anywhere with hook-and-loop strips. Console cup holders often make good mounting spots for keys, and the roundbase Katsumi paddle screwed onto a round wood pedestal fitted into a cup holder is a classy and affordable choice. Some CW operators like dual-lever paddles, but prefer easier to

use single-lever paddles for mobiling, so GHD's convertible (single -or dual-lever) GM-307WS paddle to the right of the Katsumi paddle in the photo goes either way. The GHD model GM-707 Micro paddle beside it and also protected with a clear plastic cover offers maximum class and flash in an extra small package. The GHD GM-701 (on the right) is a retractable travel paddle that is protected from abuse when the going gets rough. The middle, forefront item is LTA's miniature gold-plated and quite affordable AMIO mini paddle. With keys such as these, who could resist going CW mobile! Where to get them? Ring up Morse Express at 1-800-238-8205, or see the website mentioned in the first paragraph.

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began to work like a champ. As Bob said, the impedance match was better, the SWR dropped to between 1.2 and 1.5:1, and the antenna system exhibited gain of one to two "S" units.

Bob conducted some interesting tests while working some stations in Argentina and Japan at the same time. With his car pointed toward Japan, the LU station reported his signal as S7 and the signal increased to S9 when he pointed the vehicle toward Argentina. Simultaneously, the JA station report Bob's signal went from S7 (when pointing toward Japan) down to S3 or S4 (when pointing toward Argentina). Were the measurements coincidences? Bob has run tests several more times, with different stations, and the results have been similar and consistent. The phased antennas are rompers! There is a surprise here, too.

I forgot to tell Bill to stretch out or zigzag the two feedlines, so he simply coiled up each feedline into four turns approximately 5 inches in diameter. You might assume the coiled feedline idea would not work, but the system's gain and directivity figures (plus lower SWR) say otherwise. Apparently, the coils act like similarly wound coils often placed at feed points on Yagis—RF



Photo C—KH6/W7UEA mobile at the oceanside in Hawaii. Dual/phased 20-meter Hamsticks are supported by Diamond K400 trunk lip mounts on each side of Land Rover's tailgate. The antennas consistently exhibit 2 to 2.5 S units gain over a single antenna. (Photo courtesy of KH6/W7UEA)

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chokes. If you are experiencing problems matching your rear-mounted transceiver and (2 feet away) antenna, try using a 17-foot coil of interconnecting RG-8X cable.

Our thanks to Bob, KH6/W7UEA, for sharing details of his "mobile in paradise" setup. It truly represents the good life! If you have questions, you can direct e-mail to Bob at <widma@aol.com>.

*Flash!* Since writing about Bob's antenna system, I have heard from other mobileers who have also used long transmission lines coiled up and connected to trunk-mounted transceivers, and they too report better matching and improved performance. Try it!

### Mobile Maintenance

I occasionally slip a small mobile rig into my XYL, WB4OEE's car and wrangle a few QRP QSOs during brief around-town trips, and I always start by checking the antenna's SWR. Recently when doing so, I noticed the SWR had increased to almost 3:1, which was terrible, because I always tune and maintain my antennas for an SWR near 1:1. Apparently, rainy weather, old age, and general corrosion had taken their toll on the antenna system. Fortunately, I spotted that fact before the rig was damaged by high SWR. Hunting down and correcting the problem(s), however, spun off some interesting points worthy of

sharing here.

First I disconnected the ground strap that routes from a body bolt on the firewall to an alligator clip on the shell of the coax cable's PL-259 and measured resistance. This step checked resistance through the ground strap, body bolt, the car body, the frame of the antenna mount, the coax shield's ground, and the PL-259's shell all in one step. The resistance should have been less than 5 ohms, but it measured infinity—an open circuit. Ah ha! The problem evidently was a broken coax shield connection or maybe corroded setscrews on the Diamond K400 trunk-lid mount—so I thought. I stepped back to the trunk, alligator-clip jumped the mount's antenna and ground connections, and then rechecked continuity between the PL-259 center pin and the shell. Again, it measured an open circuit (what?). Time for action!

Returning to the trunk, I backed out the mount's setscrews to check their ground connections. When I moved the mount, the coax cable's pigtail lead broke in my hand (photo D). I then unbolted the mount's two main sections, made more resistance checks, and found the main bolt securing the two sections and the pigtail lead's ground lug were all corroded to the point of an open circuit. I had checked all of this and used the antenna only a couple of months earlier—honest!

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*Photo D— While investigating a defunct ground on this well-aged K400 trunklid mount, I discovered several corroded-to-infinity connections, and pigtail leads fell off from age and exposure to the sun. That's only the beginning. See the text or the full story.*

The setup was a total bust, so I installed a shiny, new K-400 mount with new coax. I also scraped shiny clean trunk-lip spots where set screws tighten, and installed a new base impedance matching coil and its jumper strap. That should have fixed everything in one shot, right? Wrong.

Rechecking the resistance from the new coax cable's new PL-259 shell to

the car body bolt indicated infinity. I rechecked resistance to the mount—also infinity. (What? This was a brand-new mount!) I then disassembled the beautiful new mount and found that each piece had been nicely painted and dried before final assembly. As a result, each piece was totally insulated from the other—and from the coax shield's ground lug (grrrr!). I spent the next hour with a knife and sandpaper diligently scraping every connection point between fitting pieces, all the way down to the four lip-securing set screws (yes, they too were paint-insulated from the mount; I even paused twice to ensure that my ohmmeter was not tricking me!). Finally, I remeasured the reassembled mount and read 0.3-ohm resistance. I installed the mount, routed its cable, rechecked the alligator clip and PL-259 ground strap, and again measured 0.3 ohms. Success . . . so I thought.

I then slipped a rig into the car, installed the old faithful antenna, and quickly checked SWR before preparing for some juicy mobile fun. What? The SWR was 2:1! I started to clean the mobile-whip connections, and then paused and considered the facts. There is a point where you have to draw the

line between repair and replace. When everything else is new, a repair is the weakest link—and it too will fail at the least opportune time.

I replaced the antenna with a new one, quickly tuned it for 1:1 SWR (it was a snap, since everything else had been perfected and fine tuned), and worked HI8, I3, G3, plus YO4HGX/MM (spotlighted in last month's column) while running only 5 watts.

What's the bottom line here? Never assume anything is "good" because it once was or because it is new. Maintain a top-notch setup, and it will reward you with many hours of enjoyable use.

### Conclusion

Again we have reached the closing wire and must bow out rather quickly. Mobilizing—and operating CW and QRP from the car, bicycle, etc.—is increasing in popularity, and we invite you to share your views and tales of your outdoor hamming fun with readers via this column. Drop me a note and one or two photos (my address is on the first page of this column) and let's get some good recognition going your way! May the force of good signals always ride with you!

73, Dave, K4TWJ

## Doing Some Detective Work To Save Some Money

Over the last several months, my 9-plus-year-old VHF/UHF FM mobile radio had just not been working right. I started to get reports of "cutting in and out" and "why are you so noisy?" Along my commute to and from the office, I also saw that the rig's S-meter seemed to be all right, indicating at least mid-scale. Therefore I thought, "It must be them, not me."

One day it just got worse, and I had trouble hearing stations, too. "Hmm," I thought, "maybe something happened to the repeater antenna, since I know I am usually able to hear the repeater signal from this stretch of highway on my commute."

Finally, I took a Saturday afternoon to check my mobile installation from the antenna to the rig. Actually, however, I had another approach, one that was a little faster than testing anything, since I had to check into a net each week.

### Detective Work Equals Saving Money

I decided to do some "detective work" and troubleshoot by swapping-out gear in the system.

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e-mail: <kh6wz@cq-amateur-radio.com>



*Swapping out a possibly bad element with a known "good" element in a system is one way to do some electronic "detective work" to diagnose problems. The detective work eliminates guessing and possibly saves you money because you are not throwing away perfectly good parts.*

Sherlock Holmes might have called this "using the process of elimination." In other words, could the declining performance in my communications capability be related to a bad radio or a bad antenna? If it is not either, then could it be outside of my system—in other words, the repeater? However, other stations using the repeater system were not experiencing any problems, so I could eliminate the repeater as the cause of the problem. This also eliminated the other stations using the repeater system, so it pointed to something wrong in my mobile station.

After all, the rig was almost ten years old, and it had seen a lot of hard use and many adventures during emergency communications drills and many contacts over the years. Thus, I disconnected the power and antenna cables from the little dual-band radio in the car ("un-installing" the rig would have taken a little more time, and because the rig might actually be okay, I decided that a simple remove and replace should be done). I did not really want to buy a new rig, since the trouble might be a bad antenna, not a bad radio.

I had an old, but working, spare transceiver in a closet just for such occasions. After several days of using the spare radio, I confirmed that the original mobile transceiver was not at fault, since my signal reports did not improve. This was a good thing, since it meant that I did not have to get a new rig—a money-saving situation.

I wanted to double-check this and reconnected the power and antenna cable to the original mobile rig. As before, the signal reports were not good. At least this seemed to confirm that the radio should still be okay, since both radios acted the same way.

After a few days, I disconnected the mobile antenna that had been in place since I first had the radio. The antenna thus was also about nine years old. I think a mobile antenna with almost a decade of service is a reasonable lifetime, especially since I live near the ocean. I started to look at catalogs for a new dual-band mobile antenna. I soon noticed that getting a replacement antenna was a bit expensive, so I looked into my "go kit" for the spare magnet-mount dual-band mobile antenna. A go-kit is used for emergency communications. It contains the essential gear for an emergency (see the sidebar for details).

I removed the old mobile antenna from its mount on the trunk and inspected the connection. The threads and the small contact for the center of the coax cable (and the whip itself) were dull, but otherwise clean. However, the antenna whip itself was hinged near the base to allow the antenna to fold down. This is a useful feature for tall vehicles to avoid scraping the antenna on parking struc-



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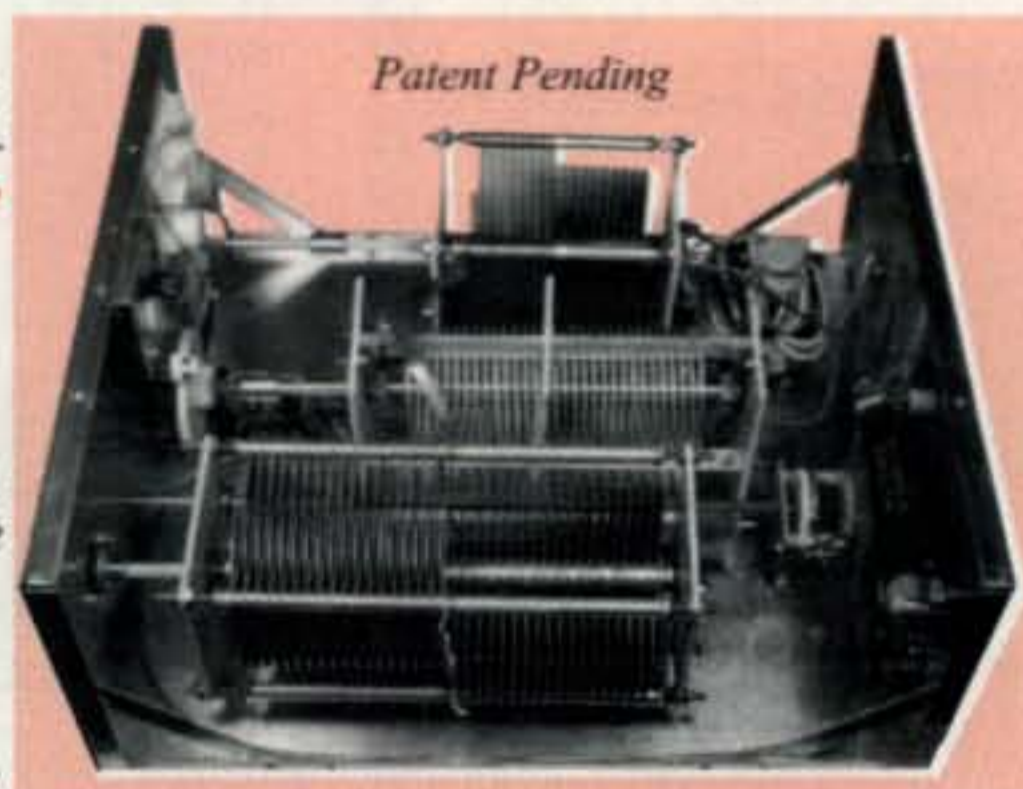
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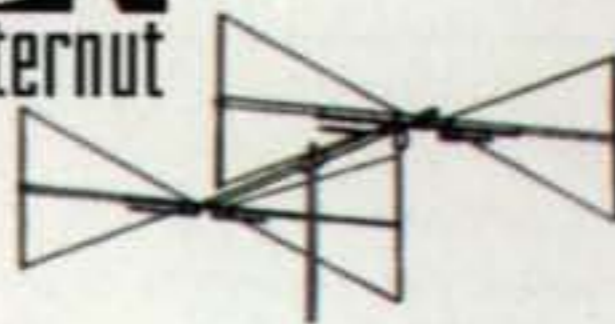
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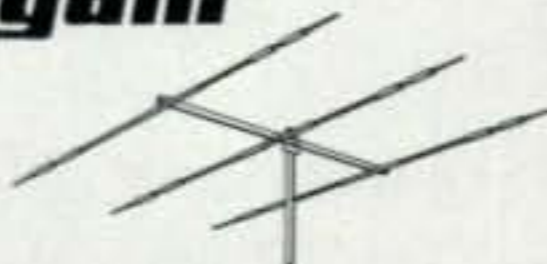


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ture ceilings and other things. In my Honda sports sedan, however, folding an antenna is not necessary. Could this hinge be the point of failure?

I pulled on the hinge and folded down the antenna. There were some gray flakes of corrosion inside, so I thought this must be the source of my problems. I was ready to throw away the antenna, but since a replacement dual-band whip is a medium-size investment, I decided that I needed to prove whether or not the whip antenna was good or bad. Therefore, I did another swap-out. This time I swapped out the antenna (see photo).

After another few days of operating the mobile station with the backup magnet-mount antenna, I determined that the rig was working fine, since swapping the antennas seemed to have cured the bad signal report problem. I also noticed the rig's S-meter was more generous now, moving to full-scale rather than only mid-scale. This showed up more when I was

in marginal areas along my commute, and when I was inside my garage with the overhead door closed.

This also confirmed that the antenna was at fault—or should I say that the antenna system was at fault, since the coax going between the rig and the antenna was also a part of the system. In addition, the little coax-to-whip antenna mount might have been a point of failure.

Next I checked each element of the antenna system. I removed the whip antenna from the magnet mount and replaced it with the original whip antenna. After another few days I confirmed that the original whip antenna was still good, even with some of that gray flaky stuff inside the hinge. This definitely was making me feel better, since neither the rig nor the whip antenna needed to be replaced.

Then I removed the magnet mount from the car and re-installed the original whip onto the original mount on the car. The signal reports were bad again, just like before. This now

## The Go Kit

I think every ham should belong to a local emergency response organization, whether it be RACES, ARES, or CERT. After all, service in the public interest is a reason why ham radio began. Here is a collection of gear I keep handy for RACES drills or activations. We call this a "Grab and Go Kit," or just "Go Kit," and it includes everything needed for an 8- to 10-hour shift for an emergency communicator.

The photo shows the basic gear I use for all deployments. Our public service opera-

tions are usually on 2 meters FM, so a small HT (handie-talkie) can be used. A boom mic/headset with PTT is essential for high-noise environments, such as parades, and enables "hands-free" operation. A speaker-mic, with an earphone, is ready for a backup in case the headset breaks. Not shown in the picture is a small 12-volt gel-cell, useful for powering the HT for longer periods of time when necessary.

For longer duration assignments, the equipment list expands. Power is still the

first priority, since a communications volunteer with a dead battery is completely useless. I have a Yaesu VX-5R triple-band HT, which is powered with a Li-ion (lithium-ion) battery. I used to carry a second battery pack, but now I use a 7-aH gel-cell.

More information on the Grab and Go Kit can be found in the Huntington Beach, California Radio Amateur Civil Emergency Service (HB RACES) website, <[www.hbraces.org](http://www.hbraces.org)>, and on the other sites listed in the References box.



The "all mission" gear Grab and Go Kit, with all of the absolutely essential items needed for an emergency communications assignment: a dual-band HT, an extra battery pack, a gain antenna, and other accessories. All items are carried in a fanny pack or my pockets for total portability. Longer duration assignments call for more items, such as an external gel-cell, a compact battery charger, and a small solar panel.

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confirmed that the trouble spots were limited to either the coax feeding the antenna system to the rig, or the antenna mount on the trunk lid. Further, the original rig and the original whip were also good, based on the previous swap-outs.

Since the mount looked nice and clean, I decided to eliminate the antenna mount from the list of suspects, and narrowed the point of failure to either the PL-259 connector at the rig end of the coax cable, or the coax cable itself. When I had installed the antenna almost a decade ago, I used some RG-8X coax, rather than the original RG-58, for lower loss. I checked the connection between the coax connector and the antenna mount with an ohmmeter, and it tested "good." However, this is a simple "continuity test," meaning that it simply verifies that a connection exists between "here and there" and the cable center conductor is not shorted to ground.

I decided that with all this detective work, making an assumption that the culprit must be the coax cable was not valid even if it tested "good," because there was a possibility that the quick ohmmeter test might not have been valid at RF frequencies. In other words,

at DC it was a good cable, but with RF energy it might not have been moving the signals correctly through the cable. In fact, upon close inspection by eye and feel, I found a squashed section of cable where it went under the back seat of the car. So yes, the cable was good at DC, but was not good at RF.

Now that the root cause of this degradation of signal strength was confirmed, it was time to move to the repairs stage. I happened to have some excellent-quality coax cable (RG-142) in my "wire box." This type of coax cable is used with RF test equipment and has very low loss at very high frequencies. It would be an upgrade to the system. It is the same diameter as RG-58. The drawback to this cable, however, is that it is quite stiff. Connectors had already been

installed, although they were TNC type. Rather than cutting off the cable and perfectly good connector, I installed a PL-259 to TNC female adapter to the end of the cable.

After replacing the cable, the system worked great. The new cable even improved overall performance, including operations inside my garage with the overhead door closed. Best of all, I avoided an expensive "repair or replacement" situation by examining each element in the system, making tests (even without test equipment, with one exception) and narrowing down the points of failure to one spot. Now I just have to figure out a way to justify buying a new rig to replace a perfectly good working one!

73, Wayne, KH6WZ

## References

Amateur Radio Emergency Service (ARES), American Radio Relay League (ARRL): <<http://www.arrl.org/FandES/field/pscm/sec1-ch1.html>>

Radio Amateur Civil Emergency Service (RACES): <<http://www.races.net>>

Salvation Army Team Emergency Radio Net (SATERN): <<http://satern.org>>

SKYWARN National Homepage: <<http://www.skywarn.org>>

# Is Ham Radio Always the Answer?

**F**or the past several years ham radio operators have used the slogan "When All Else Fails" to promote amateur radio in emergency communications. It has been an effective tool to describe the value of amateur radio when the telephone wires are down and other communication systems are overloaded. This month we'll take a look at two different scenarios which ask the question "Will ham radio always be the answer?" We will also review some of the Emcomm news from the Dayton Hamvention® and look at hams being prepared.

## What, No Internet?

In late April, Estonian authorities began removing a bronze statue of a World War II Soviet soldier from a park in a large Baltic seaport. There were violent protests in the streets. However, there were also fights on the internet. People in Estonia use the internet to vote, file their taxes, shop, and pay for parking. According to officials, it is as vital as running water. A month-long cyberspace war forced Estonian authorities to defend their internet.

Estonian officials said the cyber attacks came from Russia. The Russian government denied any involvement in the attacks, which came close to shutting down the country's digital infrastructure. It clogged the websites of the president, the prime minister, Parliament, and other government agencies. It hurt Estonia's biggest bank website and overwhelmed the sites of several daily newspapers. Defense Minister Jaak Aaviksoo described it as a national-security situation. News sources quoted Aaviksoo as saying, "It can effectively be compared to when your ports are shut to the sea."

The attack shut down the Parliament e-mail server for four days. According to industry analysts, as many as one million computers in places as far away as the United States and Vietnam impacted the assault. The combination of very large packets of information and thousands of machines create a recipe for very damaging denial-of-service attacks. One security company, Arbor Networks, measured dozens of attacks. They said that the 10 largest assaults blasted streams of 90 megabits of data a second at Estonia's networks, lasting up to 10 hours each. That is a data load equivalent to downloading the entire Windows® XP operating system every 6 seconds for 10 hours.

## Could It Happen Here?

In recent years, cyber attacks have been associated with the Middle East and the Serbian-Croatian conflicts. However, computer systems at

the Pentagon, NASA, universities, and research labs have been compromised in the past.

This year scientists and researchers convened by the National Academy of Sciences heard testimony from military strategy experts indicating that both China and Russia have offensive information-warfare programs. The United States is also said to have begun a cyber warfare effort.

There is much debate as to whether or not something like this could happen in the United States. However, since some of these attacks on Estonia were routed through computers in the United States, it is something to be aware of.

## When All Else Fails, Satellite?

That's the gist of noted DXer Bob Allphin, K4UEE, of Marietta, Georgia. In a posting on the Iridium Satellite phone website he said, "After our wonderful experience using Iridium phones during our Ham Radio Expedition to Peter I Island, Antarctica last year, I vowed never to go on another expedition without an Iridium Satellite phone." Allphin also serves on the ARRL DX Advisory Committee.

In mid-January, 11 amateur radio operators met in Cochin, India to set sail for Agatti Island in the Lakshadweep archipelago, located in the Arabian Sea southwest of India. The second operation, in April, was on Swains Island, an atoll in the Tokelau chain in the South Pacific. In the amateur radio world, these islands are extremely rare and a contact on ham radio is much sought after.

"The sheer isolation of the islands makes communication difficult and highly prized," said Allphin. "But once again, just as in Antarctica the previous year, we had Iridium Satellite telephones which provided us with full-strength coverage at all times. Although we communicated all over the world with our ham radios and made 41,000 contacts in all, our communication was subject to ionospheric conditions, varied by time of day, and was restricted by low sunspot numbers. So communications with our families and announcements of our scheduled ham radio activity and updates on our results were not reliable or possible except during certain times of day and on certain radio frequencies. The ability to dial-up a number anywhere in the world and have a clear conversation, without static, fading, or interference, was truly amazing."

## A Bulging Toolbox

Both stories above indicate that you cannot rely on just one form or mode of communications. As an emergency communicator you need to have multiple options available. In order to work long distances, you may use internet-linked communication systems such as Echolink and IRLP. However, you may need to rely on a high-frequency radio with different types of antennas, such as a beam, dipole, or a Near Vertical Incidence

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

Skywave (NVIS). You need to have digital modes as well as voice capability.

It also points out that ham radio is not the only form of communications. Sure, satellite phones are expensive and may not be practical to have sitting on a shelf, but as a communication mode they can get through. So what makes ham radio unique?

### Drill! Drill! Drill!

Emergency Management officials periodically hold exercises to test various parts of their emergency plan. Sometimes there is a real need for amateur radio communications. Other times normal communications work and the hams aren't needed.

Maybe you have participate in annual drills. The drill has been going on for several years. During the first drill your local ARES (Amateur Radio Emergency Service)/RACES (Radio Amateur Civil Emergency Service) members tested you on every method, mode, antennas, etc., that were available to make sure you could communicate when all else fails. By the second or third year you had everything fine-tuned. You new what worked, and that's the radio link you used to get the job done.

For each drill you should test all of the systems again, whether it's a new TNC, a new controller, or new Telpac nodes. Make contact with the shelters and alternate EOCs and have them perform the backup function they were designed for. Check out simplex operations in case the repeater fails. Check and recheck your communications plan so that you know you can do what your plan says you will do.

Ham radio operators are not the stars of the drill. We are a tool available to the emergency managers that can be utilized when needed. We need to stay focused on our role in emergency communications so that we truly can say, "When all else fails!"

### Getting Ready for Hurricane Season

As part of the drill and exercising various communication networks the National Hurricane Center conducted its annual On-The-Air Station Test. This event provided an opportunity for WX4NHC to test its radio equipment, computers, and antennas on as many modes and bands as possible. Assistant Amateur Radio Volunteer Coordinator Julio Ripoll, WD4R, said, "This is not a contest or simulated hurricane exercise." New computers and software



Julio Ripoll, WD4R (left), and John McHugh, K4AG (right), flank former NHC Director Max Mayfield and new NHC Director Bill Proenza. Both are strong supporters of ham radio. (Photo courtesy of WD4R)

were also tested. Ripoll told CQ, "Max Mayfield retired as NHC Director earlier this year and we will miss him greatly. Not only was Max a strong supporter of ham radio, but a true gentleman and dear friend. Max gave 'The Hams' a very high endorsement to our new Director, Bill Proenza, and briefed him on our dedication and public service to NHC for the past 26 years."

For the Military Affiliate Radio System (MARS) there was often confusion as to whom to contact for help. Do emergency managers place a call to the Army, Air Force, or Navy-Marine Corps MARS? The issue was discussed and solved at the Dayton Hamvention®.

Chiefs Stuart Carter of Army MARS, Bo Lindfors, Navy-Marine Corps MARS, and Don Poquette, Air Force MARS, integrated the three services' on-the-air operations after their decades of functioning as separate organizations. The three services will establish joint emergency nets in each of their ten regions, make each other's military frequency allocations available to all, share net control assignment across the three services, and standardize voice operating procedures.

