

50 Years of Ham Radio in Space—See p. 74



Amateur Radio

COMMUNICATIONS & TECHNOLOGY

DECEMBER 2011

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



Season's Greetings!

- **CQ Digital Edition User's Guide, p. 13**
- **Results: 2011 CQ WW 160-Meter Contest, p. 20**
- **Producing Ham Radio, p. 30**

0387
P066
626
873

*****AUTO**S-DIGIT 23117
 CQ 50065 XXXX
 JACK SPEER
 BUCKMASTER PUB
 6196 JEFFERSON HWY
 MINERAL VA 23117-3425
 0387



On the Cover:
Jerry Keller, K3BZ, of
Green Lane, Pennsylvania
(or perhaps a Mr. Claus
in disguise?).
Details on page 88.

Happy Holidays

from one *Ham* to another



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Cushcraft R8 8-Band Vertical

Covers 6, 10, 12, 15, 17, 20, 30, and 40 Meters!

The Cushcraft R8 is recognized as the industry gold standard for multi-band verticals, with thousands in use worldwide. Efficient, rugged, and built to withstand the test of time, the R8's unique ground-independent design has a well-earned reputation for delivering top DX results under tough conditions. Best of all, the R8 is easy to assemble, installs just about anywhere, and blends inconspicuously with urban and country settings alike.

Automatic Band Switching: The R8's famous "black box" matching network combines with traps and parallel resonators to cover 8 bands. You QSY instantly, without a tuner!

Rugged Construction: Thick fiberglass insulators, all-stainless hardware, and 6063 aircraft-aluminum tubing that is double or triple walled at key stress points handle anything Mother Nature can dish out.

Compact Footprint: Installs in an area about the size of a child's sandbox -- no ground radials to bury and all RF-energized surfaces safely out of reach.

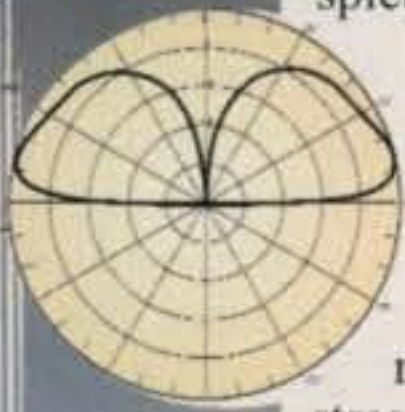
Legal-Limit Power: Heavy-duty components are contest-proven to handle all the power your amplifier can legally deliver and radiating it as RF rather than heat.

The sunspot count is climbing and long-awaited band openings are finally becoming a reality. Now is the perfect time to discover why Cushcraft's R8 multi-band vertical is the premier choice of DX-wise hams everywhere!

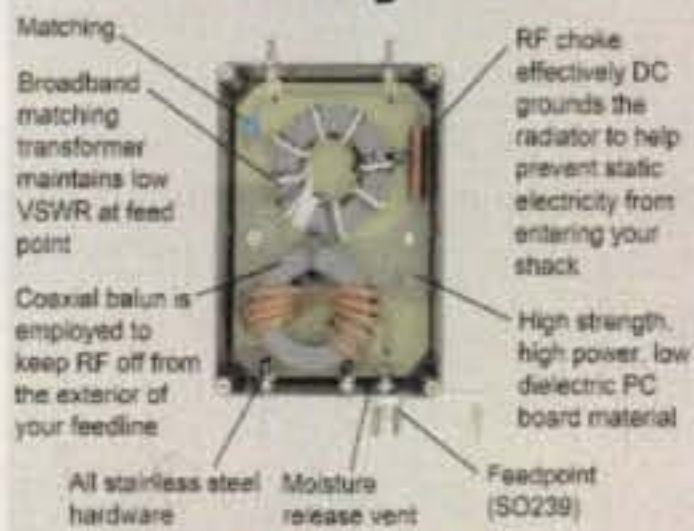
R-8GK, \$56.95. R-8 three-point guy kit for high winds.

R-8
\$539⁹⁵

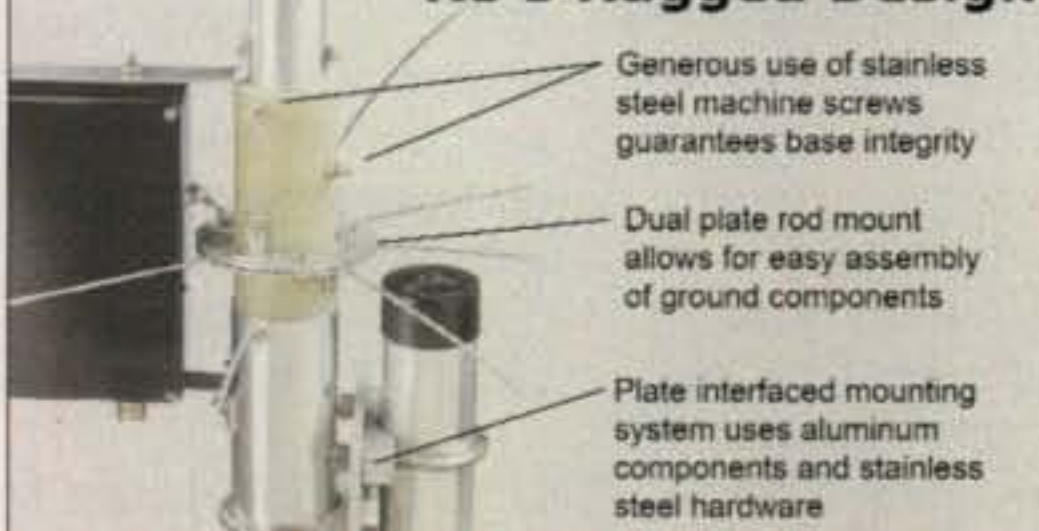
The R-8 provides 360° (omni) coverage on the horizon and a low radiation angle in the vertical plane for a better DX.



R8 Matching Network



R8's Rugged Design



MA-5B 5-Band Beam Small Footprint -- Big Signal



The MA-5B is one of Cushcraft's most popular HF antennas, delivering solid *signal-boosting directivity* in a bantam-weight package. Mounts on roof using standard TV hardware. Perfect for exploring exciting DX without the high cost and heavy lifting of installing a large tower and full-sized array. Its 7 foot 3-inch boom has less than 9 feet of turning radius. Contest tough -- handles 1500 Watts.

The unique MA-5B gives you 5-bands, automatic band switching and easy installation in a compact 26-pound package. On 10, 15 and 20 Meters the end elements become a two-element Yagi that delivers solid power-multiplying gain over a dipole on all three bands. On 12 and 17 Meters, the middle element is a highly efficient trap dipole. When working DX, what really matters are the interfering signals and noise you *don't hear*. That's where the MA-5B's impressive side rejection and front-to-back ratio really shines. See cushcraftamateur.com for gain figures.

Cushcraft 10, 15 & 20 Meter Tribander Beams

Only the best tri-band antennas become DX classics, which is why the Cushcraft World-Ranger A4S, A3S, and A3WS go to the head of the class. For more than 30 years, these pace-setting performers have taken on the world's most demanding operating conditions and proven themselves every time. The key to success comes from attention to basics. For example, element length and spacing has been carefully refined over time, and high-power traps are still hand-made and individually tuned using laboratory-grade instruments. All this

attention to detail means low SWR, wide bandwidth, optimum directivity, and high efficiency -- important performance characteristics you rely on to maintain regular schedules, rack up impressive contest scores, and grow your collection of rare QSLs!

Cushcraft Dual Band Yagis One Yagi for Dual-Band FM Radios

Dual-bander VHF rigs are the norm these days, so why not compliment your FM base station with a dual-band Yagi? Not only will you eliminate a costly feed

line, you'll realize extra gain for digital modes like high-speed packet and D-Star! Cushcraft's A270-6S provides three elements per band and the A270-10S provides five for solid point-to-point performance. They're both pre-tuned and assembly is a snap using the fully illustrated manual.

A270-10S
\$169⁹⁵

A270-6S
\$129⁹⁵



It goes without saying that the World-Ranger lineup is also famous for its rugged construction. In fact, the majority of these antennas sold years ago are still in service today! Conservative mechanical design, rugged over-sized components,

stainless-steel hardware, and aircraft-grade 6063 make all the difference.

The 3-element A3S/A3WS and 4-element A4S are world-famous for powerhouse gain and super performance. **A-3WS, \$499.95,** 12/17 M. **30/40 Meter add-on kits** available.

Cushcraft Famous Ringos Compact FM Verticals



WIBX's famous *Ringo* antenna has been around for a long time and remains unbeaten for solid reliability. The Ringo is broad-banded, lightning protected, extremely rugged, economical, electrically bullet-proof, low-angle, and more -- but mainly, it just plain works! To discover why hams and commercial two-way installers around the world still love this antenna, order yours now!

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U.S. Ham Population Tops 700,000

For the first time ever, there are more than 700,000 licensed radio amateurs in the United States. As of September 30, 2011, according to the ARRL and AH0A.org, the total number of FCC amateur licensees was 700,221. This represents a 145-percent increase over the U.S. ham population in 1971, according to the ARRL, and an increase of more than 200,000 in the past 20 years. After dipping between 2003 and 2007, license numbers have risen steadily for the past four-plus years, passing the 2003 peak of 687,860 in March 2010, according to statistics tracked by Joe Speroni, AH0A. ARRL VEC Manager Maria Somma, AB1FM, says there are currently approximately 150 ARRL-coordinated exam sessions each week, compared with about 55 per week in the mid-1980s. *(Keep these numbers in mind next time someone tells you ham radio is dying.—ed.)*

ARRL at the White House

Three representatives of the ARRL recently briefed members of the White House National Security Staff on amateur radio's capabilities in an emergency. The September 12 meeting, according to the *ARRL Letter*, was organized by White House Cybersecurity Coordinator Howard A. Schmidt, W7HAS. ARRL President Kay Craigie, K3KN; Chief Executive Officer Dave Sumner, K1ZZ; and Emergency Preparedness Manager Mike Corey, W5MPC, made the presentation, focusing on amateur radio's capabilities to provide Internet messaging connectivity when normal infrastructure has been damaged or destroyed.

Meanwhile, though, *Newsline* reports the FCC and FEMA (the Federal Emergency Management Agency) jointly issued a set of tips to citizens for keeping lines of communications open during emergencies, but did not include any mention of personal two-way radio services such as amateur radio, CB or the Family Radio Service (FRS).

Hams Help in Thai Flooding; Ask for Clear Frequencies

The Radio Amateur Society of Thailand (RAST) was asking amateurs around the world in mid-October to keep open frequencies in the 40-meter band being used for flood relief communications in the wake of the country's worst flooding in over 60 years. The ARRL reports that 7.060 to 7.063 MHz are being used for emergency communications, along with three 2-meter frequencies. A video (in Thai) of ham station HS0AB in action at the Don Mueang Airport may be viewed at <http://bit.ly/sgVsFa>. For updates, see the RAST website at <http://www.qsl.net/rast>. It is in English.

DX0DX Donations to be Refunded

Donations made to support the now-cancelled DX0DX expedition to the Spratly Islands will be refunded in full, according to *Newsline*. In an e-mail to the news service, team leader Chris Dimitrijevic, VK3FY, said he would personally make up any shortfalls between amounts donated and funds on hand in the expedition account. The long-planned DXpedition was cancelled due to personal-safety concerns. Questions may be directed via e-mail to chris@vk3fy.com.

Danish Study: No Link Between Cell Phones and Cancer

The largest study yet of possible connections between cell phones and cancer has found no evidence of any link. The Associated Press reported in October that the

Danish study of more than 350,000 cell-phone users monitored over 17 years found there was no increase in cancer risk compared with non-cell-phone users. In the U.S., both the Food and Drug Administration and the FCC have found no evidence of a link. Fears of a connection persist, however, the story reported, despite the fact that cancer rates have not increased since cell phones were introduced.