The integration plan came just weeks before the start of the hurricane season. Pensacola Transportation Security Officer (TSO) Jeff Smith, W4ZH, trained 30 Transportation Security Administration volunteers to use emergency high-frequency radio equipment during disasters. The 30 also qualified for ama-

teur radio Technician Class operator licenses. A Technician amateur radio license allows MARS operators to operate on VHF as well as HF MARS frequencies. MARS provides backup communication for the TSA. Protecting airports during the hurricane season will be the immediate focus. The emergency support teams, consisting of four MARS members, are being assembled for deployment as needed when and if the government's communication systems fail. MARS is tasked with maintaining communication during the first 72 hours of incidents involving aircraft, mass transit, and pipelines. Seventy-two hours is considered the maximum time needed for federal response organizations to deploy internal emergency communication systems.

"Pensacola is fortunate that we have a TSO who is a highly experienced amateur radio operator, trainer, and examiner," said Federal Security Director Steve Earnest. "His volunteer efforts have given the agency tremendous in-house capability that would have been expensive for the agency to replicate using contractors."

On the technology front, Army MARS assumed responsibility for the military version of Winlink 2000. It will be upgraded to operate independent of the internet if that system ever fails. MARS traffic will be securely separated from that of hams using Winlink on other frequencies. At the same time, Navy-Marine Corps MARS became the new



Wilmington, North Carolina hams were inside the region's biggest shopping center, Independence Mall, staffing a booth at the annual local hurricane expo. (Photo courtesy of David Williams, KF4CQS)



MARS leaders worked on integrating the three MARS services at this year's Dayton Hamvention®. The three chiefs at the joint Military Affiliate Radio System booth are Don Poquette of Air Force MARS, Stuart S. ("Stu") Carter of Army MARS, and Bo Lindfors, Navy-Marine Corps MARS. (Photo courtesy of James Banks, Army MARS)

home of MARS Automatic Link Establishment development, relieving Army MARS of that commitment. According to officials, members of all three services will continue on the ALE development team. "It was an awesome event," Army's Carter said of the meeting of minds at Dayton, and no time was wasted moving from decision to action.

### Immediate Action

With the hurricane season fast approaching, Navy's Lindfors said, "[We] ask that all Region Directors immediately contact their Army and Air Force counterparts to coordinate frequencies. We won't be able to promulgate a new policy in time, so I trust your judgment to set up a system that works."

Air Force MARS Chief Poquette, retiring after 26 years of active duty in radio communications, departed on an optimistic note. "Yes, full interoperability is in sight," he said.

"Hopefully within one year, if everyone keeps working at it—and I think they will."

### MARS, RACES, ARES

One concern raised by MARS leaders is the coordination of missions among MARS, RACES, and the ARRL's ARES. All three provide emergency communications in disaster situations. MARS feels that the three groups are sometimes thought to be in competition with one another. According to Carter, MARS sees itself as the "long-distance carrier" in any emergency scenario, linking federal agencies with state agencies and on-site command posts via HF, while ARES and RACES provide essential close-in communications primarily via VHF.

"We do not compete with these other very critically needed emergency communications entities; we enable them to extend their customers' messages from the local level to a potentially global audience," Carter said. "We really are not rivals. We are partners, with the same goal—to provide emergency support when our nation's citizens need it most."

Carter said a formal proposal is in preparation for defining how Army MARS and the American Radio Relay League can work together, particularly with regard to ARES. "Army MARS is committed to creating a relevant relationship with the ARRL," he said. "We too serve the same population. We are not at cross purposes; I believe we really can provide a better service by leveraging each other's capabilities."

### Spreading the Word

New Jersey emergency management officials have become aware of the valuable service provided by amateur radio operators. As part of New Jersey's Emergency Preparedness Conference, attendees were given the opportunity to earn their amateur radio license. The ten participants in the licensing course included emergency medical staff, firemen, dispatchers, and other emergency service workers. The course was comprised of two days of intensive instruction centered around a PowerPoint presentation, the *ARRL Ham Radio License Manual*, and on-line practice tests. The two days of instruction were followed by a license testing session. The course was taught by Lou Milone, KA2NTT, Atlantic County, New Jersey, RACES Officer, with assistance from other New Jersey RACES officials.

The second activity was a breakout session covering RACES, ARES, and the benefits of these amateur radio services to emergency managers. The session was presented by Ed Taylor, N2EWT, Bill Cole, N2CSA, and Tim Cwik, N2LTQ. The presentation centered around a brief video from FEMA and a presentation adapted from an original by Ed Bruette, N7NVP, Washington State Officer. Cole said the session was attended by emergency medical, fire, dispatch, police, and Emergency Operations Center personnel from the state, county, and local levels.

### Talk on a Disk

The ARRL is helping you promote amateur radio emergency communications by providing a "Talk on A Disk." The emergency communications Powerpoint presentation provides the information needed to tell the public about amateur radio in times of emergency. It describes how we use amateur radio, some of the agencies that serve, and the types of communications available to hams. It picks up on FEMA's recommendation to be self-sufficient for 72 hours and asks the question "How will you communicate?" The CD has the current emergency communications brochure on it, as well as





Lou Milone, KA2NTT, Atlantic County, NJ, RACES officer, teaches an amateur radio class to attendees at the New Jersey Emergency Preparedness Conference. (Photo courtesy of Ed Velez, KD2PM)

several presentations on Hurricane Katrina. The information can help anyone give a good presentation on amateur radio.

One additional presentation helps you understand how to promote amateur radio. Just like emergency communicators have a go kit, well-prepared ham radio public-relations people have their own go kit to help get the word out.

Under the National Incident Management System there is a Joint Information Center. Here's a central point from which the news media can get information on a disaster. Preplanning is the key. The ham radio PR person has to make contact with the PR person from the served agency. By working with the JIC, you are sharing information to ensure that what is released is accurate. You can keep messages consistent and avoid releasing conflicting information.

These CDs will be available at the Huntsville (Alabama) Hamfest in August, or you can send an SASE big enough for a CD to the Public Relations Department at ARRL Headquarters (225 Main St., Newington, CT 06111).

### Until Next Time...

This month we would like to thank Bill Sexton, N1IN, Army MARS, and Bill Cole, N2CSA, Assistant Cape May County, NJ RACES officer.

Do you have a story involving amateur radio public service? Drop us a note. Until next time . . . 73, Bob, WA3PZO



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**ICOM**

# Adding an Anderson Powerpole™ Connector to your Power Supply

**L**ike many hams, I've converted all my DC power interfaces to Anderson Powerpole™ connectors. Currently, though, no +13.8-VDC power supplies have these connectors. Power-supply DC interface connectors are typically 1/4-inch threaded studs, five-way binding posts, and even front-facing automotive accessory sockets, which generally are limited to no more than about 10–15 amps. Rather than an accessory socket, I'd prefer a full-current-capable Powerpole connector on the front of my power supply. If I need an accessory socket, I can always build a Powerpole-to-accessory-socket adapter cable. Therefore, I decided to modify the accessory socket on my MFJ-4225 into a Powerpole interface. This modification is applicable to any power supply with an automotive accessory socket.

For this modification, I first built a Powerpole adapter cover for the accessory socket. The socket opening is about 0.8 inch in diameter, so a standard 3/4-inch diameter metal hole-plug, available from ACE Hardware or Mouser Electronics (part number 534-7605 @ \$0.74 each), fits snugly into this opening if the hole-plug's metal fingers are bent out slightly. I cut a hole for the Powerpole connector in the plug by drilling a 1/4-inch diameter hole in the center of the plug and then using a needle file to square up the hole. Next I used a nibbling tool to cut out a 0.3" x 0.6" rectangular hole, and then I painted the plug black to match my power-supply front panel. Finally, I slid the

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

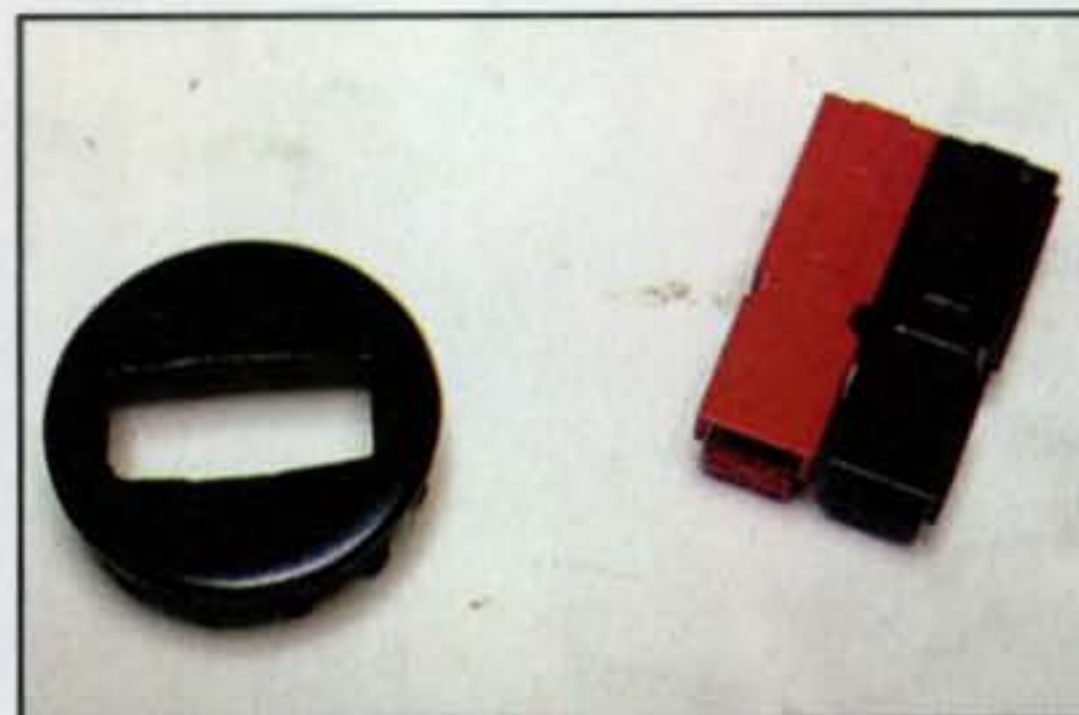


Photo B— The painted plug ready for Powerpole installation.



Photo C— Braid assemblies soldered in place.



Photo A— The unpainted cut-out plug.



Photo D— The final Powerpole-equipped power supply.

***"If I were to do this again, I probably would drill a hole in the side of the accessory socket inside the power supply, and slide 14-gauge wires through this hole."***

Powerpole connector into the rectangular slot and epoxied it in place.

You may need to modify the inside wiring of your power supply if the internal power leads attached to the accessory socket are not at least 14-gauge (12-gauge preferred). If the wires aren't heavy enough, either replace the existing wires or just parallel them with 14-gauge or heavier wires. If desired, you can solder the ground wire directly to the accessory-socket case using a large soldering iron.

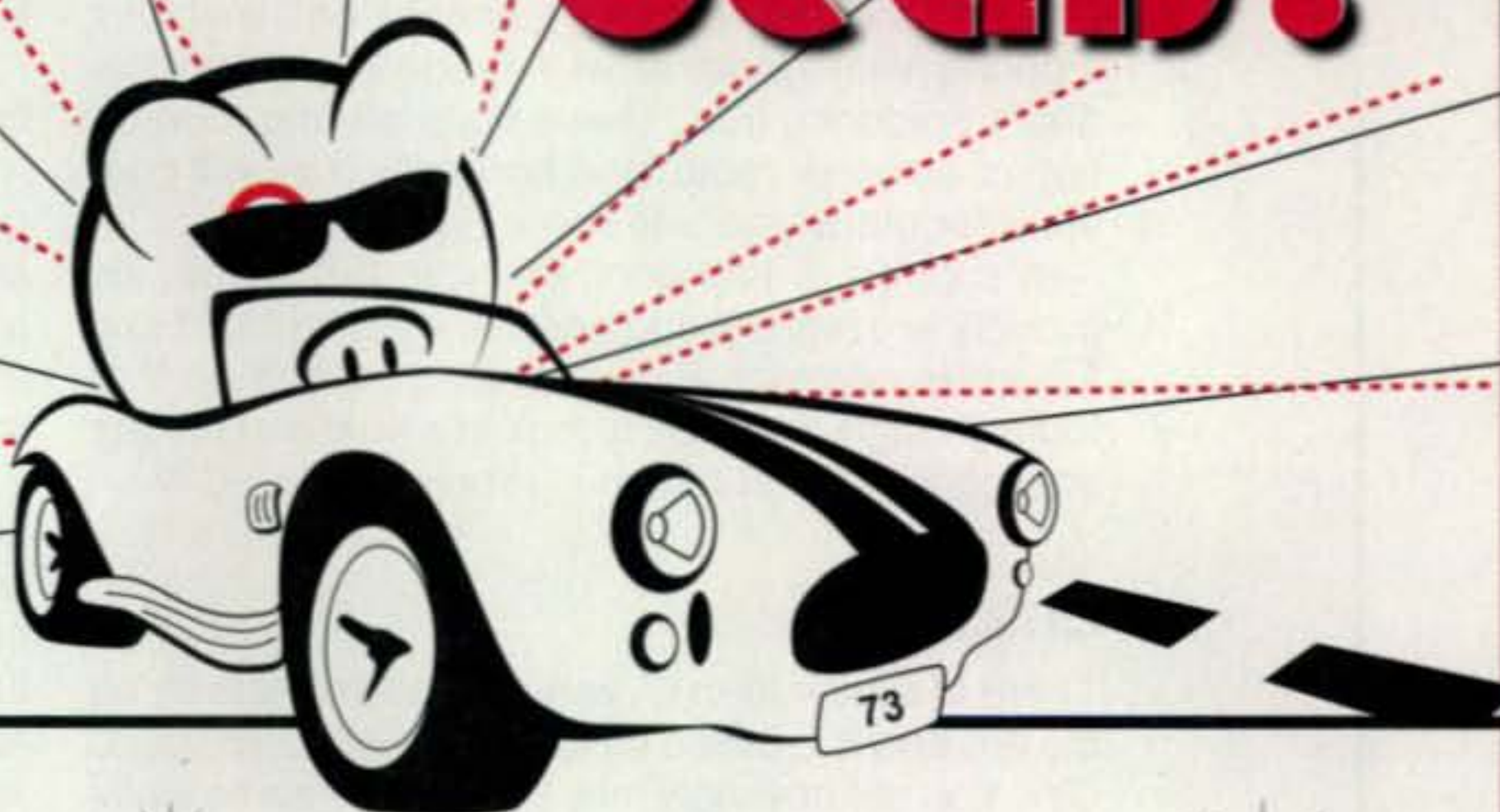
Now from the front of the power supply, you need to solder wires to the inside of the accessory socket. Since there isn't much room inside the socket, standard insulated wires are too inflexible. Therefore, I used two 2-inch lengths of RG-58 coax shield. Crimp (or solder) the Powerpole terminals on one end of each piece of braid. Next slide a piece of heat-shrink tubing over each braid, leaving about 1/4-inch of the braid exposed. Tin the exposed braid ends.

The next step is a little difficult, but not too bad. Tin both the accessory-socket center-conductor tab and the inside case of the accessory socket. Leave a nice glob of solder in both places. Now solder each of the braid assemblies to the tinned locations. Once this is accomplished, slide the Powerpole terminals into the Powerpole housing, and then push the plug assembly in place to ensure that everything fits properly. Once the fit is verified, pull the plug assembly back out and apply epoxy around the inside of the accessory socket. Carefully slide the plug assembly back in place and let the epoxy cure.

If I were to do this again, I probably would drill a hole in the side of the accessory socket inside the power supply, and slide 14-gauge wires through this hole. Then I could simply have soldered these wires to the internal high-current connectors.

That's it. My MFJ-4225 is now much more versatile for my bench work, as I have both an Anderson Powerpole connector and high-current five-way binding posts on the front panel. Until next month . . . 73, Phil, AD5X

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**ICOM**

# A New Pursuit and A New Kit

**S**ome aspects of amateur radio go through a pattern of ups and downs, or highs and lows, but through it all QRP holds steady and continues to grow. From the U.S. to the U.K., from South Africa and Brazil, to Australia and Japan, QRP rocks! As I have mentioned in previous columns, QRP today involves a pleasant mix of on-the-air operations and home-assembling low-power projects just for fun. This is truly a wonderful part of amateur radio, as most QRP activity is on CW and homebrewing simple rigs involves working with genuine wire-leaded components and a soldering iron. These traits are the foundation of amateur radio, and hopefully they will continue for many years to come.

In support of that good thought, this month we proudly are highlighting another easy-to-build and fun-to-use project. Before getting started on that topic, though, let's briefly look at a new and unique application of that all-time favorite mode—CW.

## QRSS

There is a new form of very-low-power activity on the air, and it is called QRSS, for ultra-slow-speed CW. You unknowingly may have heard some weak QRSS signals near 10.140 MHz on 30 meters. Now before tuning up there to check out the action, I encourage you to respect its hearty pioneers and refrain from blindly transmitting within one or two kHz of 10.140 MHz (few amateurs operate that high on 30 meters anyway). Just listen until you are familiar with the general activities.

How slow are QRSS transmissions and what are their attractions and benefits? Generally speaking, these transmissions are in the 0.1 to 2.0 words-per-hour category, and they are proving beneficial for communicating over exceptionally long distances with very low power. As some eye-opening examples, VK3DI reported copying 30-meter QRSS signals from WB3ANQ while running 500 microwatts/0.5 milliwatt, and from VK6JY 240 miles away running 50 nanowatts/0.00005 microwatts on 30 meters. Closer to home, AA4XX and W0CH have

communicated over an approximate 900-mile path while running QRSS at 50 microwatts on 10.140 MHz. Those feats average out to over 15 million miles-per-watt! Just imagine the benefits of QRSS for other pursuits such as moonbounce!

Would you like to try your hand at copying some test transmissions from QRSS beacon stations on 30 meters (and no, you do not need to sit by your transceiver for several hours to do so; a computer can handle the task for you). The first step is learning the basic facts regarding QRSS, and the following steps involve installing (and using) some free QRSS software on your computer.

As previously mentioned, QRSS signals are usually quite weak—so weak that they are masked by band noise. The key to hearing them involves reducing the noise or improving the receive signal-to-noise ratio, and this is accomplished by reducing the receive bandwidth so it is barely wide enough to pass the (QRSS) signal but not wide enough to pass noise. How wide (or narrow) is that passband? It depends on the QRSS speed and is calculated as: CW speed (wpm)  $\times$  2.5 (response time) = absolute minimum bandwidth (in Hz) for absolute maximum S/N (signal-to-noise) ratio. As an example, 25 wpm  $\times$  2.5 = 62.5 Hz bandwidth, and 12 wpm  $\times$  2.5 = 30 Hz bandwidth. Likewise, 1 wpm  $\times$  2.5 = 17.5 Hz bandwidth and a typical QRSS signal of .8 wph (that's words per hour), or 0.0133 wpm  $\times$  2.5 = .03 Hz bandwidth.

Don't panic! A bandwidth this narrow (plus DSP noise reduction) can be acquired at the AF rather than IF level, and that is where your HF transceiver plus computer equipped with sound card, QRSS software, and a quick-brew interface enter the picture. You tune your transceiver to frequency, leave it, and the computer does the time-consuming monitoring for you. Your transceiver's filter is also wide enough such that mild drift is acceptable, because computer-based filtering is used.

The details of where to find more information on QRSS (including times/frequencies of QRSS test transmissions) and where to look for free QRSS software are given in fig. 1. Bear in mind that at the present time most QRSS activity is pre-announced as to time, frequency, and power via e-mail (check the knights\_qrss e-mail reflector for details), and the Argo and Spectran software (available though

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Fig. 1—QRSS-related websites and applications as discussed in the text. 500-microwatt signals transmitted from the U.S. have been received in Australia using this ultra-low-power mode.



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- FUSE PROTECTION
- OVER TEMPERATURE SHUTDOWN

**SPECIFICATIONS:**

INPUT VOLTAGE: 115 VAC 50/60HZ  
OR 220 VAC 50/60HZ  
SWITCH SELECTABLE  
OUTPUT VOLTAGE: 13.8VDC

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

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MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-10	7	10	1 1/4 x 6 x 9	3.2
SS-12	10	12	1 1/4 x 6 x 9	3.4
SS-18	15	18	1 1/4 x 6 x 9	3.6
SS-25	20	25	2 1/4 x 7 x 9 1/2	4.2
SS-30	25	30	3 1/4 x 7 x 9 1/2	5.0

**DESKTOP SWITCHING POWER SUPPLIES WITH VOLT AND AMP METERS**

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SS-25M*	20	25	2 1/4 x 7 x 9 1/2	4.2
SS-30M*	25	30	3 1/4 x 7 x 9 1/2	5.0

**RACKMOUNT SWITCHING POWER SUPPLIES**

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25	20	25	3 1/2 x 19 x 9 1/2	6.5
SRM-30	25	30	3 1/2 x 19 x 9 1/2	7.0

**WITH SEPARATE VOLT & AMP METERS**

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M	20	25	3 1/2 x 19 x 9 1/2	6.5
SRM-30M	25	30	3 1/2 x 19 x 9 1/2	7.0

**2 ea SWITCHING POWER SUPPLIES ON ONE RACK PANEL**

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25-2	20	25	3 1/2 x 19 x 9 1/2	10.5
SRM-30-2	25	30	3 1/2 x 19 x 9 1/2	11.0

**WITH SEPARATE VOLT & AMP METERS**

MODEL	CONT. (Amps)	ICS	SIZE (inches)	Wt.(lbs.)
SRM-25M-2	20	25	3 1/2 x 19 x 9 1/2	10.5
SRM-30M-2	25	30	3 1/2 x 19 x 9 1/2	11.0

**CUSTOM POWER SUPPLIES FOR RADIOS BELOW**

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

**NEW SWITCHING MODELS**

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

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\*ICS - Intermittent Communication Service

QSL.net) include construction information for simple interfaces.

QRSS may or may not parallel your QRP interests. However, considering it is a new pursuit, you deserve to know about it, how to investigate it, and then draw your own conclusions. That is why I covered it here. Would you like to read more about it in future columns or prefer that we focus only on classic QRP? Personally I feel that even if QRSS is not your cup of tea, writing about it in this month's column again brought up some always useful tricks for QRP success. How? Sending CW slower than usual and using narrow filters plus DSP noise reduction improves a S/N ratio and enhances copy under marginal conditions. Having problems in DX pile-ups? Consider a distant station using a very narrow filter. If your signal is not centered in that narrow passband, it will be attenuated 5, 10, 15, or more dB. If you shift frequency ever so slightly and fall precisely in the center of that passband, your signal can gain a 5, 10, 15, or greater dB boost.

As we think more about QRSS and also consider its "non radiating" abilities—such as the way prisoners of war have communicated by eye blinks and wall taps—the possibilities of stealth communications with QRSS boggle the mind. The FBI, CIA, Interpol, etc., should be interested in QRSS!

## Twofer QRP

Doug Hendricks, KI6DS, of <www.qrpkits.com>, has been pumping out some neat mini rigs that are ideal first-brew projects for newcomers, and one of his latest gems is the "Twofer" transmitter kits shown in photos A, B, C, and fig. 2. Simply described, the Twofer is a four-transistor 2-watt transmitter kit for 40, 30, or 20 meters complete with VXO and adjustable output control. The transmitter's PC board measures 2 inches by 3 inches, so it fits perfectly in an Altoids® tin. The Twofer might be considered a golden oldie, since it first appeared during the 1980s. However, the famous expression of "everything old is new again" definitely applies here. Richard Fisher, KI6SN, recently upgraded the Twofer to 2007 standards, Doug Hendricks integrated the mods in the kit, and it is now ready to delight homebrewers for another 20-plus years.