Ham Radio Satellite Milestones

This month marks the 50th anniversary of the launch of OSCAR-1, the first amateur radio satellite and the first non-government satellite ever placed in orbit. (See N6CL's "VHF-Plus" column on page 74 of this issue for a look back.) In addition, October marked the 30th anniversary of the launch of UoSAT-1 (UO-9), built by the University of Surrey in England. According to the AMSAT News Service, UO-9 was the first amateur satellite to carry an on-board computer, to have battery and attitude management capabilities, a CCD camera, and other features that became the foundation for amateur satellite technology in future years.

DXCC Offers Special Update Procedure for ST0R QSLs

With paper QSL cards from the ST0R DXpedition to South Sudan just beginning to arrive in DXers' mailboxes in mid-October, the ARRL is offering DXCC members a special one-time deal to update their country totals—with the ST0R card **only**—before the update deadline on December 31. The offer is only good for those hams who have already made at least one submission to DXCC during 2011. Complete details can be found at <http://bit.ly/tZ2qRJ>.

U.S. Postal Rates Increasing on January 22

The cost of a first-class stamp will increase by a penny, to 45 cents, as of January 22, 2012. Rates to Canada and Mexico are increasing a nickel to 85 cents and other international destinations will be \$1.05, an increase of seven cents, according to the U.S. Postal Service. In addition, the cost of mailing a postcard will go up three cents to 32 cents. That's the second postcard rate increase in less than a year.

Dayton's 2012 Theme: "Internationally Connected"

Planners of the Dayton Hamvention® have chosen "Internationally Connected" as the show's theme for 2012. According to the Dayton Amateur Radio Association, which sponsors the three-day event each May, this year's choice was made to recognize the many hams who travel to Dayton from all over the world and to acknowledge "the important role that ham radio plays in promoting international goodwill." DARA has set up a new committee specifically to work with foreign guests. The 2012 Hamvention will be held from May 18–20. The show brings about 20,000 people a year to the Dayton area and generates some \$10 million in revenue for the region.

(Continued on p. 10)

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.



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Seasons Greetings!

To Our Friends and Customers:

Each year during the holiday season, we take great pleasure in setting aside our regular work and sending a heartfelt message to all our best friends and customers.


How joyful we are that this time has come again to extend to you our sincere gratitude, because it is good friends and customers like you that make our business possible.

May your holiday be filled with joy and the coming year be overflowing with all the good things in life.

On behalf of everyone at FlexRadio Systems, we hope you have a wonderful holiday season and we look forward to serving you in 2012.

*- Gerald Youngblood, K5SDR
President & CEO*

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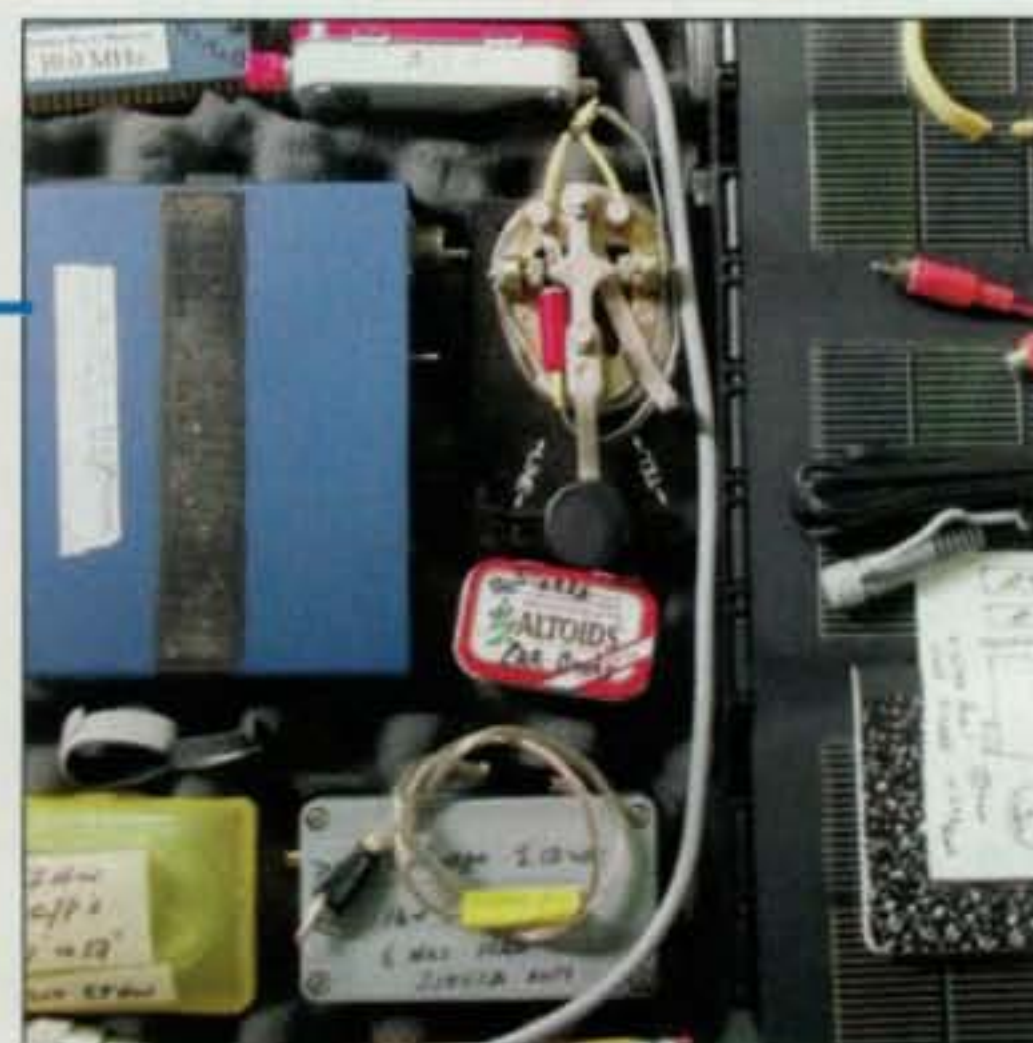
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“... On the Thin Ice of a New Day”

It is a new day here at CQ, as we begin rolling out digital editions of all of our magazines. By the time you read this—the second issue of CQ available in digital form—we will have finished up the third issue and will be starting to work on the fourth. But as I am writing this in October, we are still about a week and a half away from seeing the first digital issue “live” online. As a result, I find myself caught up in the title of Jethro Tull’s classic ’70s song, “Skating Away on the Thin Ice of a New Day.”¹

The new day stretches out in front of us, with all the potential that comes along with launching something totally new, and we skate out to meet it. But we know there are likely to be spots of thin ice along the way, although we don’t know yet what or where they’ll be. So it’s very exciting, but a little scary at the same time. Likewise, many of you have responded positively to the news, but a few have expressed concerns as well.

No Changes in Print

The main concern we’ve heard from readers is that we will be taking something away from print subscribers and/or the print edition. We will not. The content of both editions will be identical. Yes, we need to have a separate subscription for the digital edition because of the considerable costs involved in producing and distributing it, but we will always recognize the support of our print subscribers by offering substantial discounts for combined print and digital subscriptions.

Here are some details about the digital edition and digital subscriptions that were not available when the November issue went to press (the final pieces of the puzzle fell into place too late in the production cycle for us to write more than just a little blurb about it at the time):

- We have contracted with Zinio², one of the largest and best-known digital magazine distributors, to be our host. Some of the other nearly 5,000 magazines hosted by the company include *Car & Driver*, *Consumer Reports*, *Discover*, *Good Housekeeping*, *National Geographic*, *Road & Track*, *Smithsonian*, and *Wired*, so we’re in pretty good company. In September, Zinio was honored by the Internet Marketing Association as the web’s “Best Global App.”

- Having a company such as Zinio as our host means that as Internet publishing technology evolves, our ability to keep up with changes will be assured.

- Digital subscribers will be able to read our magazines on up to three separate devices, so you can have a copy on your laptop, your tablet and even your smartphone (supported platforms include PC, Mac, iPad/iPhone, and Android).

- There will be no surcharges for international subscribers (currently, the cost of shipping magazines overseas adds 67 percent to the regular subscription price for foreign subscribers).

- There will be no mail delays. Postal delivery delays are a growing problem for publishers of magazines and catalogs nationwide, and are being addressed by publishers’ groups with postal officials at the highest levels. Mail to international destinations has always been a challenge. Our digital editions do not rely on the postal service and should be available for viewing or downloading on schedule each month.

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

- Digital subscribers will get an e-mail reminding them when each new issue is available.

- If you want to try out the digital edition without committing to a subscription just yet, Zinio also makes single issues available for purchase.

- You will be noticing more Internet addresses (hyperlinks) in our articles. This is our effort to provide easy links for digital readers to click on while making sure that print readers have access to the same material by typing the addresses into their Web browsers.

- Zinio will maintain a personal library of back issues for digital subscribers, providing for anytime-access to past issues. This means no more need for stacks of old magazines taking up space in your attic or basement, and no need to cart them to hamfests to sell for a quarter apiece when you-know-who gets tired of all that “clutter.” If you save your back issues, a combo subscription could be worthwhile almost for the freed-up storage space alone! (Ask your spouse how much that added space will be worth!)

There are other details we don’t know yet, and which we’ll learn as time goes by, questions come up and we find out the answers. This is a learning experience for all of us, so please be patient if you have a question we cannot immediately answer.

Tell Us How We’re Doing

We look forward to your feedback on our digital editions, to your suggestions on how we can make them even better and on how we can best take advantage of the unique opportunities that the online environment offers. We’ve already gotten some excellent suggestions from readers, and look forward to learning more together.

In this issue, “Digital Connections” editor Don Rotolo, N2IRZ, has a user’s guide to the Zinio reader software on page 13. I recommend it to all, even if it’s just to see if the digital edition will be right for you. We welcome you to join us on this journey across “the thin ice of a new day” and hope you will continue to be our partners in producing the best possible ham radio magazine in any medium.

73 to KB1OGL and Season’s Greetings to All

This month’s “Kids’ Korner” column (p. 60) is the final one by Brittany Decker, KB1OGL. Brittany began writing this column three years ago, when she was 14. Now, at 17 and a senior in high school, college applications, auditions (she’s planning to be a music major) and other activities are leaving her with too little time to continue as a columnist. It has been a pleasure to work with Brittany and to watch the growth in her writing. I am sure that ham radio will continue to be an important part of Brittany’s life, and that Brittany will continue to be a leader in our hobby. We thank her for her contributions and wish her all the best.

And speaking of wishes, we wish all of you the very best of holiday seasons, whether you celebrate Christmas, Hanukkah, or another winter holiday. May our homes and our lives be brightened by the lights of this holiday season.

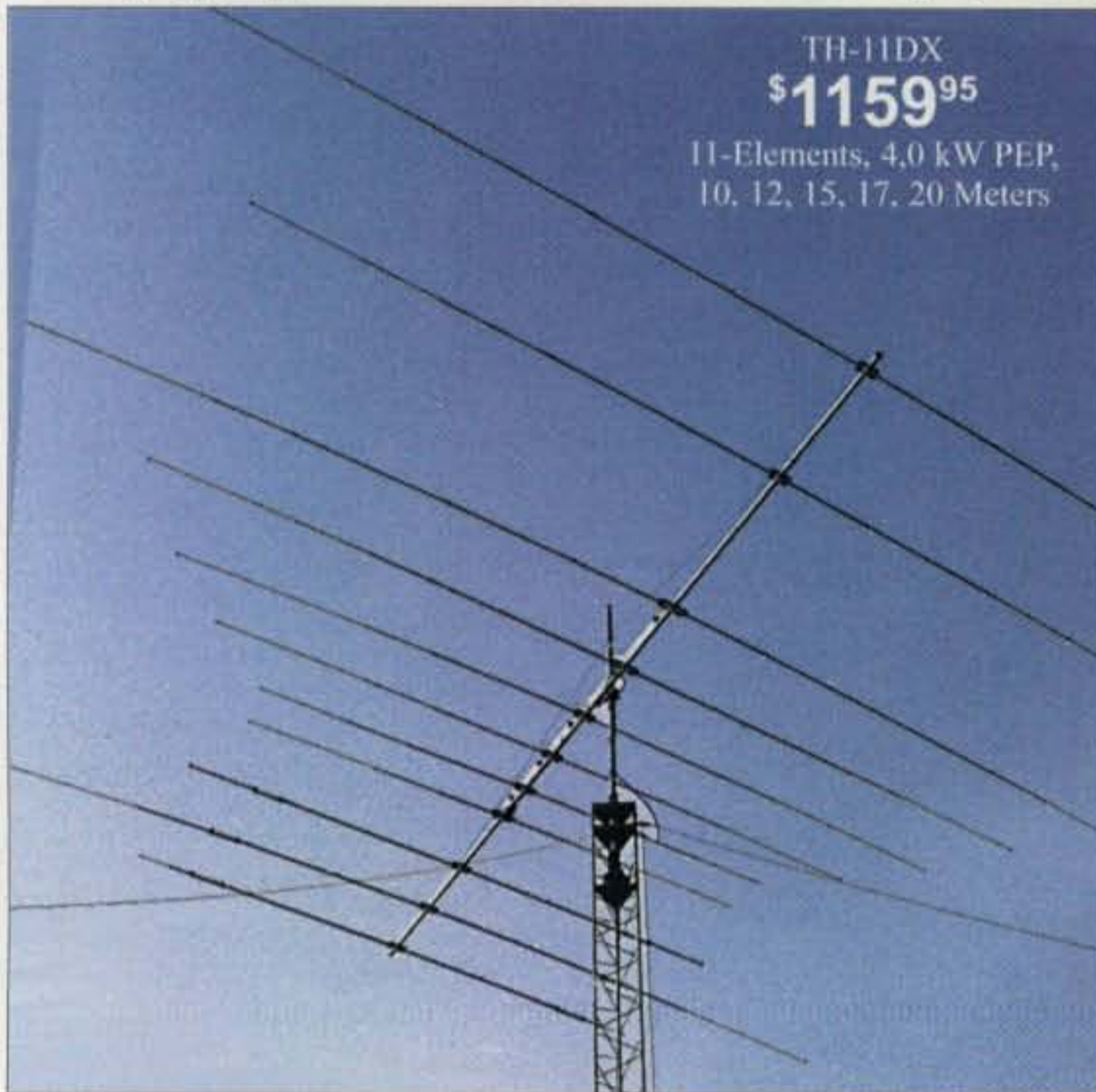
73, W2VU

Notes

1. Watch Jethro Tull performing “Skating Away...” at <<http://bit.ly/qNHnOO>>.
2. <<http://www.zinio.com>>

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10, 12, 15, 17, 20 Meters

TH-11DX, \$1159.95. 11-element, 4.0 kW PEP, 10,12,15,17,20M

The choice of top DXers. With 11-elements, excellent gain and 5-bands, the super rugged TH-11DX is the "Big Daddy" of all HF beams! Handles 2000 Watts continuous, 4000 Watts PEP. Every part is selected for durability and ruggedness for years of trouble-free service.

TH-7DX, \$869.95. 7-element, 1.5 kW PEP, 10,15,20 Meters

7-Elements gives you the highest average gain of any Hy-Gain tri-bander! Dual driven for broadband operation without compromising gain. SWR less than 2:1 on all bands. Uniquely combining monoband

Features a low loss log-periodic driven array on all bands with monoband reflectors, BN-4000 high power balun, corrosion resistant wire boom support, hot dipped galvanized and stainless steel parts. Stainless steel hardware and clamps are used on all electrical connections.

and trapped parasitic elements give you an excellent F/B ratio. Includes Hy-Gain's diecast aluminum, rugged boom-to-mast clamp, heavy gauge element-to-boom brackets, BN-86 balun. For high power, upgrade to BN-4000.

TH-5MK2, \$759.95. 5-element, 1.5 kW PEP, 10,15,20 Meters

The broadband five element TH5-MK2 gives you outstanding gain. Separate air dielectric Hy-Q traps let you adjust for maxi-

TH-3MK4, \$469.95. 3-element, 1.5 kW PEP, 10,15,20 Meters

The super popular TH-3MK4 gives you the most gain for your money in a full-power, full-size durable Hy-Gain tri-bander! You get an impressive average gain and a whopping average front-to-back ratio. Handles a full 1500 Watts PEP. 95 MPH wind survival. Fits on average size lot with

TH-2MK3, \$369.95. 2-element, 1.5 kW PEP, 10,15,20 Meters

The 2-element TH-2MK3 is Hy-Gain's most economical full power (1.5kW PEP) full size tri-bander. For just \$339.95 you can greatly increase your effective radiated power and hear far better!

EXP-14, \$599.95. 4-element, 1.5 kW PEP, 10,15,20 Meters

Revolutionary 4-element compact tri-bander lets you add 40 or 30 Meters! Has 14 foot boom and tight 17.25 feet turning radius. Fits on roof tri-pod, mast or medium duty tower. Hy-Gain's patented broadbanding Para Sleeve gives you

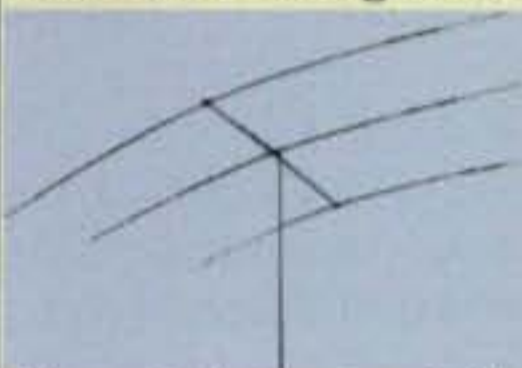
room to spare -- turning radius is just 15.3 feet. Four piece boom is ideal for DXpeditions. Rotates with CD-45II or HAM-IV rotator. Features Hy-Gain BetaMatch™ for DC ground, full power Hy-Q™ traps, rugged boom-to-mast bracket and mounts on standard 2"O.D. mast. Stainless steel hardware. BN-86 balun recommended.

Ruggedly constructed, top-performing, compact 6 foot boom, tight 14.3 foot turning radius. Installs almost anywhere. Rotate with CD-45II or HAM-IV. BN-86 balun recommended.

less than 2:1 VSWR. 1.5kW PEP. BetaMATCH™ provides DC ground to eliminate static. Includes BN-86 balun. Easily assembled. Truly competitive against giant tri-banders at half the cost! QK-710, \$179.95. 30/40 Meter option kit for EXP-14.

Compact 3-element 10, 15, 20 Meter Tri-Bander

For limited space... Installs anywhere... 14.75 ft turning radius... weighs 21 lbs... Rotate with CD-45II, HAM-IV



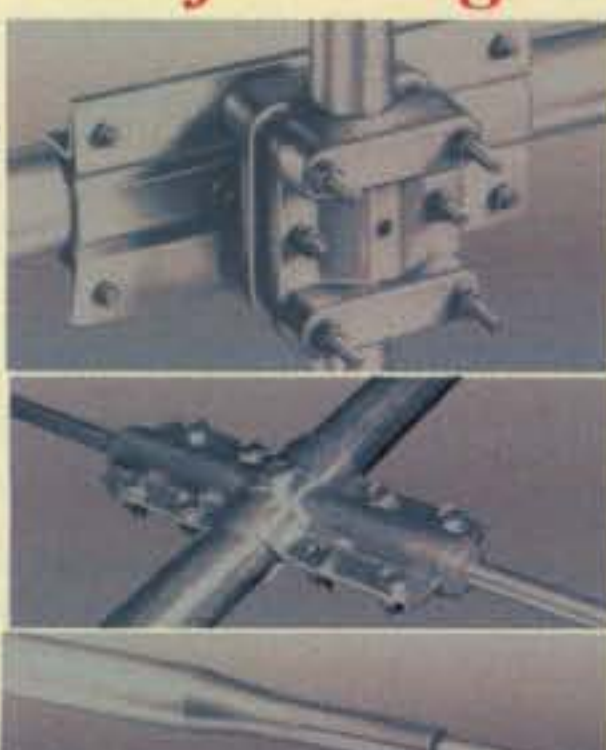
Fits on light tower, suitable guyed TV pole, roof tri-pod

TH-3JRS, \$359.95. Hy-Gain's most popular 3-element 10, 15, 20 Meter tri-bander fits on most lots! Same top performance as the full power TH3MK4 in a compact 600 watt PEP design. Excellent gain and F/B ratio let you compete with the "big guns". Tooled manufacturing gives you Hy-Gain durability with 80 MPH wind survival.

Model No.	No. of elements	avg gain dBd	avg F/B dB	MaxPwr watts PEP	Bands Covered	Wind sq.ft. area	Wind Survival (mph)	boom feet	Longest Elem. (ft)	Turning radius(ft)	Weight (lbs.)	Mast dia O.D.(in.)	Recom. Rotator	Sugg. Retail
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		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	Hy-Gain catalog		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
EXP-14	4	800-973-6572		1500	10,15,20 <small>10/15/20</small>	7.5	100	14	31.5	17.25	45	1.9-2.5	HAM IV	\$599.95

Tooled Manufacturing... Highest Quality Materials

- Hy-Gain's famous super strong tooled die cast Boom-to-Mast Clamp
- Tooled Boom-to-Element Clamp
- Thick-wall swaged aluminum tubing



Tooled manufacturing is the difference between Hy-Gain antennas and the others -- they just don't have it (it's expensive!). Die-cast aluminum boom-to-mast bracket and element-to-boom compression clamps are made with specially tooled machinery. Hy-Gain antennas feature tooled swaged tubing that is easily and securely clamped in place. All tubing is deburred and cleaned for smooth and easy assembly. Durable precision injection molded parts. Hy-Gain antennas are stronger, lighter, have less wind surface area, better wind survival, need no adjustments, look professional and last years longer.

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The following Special Event stations are scheduled for December:

WX3MAS, from Nazareth and Bethlehem, Pennsylvania, to celebrate the holidays from the twin Christmas Cities of Nazareth and Bethlehem; the Christmas City Amateur Radio Club and the Delaware/Lehigh Amateur Radio Club; December 10 and 11 from 1400 UTC to 0200 UTC. The station will be on 28.465, 21.365, 14.265, 7.270, and 3.850 MHz. Depending on conditions, it will also operate on PSK-31 on 20 and 40 meters, and 10 and 15 meters if band conditions permit. For colorful commemorative certificate send QSL and 9x12 SASE to Christmas Coty Amateur radio Club, RR 8, Greystone Bldg., Nazareth, PA 18064-9211.

WD4WDW, from Orlando, Florida, to commemorate the 110th birthday of Walt Disney from Disney World; DEARS (Disney Emergency Amateur Radio Service); December 10 from 1000 UTC to 2200 UTC on 14.260, 7.260, and 28.360 MHz. For an 8x10 certificate, send an SASE to DEARS, PO Box 22346, Orlando, FL 32830. Website: <<http://www.wd4wdw.org>>.

These hamfests are slated for December:

MESA, ARIZONA: The Superstition Amateur Radio Club will host the **Superstition Hamfest** on Saturday, December 3 from 5:30 AM to 2 PM at the Mesa Community College south parking lots, just north of US 60 Freeway on Dobson Road, Exit 177. Activities include VE Testing from 9 to 11 AM, an ARCA meeting at 11 AM, main prize drawing at 12:30 PM, and food and refreshments. Contact: <http://wb7tjd.org/wiki/Our_Contact_Page>.