In looking at the rig's circuitry (fig. 2), we note it uses a JFET for the crystal oscillator and VXO, a 2N2222 for a driver, and a hefty 2N3553 or 2SC799 for a power amplifier. VXO range differs slightly from band to band, but it is gen-

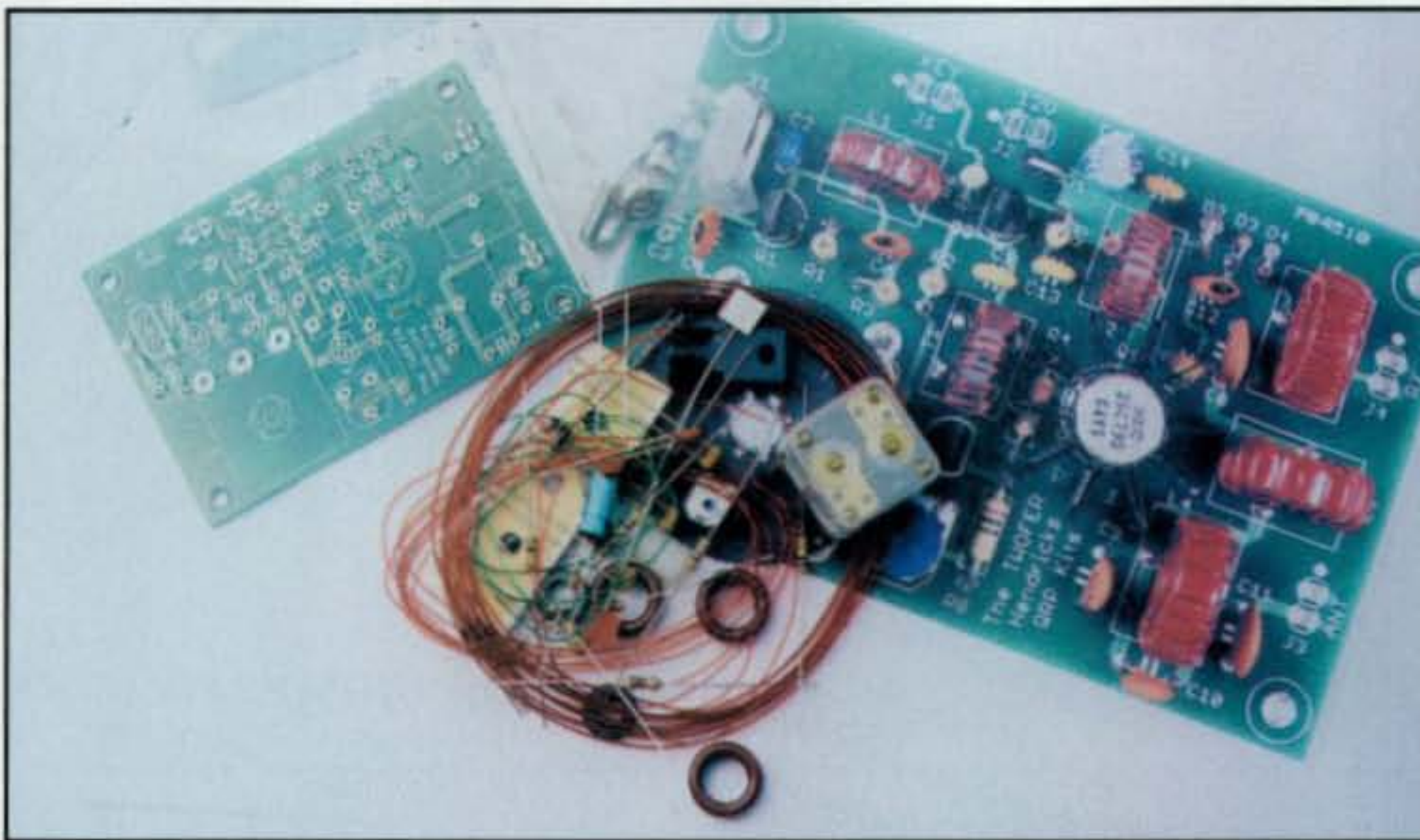


Photo A— The Twofer QRP transmitter kit as received from KI6DS of <www.qrpkits.com> and placed beside an enlarged photo of the completed kit printed out from the website. The transmitter delivers 2 watts output, includes VXO frequency control, and can be built for 40, 30, or 20 meters. It's nice, affordable, and a first-class kit.

erally in the 2- to 3-kHz range. A drive control on the 2N2222's emitter lets you reduce power for serious milliwatting or even QRSS pursuits. A heat sink is included for the 2N3553, and a zenier diode is included in its collector circuit for SWR protection. QRP gear seems to get more abuse than regular ham gear—apparently from portable operation with makeshift antennas—so zenier protection is a very good idea. A diode-type T/R switch is also included in the 2N3553/power-amplifier stage for easy and convenient interconnection

with an external receiver. Finally, a 2N3906 acts as a high-speed electronic switch for keying the JFET and 2N2222 stages.

The Twofer is supported with an excellent 20-page web-downloadable manual complete with photos and step-by-step instructions to ensure successful assembly. Each step has a check-off box, so you can assemble the kit on a minute here and a minute there basis and always know where you left off. There are six toroids to wind, but everything is furnished, so you just wind them



Photo B— Approximately midway during assembly, I paused to shoot this photo. Actually, all the small components (resistors, capacitors, and transistors) have been installed and only band-related components plus power amplifier transistor and VXO capacitor are yet to be installed. Assembly time to this point was approximately 30 minutes.

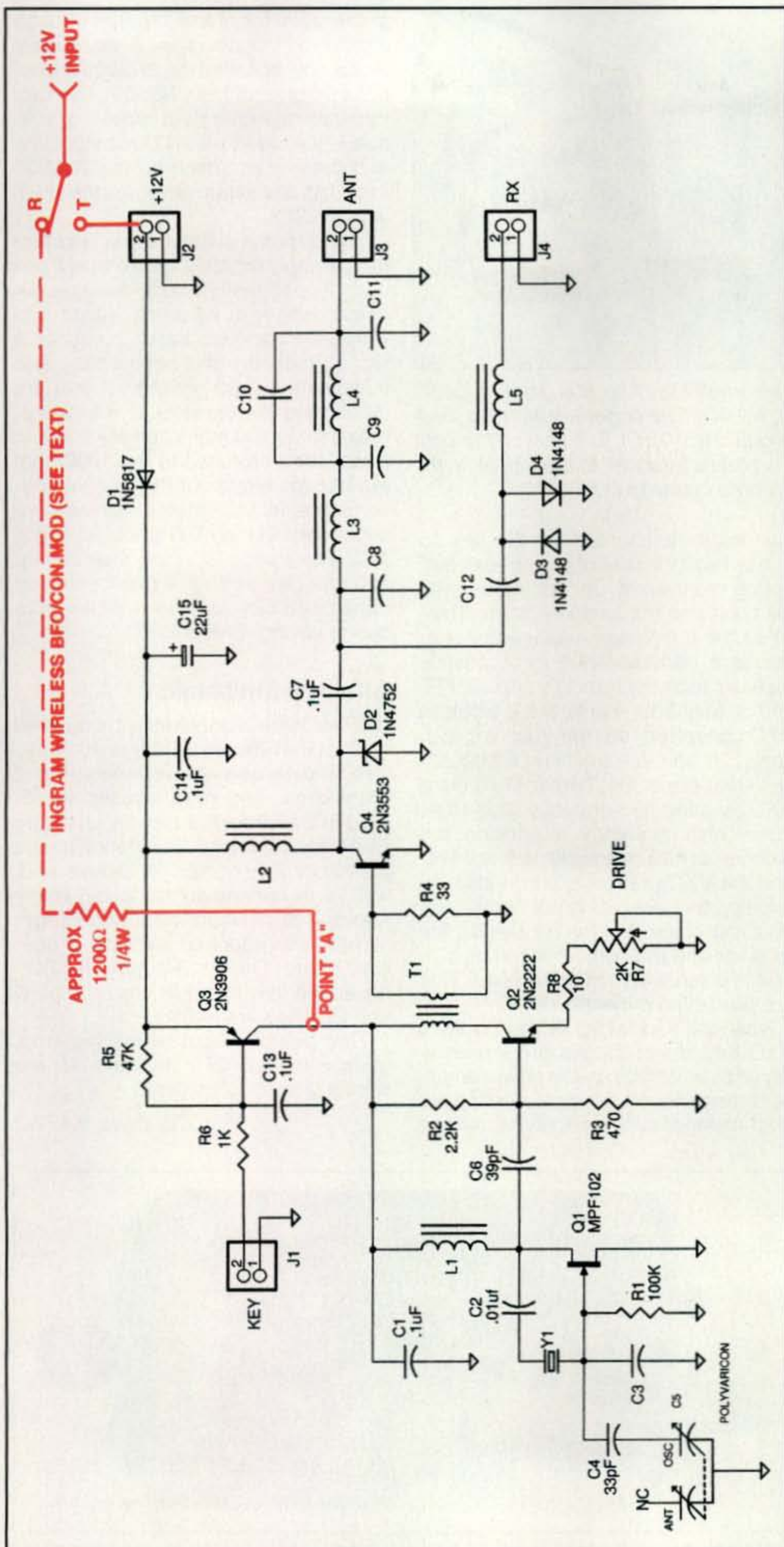


Fig. 2— Circuit diagram of the Twofer transmitter from <[www.qrpkits.com](http://www.qrpkits.com)>. The addition in color is my “Ingram Mod” described in the text.



Photo C— The assembled, tested, and fully operational Twofer nestled in an Altoids® mint tin. After adding my “Ingram Mod” described in the text, I moved the Twofer into a plastic case so it could freely radiate a wireless BFO/conversion signal into a nearby AM-type shortwave receiver.

to look like the ones in the manual’s photos. I wound mine while watching TV and listening to 30 meters. It’s that easy.

I assembled my Twofer for 30 meters and found it to be perfectly suited to a variety of QRP applications. Combined with an external receiver and low-slung dipole, it makes a good “flip on and enjoy” mini station for travel and/or casual use (thank goodness for that SWR-protecting zenier diode). It is designed to work with a 12/13-volt DC supply, but I found it also worked (at reduced power) with a 9-volt battery. The big surprise, however, surfaced when I added my “Ingram Mod” to the rig (description follows).

All aspects considered, I think the Twofer is an outstanding kit available at a fair price. It is good for both home and portable use, and I have even successfully used it mobile. You can read more about the Twofer and order a kit at <[www.qrpkits.com](http://www.qrpkits.com)> or by contacting Doug Hendricks at 862 Frank Avenue, Dos Palos, CA 93620. Check it out!

### Ingram Mod for the Twofer

After making two or three on-the-air contacts with the Twofer, I decided to tailor it for field operation with a low-cost AM-only shortwave receiver by quickly adding my “Ingram Mod” to it. This mod was included in my “Hamfest Buddy”



Photo D— Supporting the philosophy “if it fits in an Altoids® tin, it is genuine QRP” is this two-tin station built by Dennis Payton, N9JXY. The upper-left item is a classic “Micromountaineer” mini transceiver designed by W7ZOI. The item on the right is a Jackson Harbor in a tin with a homebrew paddle attached to the top. Note the unique labels on the lid of each tin. (Photo courtesy of N9JXY)

mini rig featured in my August and October 2005 CQ magazine QRP columns. It works with almost any oscillator-style transmitter, and everyone is invited to try the mod in a favorite circuit. I only ask for credit as the mod’s designer.

Basically, the mod involves keying the oscillator in its emitter and adding a

high-value resistor across the key so one or two milliwatts of power “leak out” during receive/key up, yet increase to full output on transmit/key down. Then when the transmitter is placed near or beside a portable AM-only shortwave receiver such as Grundig’s popular FR-200 or Mini 300, it acts like a wireless BFO/converter, so the receiver can copy CW on the transmitter’s frequency. Also, since the Twofer includes a VXO, shifting its frequency also shifts the receive frequency. In addition, the receiver’s (AM) bandwidth is 5 or 6 kHz and the VXOs range is 3 or 4 kHz, so retuning the receiver is not necessary. You just place the Twofer beside the receiver and the combo becomes a 3- or 4-kHz tunable mini transceiver! This is a terrific fun project!

Now look back at fig. 2. The Twofer’s VXO and driver stages are indirectly keyed by a 2N3906 and its power amplifier runs unkeyed, so implementing my “Ingram Mod” calls for applying voltage

to the collector of the 2N3906 through a dropping resistor (point A, fig. 2). This works fine, because the 2N3906 will not pass voltage to the 2N3553. Then for transmitting rather than receiving, voltage is shifted to the +12-volt input line and the key is closed so the 2N3906 conducts and in turn activates the JFET and 2N2222.

The added resistor’s value, incidentally, is approximately 1200 ohms. If you wish to get really exact, insert a 5K potentiometer in its place, adjust it to where the oscillator barely produces a signal, measure the pot’s value, and substitute a fixed resistor. If you are measuring current flow, it will be approximately 400 ma full power and 7 or 8 ma when switched to the 1200-ohm resistor for wireless BFO/receive converter operation. Portable receivers are super sensitive on CW (most also lack AVC), so I suggest using their pull-up antennas for receive. If overloading on transmit is noisy, just switch off the radio during keying. Enjoy!

### Altoids® Tin Magic

QRPers have a universally recognized cabinet that literally screams authentic QRP and it is available at variety stores, drugstores, and road houses worldwide. It is an Altoids® mint tin. I have an SWR monitor in one, an antenna bridge in another, a 49er, a DC-40 deluxe, and, well, one can never have too many Altoids® rigs! Need more encouragement? Take a look at a couple of special treats Dennis Payton, N9JXY, squeezed into Altoids® tins (photos D and E). They are terrific!

That overflows space for this time, gang. Stick with QRP and listen for me weeknights on 30 meters.

73, Dave, K4TWJ

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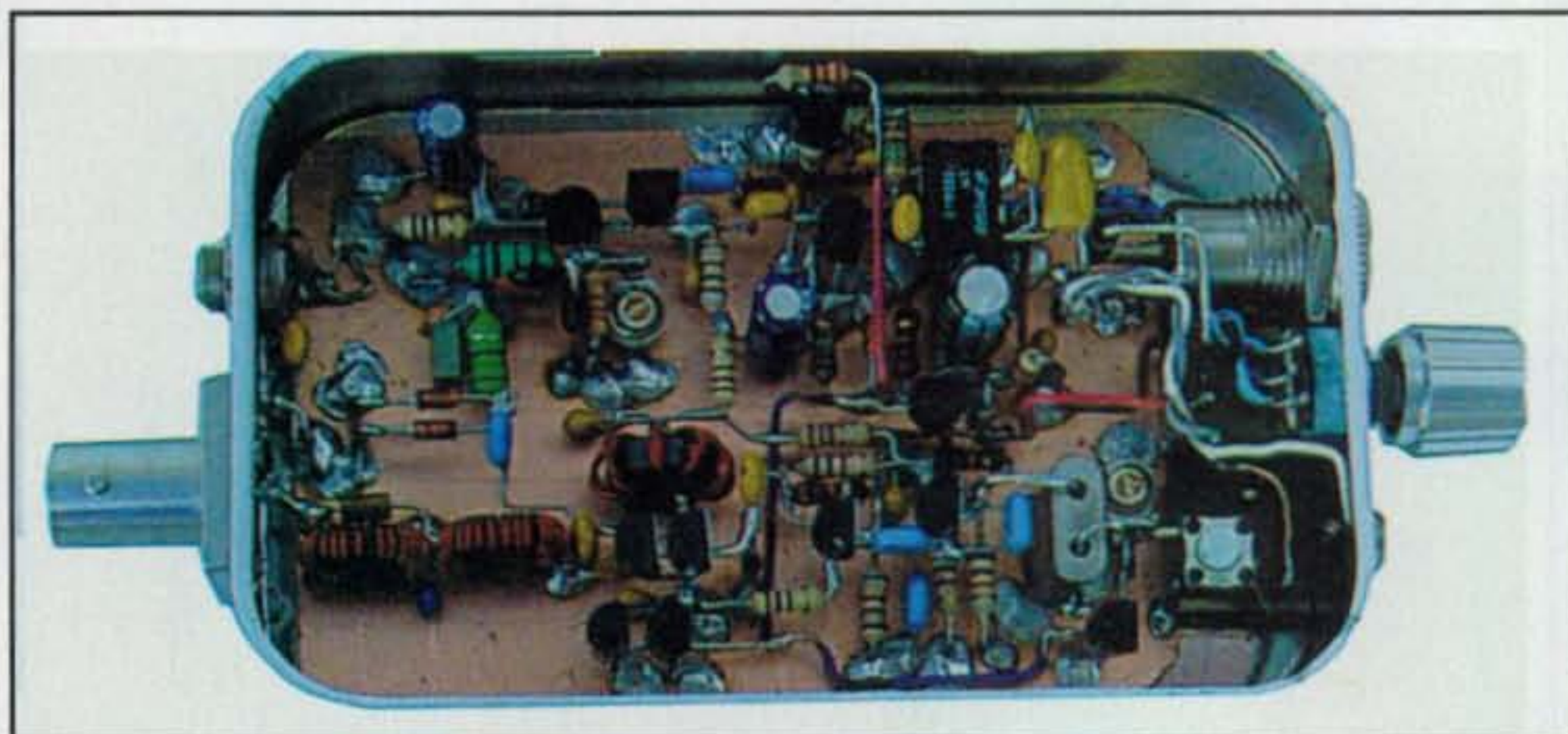


Photo E— An inside-the-box view of the Micromountaineer mini transceiver N9JXY squeezed into an Altoids® tin. It is using little rigs such as these (and the previously featured Twofer!) that makes QRP so exciting!



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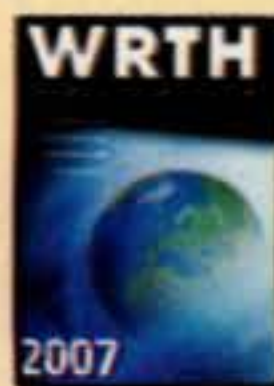
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## Microphones, RF Meters, Dipole Center Insulator, and a Farewell

This month we focus our attention on accessories for the radio shack, antenna accessories, portable and mobile goodies, software, the radio bookshelf, and more useful items, taking a close look at "what's new" in our amateur radio hobby. Are you ready to begin? Well then, let's dig right in.

### Accessories for the Shack

**New Microphones from Heil Sound, Ltd.** Heil Sound has announced three new versions of its popular PR 20 Spotlight Series Microphone: the PR 20W (White), the PR 20P (Pink Pearl), and the PR 20R (Red). These microphones (see photo A) were especially designed to provide unique color finishes for different professional environments. With the renowned PR 20 audio quality and attractive pearl-coated finishes, the new microphones also can be the ultimate style statement for a modern ham shack. All versions terminate in an industry-standard XLR connector, for easy interfacing to an equalizer, and Heil Sound adapter cables are available for connection to most modern trans-



Photo A— Heil Sound has announced three new versions of its popular PR 20 Spotlight Series Microphone: the PR 20W (White), the PR 20P (Pink Pearl), and the PR 20R (Red). These three microphones are designed to provide unique color finishes for different professional environments. (Photo courtesy of Heil Sound)

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ceivers. The PR 20 features a very wide frequency response with excellent clarity and articulation, leading to high intelligibility.

There's more to the story, too. According to Chip Margelli, K7JA, Heil's Vice President, Amateur Sales and Marketing, the PR 20P Pink Pearl was developed as a breast-cancer awareness project with the Susan G. Komen Foundation. Emblazoned with the pink ribbon on a pink-pearl finish, ten percent of the retail sales price and a minimum guaranteed donation of \$6800 will be donated to Susan G. Komen for the Cure®, for the purpose of raising the awareness of breast health and breast cancer. For more than 20 years, the Komen Foundation has been a global leader in the fight against breast cancer through its support of innovative research and community-based outreach programs.

Established in 1966, Heil Sound Ltd., under the leadership of Bob Heil, K9EID, has developed many audio innovations for the amateur radio marketplace over the years, and currently is a world leader in the design and manufacture of professional-grade microphones for the broadcast, recording, live-sound, and amateur radio markets. Heil Sound microphones are distributed worldwide through a network of leading amateur radio dealers.

The manufacturer's suggested retail price (MSRP) of the PR 20W, PR 20P, and PR 20R microphones is \$179 each. Full specs can be found at the Heil Sound website.

For product information on Heil products, contact Heil Sound, Ltd., 5800 North Illinois, Fairview Heights, IL 62208 (618-257-3000; e-mail: <info@heilsound.com>; <http://www.heilsound.com>).

**New from McKay™ Products USA.** McKay Products USA sent us a great deal of information on its ever-expanding line of radio accessories, which features a variety of speaker microphones, headsets, adapters, connectors, and parts.

Particularly interesting is the new RJ45 Break-Out Box, the RJ45-BOB (photo B). The unit brings out all connections to test points and binding posts for the now-common RJ45 connector found on late-model amateur and amateur-mobile radios, serial cables, T1 lines, Ethernet connections, and a host of other interface applications. Some of the new unit's features include gold-plated test points, binding-post connections, convenient solder points for connection to custom test equip-

**Note:** Listings in "What's New" are not product reviews and do not constitute a product endorsement by CQ or the column editor. Information in this column is primarily provided by manufacturers/vendors and has not necessarily been independently verified. The purpose of this column is to inform readers about new products in the marketplace. We encourage you to do additional research on products of interest to you.

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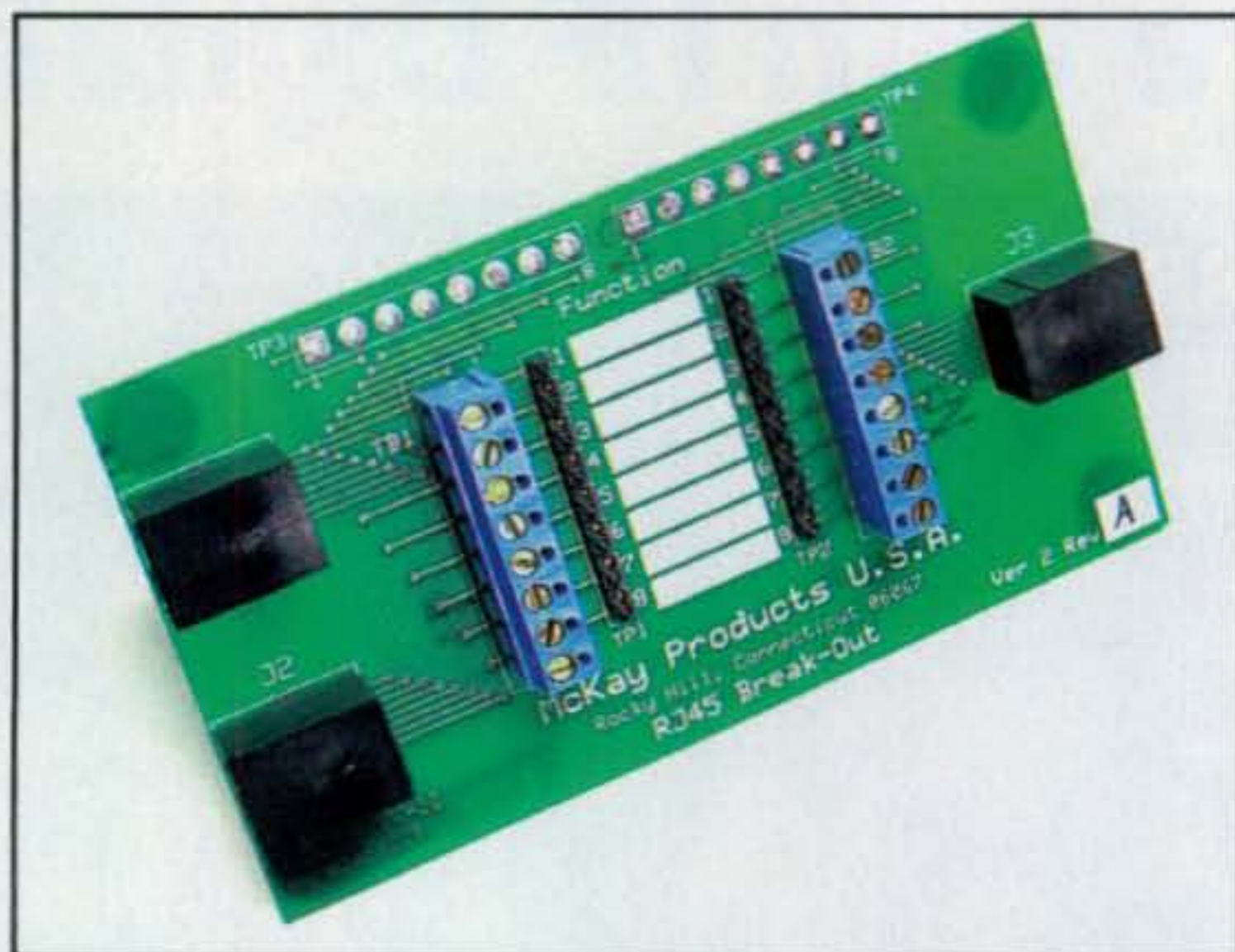


Photo B— The RJ45-BOB Break-Out Box from McKay Products USA brings out all connections to test points and binding posts for the now-common RJ45 connector found on late-model amateur and amateur mobile radios, serial cables, T1 lines, Ethernet connections, and a host of other interface applications. (Photo courtesy of McKay Products USA)



Photo C— The McKay Model 4SM Heavy Duty Industrial Speaker Microphone is an attractive, rugged microphone that is equipped with auxiliary 2.5-mm and 3.5-mm mono speaker jacks. The unit is fully sealed from dust and water, and it features a replaceable head and cable. (Photo courtesy of McKay Products USA)

ment, a label area for each RJ45 pin, and more. The MSRP is \$34.95 each.

McKay also has announced the release of its Model 4SM Heavy Duty Industrial Speaker Microphone (photo C). The attractive, rugged microphone is a medium-size, heavy-duty speaker-microphone that is equipped with auxiliary 2.5-mm and 3.5-mm mono speaker jacks. The unit is fully sealed from dust and water, and it features a replaceable head and cable. The mic is available in configurations for most popular amateur and commercial hand-held radios. MSRP starts at \$59.95 each.

For more information, contact McKay Products USA, 38 New Britain Ave., Rocky Hill, CT 06067 (860-808-1280; e-mail: <mailto:sales@mckayproducts.com>; on the web: <http://www.mckayproducts.com>). Visiting the website should prove beneficial should you need more details.