TAMPA BAY, FLORIDA: The **36th Annual Tampa Bay Hamfest** will be held at the Manatee Civic Center, US-301 and Haben Blvd., Palmetto on December 3 and 4. Sponsored by the Florida Gulf Coast Amateur Radio Council. Doors open at 8 AM on Saturday and Sunday. Activities include VE exams and card checking plus a flea market. Website: <<http://www.tampabayhamfest.org>>. Talk in 145.430 (PL 100).

Please submit hamfest and special event announcements at least three months in advance by e-mail to <hamfest@cq-amateur-radio.com> or <specialevent@cq-amateur-radio.com>, or by postal mail to: CQ Magazine, Attn: Hamfests (or Special Events), 25 Newbridge Rd., Hicksville, NY 11801.

Ham Radio News (from p. 2)

Ham Band at 500 kHz a Step Closer

An international amateur radio allocation around 500 kHz moved a step closer to fruition in late September, as a key committee of the Council of European Post and Telecommunications authorities (CEPT) approved a draft proposal for a secondary amateur allocation between 472 and 480 kHz. According to the Southgate Amateur Radio Club's website, the approval means that the 48 member countries of CEPT will back the proposal, which was drafted by the Radio Society of Great Britain. Ham groups are still hoping for a 15-kHz-wide allocation, but feel this agreement is a good start.

Meanwhile, another CEPT committee recommended that member countries work to establish a uniform set of guidelines for administering amateur radio license exams to people with disabilities.

KA3HDO Retires From NASA

Frank Bauer, KA3HDO, a key player in getting amateur radio aboard the International Space Station, has retired from NASA after a 36-year career with the space agency. His final post was as Chief Engineer of the Exploration Systems Mission Directorate at NASA headquarters. Over the years, he worked on a variety of human and robotic space missions as well as many other programs and experiments. He was also AMSAT's Vice President for Human Spaceflight Programs from 1991 to 2009, and served as ARISS (Amateur Radio on the International Space Station) Program Leader and Chair of the ARISS International Working Group.

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A publication of



CQ Communications, Inc.
25 Newbridge Road
Hicksville, NY 11801 USA.

CQ Amateur Radio (ISSN 0007-893X) Volume 67, No. 12. Published monthly by CQ Communications, Inc., 25 Newbridge Rd., Hicksville, NY 11801, Telephone 516-681-2922. Periodical postage paid at Hicksville, NY 11801 and additional offices. Statement of Ownership, Management and Circulation, October 18, 2011. CQ Amateur Radio, 25 Newbridge Road, Hicksville, NY 11801. Publication #0007-893X. Issued monthly, subscription price \$36.95 per year (12 issues). Publisher: Richard A. Ross; Editor: Richard S. Moseson; owned by CQ Communications, Inc. Stockholders: Richard A. Ross. Circulation (Average of Preceding 12 Months): Net Press Run 38,881, Mail Subscriptions 22,968 Sales Through Dealers and News Agents 7,032, Other Classes Mailed 252, Total Paid 30,252 Free Distribution 215, Total Distribution 30,467, Copies Not Distributed 8,414, Total 38,881. Circulation (single issue nearest filing date): 36,550, Mail Subscriptions 22,461, Sales Through Dealers and News Agents 7,351 Other Classes Mailed 217, Total Paid 30,029, Free Distribution 203, Total Distribution 30,232, Copies Not Distributed 6,318, Total 36,550 s/Dorothy Kehrwieler, Business Manager. Entire contents copyrighted 2011 by CQ Communications, Inc.

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MFJ All-Band G5RV Antennas

Operate all bands through 10 Meters, even 160 Meters, with a single wire antenna!



MFJ-1778 The famous G5RV antenna is the most popular ham radio antenna in the world! You hear strong signals from G5RVs day and night, 24/7.

And it's no wonder... it's an efficient, all band antenna that's only 102 feet long - shorter than an 80 Meter dipole. Has 32.5 foot ladder line matching section ending in

SO-239 connector for your coax feedline. Use as Inverted Vee or Sloper, and it's even more compact and needs just one support.

With an antenna tuner, you can operate all bands 80 Meters through 10 Meters and even 160 Meters with an antenna tuner and a ground.

MFJ's fully assembled G5RV handles 1500 Watts. *Hang and Play™* -- add coax, some rope to hang and you're on the air!

MFJ-1778M, \$39.95. Half-size, 52 foot G5RV JUNIOR covers 40-10 Meters with tuner. Handles full 1500 Watts.

MFJ All Band Doublet

MFJ-1777 is a 102 foot all band doublet antenna that covers 160 through 6 Meters with a balanced line tuner. Super strong custom fiberglass center insulator provides stress relief for ladder line (100 ft. included). Authentic glazed ceramic end insulators. Handles full 1500 Watts.



MFJ-1777
\$59.95

MFJ Dual Band 80/40 or 40/20M Dipoles



MFJ-17758
\$89.95
80/40 Meters

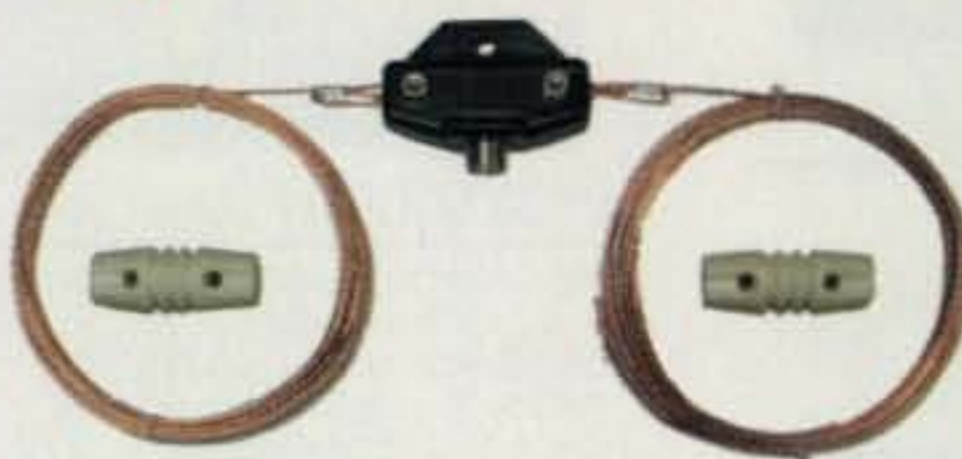
MFJ-17758 is a short 85 foot long dual band 80/40 Meter dipole antenna. It's full-size on 40 Meters and has ultra-efficient end-loading on 80 Meters. Handles full 1500 Watts. Super-strong injection-molded center insulator with built-in SO-239 connector and hang hole. Solderless, crimped construction. 7-strand, #14 gauge hard copper wire. Connect your coax feedline directly, no tuner needed.

MFJ-17754, \$59.95. Short coax fed 42

foot long dual band 40/20 Meter dipole antenna. Full-size on 20 Meters, ultra-efficient end-loading on 40 Meters. Same construction as MFJ-17758.

MFJ Single Band Dipole Antennas

Ultra high quality center fed dipoles will give you trouble-free operation for years. Custom injection-molded UV-resistant center insulator has built-in coax connector and hanging hole. Heavy duty 7-strand, 14-gauge hard copper antenna wire. Extremely strong solderless crimped construction. Authentic glazed ceramic end insulators. Use as horizontal or sloping dipole or inverted vee. Handles full 1500 Watts. Simply cut to length for your favorite frequency with cutting chart provided.



MFJ-1779A \$69.95 160M, 265 ft.
MFJ-1779B \$49.95 80-40M, 135 ft.
MFJ-1779C \$29.95 20-6M, 35 ft.

Antenna Switches



MFJ-1704 heavy duty 4-Positions antenna switch lets you select 4 antennas or ground them for static

and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection. Good to 500 MHz. 60 dB isolation at 30 MHz. 2.5 kW PEP. Less than .2 dB insertion loss, SWR below 1.2:1. SO-239 connectors. Handy mounting holes. 6 1/4"W x 4 1/2"H x 1 1/2"D in.



MFJ-1702C Like MFJ-1704, but for 2-Positions antennas. 3W x 2H x 2D"



MFJ-1700C Antenna/Transceiver Switch lets you select one of six antennas and one of six transceivers in any combination. Plug in an antenna tuner or SWR wattmeter and it's always

in-line for any antenna/transceiver combination. Has lightning surge protection. Handles 2 kW PEP SSB, 1 kW CW, 50-75 Ohm loads. Unused terminals are automatically grounded. 1.8 to 30 MHz. SO-239 connectors. 4 1/4"W x 6 1/2"H x 3D inches.



MFJ-1701 Antenna Switch like MFJ-1700C but lets you select one of six antennas only. 10W x 3H x 1 1/2"D inches.

33 ft. Telescoping fiberglass Mast

3.8 feet collapsed, 3.3 lbs.

MFJ-1910 Super strong fiberglass mast has huge 1 3/4 inch bottom section. Flexes to resist breaking. Resists UV. Put up full size inverted Vee dipole/vertical antenna in minutes and get full size performance!

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True 1:1 Current Balun & Center Insulator



MFJ-918 True 1:1 Current Balun/Center Insulator

forces equal antenna currents in dipoles for superior performance. Reduces coax feedline radiation and field

pattern distortion -- your signal goes where you want it. Reduces TVI, RFI and RF hot spots in your shack. Don't build a dipole without one! 50 hi-permeability ferrite beads on high quality RG-303 Teflon® coax and Teflon® coax connector. Handles full 1.5kW 1.8-30 MHz. Stainless steel hardware with direct 14 gauge stranded copper wire connection to antenna. 5x2 inches. Heavy duty weather housing.

RF Isolator



MFJ-915 RF Isolator

prevents unwanted RF from traveling on the outside of your coax shield into your transceiver. This unwanted stray RF can cause painful RF

"bites" when you touch your microphone or volume control, cause your display or settings to go crazy, lock up your transceiver or turn off your power supply. In mobile installations, stray RF could cause your car to do funny things even blow your car computer. Clear up these problems, plug an MFJ-915 between your antenna and transceiver. 5x2 in. Handles full 1500 Watts. Covers 1.8-30 MHz.

MFJ-919, \$59.95. 4:1 current balun, 1.5 kW.
MFJ-913, \$29.95. 4:1 balun, 300 Watts.

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Dipoles, G5RV, Random Wire, Doublets, Beverage Antennas, etc.

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MFJ-16B01, \$19.95. Custom injection-molded UV-resistant center insulator has built-in coax connector and hanging hole.

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MFJ-58100X, \$49.95. 100 ft. 50-Ohm

RG-8X with PL-259s on each end.

MFJ-18H100, \$34.95. 100 feet, 450 Ohm ladder line, 18 gauge copper covered steel.

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Ultra-fast gas discharge tube shunts 5000 amps peak. Less than 0.1 dB loss. Up to 1000 MHz. SO-239s. **MFJ-270, \$29.95.**

400W PEP. **MFJ-272, \$39.95.** 1500W PEP.

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

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- Single and Dual Rack Mount available
- New "Power Master Basic" Software - Free!

4X8-Pak: Four Radio, 8 Antenna Switch System

NEW!

- The heart of your multiple (up to 4) radio system
- Switches up to 8 antennas to 2,3, or 4 radios
- Zero risk of connecting radios together
- Perfect for competitive Multi-Single, Multi-Two, or Small Multi-Multi Contest Stations
- For DXers or collectors with 3 or more operating positions, you can now connect any of 8 antennas to up to 4 of your stations without rewiring or moving coax cables.
- High isolation between all ports
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Stack two yagis on any HF band or 6m and take advantage of high or low angle propagation with upper/lower/BIP/BOP* without any phasing lines!



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- Frequency range from 5 kHz to 1 GHz.
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- AIM 4170C is still in production covering 5kHz to 180 MHz.



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Bandmaster III Universal Band Decoder

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ACOM 800S Solid State Amplifier
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The information shown is preliminary and may be subject to change without notice or obligation.



Bird Wattmeter Digital Display Conversion Kits

Upgrade for your Bird analog watt meter that will transform your Model 43 into a state of the art digital meter!

AS-43A Average Power Reading Bird Wattmeter Kit Digital meter kit

AS-43P Peak Power Reading Bird Wattmeter Kit Digital meter kit.

The accuracy is the same as the original analog meter but the meter is much easier to read.

Vector Network Analyzer Model VNA 2180

Measures impedance magnitude, phase and transmission parameters for antennas, filters, and discrete components - using one or two ports.

- Frequency range is 5KHz to 180MHz.
- Data plots include: impedance, SWR, return loss, S11 and S21.
- Plots can be saved for before and after comparisons.



AIM 4170C Antenna Lab RF Analyzer

The AIM 4170C antenna analyzer measures the complex impedance (magnitude and phase) at each frequency of interest in the range of 5KHz to 180 MHz. A PC is used to calculate all RF parameters, including R +/-X, Magnitude and Phase, SWR, Return Loss, line loss, and more and plot the results in an easy to read graph and interactive Smith Chart.



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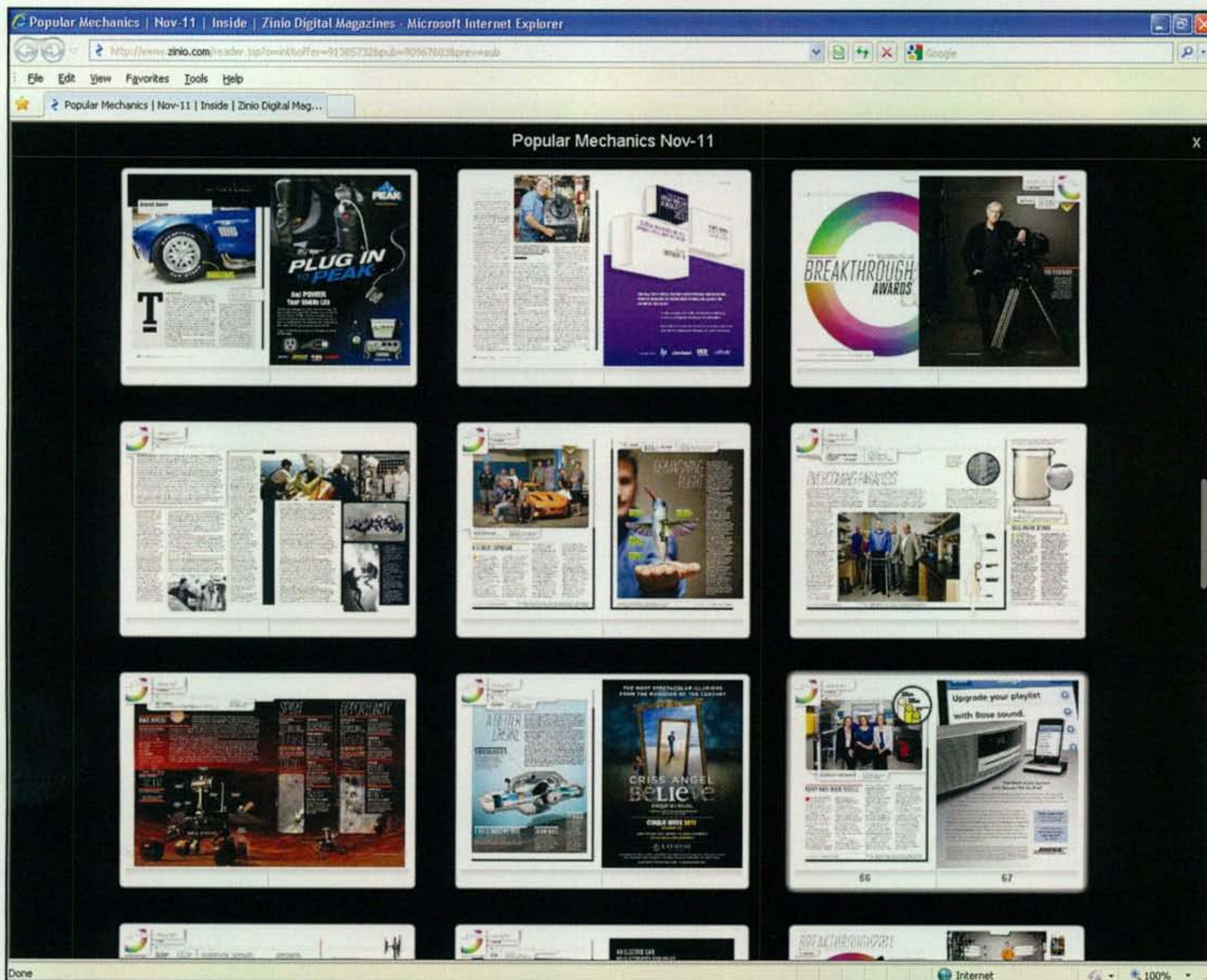


Fig. 2— The thumbnail view of a sample magazine at <www.zinio.com>, a nice feature for quick navigation.

how is what you're reading online any different from that paper magazine your friendly postal worker delivered? The short answer is "a lot."

Electronic media opens up a whole



Fig. 3— A "QR" Code is the paper version of a clickable hyperlink. Use your smart phone and an appropriate app (there are several, mostly free) to follow this link to a .WAV file of some PSK31 audio.

new world in the way that content can be delivered. For us *CQ* columnists, it means we have to adjust to a new way of thinking: Forget the flat world of paper, because the whole rich multimedia experience available on the internet is now ours to use.

As an example, let's say I was writing about the Arduino again and wanted to share some program for controlling an antenna rotator that I had written. In the past, I'd either put the actual lines of code into print, relying on you to retype them (accurately!) into your Arduino compiler, or maybe put them onto a web site somewhere and send you there to download a file. Well, for the print edition, I'd still have to do that—and will—but in the electronic version, any link to a file on a website may be accessed with a simple click.

Or let's say I want to show you a special adjustment technique for your 9600-baud packet modem. In the past

I'd need to rely on words and photographs to tell the story, but now I can produce a short video and embed it into the electronic version, along with a link for our print readers. They say a picture is worth a thousand words, but what's a video worth?

And that doesn't even get into our new ability to insert even higher-resolution images for when the detail is important. Or how we can link to just about any kind of file, such as sound or animation. For example, want to hear what PSK31 should sound like? One click. (Want to really hear what PSK31 sounds like? Go to <<http://bit.ly/pXW9IG>>. If you're reading this on paper and have a smartphone with QR software installed, try scanning the QR code in fig. 3 instead.)

As for the details—what it costs, where to subscribe, where to view issues—I'll refer you to the *CQ* website <<http://www.cq-amateur-radio.com>> and/or ads elsewhere in this issue. As

of this writing, online subscriptions were available for both print subscribers (at a discount) and online-only subscribers. Go check it out.

At the moment, I (and I am sure many of my fellow columnists are in the same boat) am not quite sure what to do with this newfound ability. Should I start producing videos? Sound files? Load up the column with hyperlinks? After writing since the last century for a flat, familiar, and ancient medium, it will take a few months (at least) to figure out what works and what doesn't. I'm confident that our editorial staff will help guide all of us as we move into the 21st century, but the folks I really want to hear from are you, my readers and customers.

So just this once, start up your e-mail program—or put a stamp on an envelope—and please let me know what you're thinking. This time it's more important than ever, as we shape a new-old magazine into something really spectacular. Print edition readers: Rest assured you won't be left behind. All links will be spelled out in each issue so you won't miss out on the action.

As is my custom this time of year, when we're all feeling good about home, family, and peace, I wish you and yours all the peace of the season and all year round. Vy 73, Don, N2IRZ

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You always seem to throw my SWR off.

2012 CQ calendar

15 months of value January 2012 through March 2013

For over a decade CQ has been bringing you The CQ Amateur Radio Operators calendar. This year's calendar is better than ever! Fifteen spectacular color images of some of the biggest, most photogenic shacks, antennas, scenics and personalities from across the country!

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NEW



SteppIR website. At SteppIR, we benefit greatly from many customers that simply want to help us get better. Brian Moran N9ADG spent a considerable amount of time helping us create a new website, which will be a continually growing and evolving means of communication with our customers.



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SINGLE OPERATOR	
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K3ZM.....	1,167,676
W4AN.....	1,059,696
K8PO.....	986,668
K1DG.....	899,795
W4ZV.....	828,160

VE	
VY2ZM.....	2,124,754
VE3JM.....	971,388
VE3AT.....	912,340
VA2EW.....	910,112
*VE3NE.....	590,314

Zone 3	
W7RN.....	339,360
VE7CC.....	319,718
AC6DD.....	295,500
*N7IR.....	183,855
WA7LT.....	160,725

QRP	
C4M.....	304,773
S50XX.....	173,280
OK1FKD.....	144,480
OK1WF.....	142,830
N8VW.....	129,558

DX	
EF8M.....	2,627,796
CR2X.....	2,096,145
4O3A.....	1,481,964
M6T.....	1,430,415
T70A.....	1,305,316

LOW POWER WORLD	
VE3NE.....	590,314
OH1VR/VP9.....	530,250
S57DX.....	448,528
SN2I.....	412,467
EI/W5GN.....	401,280

LOW POWER W/VE	
VE3NE.....	590,314
VE1ZA.....	352,308
K9AY.....	259,346
W0UO.....	250,716
K1EP.....	232,750

QRP W/VE	
N8VW.....	129,558
N0TT.....	109,917
VE3MGY.....	92,300
K0KT.....	78,029
W8GP.....	77,400

MULTI-OPERATOR WORLD	
P33W.....	2,116,829
UA2FW.....	1,894,752
PJ2T.....	1,865,025
ES9C.....	1,650,816
MD4K.....	1,641,299