## Antennas and Antenna Accessories

**New Meters from LDG Electronics.** LDG Electronics, the St. Leonard, Maryland-based ham radio equipment manu-

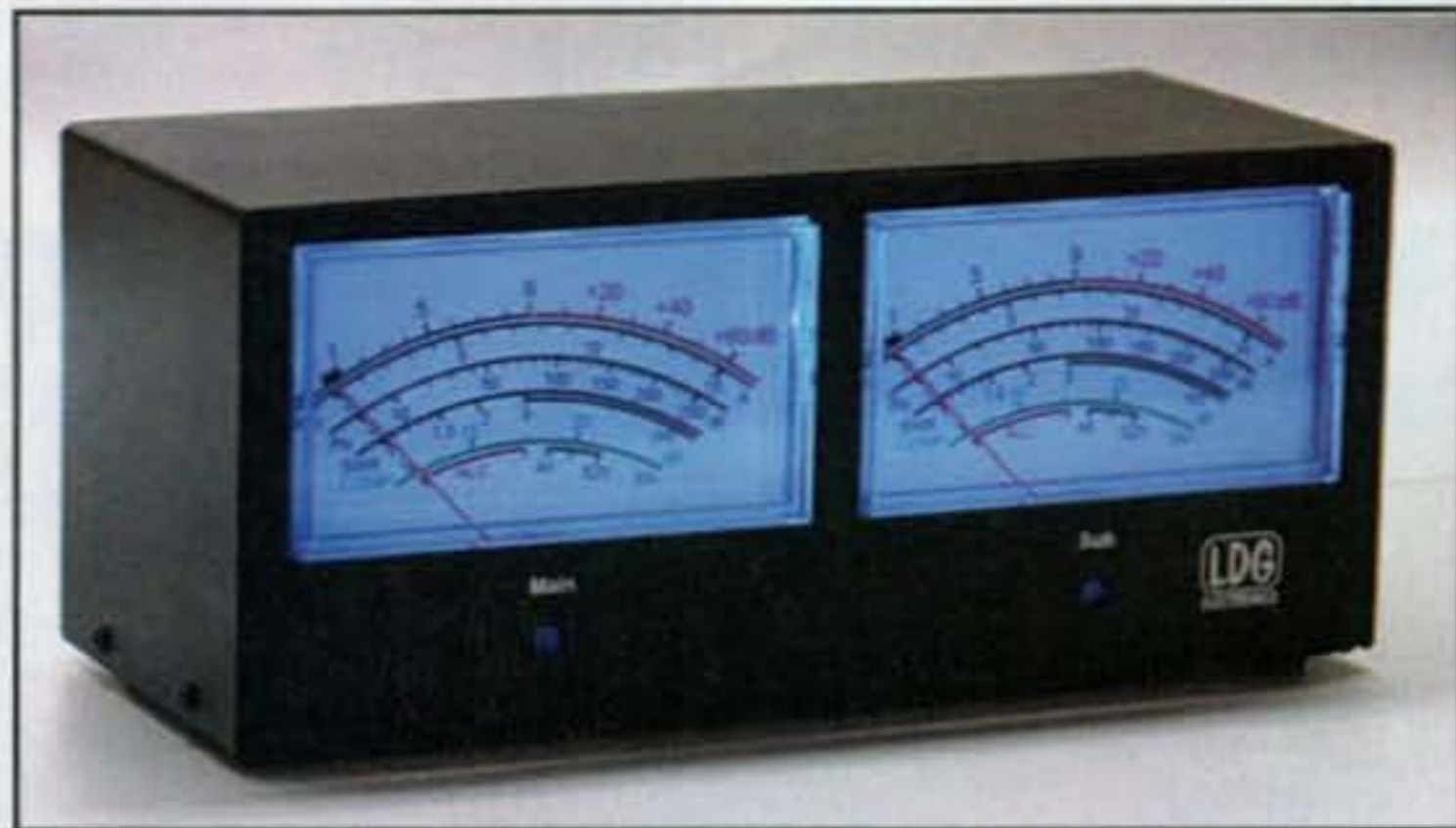


Photo D— LDG Electronics has announced the DM-7800 meter for the Icom ICOM IC-7800. LDG's DM-7800 dual-meter system provides two 4.5-inch meters, one for the Main receiver and one for the Sub. (Photo courtesy of LDG Electronics)

facturer, has announced the release of the DM-7800 meter for the ICOM IC-7800 (photo D). LDG's DM-7800 dual-meter system provides two 4.5-inch meters, one for the Main receiver and one for the Sub. The lush meter faces are LED back-illuminated in cool, high-visibility blue, drawing only 20 to 60 ma (depending on brightness setting) with a brightness control on the back.

"ICOM's magnificent IC-7800 transceiver is a quantum leap in amateur radio technology," said Dwayne Kincaid, LDG's chief engineer. "ICOM did a good job on the make-believe LCD meters, but all I heard from IC-7800 owners was they wanted 'real' meters."

There are separate calibration adjustments for Main and Sub accessible from the back of the DM-7800; you don't have to take apart the meter to calibrate it. A provided cable connects to the rig, and the radio menu lets you select functions for each meter. The DM-7800 and the virtual meters on your radio can work together; for example, you can display SWR on the radio's meter and power output on the DM-7800. On receive, the S-meter reading is shown.

The DM-7800 is 9.7" x 4" x 4" and requires power only for the lights; the meters themselves are passive. The case is textured gray, a great match for the IC-7800. As with all LDG products, the DM-7800 comes with a two-year warranty and all necessary cables are included.

At the same time, LDG Electronics also announced the release of the new and improved FT Meter for Yaesu FT-857 and FT-897 owners. The new FT Meter (photo E) is an update of the highly successful original FT Meter. The new meter features improvements, including on/off switch for the light; LED back-illuminated in cool, high-visibility blue; calibration adjustment on the back of the unit, so there is no need to take it apart to calibrate; and backlight brightness adjustment on the back so you can set the backlight to the desired level.

The original FT proved to be one of the most well-received products LDG ever released. "We were very happy with the first FT Meter," said LDG's chief engineer Dwayne Kincaid, "but we got feedback from owners regarding additional features they would like to see. This new model was really designed by our users from the feedback we received." The new FT meter is still only \$49.

LDG's new version of its popular FT Meter presents a lush, highly readable 2.5-inch meter face with calibrated scales for signal strength and discriminator reading on receive; and power output, SWR, modulation, ALC action and supply volt-



Photo E— LDG Electronics also has announced a new and improved FT Meter for Yaesu FT-857 and FT-897 owners. The new meter is an update of the highly successful original FT Meter, and it features several improvements. (Photo courtesy of LDG Electronics)

age on transmit. Each function is selectable from the radio's menu. Weighing only 8 ounces and measuring 3.5" x 3" x 2", the new FT Meter is said to be the perfect choice for discriminating FT-857 and FT-897 owners. As with all LDG products, the FT Meter comes with a two-year warranty—and the cable is included.

LDG Electronics is a 14-year-old Maryland-based ham radio equipment manufacturer. Its products are available from distributors throughout the world.

For more information on the LDG Electronics product line, contact your favorite dealer, or LDG Electronics, 1445 Parran Road, St. Leonard, MD 20685 (410-586-2177; e-mail: <ldg@ldgelectronics.com>; on the web: <http://www.ldgelectronics.com>).

**Dipole Center Insulator from K4AVU.** Paul Marsha, K4AVU, tells us that he has introduced yet another handy antenna accessory. The versatile K4AVU "Boo Wig" connector (photo F) can be used to make a portable dipole inverted-V antenna, or it can be used to couple open-wire feeders or ladder line to coaxial cable. The connector uses stainless-steel hardware, and the price is a modest \$15, including shipping. Payment can be by personal check or money order.

Contact Paul Marsha, K4AVU, 200 Garden Trail Lane, Lexington, SC 29072 (e-mail: <k4avu@yahoo.com>). Also, for a peek at the other accessories Paul offers, be sure to check out the W4LGH Ham Radio Accessory Page at <http://www.w4lgh.com/accessories.htm>.

### Portable and Mobile Goodies

**High Sierra Tripod Deluxe.** This exceptionally sturdy aluminum tripod from High Sierra Antennas (photo G) is said to be perfect for the temporary installation of HF antennas. Whether

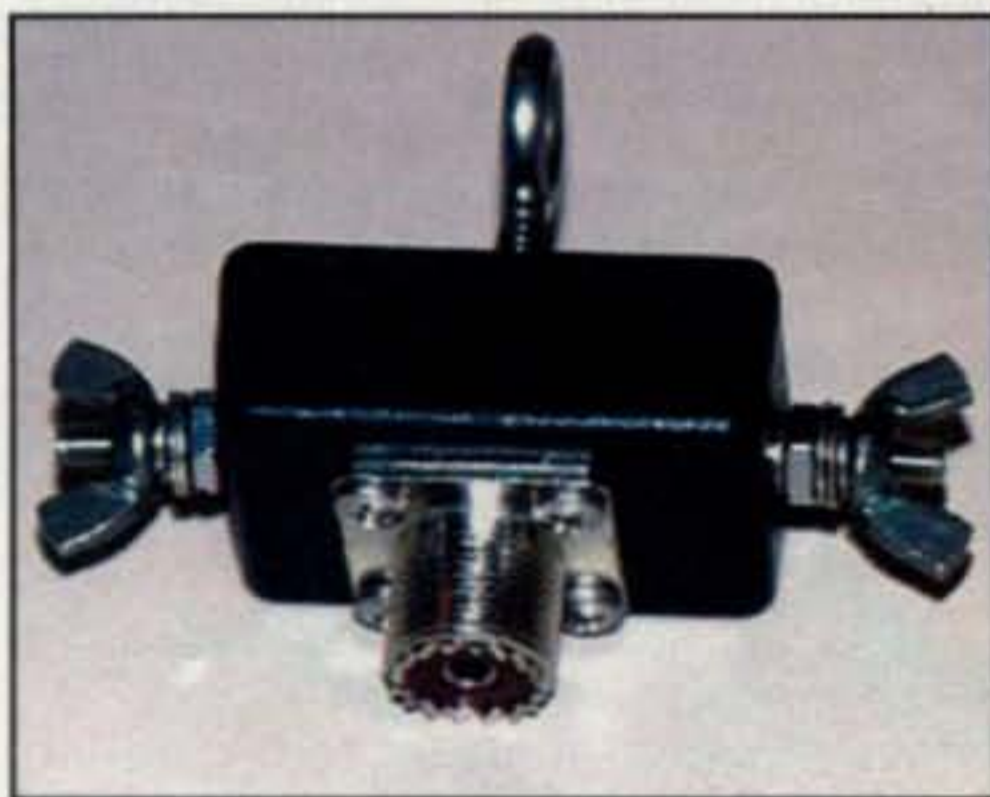


Photo F— The versatile, new, and interestingly named K4AVU "Boo Wig" connector can be used to make a portable dipole inverted-V antenna, or it can be used to couple open-wire feeders or ladder line to coaxial cable. (Photo courtesy of Paul Marsha, K4AVU)

you are installing the antenna in the back yard, out camping, or for an emergency response, the Tripod Deluxe sets up in just one minute. It works with just about any antenna that has the standard 3/8-24 thread. For example, High Sierra's Sidekick Antenna is said to work great on the Tripod Deluxe.

The High Sierra Tripod is aluminum and powder-coated black. The Tripod weighs just 4 pounds and when fully extended is 6 feet tall. It will collapse to about 3.5 feet. The top mast is about 1.37 inches in diameter. It can hold up to 100 pounds. The stainless-steel mount has a coax connector with a 3/8-24 thread. There are also eight wire radials that are just 10 feet long, and the bottom line is that all you need to do is put it out in the yard.

The Tripod Deluxe is available from High Sierra Antennas for \$160. For more information, contact High Sierra Antennas, PO Box 2389, Nevada City, CA 95959 (530-273-3415; on the web:

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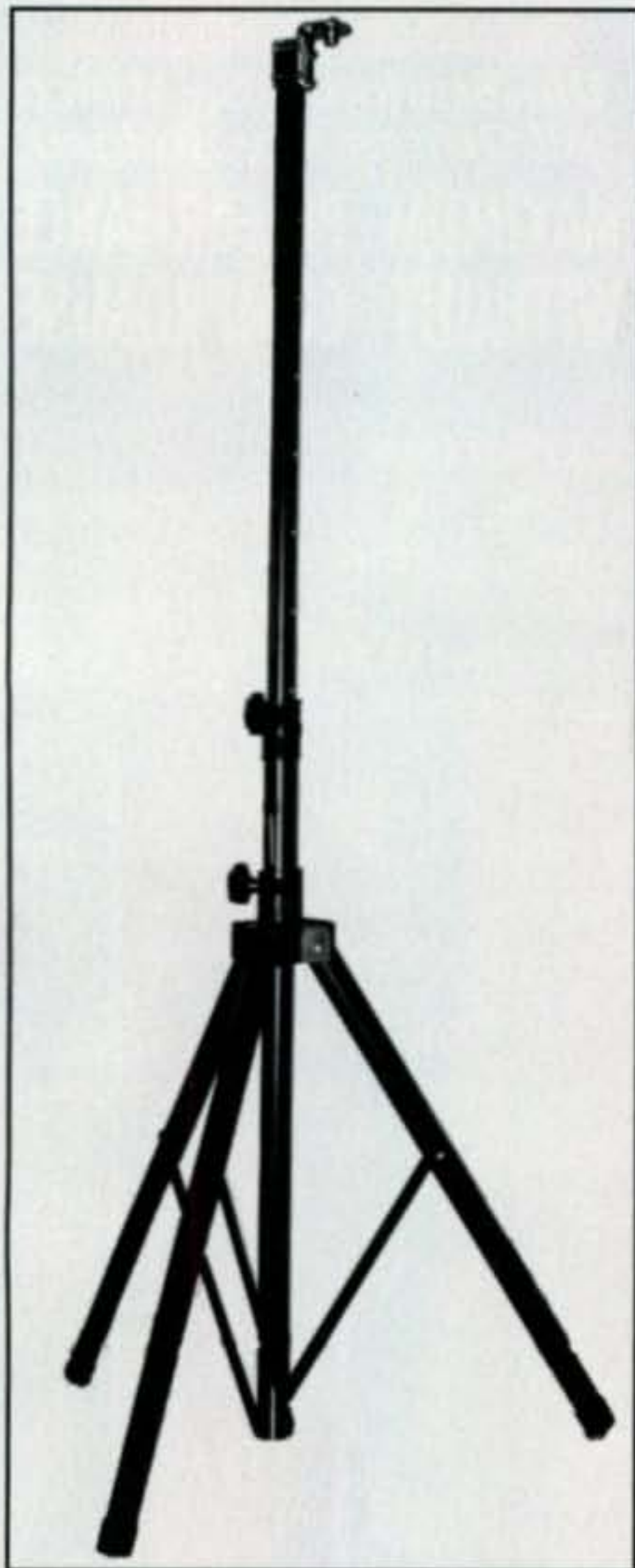


Photo G— The exceptionally sturdy aluminum Tripod Deluxe from High Sierra Antennas is said to be perfect for the temporary installation of HF antennas. The antenna sets up in just one minute. (Photo courtesy of High Sierra Antennas)

<<http://www.hamcq.com>>). The firm recommends that you order online or use one of its dealers.

## Software and Computers

**The Grayline Program on CD-ROM from antennex.** The Grayline Program on CD-ROM, developed by Marcel H. De Canck, ON5AU, is distributed by antennex. It's a new and unique program dealing with the dynamic motions of propagation.

Having precise information of where to find the sunrise and sunset zones is a must for eager, DX-chasing radio hams. These zones have specified propagation properties and characteristics that lead to long-distance communication possibilities with strong signal-strength quality. With current low sunspot activity, the highest HF radio ham bands are not too

productive now, and may not be for some years to come. Thus, many hams frequently are using the lower HF bands; these bands are in good shape now, to make exciting DX contacts. Knowledge of the gray-line zone and dark hours locations worldwide is a must to succeed on these bands.

The Grayline Program was developed by the antennex resident propagation expert and columnist Marcel De Canck, ON5AU. Along with his now-famous use of propagation animation wizards, one is able to follow the "gray-line" as it progresses around the globe in lifelike motion. According to Jack L. Stone, antennex publisher, it's said to be an amazing piece of work by Marcel, and the folks at antennex are proud of the unique effort and endeavor for perfection evident in the program. Jack notes that antennex takes on only selective products to distribute, and the company chose this one because it has known Marcel and his work in this field for many years and believes the program is a most useful one.

For pricing, contact antennex Online Magazine, PO Box 271229, Corpus Christi, TX 78427-1229 (361-855-0250; e-mail: <[info@antennex.com](mailto:info@antennex.com)>; on the web: <<http://www.antennex.com>>); or go to the antennex Announcements Page for more details and various links: <<http://www.antennex.com/news/index.html>>.

## From the Bookshelf

**ICOM IC-718 Quick Reference Mini-Manual.** Nifty! Ham Accessories has recently added the IC-718 Mini-Manual (see fig. 1) to its series of quick reference guides, providing condensed and easy-to-understand operating instructions for ICOM's venerable entry-level transceiver.

Simplified, step-by-step programming and operating instructions for all controls and setup menus are concisely covered in this short-form manual. Lightweight, waterproof, and color-coded for finding relevant information quickly, the Mini-Manual is a convenient memory jogger for instantly recalling how to set up and operate the IC-718.

Printed in color and laminated for durability, the compact, 14-page, 4.5" x 8" Mini-Manual is designed as a ready reference to be kept with the radio, so it's there when you need it. The price is \$16.95 plus s/h.

Incidentally, proprietor Bernie Lafreniere, N6FN, mentioned that initially he was not going to do a guide for the IC-718, but after receiving many requests,



Fig. 1— Nifty! Ham Accessories has recently added the IC-718 Mini-Manual to its series of quick-reference guides, providing condensed and easy-to-understand operating instructions for ICOM's venerable entry-level transceiver. (Image courtesy of Nifty! Ham Accessories)

he was persuaded to write the Mini-Manual. He just had not realized how popular this radio has remained.

For more information, contact Nifty! Ham Accessories, 1601 Donalor Drive, Escondido, CA 92027 (telephone 760-781-5522; e-mail: <[bernie-n6fn@niftyaccessories.com](mailto:bernie-n6fn@niftyaccessories.com)>; on the web: <<http://www.niftyaccessories.com>>).

**The ARRL RFI Book, Second Edition.** In introducing *The ARRL RFI Book, Second Edition*, edited by Mike Gruber, W1MG, the ARRL wryly makes the point that there are two kinds of hams: those who don't have interference problems and those who get on the air. In this regard, ARRL's team of experts has compiled what they consider to be the best advice and practical cures available on almost every type of radio frequency interference (RFI), from automotive to television, from computers to DVD players, from audio equipment to telephones—and more.

The 19-chapter book, priced at \$29.95 plus s/h, has four appendices and an index. It's authored by a number of RFI experts who know the best way to tackle RFI problems. These experts, both amateur and professional, provide their expertise clearly and concisely in the book.

The second edition also includes resources for tackling power-line noise, cable-television interference, and RFI

solutions for other electrical devices. Indeed, if it's a device that can be affected by interference (including your own radio receiver), you'll likely find practical, step-by-step cures in this book.

Contact the American Radio Relay League, 225 Main Street, Newington, CT 06111-1494 (1-888-277-5289; e-mail: <pubsales@arrl.org>; on the web: <http://www.arrl.org/shop>). You can place orders online, and the paper-based ARRL Publications Catalog is available upon request.

### More Useful Stuff

**New Cold Weld Product from the J-B Weld Company.** There's likely nothing worse than waiting around the house for a simple epoxy job to harden: today's busy multi-taskers require super-swift epoxy solutions for all of their at-home repairs. To save the day, J-B Weld's recent addition to the cold-



*Photo H— Today's folks require super-swift epoxy solutions for all their at-home repairs. J-B Weld's recent addition to the cold-weld clan, Mini Clear Epoxy Syringe®, is said to harden to nearly any surface, including wood, metal, tile, ceramics, jewelry, glass, china, and plastics in just five minutes. (Photo courtesy of J-B Weld)*

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Fig. 2— The handy ClampTite Clamp Making Tool is offered for a wide variety of applications. It reportedly is designed to “clamp anything . . . any size, any shape, any where,” and several versions of the tool are available. (Image courtesy of ClampTite)

weld clan, Mini Clear Epoxy Syringe® (photo H), is said to harden to nearly any surface, including wood, metal, tile, ceramics, jewelry, glass, china, and plastics in just five minutes. The J-B Mini's nozzle is designed for one-time use only. The no-fuss, dispense-and-mix formula comes in petite packaging and measures just 0.2 fluid ounces. The MSRP for the J-B Mini is \$2.99.

J-B Weld reportedly is the leading provider of cold-weld products, including its flagship invention, J-B Weld. The firm also manufactures specialty and quick-setting epoxies and putties for use in water, gas, marine, and various industrial and do-it-yourself settings.

For more information or to order, contact J-B Weld Company, 1130 Como St., Sulphur Springs, TX 75483 (903-885-7696; web: <<http://JBWeld.com>>).

**Clamp Anything with ClampTite™.** Here's an interesting product that re-

portedly is designed to “clamp anything . . . any size, any shape, any where.” The ClampTite Clamp Making Tool (fig. 2) is designed for a variety of applications. No matter whether you're looking for a quick and effective emergency leak repair or a bulletproof means for securing nearly any material from rubber hoses to spliced wires, this new and innovative tool is said to be a “must have” addition to any portable or shop tool chest.

ClampTite quickly replaces ineffective or damaged conventional hose clamps with a temporary or permanent clamping mechanism formed from stainless-steel safety wire. Clamps formed using ClampTite seal a full 360 degrees with no flat spots and can be used to band any type or size material. The ClampTite tool provides a means for tightening wires wrapped around an object and then locking it in place. The tool can be used with various wire sizes, which are said to eliminate space and strength issues often encountered with screw-operated worm-gear type clamps. Just under 6 inches in length, the ClampTite tool is about the size of a pencil and is precision-machined. Several different versions are available.

For details, contact ClampTite Tool, LLC, P.O. Box 372333, Satellite Beach, FL 32937 (telephone 1-800-962-2901; e-mail: <[Sales@ClampTiteTools.com](mailto:Sales@ClampTiteTools.com)>; and on the web <<http://www.clamptitertools.com>>).

## Wrap-Up

That's all for this time, gang. Next time, more “What's New,” with a new columnist (see below).

*Overheard:* I have found over the years that if you honor yourself, others likely will honor you, too.

73, Karl, W8FX

## A Farewell Note from your Column Editor

In late 1979, then-CQ Editor Alan Dorhoffer, K2EEK (SK) asked me to take over CQ's “Antennas” column from Bill Orr, W6SAI (SK). I did not consider myself an antenna expert, but I nevertheless agreed to give a reborn “Antennas” column a try, beginning in early 1980. The column and its several successors, including the present “What's New” column, indeed have been a pleasure to write and edit. However, I have decided that some 27 years of a monthly column is a very long time! Thus, the time has come for me to retire from my editorial activities and responsibilities. With much reluctance, I have decided to “hang up my spurs,” so to speak, relinquishing editorship of the “What's New” column with this issue.

I have enjoyed working with the CQ staff, notably Publisher Dick Ross, K2MGA; Editor Rich Moseson, W2VU; Managing Editor Gail Schieber, K2RED; Advertising Manager Don Allen, W9CW; and Controller Sal Del Grosso, to name but a few. I especially thank you, the readers and advertisers, for your valued comments, suggestions, and support over the years. You all will be missed.

In any case, not to worry: CQ will have a successor on board by the next issue, who I expect will continue the longstanding traditions of the column—and will also develop some new traditions of his own.

Vy 73, Karl, W8FX



# The Auburn University Student Space Program

**T**he Auburn University (AU) Physics Department hosts a unique space research program that involves students from all disciplines on the AU campus. These students can contribute to the program by sending payloads to the edge of space via balloon launches, designing and building satellites for launch in the space surrounding Earth, or working toward student-built projects for planetary exploration.

Entitled the Auburn University Student Space Program (AUSSP, website: <<http://space.auburn.edu>>), it is an excellent example of a higher education program that introduces students to space exploration and also includes amateur radio. It is a student-led, faculty-mentored program that involves students in designing, building, launching, and operating spacecraft. Participants launch high-altitude balloons to the edge of space to test engineering and science instruments. In addition, they build small satellites (such as CubeSats and pico satellites) that orbit the Earth. Furthermore, they are working with other universities on missions to the moon and Mars.

Three groups comprise the AUSSP. They are: the Auburn High Altitude Balloon (AHAB) group, the AubieSat (Small Satellite) group, and the management group, which includes students who are not majoring in the sciences or engineering. This latter group gives students who are not primarily scientifically oriented the opportunity to learn management and organizational skills.

e-mail: <[n6cl@sbcglobal.net](mailto:n6cl@sbcglobal.net)>



Students from the Auburn University Student Space Program prepare to launch a high-altitude weather balloon carrying an amateur radio payload from Eufala, Alabama. (Balloon photos on this page by Steve Martinez)

## VHF Plus Calendar

August 3	Moon Perigee
August 4-5	ARRL UHF and Above Contest
August 5	Last Quarter Moon. Moderate EME conditions
August 13	New Moon and <i>Perseids</i> Meteor Shower Peak; Good EME conditions
August 18-19	First weekend of the ARRL 10 GHz and Above Cumulative Contest
August 19	Moon Apogee; Poor EME conditions
August 20	First Quarter Moon
August 26	Moderate EME conditions
August 28	Full Moon and Total Lunar Eclipse visible throughout most of eastern Asia, Australia, the Pacific Ocean, and the Americas
August 31	Moon Perigee

—EME conditions courtesy W5LUU.