MULTI-OPERATOR W/VE	
K1LZ.....	1,188,256
W2GD.....	1,075,125
KC1XX.....	921,264
K9RS.....	795,694

ASSISTED WORLD	
CS2C.....	1,431,878
ER4A.....	1,256,101
SN7Q.....	1,212,657
UT5M.....	1,024,506
DL1AUZ.....	1,024,240

ASSISTED W/VE	
K3WW.....	668,147
VE3RZ.....	666,216
NQ4I.....	648,192
KV0Q.....	465,894
VA3DX.....	433,115

SSB	
SINGLE OPERATOR	
USA	
N4PN.....	620,535
K3ZM.....	587,760
KK1KW.....	539,297
K8PO.....	496,221
K1UO.....	416,142

VE	
VE3PN.....	357,136
*VE3NE.....	355,901
*VE3MGY.....	150,212
VE3CX.....	116,964
VA3CCO.....	81,588

Zone 3	
W6YI.....	132,057
KG7H.....	92,040
VA7FC.....	78,948
WA7LT.....	75,048
N7AU.....	56,056

QRP	
SP2DNI.....	42,599
YO8SSB.....	36,818
S59D.....	30,573
RA4FWA.....	28,665
RN3ZJJ.....	27,436

DX	
CT3DL.....	571,539
CR2X.....	568,052
D4C.....	522,060
ES5RW.....	496,132
4O3A.....	477,295

LOW POWER WORLD	
VE3NE.....	355,901
KP4KE.....	353,979
S57DX.....	222,148
HA8BE.....	205,310
SP9AQF.....	173,910

LOW POWER W/VE	
VE3NE.....	355,901
VE3MGY.....	150,212
W4LJM.....	93,709
N2FI.....	92,190
WA2JQK.....	75,050

QRP W/VE	
K5RX.....	24,186
VA3YT.....	20,988
W0MRZ.....	15,364
VA3WR.....	10,571
KG4IGC.....	9,102

MULTI-OPERATOR WORLD	
CN2A.....	1,484,000
EI7M.....	763,025
UA2FW.....	749,428
P33W.....	738,267
S51V.....	696,520

MULTI-OPERATOR W/VE	
K1LZ.....	683,776
N2CW.....	471,295
NQ4I.....	412,960
ND8DX.....	360,397
NF8J.....	239,785

ASSISTED WORLD	
E77DX.....	720,935
UU7J.....	589,169
ER4A.....	518,784
RW2F.....	501,030
UP2L.....	359,104

ASSISTED W/VE	
W2MF.....	298,207
N8TR.....	244,600
VE3MMQ.....	229,190
N4RV.....	220,503
VA3DX.....	220,371

*Low Power

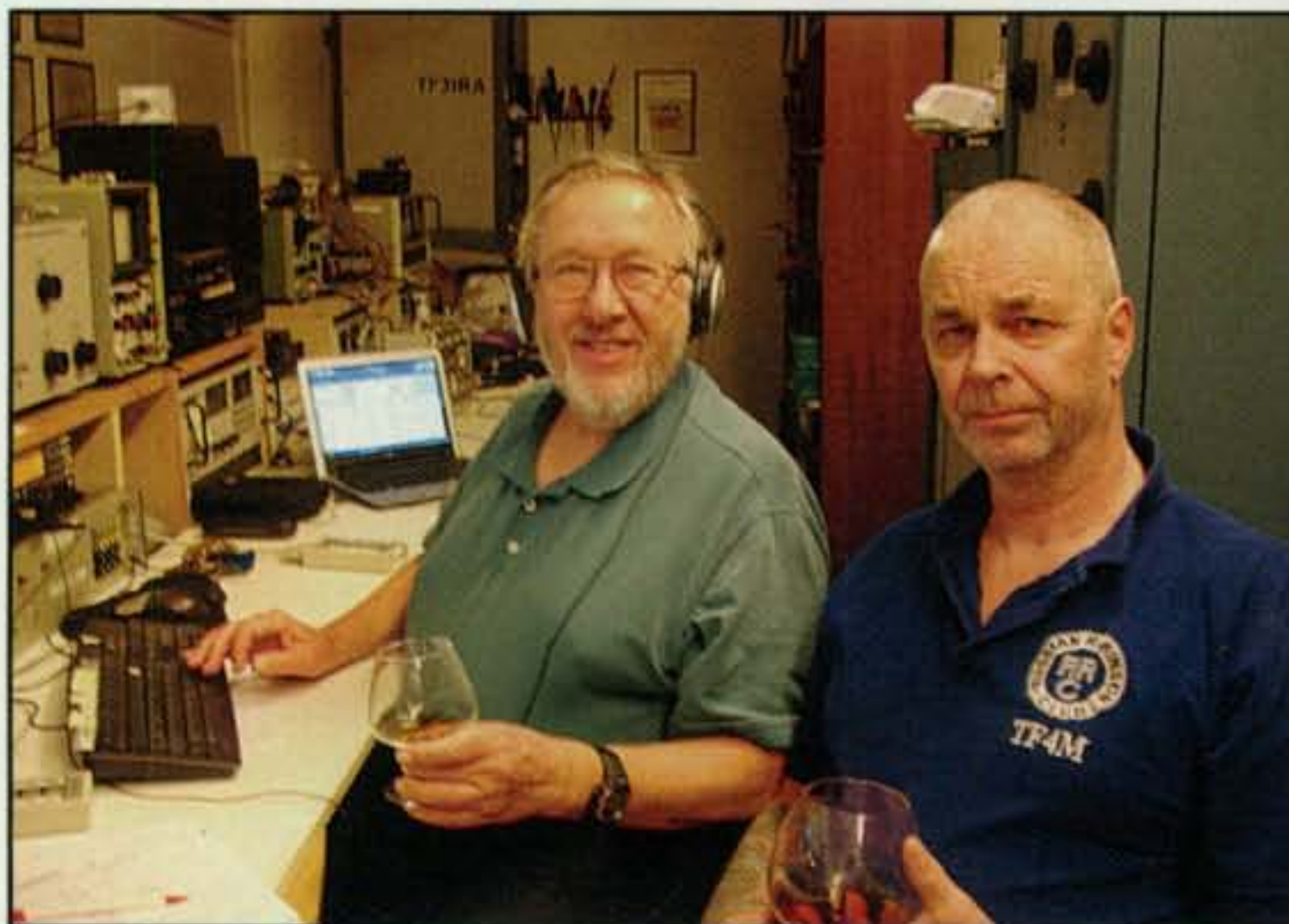
many polite stations who apologize when asking for repeats of my mediocre signal . . . a true gentle person's band!"

There were 1183 logs submitted for 2011. The most popular category was Single Op Low Power with 457 entries, although the conditions were quite challenging for a low power station.

It doesn't happen often, but the top world Single Op score was made by a USA station this time. Paul, N4PN, operated from Tom, W8JI's station to the tune of 620K, edging out K3ZM and newcomer

KK1KW. Paul's score topped DX winner CT3DL, who used the zone 33 advantage to take top DX honors. Martti, OH2BH, was in second from CR2X, followed by D4C operated by IZ4DPV. Thanks for activating the rare ones, guys.

The highest score by far on SSB was made in the Multi Op category by the gang at CN2A, almost tripling anyone else's score! What you probably didn't guess is who the operators were. It was the UA2 Contest Group again, this time in a warmer climate. The group took



Richard, K5NA, traveled to chilly Iceland to break 1 Meg from TF4X. Here his host Thor, TF4M, is celebrating working his final zone for the 160 Worked All Zones Award.



Ivo, 9A3A, doesn't look as happy as he made everyone else piloting T70A to 5th place DX on CW.

PLAQUE DONORS AND WINNERS

CW

Single Operator WORLD. Donor: DJ8WL Memorial (Bill Tippett, W4ZV). **Winner:** Valery Komarov, EF8M (RD3A).

Single Operator USA. Donor: Ken Byers, K4TEA. **Winner:** Peter Briggs, K3ZM.

Single Operator CANADA. Donor: Alabama Contest Group. **Winner:** Jeff Briggs, VY2ZM.

Single Operator USA ZONE 3. Donor: Milt Jensen, N5IA. **Winner:** Kurt Andress, W7RN (K7NV).

Single Operator USA ZONE 4. Donor: Steve Schmidt, K4WA. **Winner:** Victor Kean, K1LT.

Single Operator USA ZONE 5. Donor: Paul H. Newberry, Jr., N4PN. **Winner:** Jim Roberts, W4AN, (VE7ZO).

Single Operator AFRICA. Donor: James "Skip" Riba, WS9V. **Winner:** Darko Rusman J28AA (E70A)

Single Operator ASIA. Donor: Missouri DX/Contest Club. **Winner:** Zhoda Daniil, 4L0A.

Single Operator EUROPE. Donor: John Battin, K9DX. **Winner:** Pertti Simovaara, CR2X (OH2PM op).

Single Operator SOUTH AMERICA. Donor: John Rodgers, WE3C. **Winner:** Carl Cook, P49V.

Single Operator OCEANIA. Donor: John Battin, K9DX. **Winner:** Massimo Zenobi, KH6CC (KH6ZM).

Single Operator JAPAN. Donor: Alabama Contest Group. **Winner:** Masaki Okano, JH4UYB.

Single Operator NORTH AMERICA.* Donor: N4IN Memorial (CQ Magazine). **Winner:** Bob Patten, C6AKQ (N4BP op).

Single Operator Assisted WORLD. Donor: Andy Chesnokov, UA3AB. **Winner:** Jiri Pesta, CS2C (OK1RF).

Single Operator Assisted ASIA. Donor: Nodir Tursoon-Zadeh, EY8MM. **Winner:** Vladimir Vinichenko, UP0L.

Single Operator Assisted EUROPE. Donor: Carsten-Thomas Dauer, DL2OBO. **Winner:** Vlad Ryabov, ER4A (RA4LW op).

Single Operator Assisted USA. Donor: Akira Nagi, JA5DQH. **Winner:** Charles Fulp, K3WW.

Single Operator Low Power WORLD. Donor: Ed Parish, K1EP. **Winner:** Lajos "Lali" Laki, VE3NE.

Single Operator Low Power USA. Donor: Rich Kennedy, N4ESS. **Winner:** Gary Breed, K9AY.

Single Operator Low Power EUROPE. Donor: Petr Ourednik, OK1RP. **Winner:** Slavko Celarc, S57DX.

Single Operator Low Power CANADA. Donor: Contest Club Ontario. **Winner:** Anthony Ratajczak, VE1ZA.

Single Operator QRP WORLD. Donor: Wayne Mills, N7NG. **Winner:** Valentin Benzar, C4M (5B4AGM).

Single Operator QRP USA. Donor: Bob Raymond, WA1Z. **Winner:** Pat Collins, N8VW.

Single Operator QRP EUROPE. Donor: Gary Breed, K9AY. **Winner:** Kristjan Kodermac, S50XX.

Multi-Operator WORLD. Donor: Hugh Valentine, N4RJ. **Winner:** Igor "Harry" Booklan, P33W (RW4WR, RA3AUU).

Multi-Operator USA. Donor: W8UVZ, W0CD, K8GG. **Winner:** Krassimir Petkov, K1LZ (K1LZ, K3JO).

Multi-Operator EUROPE. Donor: SKY Contest Club. **Winner:** Ua2 Contest Club UA2FW (R7LV, UR0MC, UA2FW, UA2FZ, RA2FA).

Multi-Operator ZONE 3. Donor: Riki Kline, K7NJ/4X4NJ. **Winner:** Larry Pace, N7DD (W8TK, N7DD ops)

SSB

Single Operator WORLD. Donor: Bill Barr, N4NX. **Winner:** Paul Newberry, N4PN.

Single Operator USA. Donor: David Thompson, K4JRB. **Winner:** Peter Briggs, K3ZM.

Single Operator CANADA. Donor: Alabama Contest Group. **Winner:** Peter Barron, VE3PN.

Single Operator ZONE 3. Donor: Dr. Larry Flegle, N4TMW. **Winner:** Jim Stevenson W6YI.

Single Operator ZONE 4. Donor: Alabama Contest Group. **Winner:** Jerry Rosalius, WB9Z.

Single Operator ZONE 5. Donor: Jim Monahan, K1PX. **Winner:** Fred Reed, KK1KW.

Single Operator AFRICA. Donor: Carl Henson, WB4ZNH. **Winner:** Luis Ezequiel Pinto Gomes, CT3DL.

Single Operator ASIA. Donor: Ed Campbell, NX7TT. **Winner:** Paris Andreou, H2T (5B4XF).

Single Operator EUROPE. Donor: James "Skip" Riba, WS9V. **Winner:** Martti Laine, CR2X (OH2BH).

Single Operator NORTH AMERICA.* Donor: K2EEK Memorial (CQ Magazine). **Winner:** John Barcroft, ZF2AM (K6AM).

Single Operator SOUTH AMERICA. Donor: John Rodgers, WE3C. **Winner:** Eduardo Araujo, LU2DKT.

Single Operator OCEANIA. Donor: Al Teimurazov, 4L5A. **Winner:** Feri Yusivar, YC1COZ.

Single Operator Assisted WORLD. Donor: Ray Sokola, K9RS. **Winner:** Emir-Braco Memic, E77DX.

Single Operator Assisted ASIA. Donor: Nodir Tursoon-Zadeh, EY8MM. **Winner:** George Smirnov, UP2L (UN9LG).

Single Operator Assisted EUROPE. Donor: Braco Memic, OE1EMS. **Winner:** Andy Kotovsky, UU7J (UU4JMG).

Single Operator Assisted USA. Donor: Mississippi Valley DX & Contest Club. **Winner:** Manny Fonseca Jr., W2MF.

Single Operator Low Power WORLD. Donor: Howard Klein, K2HK. **Winner:** Lajos "Lali" Laki, VE3NE.

Single Operator Low Power USA. Donor: Boring ARC. **Winner:** Larry Malone, W4LJM.

Single Operator Low Power EUROPE. Donor: Contest Club Ontario. **Winner:** Slavko Celarc, S57DX.

Single Operator Low Power CANADA. Donor: Rudy Bakalov, N2WQ. **Winner:** Brian Campbell, VE3MGY.

Single Operator QRP WORLD. Donor: Mike Schwieterman, K7MS. **Winner:** Andrzej Michowski, SP2DNI.

Multi-Operator WORLD. Donor: Southeast DX Club. **Winner:** UA2 Contest Club CN2A (RN2FA, UA2FB, UA2FF).

Multi-Operator USA. Donor: Jerry Rosalius, WB9Z. **Winner:** John Rodgers, K1LZ (K1LZ, K3JO, NU5Y, N8BO).

Multi-Operator EUROPE. Donor: SKY Contest Club. **Winner:** Pete Lindsay, EI7M (G4CLA, EI8IR, EI3JE, EI3KD, EI6BT, EI3JA).

Multi-Operator ZONE 3. Donor: Riki Kline, K7NJ/4X4NJ. **Winner:** Coquitlam Amateur Radio and Emergency Services Soc. VE7SCC (VE7DUI, VE7WEB, VE7WNK).

SSB/CW COMBINED WORLD

Donor: Alex Tkatch, KU1CW. **Winner:** Peter Briggs, K3ZM.

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ID-880H

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- Free Programming Software†

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for details about free software

ID-1

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- Li-ion Battery
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† www.icomamerica.com/amateur/DSTAR
for details about free software



IC-92AD

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ICOM

MILLIONAIRES CLUB

(All CW except where noted.)

EF8M	2,627,796	OE9R	1,230,248
VY2ZM	2,124,754	SN7Q	1,212,657
P33W	2,116,829	C6AGU	1,204,320
CR2X	2,096,145	K1LZ	1,188,256
UA2FW	1,894,752	OZ7YY	1,171,125
PJ2T	1,865,025	K3ZM	1,167,676
ES9C	1,650,816	P49V	1,166,682
MD4K	1,641,299	I4EWH	1,129,716
E7DX	1,637,010	A73A	1,083,680
OL4A	1,554,298	OK5Z	1,081,286
OL7M	1,507,236	W2GD	1,075,125
RW2F	1,484,790	S51TA	1,072,920
CN2A (SSB)	1,484,000	W4AN	1,059,696
CS2C	1,431,878	EA6URA	1,039,680
M6T	1,430,415	TF4X	1,031,438
DR1A	1,384,460	UT5M	1,024,506
EI7M	1,313,774	DL1AUZ	1,024,240
T70A	1,305,316	YU1LA	1,022,000
S51V	1,304,810	9A4M	1,020,408
UU7J	1,289,163	SK7DX	1,000,845
ER4A	1,256,101		

top Multi Op honors for Europe on CW and world on SSB. That is Topband dedication at its finest! UA2FF, RN2FA, and UA2FB were the ops.

The next three Multi Op spots were separated only by 25K, with EI7M, UA2FW, and P33W filling the slots.

In the USA, once again K1LZ took top honors, edging out N2CW (W2GD QTH for CW) and NQ4I. NQ4I had only two operators, but managed to hang in very well. Congratulations to Krassy and his crew at K1LZ, who truly are becoming a dominant force in contesting.

In Single Op Assisted, Braco, E77DX, dominated the field with 721K. The next three places were close, with UU7J (UU4JMG), ER4A (UT7ND), and RW2F (RT2F) all over 500K. Congrats to W2MF with the top USA SOA score, followed by N8TR and VE3MMQ.

SP2DNI managed to make 216 QSOs QRP, taking top world honors. K5RX battled the QRM to make 161 QSOs to win that section in the USA. QRP on Topband SSB? It takes a lot of patience.

As previously mentioned, VE3NE had the high world score in Low Power Single Op. KP4KE was virtually tied with Lali, but after log checking the margin was 2000 points. Congrats to both on a fine effort. In the USA W4LJM took the top spot with 93K from Kentucky.

Repeat Performances

CLUB SCORES

(Minimum of 3 three entries required for listing)

Scores	#Entries	Club	Scores	#Entries	Club
26,747,780	184	BAVARIAN CONTEST CLUB	449,749	7	DEUTSCH AMATEUR RADIO CLUB
13,132,961	113	POTOMAC VALLEY RADIO CLUB	448,475	11	NORTH CAROLINA DX AND CONTEST CLUB
12,934,251	58	YANKEE CLIPPER CONTEST CLUB	409,496	3	LOW COUNTRY CONTEST CLUB
9,714,356	59	RHEIN RUHR DX ASSOCIATION	399,788	5	BESSARABIAN CONTEST CLUB
8,934,048	64	UKRAINIAN CONTEST CLUB	390,198	9	SPOKANE DX ASSOCIATION
8,258,447	53	CONTEST CLUB ONTARIO	372,199	6	GIPANIS CONTEST GROUP
8,100,905	52	FRANKFORD RADIO CLUB	362,886	5	SMOLENSK CONTEST CLUB
6,868,238	23	SLOVENIA CONTEST CLUB	360,974	3	KENTUCKY CONTEST GROUP
6,777,373	50	BLACK SEA CONTEST CLUB	359,679	7	ROCHESTER DX ASSOCIATION
6,585,966	19	CROATIAN CONTEST CLUB	348,022	11	UTAH DX ASSOCIATION
6,276,393	11	UA2 CONTEST CLUB	341,599	6	WESTERN NEW YORK DX ASSOCIATION
4,977,568	23	SOUTH EAST CONTEST CLUB	321,979	5	OMSK REGION RADIOCLUB
4,934,676	49	ARIZONA OUTLAWS CONTEST CLUB	306,524	6	SHAKHAN CONTEST CLUB
4,885,128	20	URAL CONTEST GROUP	304,410	4	OK QRP CLUB
4,862,198	16	CONTEST CLUB FINLAND	300,059	14	WILLAMETTE VALLEY DX CLUB
4,791,912	31	SP DX CLUB	290,203	7	WESTERN WASHINGTON DX CLUB
4,729,876	33	KAUNAS UNIVERSITY OF TECHNOLOGY RCL	269,118	8	BRISTOL (TN/VA) ARC
4,269,001	30	FLORIDA CONTEST GROUP	261,933	7	NEW MEXICO BIG RIVER CONTESTERS
4,159,897	56	LATVIAN CONTEST CLUB	261,778	5	TOP OF EUROPE CONTESTERS
3,596,346	16	RUSSIAN CONTEST CLUB	255,527	3	CZECH CONTEST CLUB
3,506,851	8	BOSNIA AND HERZEGOVINA CONTEST CLUB	253,086	4	ORDER OF BOILED OWLS OF NEW YORK
3,322,597	14	NORTH COAST CONTESTERS	249,445	5	STOR DONBASS
3,118,651	42	NORTHERN CALIFORNIA CONTEST CLUB	246,549	4	GM DX GROUP
2,770,913	11	BELOKRANJEC CONTEST CLUB	243,582	4	ALEXANDER THE GREAT CONTEST GROUP
2,294,315	40	TENNESSEE CONTEST GROUP	229,505	5	ORCA DX AND CONTEST CLUB
2,238,229	9	HUNGARIAN DX CLUB	225,459	3	AUSTRIAN CONTEST CLUB
1,876,826	17	MAD RIVER RADIO CLUB	211,409	3	BEEMSTER CONTEST CLUB
1,867,840	34	MINNESOTA WIRELESS ASSN	202,971	3	READING AND DISTRICT ARC
1,834,913	6	CHILTERN DX CLUB	201,122	3	ARGO
1,759,002	13	NORTH TEXAS CONTEST CLUB	198,978	4	LES NOUVELLES DX
1,730,657	16	GRAND MESA CONTESTERS OF COLORADO	198,158	5	KANSAS CITY DX CLUB
1,683,079	3	LZ CONTEST TEAM	165,492	11	WEST PARK RADIOPS
1,542,317	23	ALABAMA CONTEST GROUP	161,041	5	MOSCOW RADIO CLUB
1,380,411	20	HUDSON VALLEY CONTESTERS AND DXERS	160,206	4	KIEL CANAL AKTIVITY GROUP
1,376,870	6	DANISH DX GROUP	158,949	3	SERPUKHOV RADIO CLUB
1,139,881	4	WORLD WIDE YOUNG CONTESTERS	139,766	7	RU-QRP
1,137,414	7	CTRI CONTEST GROUP	138,987	5	MOTHER LODGE DX & CONTEST CLUB
1,131,825	7	BELARUS CONTEST CLUB	137,985	5	MEDINA 2 METER GROUP
1,090,229	4	IOWA DX AND CONTEST CLUB	121,204	5	CAROLINA DX ASSOCIATION
859,271	28	SOUTHERN CALIFORNIA CONTEST CLUB	117,097	4	EASTERN IOWA DX ASSOCIATION,
770,200	4	LA CONTEST CLUB (NORWAY)	103,786	5	UKRAINIAN DX CLUB
696,132	6	VRHNIKA CONTESTERS	100,201	3	CENTRAL ARIZONA DX ASSOCIATION
648,147	8	MARITIME CONTEST CLUB	96,004	3	CS SILVER FOX DEVA
630,544	11	DELARA CONTEST TEAM	66,657	3	FORT WAYNE RADIO CLUB
628,700	7	ALRS ST PETERSBURG	60,436	5	RARITAN BAY RADIO AMATEURS
624,901	7	YO DX CLUB	47,040	3	HILLTOP TRANSMITTING ASSOCIATION
621,095	7	VYTAUTAS MAGNUS UNIVERSITY RC	25,236	5	BERGEN AMATEUR RADIOASSOCIATION
580,266	11	CONTEST GROUP DU QUEBEC,	15,818	3	CLUB DE RADIO EXPERIMENTADORES
510,672	4	YU CONTEST CLUB			DE OCCIDENTE
489,327	3	SOUTH URAL CONTEST CLUB	14,274	3	METRO DX CLUB
477,379	6	CENTRAL TEXAS DX AND CONTEST CLUB	12,773	3	PORTAGE COUNTY ARS
467,369	9	VERON	4,709	3	HAYS-CALDWELL AMATEUR RADIO CLUB

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We want to acknowledge the stations that are repeat trophy winners from last year. It shows dedication to this contest and that is appreciated.

On CW CR2X (OH2PM), JH4UYB, C6AKQ (N4BP), ER4A (RA4LW), K3WW, VE3NE, N7DD, K1LZ, and UA2FW all repeated their 2010 wins in their respective categories.

On SSB K3ZM, W6YI, ZF2AM, E77DX, and EI7M repeated their trophy victories.

Congratulations!

Notes on Log Checking

This year the committee made a special effort to detect anomalies in submitted logs. These include stations that may have been assisted but submitted as unassisted. We mailed over fifty letters to participants to clarify the situation. The result was over forty stations were reclassified, mostly due to clerical errors. We hope that this results in a fairer competition with the results more accurately reflecting the winners.

For the first time we also had some disqualifications. These cases were studied very closely by the committee and voted upon. In each case there was overwhelming evidence. We hope all involved understand that the rules are there for a reason and must be followed in the interest of fairness.

Anyone interested in seeing their log-checking report should send an e-mail to me at: <director@cq160.com>.

Wrap-Up

Special thanks to our committee, including N6TR (chief log checker), K1DG (trophy manager), W5GN (certificate manager), K5TR (webmaster), and the rest of the CQWW Contest Committee for their help. Many thanks also to K2RED (CQ magazine Managing Editor).