Most recently, on April 23, 2007, students in the AHAB subgroup launched a high-altitude balloon that traveled from Eufala, Alabama to south of Sasser, Georgia. The payload was successfully recovered, and their system worked very well for the launch. The balloon did not travel as far as was predicted, thereby making it possible for the chase team to achieve a speedy recovery. Although a couple of problems with the system were identified, they have been discussed and the participants determined that overall the launch was a great success.

AubieSat is intended for juniors and seniors in the Engineering and College of Science and Mathematics (COSAM) departments, although



Members of the Auburn High Altitude Balloon team recover the payload south of Sasser, Georgia. They used APRS and Google Maps to track the balloon in flight and locate the payload.

BY JOE LYNCH, N6CL

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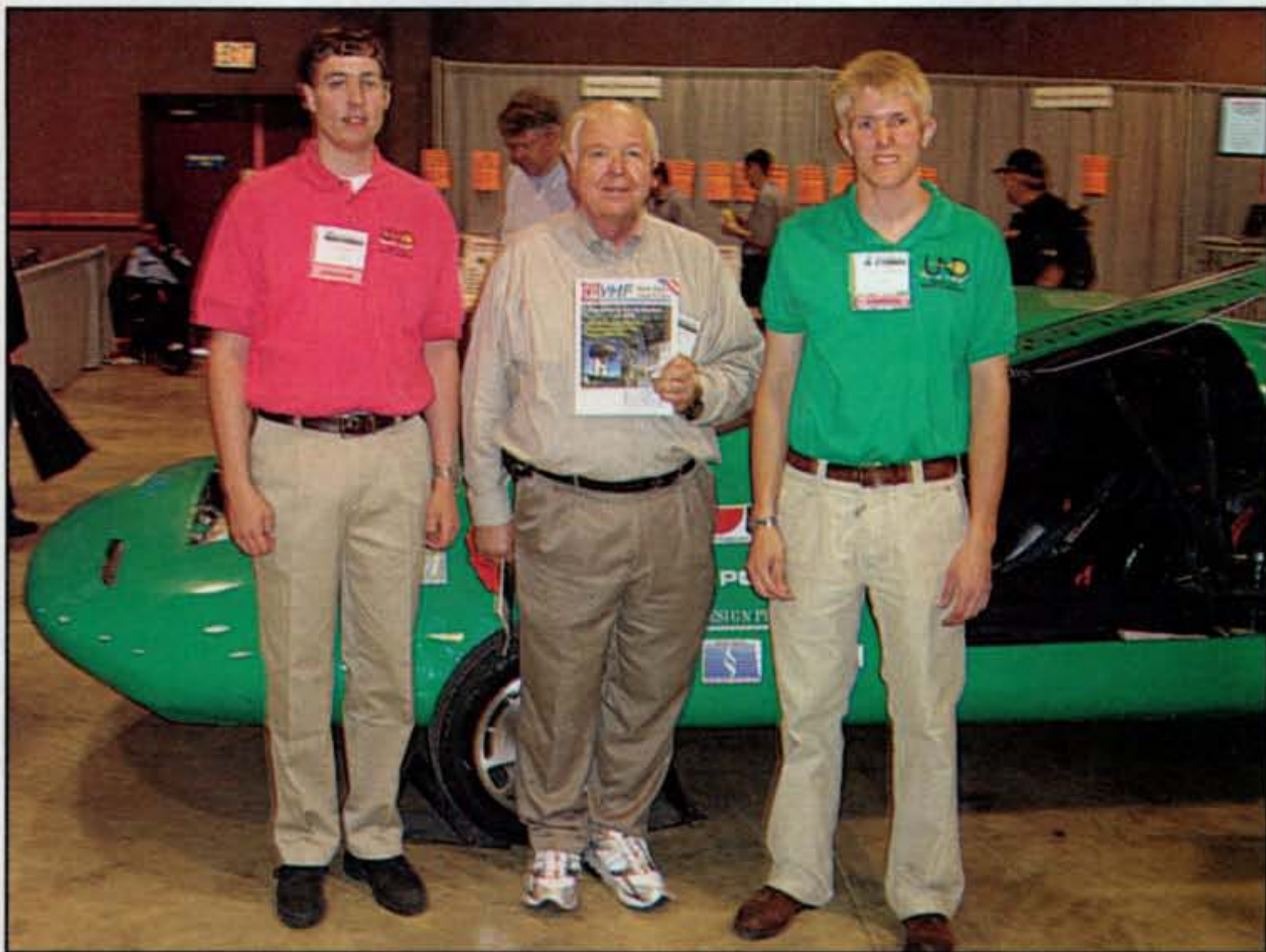
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N6CL poses with two student members of the University of North Dakota's SEA (Tim Langemo, KC0WS [left], and Trent Jenson, KC0YXH [right]) and the experimental hydrogen-cell-powered vehicle, the Subzero IV, at Dayton (Photo courtesy of SEA)

others outside these departments may join the group and participate. The AubieSat Group designs, builds, tests, takes care of launch, and operates CubeSats in low Earth orbit (LEO). The goal of AubieSat is to test concepts and components and do science in space.

Presently, the AubieSat Team is building a Pico satellite called AubieSat-1, a 10-cm cube the mass of which is only 1 kg. AS-1's main objective is to test a new ultra-violet (UV) sensor developed by Dr. Minseo Park of the Physics Department. AubieSat is part of the Stanford CubeSat program, which launches student-built satellites from former Russian Intercontinental Ballistic Missiles (ICBMs).

Students in the the management group perform the essential tasks of AUSSP. Each technical group leader is a member of the management group. Students engage in planning and monitoring projects, leading group meetings, and ordering materials and supplies to build their spacecraft.

The AUSSP lead scientist is AU graduate student Luther Richardson, KI4AOJ, who is also a teacher in the Science Department at Columbus (Georgia) High School. In that latter capacity, over the past several years he has led his students to be involved in several NASA-related projects through the Columbus High School Space Program entitled DREAMS, which is an acronym for Doing Research at Extreme Altitudes by Muscogee coun-

ty Students. Most recently, on May 2, 2007, the DREAMS team tested a high-altitude balloon that is expected to be used this summer to fly experiments from other Muscogee County (Georgia) schools to the edge of space. More information on this and other projects with which Luther is involved can be found in the Summer 2007 CQ VHF magazine article entitled "Creating a Few Scientists and Engineers with Amateur Radio."

### Hydrogen-Fueled Car A Source for New Hams

How can amateur radio contribute to our country's reducing its dependence on petroleum-based fuel? The answer to that question lies in the following:

One of the more intriguing displays at the Dayton Hamvention® this year was a hydrogen-cell-powered two-seater car. Called the Subzero IV, this compact, lightweight vehicle is the fourth in a series of experimental cars built by the students of the University of North Dakota's Society for Energy Alternatives (SEA).

One of the unique membership requirements of SEA is that one needs to possess both a driver's license and a Technician class amateur radio license in order to drive the experimental vehicle. The reason for the Technician class license is the communications need between the experimental vehicle and its

lead and chase vehicles, which are required by North Dakota state law. In the past, the students tried various forms of communications between their experimental vehicles and the chase and lead vehicles. They included CB, FRS, GMRS, and cell phones. However, none of these proved as reliable as amateur radio, because these signals seemed to be the least affected by attenuation from the car's carbon body or interference generated by the car's power plant. Most of the time the amateur-radio-based communications is conducted on either 2 meters or 70 cm FM.

The power plant that makes the experimental vehicle go down the road includes a 10-kW hydrogen fuel cell, a 2-kW DC brushless motor, and 1000 scf (standard cubic feet) of hydrogen storage. The car is capable of traveling 50 mph and the gas consumption equivalent is 125 mpg, which makes for a traveling range of between 250 and 300 miles per tank of hydrogen. This vehicle is essentially pollution free because the exhaust is oxygen-depleted air and water.

Last year this 10-kW hydrogen fuel was used by the FORX Amateur Radio Club (of Grand Forks, North Dakota and East Grand Forks, Minnesota) to power the PSK-31 station at Field Day. The club was also planning to power its site for this year's Field Day activities.

The student members of SEA are very practically demonstrating that hydrogen-fuel-cell-powered vehicles are a viable option for reducing our country's dependence on petroleum-based fuels. A plus for our hobby is that amateur radio is playing a critical role in the safe operation of the experimental vehicle produced and used by these students.

Some of the information for this piece was derived from the article "Hydrogen Driven Hams," by Rod Klug, KE0A, and Scott Tolbert, KC0FTG, which appears on pages 32-33 of May 2007 *QST* magazine. Plans are under way to publish an article on the vehicle in a future issue of *CQ VHF* magazine.

### Ariane Arrays, Successor to C3i, Introduces New Products

It was last year when we in the VHF-plus world heard that C3i had been sold. We wondered what might become of its product line—and quality. We don't have to wonder anymore. Ariane Arrays, the successor company, is maintaining the quality products that C3i and Rutland Arrays were known for and is also introducing new products. Two of its newest antennas are the CX10-50, a 10-element

6-meter Yagi, and the VHF (6 and 2 meters and 70 cm) Tribander. Scott Bullock, N1CX, is the general manager of the new corporation.

The CX10-50 is a 10-element Yagi on a two-wavelength 40-foot boom. Its features include easy 2-3 hour color-coded assembly, Phillystran RF transparent heavy-duty truss, and a sleeved boom for maximum durability. Ariane Arrays says, "Whether it's DX chasing or a sophisticated EME/Moonbounce station, the CX10 is an excellent choice for your station when compared to other antennas that are very narrow bandwidth and susceptible to rain/snow static and ice/rain detuning." The price is \$599 and ships via truck freight. For more info on the CX10-50, go to: <<http://www.ariane-arrays.com/cx10.htm>>.

The VHF Tribander operates on 50/144/432 MHz, all in one antenna. The segmented monobanders can be assembled into a two- or three-band combination antenna. You can make it a dual bander with 6 meters and 432 MHz, or 6 and 2 meters, or 2 meters and 432 MHz. The antenna is comprised of a two-element Moxon on 50 MHz, 6 elements on 144 MHz, and 8 elements on 432 MHz. It is an excellent choice for rovers because it is street legal width. It features three feedpoints. However, the 144/432 antennas can easily be phased together in order to make one feedpoint. The price is \$399 and it is UPS shippable. For more information on the VHF Tribander see: <<http://www.ariane-arrays.com/tribander.htm>>. For orders, the toll-free number is: 1-877-301-2300.

### Using the Buddipole on 6 Meters

Having been to the Buddipole™ booth at both the Dayton Hamvention® and Ham-Com in Plano, Texas this past May and June, I can attest to this antenna's extreme popularity as a portable HF dipole. Add ham radio operator ingenuity and there's no telling what may be produced. Chris and Budd of Buddipole are sensitive to this ingenuity as they watch their customers adapt the dipole to various configurations.

One such adaptation, a 3-element 6-meter Yagi, can be found on Carl Gosselin, KG6WTF's website (<http://kg6wtf.gosselinfamily.com/buddipole3e.html>). On the website Carl describes the extra parts that you need to obtain from Buddipole to make the 6-meter beam. While he states that some of the items are not available from Buddipole, this is no longer correct, as Chris and Budd

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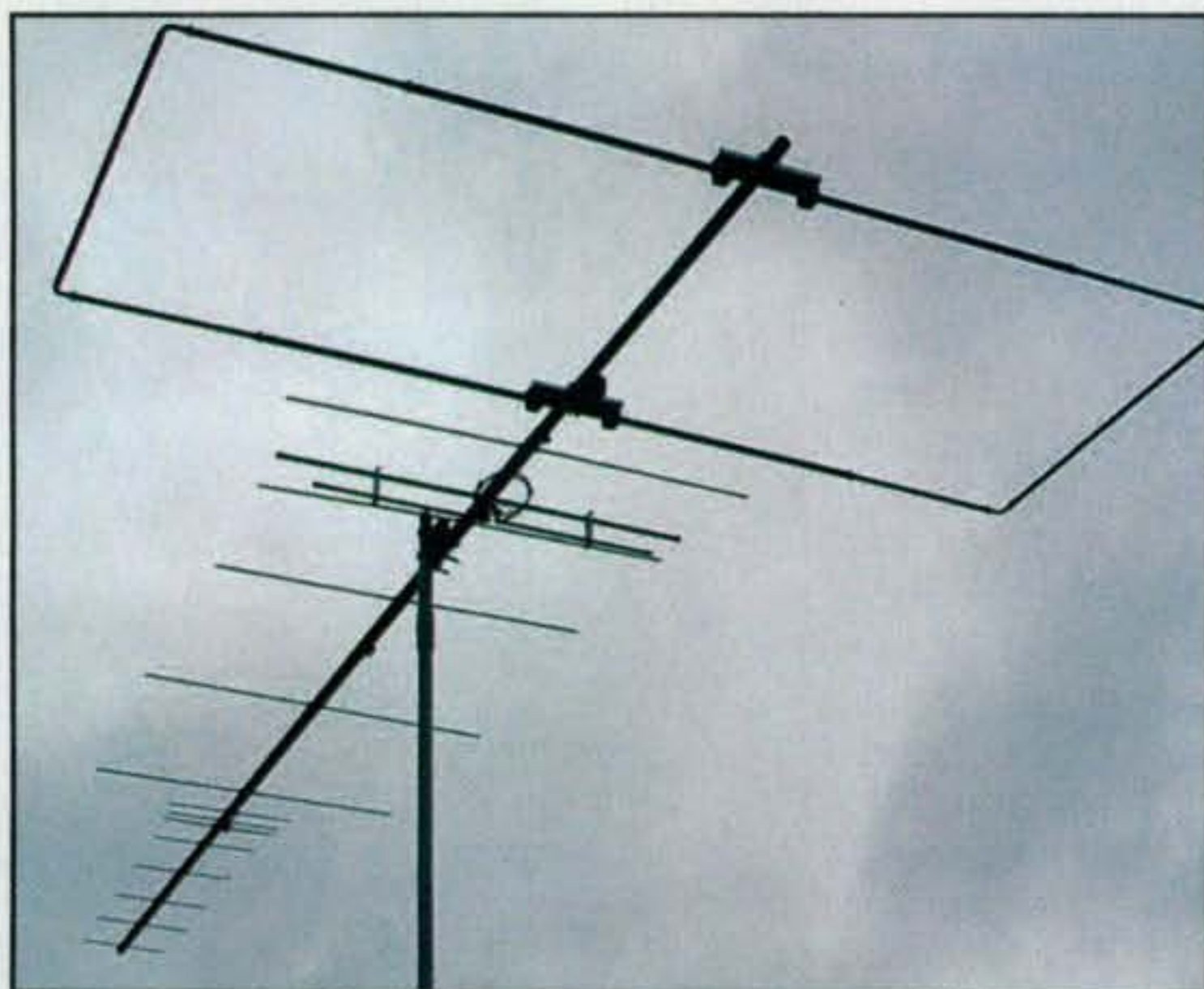
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One of Ariane Arrays' new products, the VHF Tribander.  
(Photo from the Ariane Arrays website)

have developed these parts in response to the demand for them. When you order the standard Buddipole (website: <http://www.buddipole.com>), you can mention to either Chris or Budd that you want to build the KG6WTF 6-meter beam. Also included on Carl's website are assembly photos, drawings, and a radiation pattern for the beam.

### AMSAT/TAPR Dayton Banquet

The first AMSAT/TAPR Banquet was held Friday evening May 18, 2007 at the Air Force Museum in Dayton, Ohio in conjunction with the Hamvention®. The "Dinner Under the Wings" festivities began at 6 PM with a cash bar and appetizers in the Air Power Gallery (World War II). The buffet dinner was served at 7 PM in the Cold War area. Following a few announcements and a short presentation, the attendees were free to roam the museum. More than 300 people attended, which was quite surprising to the organizers because this number represented almost 100 more than the combined total of the two separate banquets. All agreed that the food and the venue were excellent. Plans are being formulated to again hold a joint banquet in conjunction with next year's Hamvention®.

### Microwave Enthusiasts Get Together at WC8VOA

An informal get-together of Microwave enthusiasts will be held on August 11, 2007, beginning at 12 PM at the West Chester, Ohio former VOA Bethany Station site. All of those, amateurs or otherwise, who are interested in microwave communications are invited to attend. There will be demonstrations of the 7.2-meter satellite antenna doing 10-GHz EME (Earth-Moon-Earth) communications, as well as portable terrestrial microwave equipment. The former VOA site is located at 8070 Tylersville Road, West Chester, OH. Contact Jim Miller, N8ECI, at [jcmco@yahoo.com](mailto:jcmco@yahoo.com) for further details.

Regarding WC8VOA and microwave activity, this past April after two years of work, KA8ABR and N8ECI made their first 3-cm EME QSOs from the 7.2-meter dish at WC8VOA. These QSOs included W5LUA and IQ4DF. Their system includes: RX: DB6NT LNA, DEMI LNA; RXTX: DEMI Xverter, ICOM IC-251 IF rig; TX: DEMI 2W IPA, DEMI 8W PA at feed; and the antenna is the 7.2-meter Cassegrain dish. Subsequent

QSOs include RW1AW, F2TU, and G4NNS. More information on their operations can be found at: <http://www.wc8voa.org>.

### Current Contests

There are two important contests this month: The **ARRL UHF and Above Contest** is scheduled for August 4–5. The first weekend of the **ARRL 10 GHz and Above Cumulative Contest** is scheduled for August 18–19. The second weekend is September 15–16. Complete rules for these two contests can be found in the July issue of *QST* and on the ARRL website: <http://www.arrl.org>.

### Calls for Papers

Calls for papers are issued in advance of forthcoming conferences either for presenters to be speakers, or for papers to be published in the conferences' *Proceedings*, or both. For more information, questions about format, media, hardcopy, e-mail, etc., please contact the person listed with the announcement. The following organizations or conference organizers have announced a call for papers:

**ARRL and TAPR Digital Communications Conference:** Technical papers are solicited for presentation at the 26th Annual ARRL and TAPR Digital Communications Conference to be held September 28–30, 2007 in Hartford, Connecticut. These papers will also be published in the conference *Proceedings* (you do *not* need to attend the conference to have your paper included in the *Proceedings*). The submission deadline is July 31, 2007. Please send papers to: Maty Weinberg, ARRL, 225 Main St., Newington, CT 06111, or you can make your submission via e-mail to: [maty@arrl.org](mailto:maty@arrl.org). Papers will be published exactly as submitted and authors will retain all rights.

**AMSAT-NA 2007 Space Symposium:** Technical papers are solicited for the 2007 AMSAT Space Symposium and Annual Meeting to be held October 25–28, 2007 in Pittsburgh, Pennsylvania. Proposals for papers, symposium presentations, and poster presentations are invited on any topic of interest to the amateur satellite community. An emphasis this year is an educational outreach to middle and high school students. In particular, papers on the following topics are solicited: Students & Education, ARISS, AO-51, P3E, Eagle, and other satellite-related topics. Camera-ready copy on paper



Two of the operating positions at WC8VOA. (N6CL photo)



The 7.2-meter dish used for recent WC8VOA 10-GHz QSOs. (N6CL photo)

or in electronic form is due by September 1, 2007 for inclusion in the printed symposium *Proceedings*. Papers received after this date will not be included in the printed *Proceedings*. Send abstracts and papers to: Daniel Schultz, N8FGV, by e-mail: <n8fgv@amsat.org>.

**Microwave Update 2007.** Technical papers are solicited for presentation at the Microwave Update 2007 to be held October 18–20 in Valley Forge, Pennsylvania. Any topics related to microwave theory, construction, communication modes, deployment, propagation, antennas, activity, transmitters, receivers, components, amplifiers, LASER, and practical experiences are welcome. Completed papers and articles must be submitted by August 15 and go to W2PED at <pdrexler@hotmail.com>, or N2UO at <lu6dw@yahoo.com> in MS Word or as a pdf. Diagrams, photos, and illustrations should be in black and white. hard copies may be sent to Paul E. Drexler, 28 West Squan Rd., Clarksburg, NJ 08510.

### Current Meteor Showers

Beginning around July 17 and lasting until approximately August 24, you should be seeing activity tied to the *Perseids* meteor shower. Its predicted peak is around 0500–0730 UTC on August 13. A possible tertiary peak may occur around 1500 UTC. Amateur radio communications data could confirm or detect otherwise unobserved maxima. The *κ-Cygnids* meteor shower is expected to peak on August 18.

For more information on the above meteor shower predictions, please see

Tomas Hood, NW7US's Propagation column. Also visit the International Meteor Organization's website: <http://www.imo.net/calendar/2007>.

### And Finally . . .

Once again this column features creative, student-led ways of involving amateur radio in research projects. It is my firm belief that it is only by way of these grassroots efforts that we are truly going to repopulate our amateur radio hobby. For Auburn University and Columbus High School, amateur radio operator Luther Richardson, KI4AOJ, who has been licensed for a little over four years, is leading the way. Regarding the University of North Dakota's Society for Energy Alternatives experimental vehicles, Rod Klug, KEØA, has been the Elmer (mentor) for the amateur radio development in that organization. Rod estimates that more than 30 of the SEA members have obtained their amateur radio license. Furthermore, in my conversation with the representative students at the Dayton Hamvention®, they indicated that they are strongly interested in upgrading their amateur radio licenses.

What are you doing to bring in more amateur radio operators? Please let me know so that I can publicize your activities either via this column or in a future issue of *CQ VHF* magazine. Who knows? Maybe your activities will be the inspiration for another Elmer in some other part of the country.

Until next month...

73 de Joe, N6CL



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# County Hunting Q&A

**W**e often receive queries regarding the rules covering CQ's USA-CA Award and county hunting in general. Most of the time we reply to the questions on an individual basis, but two e-mail inquiries we received recently deserve answering in this month's column.

**Q:** What is the minimum report for USA-CA? I heard one person say it is 5x1, but thought I had read somewhere that it had to be 2x2.

**A:** Interestingly, there is *no* such requirement for a minimum RS/T in the USA-CA program. The QSL or MRC (Mobile Reply Card) in your possession is evidence that the sending station agrees that it has received sufficient information during the contact so as to qualify as a legitimate contact. "Two by two" is one such test, but it is not the only one. The *USA-CA Record Book* does not include RS/T as a required field.

**Q:** For county award purposes, do you have to work the Nevada and Virginia independent cities as well as the 3077 counties? If not, what county are they considered to be in—for example, Carson City, Nevada?

**A:** Independent cities are not a part of the county that surrounds or borders them. For county hunting purposes, the issue with independent cities is deciding which county you want them to count for. The majority of these cities are completely surrounded by a county, and you would count a contact in the city as the surrounding county. In some cases, the independent city borders/touches two or three surrounding counties. When that happens, the USA-CA rules state that you must choose one of those counties for award purposes. If in the future you work another ham in that same independent city, you *cannot* then choose the other county. In other words, you are bound by your first choice.

A somewhat related issue arises in Maryland and Missouri. Here there are separate and distinct counties named Baltimore County, Baltimore City County, St. Louis County, and St. Louis City County. They each count as a county, and the cities named in each case are not "independent cities."

## US Awards

**QCWA Sixty-Sixty Award.** On November 14, 1947, during a 10-meter round-table QSO, the suggestion was made to form an association of ham radio operators who had been licensed for 25 years or more. The very next month, with that thought in mind, a group of hams met on Friday evening, December 5, 1947 in New York City. That evening, the Quarter Century Wireless Association (QCWA) was born.

In order to celebrate its 60th anniversary, the QCWA has announced a short-term award. The award is available to both members and non-mem-

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

## USA-CA Honor Roll

<b>500</b>	<b>1500</b>
KØRCJ .....3405	HB9AUS.....1454
N9YPN .....3406	
HB9AUS.....34067	<b>3000</b>
	W6RQ .....1177
<b>1000</b>	
KØRCJ .....1732	
HB9AUS.....1733	

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.

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THE SIXTY-YEAR ANNIVERSARY  
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John S. Johnson W3BE  
QCWA PRESIDENT



To celebrate its 60th anniversary, the Quarter Century Wireless Association is sponsoring a short-term award, the QCWA Sixty-Sixty Award.

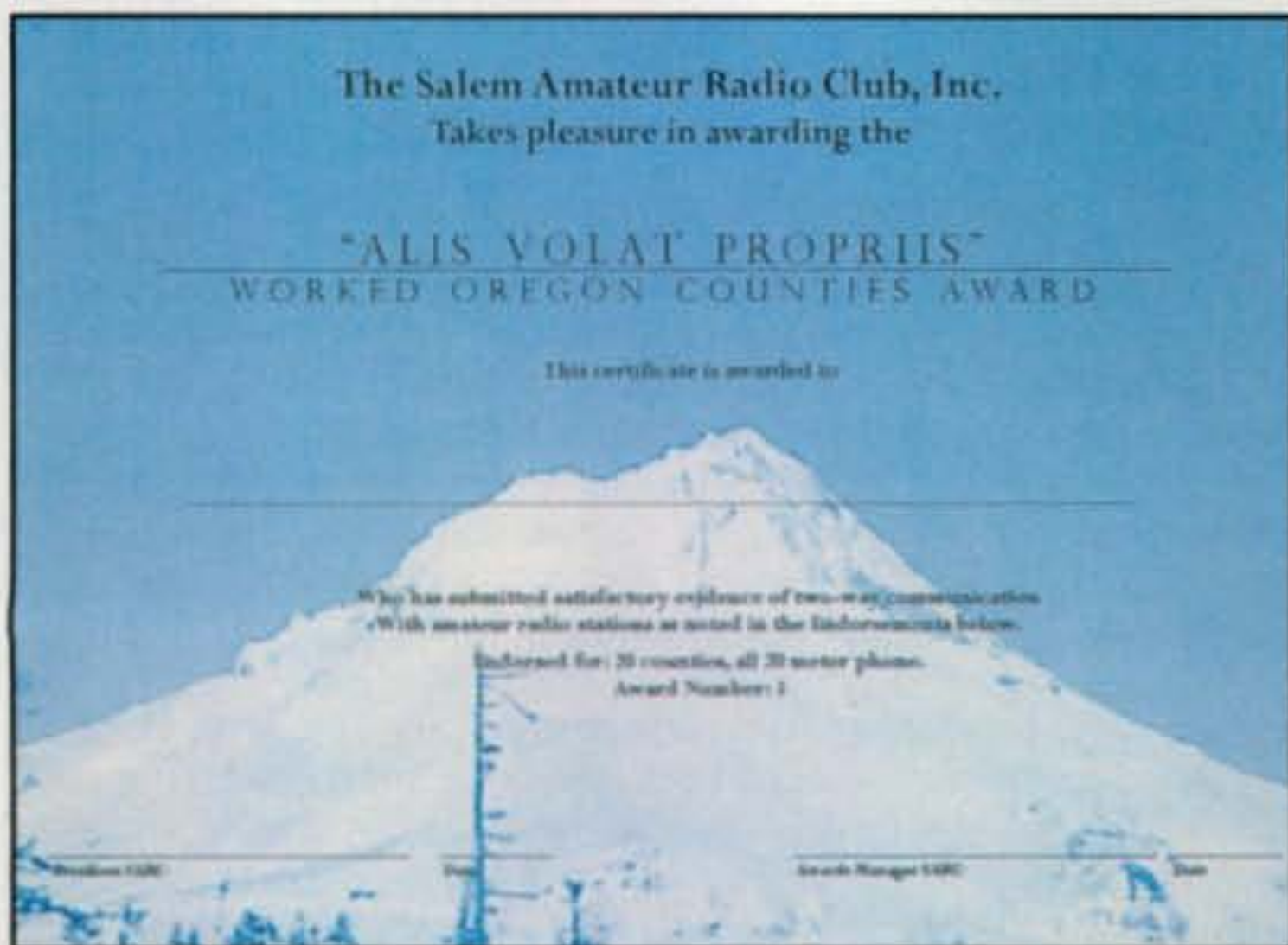
bers. The basic requirement is simple: Make 60 two-way contacts with 60 different QCWA members. For contacts to count for the award they must have been made from May 2007 to 2400 UTC, June 30, 2008. All applications for the award should be postmarked no later than September 1, 2008. The rules follow:

1. Submit a list of 60 different two-way contacts with QCWA members, including their associated membership numbers.

2. Two-way contacts may be made utilizing any RF mode of operation on any frequency authorized for amateur use and includes the use of VHF/UHF repeaters.

3. Submitted log information should include the time (UTC), date of contact, callsign, and QCWA member's name and membership number.

4. Provide a statement that the contacts are true and correct and were made in accordance with both the amateur regulatory requirements for the country of residence and the QCWA requirements as set forth for the award.



The Worked Oregon Counties Award is given for contacting Oregon counties on or after January 1, 2007.

5. There is a fee of US\$2.00 for the award (check, cash, or money order only). Award certificates will be free to stations outside North America, but donations to defray postage and handling will be gratefully accepted.

6. Send application to: Robert Buus, W2OD, 8 Donner St., Holmdel, NJ 07733-2004.

**Worked Oregon Counties Award.** The latest state county award comes from Oregon and is sponsored by the Salem Amateur Radio Club. The background on the award certificate is a photograph of Mt. Hood in northwestern Oregon. All modes are accepted, and the group is willing to provide an endorsement for every band/mode combination you can think of.

The award is given for contacting Oregon counties on or after January 1, 2007. *Alis Volat Propriis* is the Oregon state motto, meaning "She Flies With Her Own Wings," which is appropriate for radio communications and this award. The basic certificate is issued for contacting 25 of Oregon's 36 counties. Endorsements are available for 30 and all 36 counties. Endorsements must follow the band or modes used to complete the original certificate. Contacts with mobile, portable, or fixed stations on county lines are valid as long as the QSL or log extract clearly states the counties involved. Contacts via repeaters, digipeaters, moonbounce, satellites, packet, Pactor, RTTY, and similar systems are acceptable from any and all locations. Contacts made while mobile or portable in the state of Oregon are valid, and travelers in Oregon can use repeater contacts anywhere in the state to work any of the counties. SWL okay.

Send GCR list (or original cards) and fee of US\$3 to Awards Manager, Salem Amateur Radio Club, Box 61, Salem, OR 97308.

## DX Awards

**Dahner Felsenland Award.** Dahner rock country (*felsenland*) is located in southern Germany, adjacent to the Pfalzerwald Nature Park. This is a popular vacation spot for German tourists, combining the romance of ancient hilltop castles with hiking/biking among fantastic rock outcroppings resembling those of the American Southwest. This unusual and beautiful combination is portrayed in the well-designed the award certificate. The award is issued by the DARC division Dahn (DOK K44). Many clubs offer certificates that show

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## Barry L. Mitchell, NØKV USA-CA All Counties #1151, March 22, 2007

I was first licensed as K3WKV in 1963 when I was 16 years old. During high school, I was primarily interested in traffic handling on 75 meters. After graduating from college in 1979, I joined the USAF and had many varied assignments. During one of my tours, I was introduced to weak-signal VHF/UHF and contesting and that interest continues to today. During my 20-year military career, I was also an active member of USAF MARS.

In 1979 I took the Extra Class exam and got my current call, NØKV. In 1989 I retired from the Air Force and moved to my present QTH in Parker, Colorado. I've been an active DXer on 10-160 meters since then, working on the DX Challenge Award (1975 countries) and attaining the DXCC Honor Roll in 2006. I've also been on several DXpeditions, most recently to Cocos Keeling (VK9CGG, October/November 2006), am active in both local and state search-and-rescue efforts, and serve as a Comm Unit Leader in the Douglas County Incident Management Team (IMT).

I became interested in county hunting in 2003, primarily because DX was at a low ebb due to the sunspot cycle. I went through all the weak-signal VHF and DX QSLs I'd collected over the years and discovered that I already had nearly half of the counties already confirmed! I became active on the SSB and CW County Hunter nets on 20, 30, and 40 meters to augment the confirmed totals. Soon I got interested in putting out counties, too. At some point, I convinced my wife (Pat, NØLFV) to try husband/wife team ops on the County Hunter SSB nets, and I soon discovered that if I tried to run a county alone, someone would politely suggest

that I wait and run it when Pat was available. On one of our outings, we found ourselves (truck and Airstream trailer) on a nine-car ferry crossing the Ohio River to get from Kentucky to Hardin County, Illinois!

Attending the MARAC 2005 southeastern mini-conference and the 2006 MARAC national Convention in Wisconsin allowed Pat and I to get to know many of the other county hunters, making QSOs that were much more enjoyable. Also, over the past several months Pat and I have been assisting on the planning committee for the 2007 MARAC National Convention, July 12-14 in Denver, Colorado.

In compiling the confirmations, I tried to use a variety of different QSOs from both domestic and overseas operations and from as many bands and modes as possible. QSOs were included from all HF bands (160-10) as well as 6 and 2 meters and 432 MHz, and modes included CW, SSB, RTTY, and FM. A variety of different VHF/UHF propagation methods were also represented, including one- and two-hop sporadic-E on 6 and 2 meters, as well as 6- and 2-meter aurora and meteor scatter.

When my wife asked me if I was going to start over and go for it again, I just smiled and she rolled her eyes! And yes, I'm working on the second time, and she has over 1200 counties worked.

Finally, I'd like to say that we couldn't have done it without the great help of the net controls and other hams/operators running counties. Also, a special thanks to CQ for its sponsorship of the USA-CA Award. See ya on the road again soon.

—73, Barry, NØKV



The Dahner Felsenland Award is issued by the DARC division Dahn for working stations in the Dahner rock country of southern Germany.

and promote the beauty and attractions of their location. The Dahn group has succeeded in doing so.

This award is issued for working stations in the "Dahner Felsenland" region after January 1, 2003. SWL okay. Germans need 25 points, while all others need 15. Point values are as follows: Contacts with any K44 DOK station count for 2 points; contacts with DN2PP, DFØDN, DKØDFL, DLØDFL, DKØSWP, DLØSWP count 5 points; contacts with any K09, K14, and K22 DOK station count 1 point.

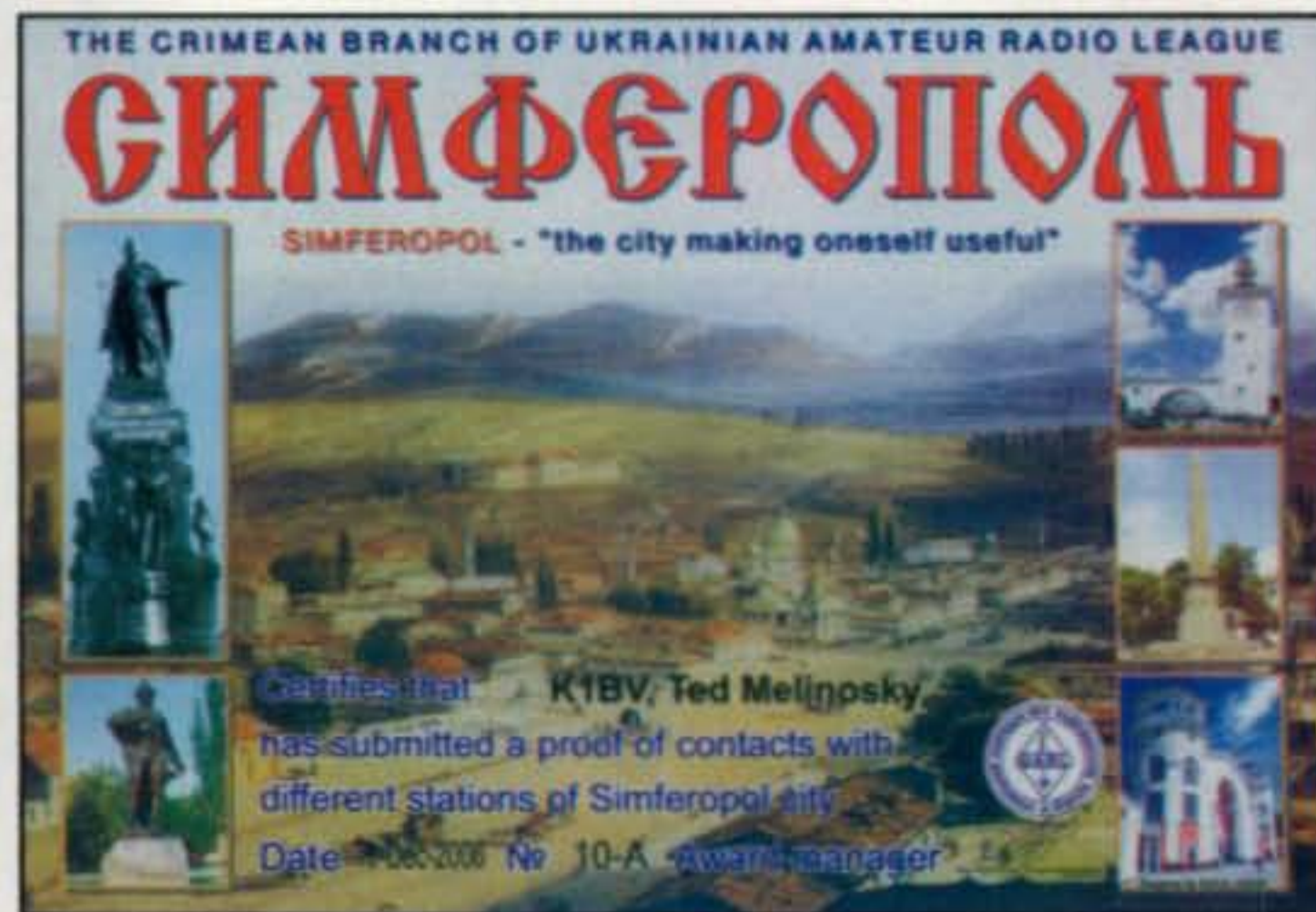
Except for packet radio, contacts may be made on any band or mode. Send GCR list and fee of 10 Euros to: Paul W. Kluetz, DK4FV, Suedstrasse 14, D-76891 Busenberg, Germany.

**A Fox Hunter Award from the Ukraine.** Fox Hunting is a specialized segment of ham radio that deals with the competitive sport of locating low-power hidden transmitters. This activity is most popular among European hams, and the Fox Hunter Award is





The Fox Hunter Award is sponsored by the Ukraine Amateur Radio League for contacting five "foxes" (low-power hidden transmitters) from the sport of Amateur Radio Direction Finding (ARDF).



The Simferopol Award, offered by the Crimean branch of the Ukraine Amateur Radio League, is earned by contacting five stations in the city of Simferopol and five stations in the Crimea region.

sponsored by the Ukraine Amateur Radio League.

Contact five "foxes" (QSO/SWL) of the ARDF (Amateur Radio Direction Finding) enthusiasts group. Contacts on any band or mode since January 1, 1992 count for the award. SWL okay. Copies of QSL cards are required to claim the award. Applicants should send an application and separate list with the five copies of the QSLs to the award manager listed below. The manager will verify the existence of the contacts from the mentioned ARDF members and then the certificate will be sent to the applicant. Fee is US\$5 or 10 IRCs. Fee for members of the ARDF sport community (2 QSOs or SWL contacts without QSL card copies) is US\$2 or 4 IRCs. Apply to: Igor Lazarev, USØVA, P.O. Box 11, Kiev 04111, Ukraine.

ARDF members list is at: <<http://www.uarl.org.ua/ardf/FHA.htm>>.

**Simferopol Award.** Simferopol is a large Ukrainian city located on the Crimean Peninsula, which extends into the northern part of the Black Sea. As with many Ukrainian awards, the requirements simply call for five contacts in the city and five in the region. The artwork of the certificate is above average, with small images of local scenery superimposed on a scene of the city as it was in the 1700s or 1800s.

The award is offered by the Crimean branch of the UARL. SWL okay. All bands and modes accepted. Contacts must have been made after 1984, the 200th anniversary of the city of Simferopol. For stations outside of the Ukraine, it is necessary to make contacts with ten different amateur radio stations in the Crimea region. At least

five of these must be stations located in the city of Simferopol.

Send GCR list and fee of US\$10 or 10 Euros to: Olga Serdyukova, UU5YL, Uhtomskogo st. 12, Simferopol, Crimea 95014, Ukraine (e-mail: <[uu5yl@ukr.net](mailto:uu5yl@ukr.net)> or <[uu5yl@mail.ru](mailto:uu5yl@mail.ru)>).

The following states still do not have a separate county award: Alabama, Alaska, Hawaii, Idaho, Illinois, Iowa,

Kansas, Kentucky, Montana, Nebraska, New Mexico, Nevada, South Dakota, and Tennessee. This is a good project for any club in these states.

Several of the awards featured in this month's column were submitted by sponsors who know that CQ magazine offers valuable (and free) publicity. Feel free to contact me at the e-mail address shown on the first page of this column. 73, Ted, K1BV

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# Dayton and DX News

## DX Hall of Fame Clarification

Our report last month on the 2007 inductees to the CQ DX Hall of Fame accidentally omitted listing Valeria Pregliasco, IK1ADH, as an inductee. Valeria is the wife of fellow inductee Mauro, I1JQJ, and his co-editor of "425 DX News." Mauro and Valeria were nominated together and both were elected, even though only one was originally reported. So, to clarify, both Mauro, I1JQJ, and Valeria, IK1ADH, are among the 2007 inductees to the CQ DX Hall of Fame. We apologize for the error.—W2VU

**D**ayton 2007: Tom, K8CX, prepared his Dayton Photo Gallery again this year, and you can take a look at those 259 images on the web at: <<http://hamgallery.com/dayton2007/>>. It looks as if Tom managed to take at least one picture of almost every DXer and contesteer who was at Dayton this year. Nice job, Tom.

There were also lots of very positive comments about Tim Duffy, K3LR, and the Contest University program. Great job, Tim, and all of those who spoke at the university program. It seems as if there was something for everyone at Dayton this year, no matter what his or her interest or level of skill in ham radio.

And then there were all of the honors conveyed on the 2007 inductees in the CQ Amateur Radio Hall of Fame, DX Hall of Fame, and Contest Hall

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



The CQ DX Hall of Fame plaques were awarded to this year's inductees at the SouthWest Ohio DX Association's 22nd annual DX Dinner during the Dayton Hamvention®. Jay Slough, K4ZLE (left), on behalf of CQ magazine, is shown here presenting the awards to Roger Western, G3SXW (center), and Nigel Cawthorne, G3TXF (right). Mauro Pregliasco, I1JQJ, and his wife, Valeria, IK1ADH, also inducted into the DX Hall of Fame this year, were presented with their plaque at the Friedrichshafen convention in June. (Photo courtesy of Joe, N1ZP, SWODXA)

of Fame. Look at this list of Who's Who for 2007, and for details of their accomplishments, see the July issue of CQ, page 36.

**CQ Amateur Radio Hall of Fame:** Phillip Catona, W2JAV (SK); Paul Flaherty, N9FZX (SK); John Geloso, I1JGM; Michael Griffin, NR3A; James Hillier, ex-VE3SH (SK); Herb Johnson, W6KQI (ex-W7GRA) (SK); Roy Lewallen, W7EL; Rick Lindquist, N1RL; Copthorne MacDonald, VY2CM; Bill McArthur, KC5ACR; Don Miller, W9NTP; Louis Tristao, KG6VY (SK); Durward J. Tucker, W5VU (SK); Ade Weiss, WØRSP (ex-K8EEG); and Farrell Winder, W8ZCF.

**CQ DX Hall of Fame:** Roger Western, G3SXW, and Nigel Cawthorne, G3TXF, who were nominated together; and Mauro Pregliasco, I1JQJ, and his wife, Valeria, IK1ADH, co-editors of "425 DX News."

**CQ Contest Hall of Fame:** Fred Capossela, K6SSS; Phil Goetz, N6ZZ (SK); and Tom



Roger, G3SXW, and Nigel, G3TXF, arrived in French Guiana in mid-June. Well known for their DXpeditioning activities over the years, they continue with short weekend trips just to keep in practice – hi! (Photo courtesy of Roger, G3SXW)



Palmyra Island comes of age. Mike, KH6ND, Jim, WH6GS, and Pat, NH6UY, rest in the shade of the new dish they installed to allow the residents of the island to have full-time contact with the rest of the world. (Photo courtesy of Mike, KH6ND)

Taormina, K5RC. Also, Franc Bogataj, S59AA, a 2004 Contest Hall of Fame inductee, was formally presented with his plaque at a meeting of the Slovenia Contest Club, as well as at this year's Friedrichshafen convention in Germany. (For photos and details of the Contest Hall of Fame inductees, see this month's "Contesting" column by K1AR.)

Congratulations to all!

## BS7H, Scarborough Reef

The BS7H team made the rounds of the DX gatherings soon after their adventure, making presentations at Ham Com in Dallas, etc. The QSLing took an interesting turn, with the team uploading the logs for early contributors to the LoTW early on in the process. They will continue to upload the logs as the processing of the paper QSLs continues, beginning probably in early July when the cards are available from the printer. The early LoTW entry for contributors is explained this way:

This was a special "Thank You" to those who made the effort to support our operation. The cutoff date of this log is as of the June 9th website donation listing.

There will be additional periodic uploads of the log to LoTW as QSLing proceeds and a full upload will be done as soon as the bulk of the direct QSLs are answered.

The 2007 DXpedition to Scarborough Reef again wishes to thank those who helped make this happen. We could not have done it without your support.

## DXpedition News

**3B(6-7)SP - Agalega/St. Brandon.** The famous "Murphy" hit our Polish friends as they headed for Alalega

## The WPX Program

None **CW**  
None **SSB**  
None **MIXED**

**CW:** 1400 K0ARS.  
**SSB:** 750 W8HGH, 1300 AE9X.  
**Mixed:** 2500 7K3QPL.

**Asia:** N8BJQ  
**Africa:** KW0U, AG4W, N8BJQ  
**Europe:** N8BJQ  
**Oceania:** N8BJQ  
**N. America:** N8BJQ  
**S. America:** N8BJQ

**Award of Excellence:** UA4LY  
**160 Meter Bar:** UA4LY

**Award of Excellence Holders:** N4MM, W4CRW, K5UR, K2VV, VE3XN, DL1MDD, DJ7CX, DL3RK, WB4SIJ, DL7AA, ON4QX, 9A2AA, OK3EA, OK1MP, N4NO, ZL3GO, W4BQY, I0JX, 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, WD9IIC, W3ARK, LA7JO, VK4SS, I8YRK, SM0AJU, N5TV, W6OUL, WB8ZRL, WA8YTM, SM6DHU, N4KE, I2UIY, I4EAT, VK9NS, DE0DXM, DK4SY, UR2QD, AB9O, FM5WD, I2DMK, SM6CST, VE1NG, I1JQJ, PY2DBU, H8LCL, KA5W, K3UA, HA8UB, HA8XX, K7LJ, SM3EVR, K2SHZ, UP1BZZ, EA7OH, K2POA, N6JV, W2HG, ONL-4003, W5AWT, KB0G, HB9CSA, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YB0TK, K9QFR, 9A2NA, W4UW, NX0I, WB4RUA, I6DQE, I1EEW, I8RFD, I3CRW, VE3MS, NE4F, KC8PG, F1HWB, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, KC7EM, YU1AB, IK2ILH, DE0DAQ, I1WXY, LU1DOW, N1IR, IK4GME, VE9RJ,

WX3N, HB9AUT, KC6X, N6IBF, W5ODD, I0RIZ, I2MOP, F6HMJ, HB9DDZ, W0ULU, K9XR, JA0SU, ISZJK, I2EOW, IK2MRZ, KS4S, KA1CLV, WZ1R, 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, I25BAM, K4LQ, K8KG, DL6ATM, VE9FX, DL2CHN, W2OO, AI6Z, RU3DX, WB9IHH, CT1EEN, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1A0B, KT2C, UA9CGL, AE5B, DK0PM, SV1E0S, UA0FAI, N4GG, UA4RZ, 7K3QPL, EW1CQ.

**160 Meter Endorsements:** N4MM, W4CRW, K5UR, VE3XN, DL3RK, OK1MP, N4NO, W4BQY, W4VQ, KF2O, W8CNL, W1JR, W5UR, W8ILC, K9BG, W1CU, G4BUE, LU3YL/W4, NN4Q, VE7WJ, VE7IG, W9NUF, N4NX, SM0DJZ, DK5AD, W3ARK, LA7JO, SM0AJU, N5TV, W6OUL, N4KE, I2UIY, I4EAT, VK9NS, DE0DXM, UR2QD, AB9O, FM5WD, SM6CST, I1JQJ, PY2DBU, H8LCL, KA5W, K3UA, K7LJ, SM3EVR, UP1BZZ, K2POF, IT9TQH, N6JV, ONL-4003, W5AWT, KB0G, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YB0TK, K9QFR, W4UW, NX0I, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, WX3N, W5ODD, I0RIZ, I2MOP, F6HMJ, HB9DDZ, K9XR, JA0SU, ISZJK, 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, I25BAM, DL6ATM, W2OO, RU3DX, WB9IHH, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1A0B, UA9CGL, SM6DHU, K0DEQ, DK0PM, SV1E0S, N4GG, UA4RZ, 7K3QPL, EW1CQ.

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 160 meter bar for the Award of Excellence is \$6.50.

in early June. SP5BFX reported the difficulties:

When we planned our DXpedition we did not expect so many problems. ... We are very sorry, but we did not reach 3B6 Agalega Islands. We had many problems with our catamaran and either finally or happily sailed to 3B7 St. Brandon (Isle Rafael S16o26° E59o36°) tied by rope to the *Quo Vadis I* fish vessel. Our catamaran was seriously damaged (we lost one of two engines and all two sails). In that situation we decided to stay on the island resting and waiting about a week for a new boat which would bring us back to

Mauritius, or try to change our license and start to work on the air from 3B7 St. Brandon to fulfill promises we had given to DR OMs and our sponsors. ... We had asked the ICTA about permission to start our activity from 3B7 by meteorologists' radio, and we were very surprised when we obtained a new license and a modified callsign the next day! The right callsign of our interrupted DXpedition is 3B7SP. Somewhere on our website you can find our previous callsign (3B6SP), but the right one is 3B7SP. The webmaster is currently off the internet and we are not able to change this in all places (especially in the log online database head-

## THE WPX HONOR ROLL

The WPX Honor Roll is based on the current confirmed prefixes which are submitted by separate application in strict conformance with the CQ Master Prefix list. Scores are based on the current prefix total, regardless of an operator's all-time count. Honor Roll must be updated annually by addition to, or confirmation of, present total. If no up-date, files will be made inactive.

### MIXED

5264 .....9A2AA	3956 .....VE3XN	3569 .....KF2O	3089 .....W9OP	2637 .....OZ1ACB	2202 .....N8BJQ	1705 .....W2EZ	1269 .....K5WAF
4846 .....W2FXA	3948 .....I2PJA	3560 .....K0DEQ	3011 .....W2WC	2457 .....JN3SAC	2024 .....AE5B	1683 .....KX1A	1016 .....RA1A0B
4735 .....W1CU	3760 .....N9AF	3475 .....YU7BCD	2996 .....9A4W	2442 .....W6OUL	1947 .....K0KG	1662 .....SV1DPI	979 .....KM6HB
4419 .....EA2IA	3723 .....I2MOP	3393 .....WB2YQH	2873 .....W2ME	2415 .....K5UR	1891 .....VE9FX	1643 .....N1KC	825 .....KL7FAP
4187 .....N4NO	3703 .....I2UIY	3331 .....IK2ILH	2815 .....W9IL	2242 .....I2EAY	1826 .....W7CB	1556 .....W2OO	742 .....K5IC
4145 .....YU1AB	3646 .....S53EO	3227 .....K9BG	2704 .....K2XF	2239 .....VE6BF	1741 .....AB5C	1288 .....K6UXO	648 .....KW0H

### SSB

4710 .....I0ZV	3445 .....EA2IA	2857 .....4X6DK	2326 .....CX6BZ	2076 .....K2XF	1744 .....KQ8D	1480 .....AB5C	1289 .....AE9DX	978 .....EA7HY
4266 .....VE1YX	3276 .....N4NO	2711 .....LU8ESU	2209 .....IK2QPR	2051 .....K5UR	1729 .....W6OUL	1464 .....VE7SMP	1258 .....N1KC	952 .....KU4BP
3932 .....I2PJA	3155 .....I2UIY	2658 .....KF7RU	2209 .....I3ZSX	1935 .....SV1EOS	1718 .....W3LL	1458 .....JN3SAC	1232 .....AG4W	843 .....VE6BF
3900 .....F6DZU	3142 .....CT1AHU	2595 .....EA1JG	2196 .....W2WC	1855 .....K3IXD	1693 .....DL8AAV	1412 .....I2EAY	1145 .....EA3EQT	729 .....K7SAM
3573 .....OZ5EV	3108 .....I4CSP	2557 .....IN3QCI	2178 .....NQ3A	1827 .....AE5B	1688 .....K17AO	1386 .....IK4HPU	1042 .....I20BNR	637 .....K5WAF
3532 .....9A2NA	2972 .....OE2EGL	2431 .....G4UOL	2093 .....W9IL	1795 .....W2FKF	1623 .....VE9FX	1381 .....N8BJQ	999 .....IK8OZP	
3529 .....I2MOP	2970 .....KF2O	2419 .....YU7BCD	2085 .....N6FX	1776 .....SV3AQR	1611 .....W2ME	1371 .....IK2DZN	995 .....KX1A	

### CW

4618 .....K9QVB	3316 .....EA2IA	2526 .....I7PXV	2251 .....N6FX	2089 .....K2XF	1804 .....EA7AAW	1334 .....RU0LL	1042 .....VE1YX
4574 .....WA2HZR	3078 .....9A2NA	2522 .....KA7T	2236 .....OZ5UR	2081 .....W9IL	1804 .....I2EAY	1267 .....K6UXO	915 .....N1KC
3704 .....N4NO	2688 .....I2UIY	2476 .....W2WC	2148 .....IK3GER	1955 .....K5UR	1783 .....N8BJQ	1202 .....WA2VQV	824 .....VE9FX
3685 .....VE7DP	2636 .....KF2O	2474 .....YU7BCD	2120 .....JN3SAC	1901 .....I2MOP	1432 .....AC5K	1131 .....KX1A	608 .....IK2SGV
3329 .....LZ1XL	2632 .....W2ME	2465 .....EA7AZA	2093 .....VE6BF	1895 .....W6OUL	1402 .....WO3Z	1053 .....K5WAF	

## The WAZ Program

### 10 Meter SSB

582 .....K6SY

### 15 Meter SSB

635 .....K6SY

### 20 Meter SSB

1161 .....K6SY 1163 .....IV3ARJ  
1162 .....K7ACZ

### 17 Meter CW

65 .....F9XL

### 20 Meter CW

573 .....OK2PEX (QRP)

### 160 Meters

244 .....RA4LW

### All Band WAZ

#### Mixed

8455 .....YL2GD 8458 .....JE7OEC  
8456 .....AA6XV 8459 .....WB2JSM  
8457 .....OK1EY 8460 .....I2PJA

#### SSB

5034 .....IV3CJJ

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>.

## The CQ DX Field Award Program

### Mixed

87 .....KM6HB 88 .....AA6XV

### SSB

50 .....PP5KZ 51 .....AA1VX

### Endorsements

#### Mixed

250 .....K2TQC/258 175 .....VE3ZZ/191  
200 .....W1CU/215 175 .....K8OOK/180  
200 .....K0DEQ/210 100 .....KM6HB/103

#### SSB

200 .....W1CU/200 100 .....AE9DX/102  
175 .....K0DEQ/184

#### CW

200 .....W1CU/205 200 .....K0DEQ/201

#### RTTY

100 .....W1CU/119

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.

## 5 Band WAZ

As of May 1, 2007, 728 stations have attained the 200 zone level and 1547 stations have attained the 150 zone level.

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

YL2GD W6BJH I2PJA

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

N4WW, 199 (26)	EA8AYV, 199 (27)
W4LI, 199 (26)	VE3XN, 199 (26)
K7UR, 199 (34)	K7BG, 199 (22)
W2YY, 199 (26)	YU7GMN, 199 (10)
VE7AHA, 199 (34)	K7LJ, 199 (37)
IK8BQE, 199 (31)	K8SIX, 199 (29)
JA2IVK, 199 (34 on 40m)	EA5BCX, 198 (27, 39)
IK1AOD, 199 (1)	G3KDB, 198 (1, 12)
DF3CB, 199 (1)	KG9N, 198 (18, 22)
GM3YOR, 199 (31)	JA1DM, 198 (2, 40)
VO1FB, 199 (19)	9A5I, 198 (1, 16)
KZ4V, 199 (26)	K4CN, 198 (23, 26)
W6DN, 199 (17)	G3KMQ, 198 (1, 27)
W3NO, 199 (26)	N2QT, 198 (23, 24)
HB9DDZ, 199 (31)	OK1DWC, 198 (6, 31)
RU3FM, 199 (1)	W4UM, 198 (18, 23)
N3UN, 199 (18)	US7MM, 198 (2, 6)
OH2VZ, 199 (31)	K2TK, 198 (23, 24)
W1JZ, 199 (24)	K3JGJ, 198 (24, 26)
W1FZ, 199 (26)	W4DC, 198 (24, 26)
SM7BIP, 199 (31)	F5NBU, 198 (19, 31)
SP5DVP, 199 (31 on 40)	OE2LCM, 198 (1, 31)
N4NX, 199 (26)	HA1RW, 198 (1, 31)
N4MM, 199 (26)	W3K3N, 198 (23, 24)
EA7GF, 199 (1)	W9XY, 198 (22, 26)
N6HR7, 199 (37)	KZ2I, 198 (24, 26)
JA5IU, 199 (2)	W7VJ, 198 (34, 37)
CT3DL, 199 (26)	W0CP, 198 (18, 40)
N0IJ, 199 (21)	K9MIE (18, 21)
RU3DX, 199 (6)	
N4XR, 199 (27)	
W0PGI, 199 (26)	
HA5AGS, 199 (1)	

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

K6SY (170 zones) W2IRT (172 zones)

**\*\*Please note: Cost of the 5 Band WAZ Plaque is \$100 (\$120 if airmail shipping is requested).**

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>.

ers). Please be patient; we will make all necessary adjustments after coming home.

Have fun working with on the air! We installed 80% of our antennas and four stations. We are trying to work all the time except for short breaks (lunch, dinner, and generator maintenance). We have had a huge pile-up but we are trying to do our best for you. Vy 73! Wojtek, SP5BFX

They did in fact make the most of their difficult situation and were very active on as many bands as possible.

**1A0KM – Sovereign Military Order of Malta.** Luciano, I0JBL, was to lead a multi-national team for a ten-day operation in mid-July. 1A0 continues to be "needed" by a lot of DXers, ranking #28 worldwide in *The DX Magazine's* Most

## CQ DX Awards Program

### SSB

2498 .....AD7J

### SSB Endorsements

330 .....N5FG/337 330 .....VE2GHZ/334  
330 .....DU9RG/337 320 .....SV3AQR/321  
330 .....K6AW/335 310 .....I0YKN/310

### CW Endorsements

330 .....N5FG/336 250 .....4Z5SG/252  
320 .....OZ5UR/320 28 MHz .....4Z5SG  
300 .....WA4DOU/307

### RTTY Endorsements

330 .....N5FG/331

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 337 active countries. Please make all checks payable to the award manager.

Wanted Survey for 2006, and #21 for North America.

**FO/C – Clipperton.** Bob, N6OX, will be heading up a group of 24 for a March 2008 trip to Clipperton. It still ranks relatively high at #35 worldwide and #24 for Europe.

**VP6DX – Ducie.** Carsten, DL6RAU, and Eric, K3NA, will share leadership roles for a planned operation from Ducie in February 2008 by a team of 13 operators.

**TI9M – Cocos.** An operation from Cocos is planned for 2008. Worldwide need for 2006 had TI9 at #87, Europe at #67, and #49 in Asia.

### "Ultimate Friendship" Award

In June a dinner was held on Long Island, New York to celebrate the longstanding friendship between two amateur radio operators: Lew Reinberg, W2BIE, and Martti Laine, OH2BH. As of the end of April, Lew had "worked them all" except one, Scarborough Reef. Lew had been in a 40-year quest to complete DXCC Honor Roll and had been seriously ill. Steve, WB2ZHB, encouraged Lew to not give up and go for the Scarborough Reef QSO, for his last one.

The next morning, Steve went down to his shack and turned on the radio just in time to hear Martti telling everyone to stand by so he could talk to his friend Lew. W2BIE had made it through, a contact with Scarborough Reef. In the midst of one of the biggest pile-ups of all time,



Left to right: Steve, KU9C, presents the "Ultimate Friendship Award" certificates to W2BIE and OH2BH. (Photo courtesy of Steve, WB2ZHB)

Martti took the time to ask Lew how he was feeling and they made the Q. It was the thrill of a lifetime for W2BIE. Framed award certificates were presented to both Lew and Martti at the dinner. Ham radio is about the friends we make, some of which last a lifetime. For more photos and details, go to: <myspace.com/stephenhass>. (Tks, Steve, WB2ZHB)

### 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

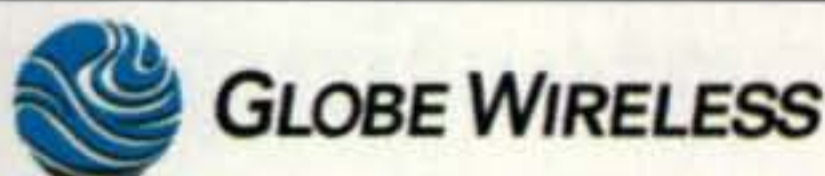
K2TQC.....258	N4MM.....198	N4NX.....182
HA0DU.....228	W4UM.....196	K0CA.....181
VE3XN.....217	VE3ZZ.....191	K1NU.....180
W1CU.....215	HA9PP.....190	K8OOK.....180
K0DEQ.....210	BA4DW.....188	W5ODD.....177
N8PR.....208	OK1AOV.....187	K2AU.....177
HA1RW.....206	9A5CY.....187	N0FW.....176
KF8UN.....205	F6HMJ.....182	ON4CAS.....175
JN3SAC.....199	K2SHZ.....182	

#### SSB

W1CU.....200	N4MM.....180	N0FW.....176
VE7SMP.....190	W4UM.....178	DL3DXX.....175
K0DEQ.....184	W4ABW.....177	

#### CW

W1CU.....205	JN3SAC.....193	N4MM.....178
DL3DXX.....203	W4UM.....188	K0CA.....175
K0DEQ.....201	OK2PO.....184	



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- Exp. performing project planning, tracking, and oversight activities with travel as necessary.
- Prior HF systems experience
- Excellent communication skills in English req'd; foreign language skills preferred.
- Strong Windows proficiency and networking knowledge a plus
- Knowledge of IP communications protocols a plus
- FCC General Radio Telephone operator license is a plus.

##### Office Location: Palm Bay, Florida

Some travel may be necessary. Interested candidates can submit qualifications and resume to: [HR@globewireless.com](mailto:HR@globewireless.com) Include salary history and requirements. EOE

Solar scientists seem to agree (pretty much, anyway) that the bottom of this solar cycle will occur sometime in the next several months. That is good news for all of the planned DXpeditions for early 2008. As conditions start to improve over the next few years I think we will be seeing more operations from rare and semi-rare locations.

Many DXers "topped out" on their Mixed DXCC awards with the BS7H operation this year. Now they are looking to "filling in the blanks" on bands and modes for those not-so-rare ones, especially on the higher bands, where we have not been able to do much over the past few years.

Until next time, enjoy the chase and Have Fun!

73, Carl, N4AA

### QSL Information

2E0PLA via ON4IQ  
 3A/DF8XC via DL1YFF  
 3A/DL1YFF via DL1YFF  
 3A3WPX via DJ9ZB  
 3B8ZZ via K4YT  
 3B9ZZ via K4YT  
 3C0A via DJ9ZB  
 3C0F via DJ9ZB  
 3C0V via DJ9ZB  
 3C5XA via G3SWH  
 3D2AM via K1ER  
 3D2VB via UA4WHX  
 3D2VB/R via UA4WHX  
 3DA0EI via EI7CC  
 3DA0VB via UA4WHX

3V8SS via ON4IQ  
 3Z25PAZ via SP6PAZ  
 3Z6PAZ via SP6PAZ  
 3Z6V via SP6DVP  
 4A2MX via K6VNX  
 4A2Q via WD9EWK  
 4K0VB via UA4WHX  
 4L/UA4WHX via UA4WHX  
 4L0B via UA4WHX  
 4L2M via UT7QF  
 4N1A via YU1FJK  
 4N200A via YU1FJK  
 4N600A via YU1FJK  
 4S7RO via DJ9ZB  
 4S7RO/6Y5 via DJ9ZB

4S7VK via DJ9ZB  
 4S7WHG/A via G3SWH  
 4U8ITU via I8QJU  
 4W1AF via DJ9ZB  
 4W1ZB via DJ9ZB  
 5A1HA via DJ9ZB  
 5B4/AC6WE via UA3DPX  
 5B4/UT7QF via UT7QF  
 5H/7Q7RS via IT9YVO  
 5H0RS via IT9YVO  
 5H1/G3SWH via G3SWH  
 5H3/G3SWH via G3SWH  
 5H3VMB via UA4WHX  
 5R8FL via G3SWH  
 5R8FT via G3SWH

5R8FV via G3SWH  
 5R8GO via G3SWH  
 5R8GZ via G3SWH  
 5R8HA via G3SWH  
 5R8O via G3SWH  
 5T0CW via G3SWH  
 5T5DX via K4YT  
 5T5TY via NI5DX

(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>.)

## Contesting and Dayton 2007

### August's Contest Tip

Efficiency in operating practice is a big part of contest operating. Whether it's short CQ's that emphasize your call (remember, that's the part people don't know when they tune by) or effective exchanges, it all contributes to working more stations. For example, if someone calls you and you only copy part of their call, go with it. The process can work like this: "Something Alpha Romeo, you're 59001" rather than simply "Alpha Romeo?" Always start the process of working the other station calling you right away as it will reduce the number of back-and-forth transmissions and make you a faster, more efficient operator with higher scores.

**T**he Dayton Hamvention® has always been the secular equivalent to a trip to Mecca for many contesters. After all, there are the evening contest suites, contest forum, and contest dinner. This year many had the added thrill of participating in Dayton's first-ever Contest University (more on that later). Simply put, if you are a contester, this was the place to be in 2007.

I can't report more without first acknowledging the driving force behind of much of the contest activities that took place this year—Tim Duffy, K3LR. Whether it was serving up pizzas at 11 PM in the Contest Super Suite or leading a gargantu-

All year  
**July 21–22**  
 July 21–22  
 July 28–29  
 Aug. 4  
 Aug. 4–5  
 Aug. 4–5  
 Aug. 5  
 Aug. 11–12  
 Aug. 11–12  
 Aug. 18  
 Aug. 18–19  
 Aug. 18–19  
 Aug. 18–19  
 Aug. 18–19  
 Aug. 25–26  
 Aug. 25–26  
 Aug. 25–26  
 Aug. 26  
 Sept. 1  
 Sept. 1–2  
**Sept. 29–30**

### Calendar of Events

**CQ DX Marathon**  
**CQ WW VHF Contest**  
 North American RTTY QSO Party  
 RSGB IOTA Contest  
 European HF Championship  
 North American CW QSO Party  
 10-10 Int'l Summer QSO Party  
 SARL HF Contest  
 Worked All Europe CW Contest  
 Maryland-DC QSO Party  
 SARTG WW RTTY Contest  
 RDA Contest  
 North American SSB QSO Party  
 New Jersey QSO Party  
 SCC RTTY Contest  
 YO DX HF Contest  
 Ohio QSO Party  
 SARL HF Contest  
 Russian RTTY Contest  
 All Asian SSB DX Contest  
**CQ WW RTTY DX Contest**

an effort to pull off a highly successful Contest University, Tim was at the center of it all. Hats off to K3LR for the enthusiasm and leadership that made this year's Hamvention such memorable experience for so many.

### Contest University

This concept has been around for many years: Make use of some of contesting's veterans to teach others via their experiences in a number of key areas of contesting. Previously, the idea had been limited to club efforts. I have personal experience with the Yankee Clipper Contest Club, where a class-based structure has been used to educate others about contesting. It works! The Potomac Valley Radio Club as well as the Northern California Contest Club, and others, have also delivered programs of this nature in the past.

This year at Dayton, however, the notion was taken to a new level with Contest University (CTU), headed by CTU Chairman Tim, K3LR. Taking nearly a year to prepare, CTU was a huge success, with nearly 160 students and 11 "professors" working together over a 10-hour period to teach 22 in-depth contesting topics (see the teaching schedule in Table I). Yes, the concept has been around. However, the results at Dayton were unparalleled and absolutely amazing.

With the Super Suite at the Dayton Crowne Plaza opening one night early on Wednesday, nearly 50% of the students checked in and the fun began. It makes one wonder when the Dayton Hamvention® will eventually become a one-week event for some contesters!

Early the following morning, registration began at 6:30 AM sharp, and by 8 AM everyone was ready to go. For the next nine hours a spirited combination of class time, a simulated voice Sprint contest, lunch and discussion, and stimulating Q&A took place in an unprecedented setting led by CTU professors N6BV, K1DG, M0DXR, W9ZRZ,

\*2 Mitchell Pond Road, Windham, NH 03087  
 e-mail: <K1AR@contesting.com>

7:00 AM	Registration and Breakfast
8:00 AM	Propagation for Contesting, N6BV
8:00 AM	Basic Contest Operating, K1DG
8:30 AM	What your Contest Signal Sounds Like in Europe, M0DXR
8:30 AM	Contest Station Layout and Design, N5OT
9:00 AM	DXpedition Contesting, N5TJ
9:00 AM	QSO Party Contesting, K8MR
9:30 AM	Single Operator Two Radios for High Performance Contesting, K5ZD
9:30 AM	Mobile Contesting, K8MR
10:15 AM	Antennas for USA Contests, N6BV
10:45 AM	Single Operator UNassisted Contesting, N5TJ
11:15 AM	Logging & Accuracy—Contest History & Records, N6AA
12:15 PM	Lunch
12:45 PM	Extreme Shack Make Over, K1DG
1:05 PM	Sprint Contest, K1DG
1:15 PM	Hints and Kinks to Help you Win Contests, N2NT
1:45 PM	Antennas for DX Contests, N6BV
2:30 PM	Contest Logging Software, N2NT
2:30 PM	RTTY Contesting, K5ZD
3:00 PM	Single Operator Assisted, K1DG
3:00 PM	Contest Station Layout and Design, N5OT (repeat of 8:30 session)
3:30 PM	Chokes and Filters for Contest Stations, K3LR
3:30 PM	VHF Contesting, K8MR
4:00 PM	High Frequency Terrain Analysis, N6BV
4:00 PM	Computers for Contesting, W9ZRZ
4:30 PM	Response to Students Questions & Answers by CTU Staff
5:00 PM	Conclusion

Table I—The 2007 Dayton Contest University schedule.



"Professor" Dick Norton, N6AA, teaching Dayton Contest University students about the process of log checking. (Photo courtesy of Tim, K3LR)



Nearly 160 students filled the room at the first-ever Dayton Contest University. (Photo courtesy of K3LR)

N5OT, N5TJ, K8MR, K5ZD, N6AA, and N2NT. CTU students came from all over the world, both new contesters and experienced pros. Also, speaking from personal experience, I learned a new operating trick myself, thanks to Randy, K5ZD, who suggests that you stay focused on one station when multiple callers are after you. It actually helped my score in the KCDX suite during the pile-up competition that weekend. The point is that CTU was an event for all, including 9-year-old contester Joseph Callow, W9JJC!

With professionally developed and printed classroom binders under each student's arm, the Dayton Contest University was a big hit. Participants were talking about it all weekend. As you might imagine, preparations are already under way for next year's graduate school program at Contest University 2008. Keep an eye for updates at <www.contestuniversity.com> to learn about an even better experience slotted for the next one.

Hats off to everyone involved and congratulations to all the students! It's also important to acknowledge the support of Ray Novak, N9JA, and ICOM America, CQ magazine, DX Engineering, and the ARRL, all of which contributed resources to make CTU 2007 such a huge success.

### CQ Contest Hall of Fame

One of the greatest honors I have as the Master of Ceremonies at the Contest Dinner at Dayton is to witness the induction of new members into CQ's Contest Hall of Fame. This year we were pleased to induct four contesters: K5RC, K6SSS, and N6ZZ (SK) as 2007 inductees; and S59AA, who was inducted in 2004 but was not formally acknowledged with his award that year.

**K5RC.** Tom Taormina, K5RC, has been around contesting since the late 1950s and has a long track record of operating accomplishments and contributions to the sport. In addition to bringing many new contesters into our ranks through relentless mentoring, he has built and made available to contesters several world-class contest stations. Tom was instrumental in helping to develop the North American QSO Party, as well as being a member of the CQ WW Contest Committee. A quick look at some of the older *National Contest Journals* will show that he was a former editor and contributor to that publication. Congratulations, Tom!

**K6SSS.** Fred Capossela, K6SSS, is a past CQ World-Wide DX Contest Director. It was under Fred's leadership in the early years of the contest that the CQWW ultimately became the world's most popular and most professionally run contest. Fred became the first contester to actually run the contest, introducing the foundation for the rigorous log-checking standards that are being used today. Fred has continued his contributions to this day, having maintained and annually updated the CQWW All-Time Records List for over 40 years. Well done, Fred!

**N6ZZ.** Much has been said about Phil Goetz, N6ZZ (SK), who left us much earlier than he deserved. Phil is most noted for being one of only two contest participants to have operated the CQ WW DX Contest from each of the world's 40 CQ zones (Dick Norton, N6AA, is the other). Amassing hundreds of thousands of QSOs, Phil was an inspiration to contesting and a dear friend, advisor, and confidant to many. The other aspect of Phil's illustrious contest career, however, was what he did behind the scenes. N6ZZ was a member of the first ARRL

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One of the CQ Contest Hall of Fame's newest members, Tom Taormina, K5RC (left), receiving his well-deserved plaque from Bob Cox, K3EST, Chairman of the CQ WW Contest Committee. (Photo courtesy of Tom, K8CX)



(Left to right) An elated Fred Capossela, K6SSS, with his wife Ava, and K3EST and K1AR, proudly displays his CQ Contest Hall of Fame plaque. (Photo courtesy of K8CX)

Contest Advisory Committee, as well as serving on the CQ WW Contest Committee. In addition, he was a judge at every World Radio Team Sport Championship (WRTC) event, except in 2002, when he was a contestant. His support during the recent WRTC event in Brazil was instrumental in ensuring the results were accurate and of the highest quality. We'll miss you, Phil; you deserve every bit of this one!

**S59AA.** Last but not least, Franc Bogataj, S59AA, is the final member to be mentioned. Although he received the honor of being added to the list of Contest Hall of Fame members in 2004, Franc was formally inducted and received his plaque at a local meeting of the Slovenia Contest Club, as well as at this year's Friedrichshafen convention in Germany. Franc is known all over Slovenia and parts of Eastern Europe as a mentor to new contesters. Tine Brajnik, S50A, a Hall of Fame member

in his own right, cites Franc as having had a profound influence on the contest movement in Slovenia. Franc's snappy CW and skillful operating technique are a joy to work. When I first met Franc at WRTC, I witnessed his infectious enthusiasm for contesting. Not only was he a valued contributor to WRTC, he became a friend to many of us as we learned what he has done and continues to do to further contesting. Thanks for everything, Franc!

## FCC's Riley, K4ZDH Speaks at Dayton

The FCC's highly visible Special Counsel for Amateur Radio Enforcement, Riley Hollingsworth, K4ZDH, led the FCC forum at Dayton this year. He had some specific messages regarding contesting that we all should take to heart. I can't do his commentary justice, so let me simply quote Mr. Hollingsworth so that you get the message loud and clear:

...to the contesters: be more courteous. You are responsible for the frequency you are operating on, and realize that's true even when you operate split. All frequencies are shared.

To those who don't like contesters: Lighten up!! Contests are short lived. Use the WARC bands. Wash the car. Cut the grass.

Learn from the contesters—and this applies to you traffic net folks, too. Learn from the contesters—they pass information a lot faster and more efficiently than you do. Contesters are some of the best radio operators on planet Earth. If the contesters operated at the same pace as some of the emergency traffic nets, the contest would be over after the first few dozen signal strengths were exchanged!

As contesters, it's clear that the Commission acknowledges our skill and supports our on-the-air activities. However, before we get too carried away with ourselves, we do not get a free pass. Our obligation to respect the operating privileges of others is no different than any other ham radio group. Words to the wise!

## Final Comments

Well, another Dayton is in the books and many will say that for contesters it was one of the best. I've often thought that the best part of Dayton is seeing my friends and meeting new ones. Indeed, the camaraderie of contesting is one of the greatest attractions for me, at least as much as operating itself. Whether it's Dayton or just a cookout in your backyard this summer, enjoy your contesting friends. It's a big part of who we are!

73, John, K1AR



# Basics, Part IV: Solar Wind and Coronal Holes

## A Quick Look at Current Cycle 23 Conditions

(Data rounded to nearest whole number)

### Sunspots

Observed Monthly, May 2007: 12

Twelve-month smoothed, November 2006: 13

### 10.7 cm Flux

Observed Monthly, May 2007: 75

Twelve-month smoothed, November 2006: 79

### Ap Index

Observed Monthly, May 2007: 8

Twelve-month smoothed, November 2006: 9

Last month we took a look at sunspots and the 10.7-cm solar flux. There are other phenomena that occur on the sun that can influence radio signal propagation, too. This time let's take a look at a significant player in space weather and propagation of your transmitted signal.

## Solar Wind and Coronal Holes

Space is not a vacuum, at least in our solar system. The sun's atmosphere actually extends very far out from the sun. Space in our system is filled with plasma, a low-density gas in which the individual atoms are charged. The temperature of the sun's atmosphere is so high that the sun's gravity cannot hold on to it. The plasma streams off of the sun in all directions at speeds of about 400 kilometers per second (about 1 million miles per hour). This is known as the *solar wind*.

The speed of the solar wind fluctuates and carries with it magnetic clouds. These magnetic clouds are interacting regions where high-speed wind catches up with slow-speed wind. The solar wind speed is high (on average 800 km/s) over coronal holes and low (300 km/s) over streamers. These high- and low-speed streams interact with one another and alternately pass by the Earth as the sun rotates. These wind-speed variations buffet the Earth's magnetic field and can produce storms in the Earth's magnetosphere.

Coronal holes are an extended region of the corona that have exceptionally low density and "open" magnetic-field topology. Coronal holes are largest and most stable at or near the solar poles and are a source of high-speed solar wind. However, those coronal holes situated at or near the solar equator tend to have the greatest impact on the Earth.

Coronal holes follow the rotation of the sun, taking about 27 days for a full revolution around the sun. This means that if the coronal hole lasts long enough, we'll see its influence on space weather every 27 days. When a coronal hole survives to

## LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for August 2007

Propagation Index.....	Expected Signal Quality			
	(4)	(3)	(2)	(1)
Above Normal: 1-7, 10-11, 18-31	A	A	B	C
High Normal: 8-9, 12, 15-17	A	B	C	C-D
Low Normal: 14	B	C-B	C-D	D-E
Below Normal: 13	C	C-D	D-E	E
Disturbed: None	C-D	D	E	E

Where expected signal quality is:

- A—Excellent opening, exceptionally strong, steady signals greater than S9.
- B—Good opening, moderately strong signals varying between S6 and S9, with little fading or noise.
- C—Fair opening, signals between moderately strong and weak, varying between S3 and S6, with some fading and noise.
- D—Poor opening, with weak signals varying between S1 and S3, with considerable fading and noise.
- E—No opening expected.

## HOW TO USE THIS FORECAST

1. Find the *propagation index* associated with the particular path opening from the Propagation Charts appearing in *The New Shortwave Propagation Handbook* by George Jacobs, W3ASK; Theodore J. Cohen, N4XX; and Robert B. Rose, K6GKU.
2. With the *propagation index*, use the above table to find the expected signal quality associated with the path opening for any given day of the month. For example, an opening shown in the Propagation Charts with a *propagation index* of 2 will be Good (B) on August 1st through the 7th, Fair (C) on the 8th and 9th, and so forth.
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.

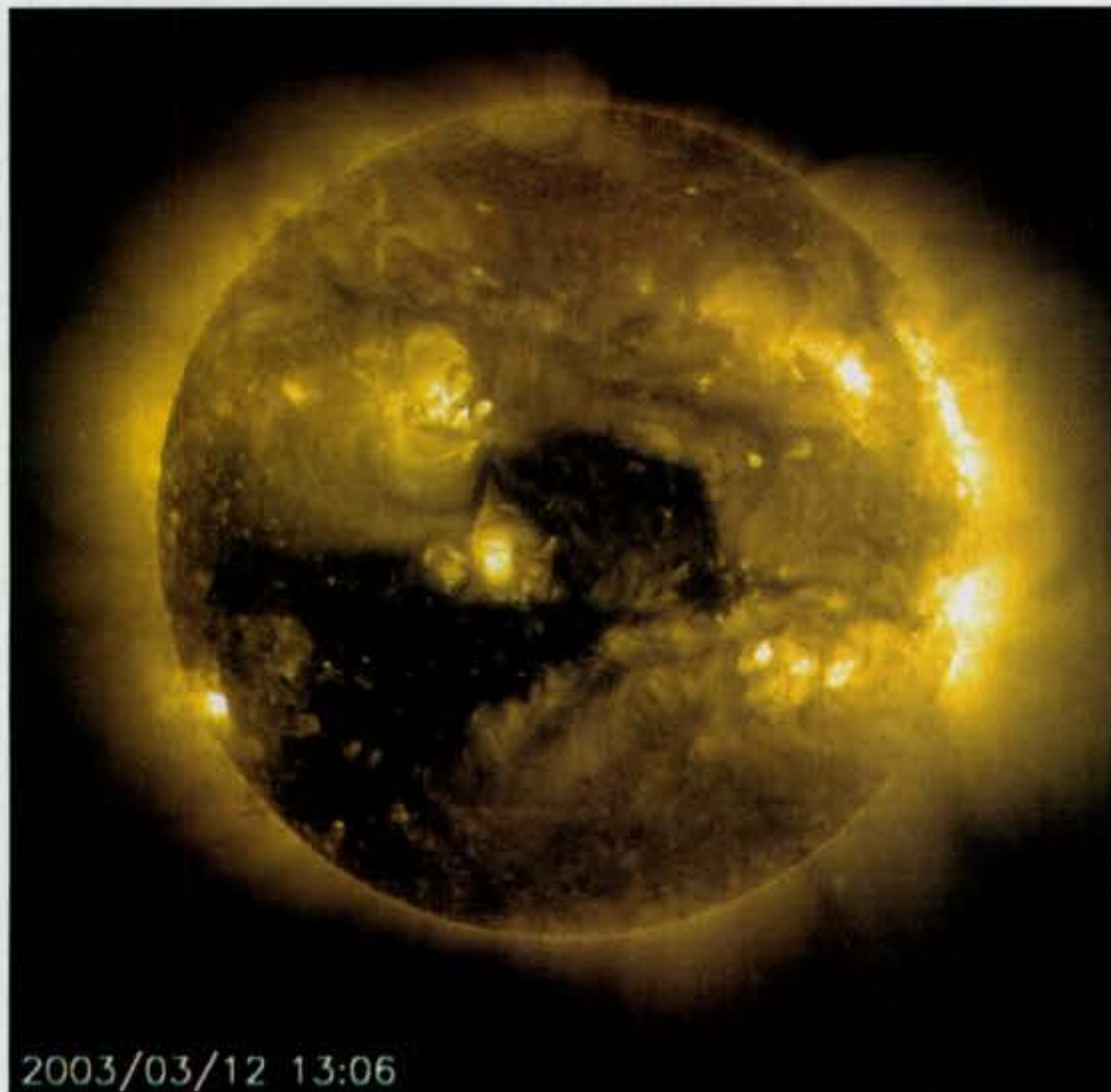
make it around a second time, the coronal hole is said to be "recurrent." Coronal holes, then, typically are long-duration features, and since they spew out plasma at elevated speeds, they degrade ionospheric propagation for days at a time.

The Earth has a magnetic field with a north and a south pole that is enclosed within a region surrounding the Earth called the *magnetosphere*. As the Earth rotates, its hot core generates strong electric currents that produce the magnetic field, which reaches 36,000 miles into space. The magnetosphere prevents most of the particles from the sun, carried in solar wind, from impacting the Earth. The solar wind distorts the shape of the magnetosphere by compressing it at the front and causing a long tail to form on the side away from the sun. This long tail is called the *magnetotail*.

Let's look at the relationship between coronal material and magnetic fields. The corona is so hot that the gases in it lose some of their electrons in the powerful collisions between atoms. This plasma is a mixture of positively charged ions and negatively charged electrons.

An example of plasma can be seen by looking at a neon light. You are looking at plasma, energized to the point where light is emitted. Because plasmas are electrically conductive, they can steer

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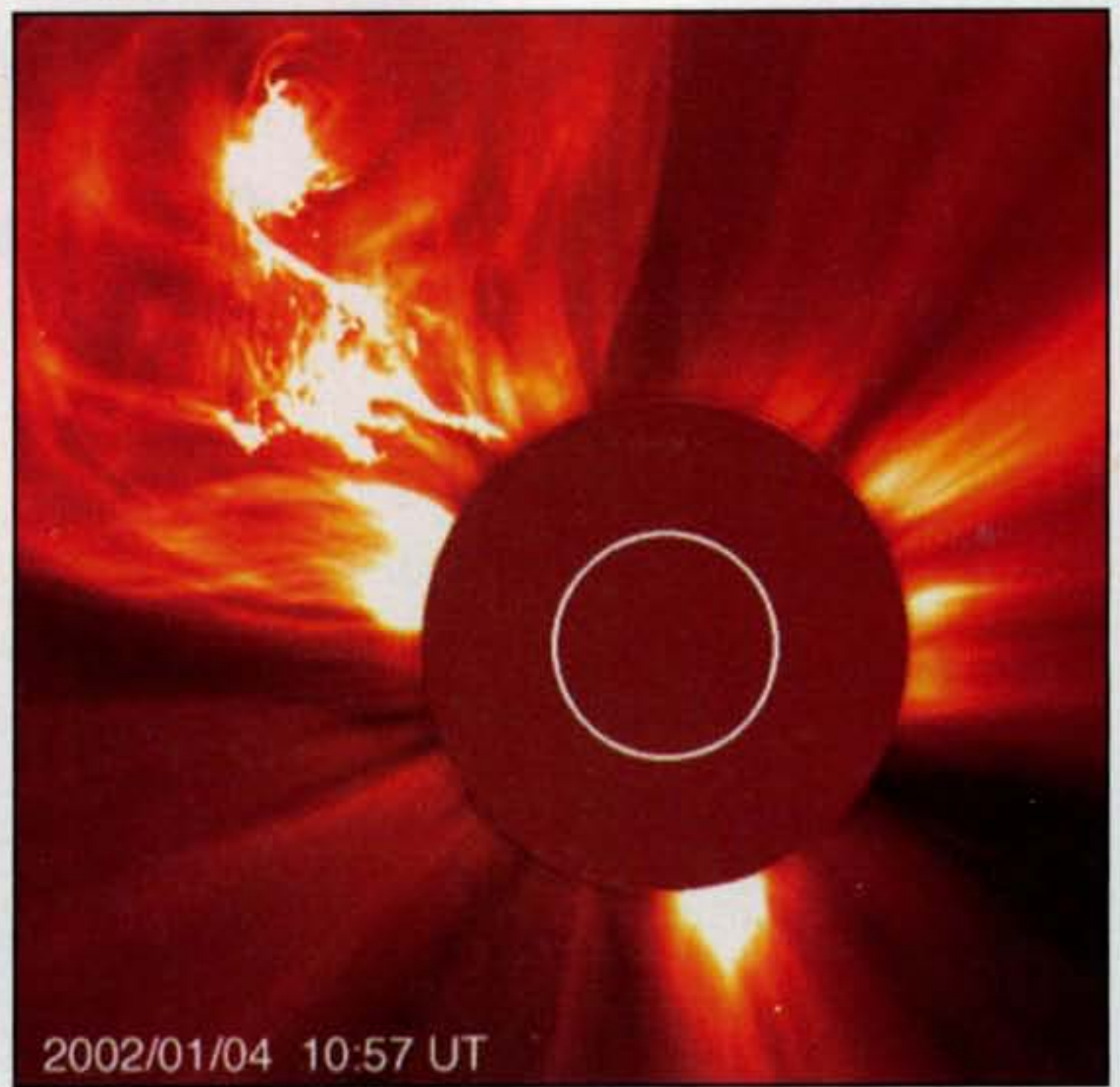


*This picture features a large coronal hole in the sun's corona on March 12, 2003. The leading edge of the coronal hole appears as dark areas of the corona when viewed in ultraviolet light and in X-rays. This distinctive hole area appears to extend across about one fifth of this side of the sun. This is a very large coronal hole. Coronal holes are often the source of strong solar wind gusts that carry solar particles out to our magnetosphere and beyond. Solar wind streams take two to three days to travel from the sun to Earth, and they are more likely to affect Earth after they have rotated more than halfway around the visible hemisphere of the sun. The magnetic field lines in a coronal hole extend out into the solar wind rather than connecting to a nearby part of the sun's surface. Often located near the poles of the sun, coronal holes also occur closer to the solar equator, as we see here. These low-latitude coronal holes are responsible for the high-speed solar-wind streams that may trigger aurora, and provide aurora-mode VHF propagation openings.*  
 (Source: SOHO/NASA)

magnetic fields, and they are steered by magnetic fields. These loops of magnetic force are stretched and dragged into interplanetary space by the inertia of the expanding plasma that spirals out as the solar wind. When these magnetic forces impact the Earth, they are either diverted by or combined with Earth's magnetic field.

The speed of the solar wind fluctuates. This year we're seeing a range of solar wind speed of between 300 km/s and around 600 km/s on average. When the solar wind picks up speed, and when the magnetic field lines that are stretched out on the solar wind pass the Earth, geomagnetic storms may be triggered. For radio signals, this could be a good thing, or a bad thing, depending on the frequency and radio path.

The majority of geomagnetic disturbances are generated by the encounter with the magnetic fields, and the volume and speed of the solar wind. The ability of the solar wind to disturb the Earth's magnetosphere is a function of its speed and the strength and orientation of the magnetic fields. In the presence of a strong southward magnetic field component, a "connection" is made between the solar wind's magnetic fields and the Earth's magnetic fields (picture two pole mag-



*This image shows solar plasma flying out away from the sun. The plasma rides the solar wind out into our solar system, following the magnetic field lines of the wind streams.*  
 (Source: SOHO/NASA)

nets, where the north pole of one "connects" with the south pole of the other).

The Earth's magnetosphere is formed from two essential ingredients, the Earth's magnetic field (which has much the same form as that of a bar magnet, and is from pole to pole) and the solar wind. When the solar wind and magnetic fields combine with the Earth's magnetic field, they alter the shape and intensity of this shield around the Earth. The ionosphere is affected by these changes, either by an increase of ionization, or a decrease or even a depletion of ionization. Depressions in ionospheric density cause major communications problems, because radio frequencies that previously had been refracting off the ionosphere now punch through. The maximum usable frequency (MUF) on a given radio signal's path can be decreased by a factor of two during an ionospheric storm event. Storm effects are more pronounced at high latitudes.

During the periods of lowest solar activity of a solar cycle, such as where we are right now, we see far less coronal mass ejections (CMEs) than during the peak years of the cycle. However, we still see frequent recurring coronal holes. These coronal holes are producing fast solar wind streams and at times spew out enough plasma to cause minor geomagnetic storms.

Low sunspot counts combined with coronal-hole activity often contribute to days of very poor propagation on the high frequencies (30 MHz and below). When the solar wind speed is high (over 650 kilometers per second), when there's a release of solar plasma on that wind stream, and when the orientation of that wind stream is aligned to combine with the magnetosphere, the geomagnetic field will "open" to the incoming plasma, and aurora occurs. That is when VHF comes alive for the exotic aurora-mode propagation.

During August, we'll see days when coronal holes dominate space weather. Solar activity will be low to moderate, too, as we are at the end of solar Cycle 23. Major shortwave

broadcasters have taken this into consideration and have chosen frequencies that, with the high power and gain of their transmitting facilities, will overcome tough propagation into their target areas. However, there may be days when it will be a challenge to hear the station for which you are hunting.

### August Propagation

Late August and early September are a difficult time of year for which to make accurate band predictions, because conditions can change drastically from day to day. On many days typical summertime conditions will continue much as they were during June and July.

On the other days, conditions may sound typically fall-like, with somewhat higher daytime usable frequencies and somewhat lower nighttime usable frequencies. When you add *equinoctial* conditions that can begin as early as late August, we often experience optimum openings between the Northern and Southern Hemispheres on the one hand, but periods of active to stormy conditions on the other.

Despite being at the end of solar Cycle 23 with low solar activity, during the daylight hours good DX conditions should be possible on several bands: 15, 17, and 20 meters. Expect signals on the 17- and 20-meter bands to peak approximately during the two-hour window immediately following sunrise and again during the late afternoon. These two bands, and to a lesser degree, the 15-meter band, will see openings for DX throughout the daylight hours. Fairly good DX openings should occur along an arc extending across central Africa, Latin America, and into the far Pacific area. Peak conditions should occur during the afternoon hours, but an increasing number of earlier openings should be possible by early September.

Between sundown and sunrise, 20 meters is expected to be the best DX band. However, with lower solar activity, the band in general will suffer compared to the past few years. Openings might be possible to many areas of the world, some with surprisingly strong signal levels. Until midnight, good DX conditions should be found for openings toward Latin America, the far Pacific, and into Asia. You might even catch some activity on 17 or even 15 meters. Fairly good conditions are also expected on 30, 40, 60, and 80 meters despite the high static level at times. Openings should be possible before midnight along an arc extending from northern Europe, through Africa, and into Latin America, the far Pacific, and Asia.

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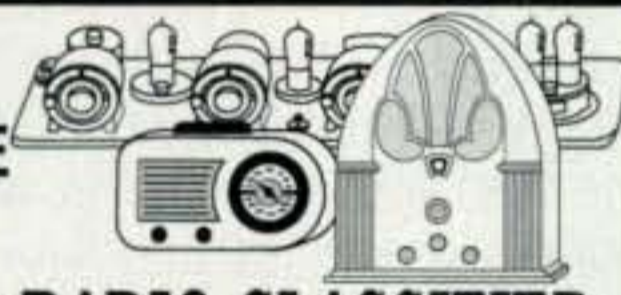
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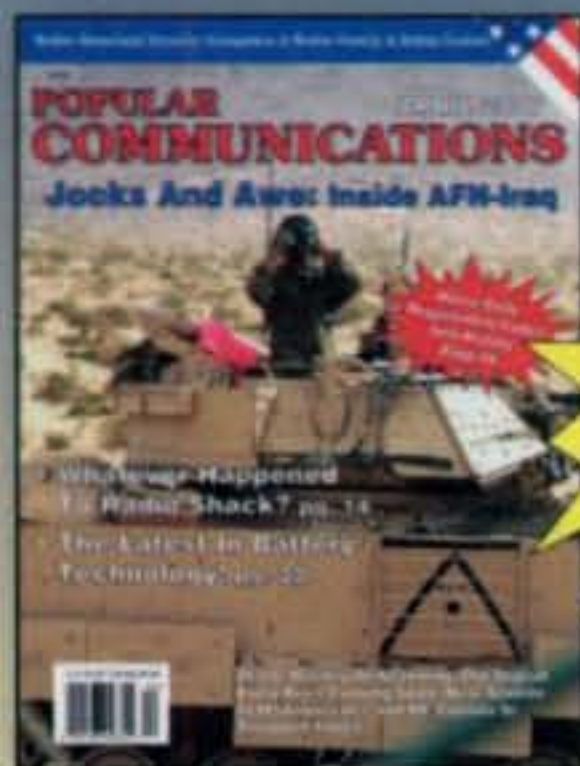
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By late August it should be possible to work some DX on 160 meters during the hours of darkness. Conditions on this band, as well as on 40, 60, and 80 meters, will tend to peak just as the sun begins to rise on the light, or easternmost, terminal of a path.

For short-skip openings during August and early September, try 80 meters during the day for distances less than 250 miles, with 60 and 40 meters also usable. During the hours of darkness both 80 and 160 meters should provide excellent communications over this distance. For openings between 250 and 750 miles use 30 and 40 meters during the day for distances up to 500 miles, and 20 and 17 meters between 500 and 750 miles. At night 40 and 30 meters should be the best bands for this distance until midnight, with 80 meters optimum from midnight to sunrise. Try 60 meters, as well. For openings between 750 and 1300 miles, try 20 and 17 meters, as they should provide optimum propagation during the hours of daylight. Optimum conditions should continue on these bands for this distance range after sundown and until midnight. Between midnight and sunrise the best band should be 40 meters, but check 60 meters, too. For openings between 1300 miles and the one-hop short-skip limit of approximately 2300 miles, try 20 and 17 meters during the day, with 15 meters also usable. After sundown try 30, 40, and 60 meters, with 80 meters also providing good propagation conditions for this distance range.

### VHF Conditions

Sporadic-E propagation usually begins to taper off during August, but may continue to occur fairly frequently. Some 6-meter sporadic-E openings are expected during the month over distances of approximately 750 to 1300 miles. During periods of intense and widespread sporadic-E ionization, two-hop openings may be possible considerably beyond this range. Also check the 2-meter band for an occasional sporadic-E short-skip opening between approximately 1200 and 1400 miles. While sporadic-E short-skip openings may occur at any time, there is a tendency for them to peak between 8 AM and noon, and again between 6 PM and 9 PM local daylight time.

The *Perseids* meteor shower this year covers the period of July 17 to August 24. The peak is expected to occur August 13 between 0500 UTC and 0730 UTC, and will be most observable in the Northern Hemisphere. The radiant point for this shower will be in

the constellation of Perseus. Look to the northeast. The maximum hourly visual rate is expected to reach about 100, possibly more active than last year.

For the very patient, check the 6-meter band for possible trans-equatorial (TE) openings between 8 and 11 PM local daylight time. This type of propagation favors openings from the southern tier states into the far southern areas of South America, with the signal path crossing the magnetic equator at a right angle. TE openings during August are rare, but they can occur. Very weak signals and severe flutter fading usually characterize them.

### Current Solar Cycle Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for May 2007 is 11.7, a considerable jump up from April's 3.7 and from March's 4.8. The lowest daily sunspot value recorded was zero (0) on May 25 through May 28. The highest daily sunspot count was 25 on May 18. The 12-month running smoothed sunspot number centered on November 2006 is 12.7. A smoothed sunspot count of 14, give or take 12 points lower to 12 points higher, is expected for August 2007.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 74.5 for May 2007. The 12-month smoothed 10.7-cm flux centered on November 2006 is 78.5. The predicted smoothed 10.7-cm solar flux for August 2007 is 76, give or take about 15 points.

The observed monthly mean planetary A-index ( $A_p$ ) for May 2007 is 8. The 12-month smoothed  $A_p$ -index centered on November 2006 is 8.5. Expect the overall geomagnetic activity to vary greatly between quiet to disturbed during most days in August.

### Signing Off...

Please take a look at what's new at my website, <<http://propagation.hfradio.org/>>. Included on the site is an up-to-the-day Last-Minute Forecast for you to use to get the very latest forecast for the month. 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. I'd also love to hear any feedback you might have on what I have written. Until next month, . . .

73, de Tomas, NW7US



Main table containing various country and city codes, call numbers, and related data. Includes entries for countries like Nicaragua, Panama, Puerto Rico, Africa, Ascension Island, Canary Islands, Ceuta & Melilla, Ghana, Kenya, Madagascar, Madeira Islands, Morocco, Namibia, Republic of Guinea, Sao Tome & Principe, Senegal, South Africa, Sudan, Tanzania, Asia, Afghanistan, Armenia, and Asiatic Russia.

















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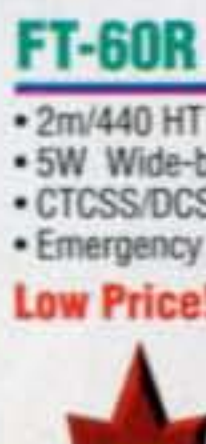
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## FT DX 9000



HF/50 MHz Transceiver  
**FT DX 9000D**



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

## FT-2000

## FT-450

New Compact HF Transceiver  
with IF DSP



HF/50 MHz 100 W All Mode Transceiver  
**FT-450** Automatic Antenna Tuner ATU-450 optional  
■ **FT-450AT**  
With Built-in ATU-450 Automatic Antenna Tuner

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



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

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)

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

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

**YAESU**  
Choice of the World's top DX'ers™

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

**ZL8R: 40,000+ QSOs in just over a week....**



*Mirek Rozbicki, VK6PXI*

*Michael Mraz, N6MTZ*

*Bernie Pfander, HB9ASZ*

**BS7H: 45,000+ QSOs in just over a week....**



*James Brooks, 9V1YC*

*Robert B Vallio, W6RGG*

*Tom Benson, ND2T*

**All with Icom's IC-7000!**

ULTRA COMPACT HF/VHF/UHF  
ALL MODE TRANSCEIVER



**DX'ing the way it should be.  
For the love of ham radio.**