The records for the contest will be updated and can be found at the website: <www.cq160.com> along with expanded results, soapbox and rules for the 2011 contests. Expanded results, soapbox,



Mladen, YT6W, operating from the beacon of the Topband station VY2ZM to finish second in the world!

and rules for the 2011 contests also are on the CQ website: <www.cq-amateur-radio.com>. The 2011 rules are in the November issue of CQ as well.

Any questions regarding the contest can be sent via e-mail to <director@cq160.com> or <n2nt@verizon.net>. Any station interested in seeing their log-checking report can request it directly by sending a note to either of these addresses.

73, and see you in 2012 running!—N2NT

(Continued on page 102)

Announcing:

The 2012 CQ DX Marathon

**2011 Logs Due by
January 31, 2012**

This year's DX Marathon ends on December 31, so it's time to go back through your log, see what you have worked, enter it onto the DX Marathon spreadsheet, and then update it with any additional contacts through the end of the year. See the main text or the DX Marathon website for details on how and where to submit your log. Remember, log submission deadline for the 2011 CQ DX Marathon is **January 31, 2012**.

The 2012 edition of the CQ DX Marathon begins at 0000 UTC on January 1, 2012 and runs through 2359 UTC on December 31, 2012. The goal, as always, is to work as many countries and CQ zones as possible at least once during the calendar year. There are no significant changes to the rules this year, but there will be a significant increase in the number of plaques awarded. Sincere thanks to our new sponsors! We will continue to use a downloadable Microsoft Excel® template (or equivalent) which may be filled in and emailed to a special address as your log entry. Conversion programs are available to automatically populate the template from your logging program. See the DX Marathon website (<http://www.dxmarathon.com>) for details. Here are the 2012 rules for the CQ DX Marathon:

Rules, 2012 CQ DX Marathon

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

Frequencies: Any authorized amateur frequency may be used. Contacts through repeaters or satellites are not allowed for credit, nor are contacts with maritime or aeronautical mobile stations. All contacts must be made entirely over amateur radio frequencies—i.e., Echolink-type contacts do not count. Submissions with all contacts utilizing a single band will be recognized.

Modes: Any authorized amateur mode may be used. Three modes will be recognized in the DX Marathon—CW, SSB, and Digital. All modes other than CW or voice will count as Digital. Submissions with all contacts utilizing a single mode will be recognized.

Categories: Each entrant in the DX Marathon may submit one log each year per operating location. Participants submitting logs for single mode or single band entries must include only those contacts. Logs submitted with multiple modes or multiple bands will not be considered for mode and band awards. Entries with two or more callsigns will only count as a single entry if all contacts were made by the same (single) operator at the same station using the same antennas. Entries that include contacts made with the assistance of remote receivers and/or transmitters in addition to contacts from a primary station are not permitted. There are two entry classes, "Formula" and "Unlimited."

Formula: An entrant may choose one of two options in this class: (1) All contacts must be made with a maximum output power of 10 watts, regardless of band or mode; or (2) the oper-



Will a plaque like this be in your shack a year from now? Be sure to submit your 2011 CQ DX Marathon score by January 31. And congratulations again to DL4CW for winning the Formula class in 2010.

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

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

Scoring: Each country worked is worth one point. Each CQ zone worked is worth one point. The total score is the sum of zones and countries worked, on any mode and any authorized band. There are no multipliers of any kind. Each country and zone count only once. A single QSO may count for both a country and a zone. If in the course of the year you work 238 countries and 37 zones, your score is 275. If you work all 40 zones and 150 countries, your score is 190. The CQ DX Countries List and the CQ Zone List constitute the official lists. The lists are available on the DX Marathon website. In the case of ties, the operator whose last scoring contact was earlier chronologically will be judged the winner. Decisions of the Marathon Manager are final.

Submissions: Submissions must be made electronically, via e-mail to <scores@dxmarathon.com>. A Microsoft Excel® template into which contacts may be entered is available for download from the CQ DX Marathon website at <<http://www.dxmarathon.com>>. The website also provides

other options for those without access to Excel®. All scores must be received by January 31 following the close of each DX Marathon.

Verification: QSLs are not required. The operator is expected to claim contacts only from stations the operator has every reason to believe are legitimate, and only to claim contacts in which an accurate two-way exchange was clearly accomplished (see Appendix for further explanation). Scores will be adjusted by the DX Marathon committee for claimed contacts with pirates or any station not considered legitimate. Submissions may be penalized or voided in cases of fraud or poor sportsmanship. Submissions that do not provide clear descriptions of Formula class antennas to show that the antennas meet the Formula class antenna rules may be reclassified to Unlimited class. Decisions of the Marathon Manager are final.

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

Results: The final listing of official scores will be posted on the DX Marathon website after the annual summary of the winning scores and details is published in *CQ* magazine.

Awards:

Plaques: The CQ DX Marathon Committee will award plaques as follows: Highest overall score in Unlimited Class; Highest overall score in Formula Class; Highest overall CW-only score; Highest overall SSB-only score; Highest overall Digital-only score; Highest overall score for each of the six continents; Highest overall score for single-band entries for the 10, 12, 15, 17, 20, 30, 40, and 80m bands. Plaques for CW, SSB, Continent, and Band winners will only be awarded if the winning scores in those categories are at least 50% of the score of the overall DX Marathon Unlimited Class winner.

Entrants may receive only one plaque per year. In the case of a participant qualifying for more than one plaque, that participant will receive a plaque for the highest level based on the above order. Plaques may be awarded to runners-up at the discretion of the DX Marathon Committee.

Certificates: Certificates are awarded to qualified participants in this order: Highest overall score per CQ zone; Highest overall score per country; Highest overall score in the Formula Class 10 watts or less option.

Plaque winners are not eligible for certificates. Only one certificate will be awarded per entrant. In the case of a

participant qualifying for more than one certificate, that participant will receive a certificate for the highest level based on the above order. Certificates may be awarded to runners-up at the discretion of the DX Marathon Committee.

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

Appendix

Formula Class antennas, option 1: Operators selecting the 10-watt option are limited to antennas on a single tower and whose height does not exceed 65 feet or 20 meters above ground elevation within 330 feet or 100 meters of the tower base. Wire antennas may also be used but must meet the criteria of the 100-watt option, and may be tower-supported at only one point.

Formula Class antennas, option 2: Antennas for operators choosing the 100-watt option must be either simple verticals or wire antennas lacking significant gain. No arrays are allowed, whether vertical or horizontal, nor are

long wires exceeding 130 feet or 40 meters, except on 80 and 160 meters. The base of vertical antennas used may not exceed 65 feet or 20 meters in height. Dipoles or other wire antennas must not be more than 60 feet above ground. Yagis, quads, or tower-mounted antennas (except wire antennas meeting the height limits above) may not be used in this category.

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

Thanks to our Plaque Sponsors!

Our thanks and appreciation to our plaque sponsors:

Top Unlimited Class score: Northern Illinois DX Association.

Top Formula Class score: Northern Illinois DX Association.

Top CW-only score: Bencher, Inc.

Top SSB only score: Collins Amateur Radio Club in Memory of Art Collins, W0CXX.

Top Digital-only score: Carroll D. Jensen, K6CDJ, Memorial

Top Single band scores (10, 12, 15, 17, 20, 30, 40, 80 meters): Sponsor wishes to remain anonymous.

Top Continental scores: Sponsor wishes to remain anonymous.

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RADIO

"I'm the producer of the new Tim Allen show for ABC," read the e-mail. "Recently, I created a 'Ham Radio Challenge' for my office staff. We held the test on our studio lot and seven passed ... Are you guys interested in (an article)?" The answer, of course, was yes, and here it is!

Producing Ham Radio

BY JOHN AMODEO,* NN6JA

I've been a ham for about 40 years (WB2HLO, KA6MVE, now NN6JA) and a television producer for the last 20. You may know some of the shows I've produced. They include "Sports Night," "Titus," "Arrested Development," "Samantha Who?" "Accidentally on Purpose," and a few I don't talk about.

To a great extent, I owe my television career to my pre-teen days reading and rereading the *ARRL Handbook*. The electronics knowledge I acquired from my original Technician license and later my General license was directly applicable to my early days as a video engineer and editor. As I moved up the ladder, I was able to talk to my technical crews with full confidence because we spoke the same language. Even now as a producer, I frequently use this knowledge.

A few months ago, I began working on "Last Man Standing" (*Visit: <<http://abc.tv/qVtzUg>>*), a new sitcom starring Tim Allen¹, produced for the ABC network. Around the same time, I decided to upgrade to Extra and enjoyed the process quite a lot. When I spoke about my hobby with my staff, I was surprised to find that many of them were interested in what made amateur radio so important. I gave them the most direct explanation possible: When earthquakes hit, tsunamis strike, zombies attack, the machines rise up against mankind, the phones and internet may be down, but ham radio will still be here!

The Ham Radio Challenge

After a few conversations, some of the staff became interested in amateur radio, so I decided to create the "Ham Radio Challenge." Staff members who

successfully passed the Technician examination would get a free dual-band HT. A number of the staff accepted the challenge.

I should mention that all of the crew members are familiar with basic handheld radio operations. We use the 16-channel version of the Motorola CP200s in the UHF business band all day for communications between our offices and our stage. Each department has a channel. The assistant directors (who run the stage) are on channel 1, inter-department communications are on 2, transportation is on 3, etc.

We began studying by printing the Technician question pool and having "Ham Radio Lunches." Each day we sat outside, ate lunch, and talked through a few pages of the question pool. The participants also started taking daily online practice exams from the QRZ [<http://www.qrz.com/ht/>](http://www.qrz.com/ht/) and AA9PW [<http://aa9pw.com/>](http://aa9pw.com/) websites. I asked them to think of it as a few less hours a week on "Facebook" while taking practice exams. To my surprise, within a few days I could hear discussions outside my door about frequency in relationship to wavelength!

At the same time, I started acquiring the radios from a dependable but low-cost (I could almost say "cheap") online vendor. I chose a reliable, although inexpensive, dual-band handheld as the reward.

Let me say that my staff works hard. A typical shooting day is 12 hours or longer. When it came time for the test, the idea of rounding them up and taking them to an exam on a Saturday or Sunday did not seem like it would work. I decided to try to have the exam on our studio lot.

"Last Man Standing" is produced by 20th Century Fox for the ABC Network and we shoot it on the CBS Studio Center Lot in Studio City, California, so



Tim Allen stars as a "manly-man" in a house full of women in the new ABC comedy, "Last Man Standing." Producer John Amodeo and at least seven of the show's staff members (but alas, not Allen ... yet) are hams. (Photo courtesy ABC TV)

*e-mail: <JAmodeo.TV@gmail.com>

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 - High Power Handling Capacity—BIG high strength, UV-protected Extren™ insulator
 - Reliability Second to None—specially manufactured stainless steel and aluminum saddle clamps, stainless steel bolts, and precision machining
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- | | | |
|-----------------|-------------------------------|------------|
| DXE-7580FS-VA-1 | Vertical Antenna, standard HD | \$379.50 |
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This optional winch for the VA-2 and VA-3 Vertical Antennas allows easy one-man raising and lowering. You can use the DXE-VRW-1 winch on similar DX Engineering antennas in a multi-antenna installation.



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I contacted several VEs (Volunteer Examiners) in the San Fernando Valley area.

Ultimately, Norm Goodkin, K6YXH, and his wife Naomi, WB6OHW, accepted the challenge under the auspices of the Greater Los Angeles Amateur Radio Group (GLAARG <<http://www.glaarg.org/>>). I got my VE certification so I could



Norm Goodkin, K6YXH, performs a radio demonstration for the prospective hams. (Photo by John Amodeo)

assist and I also enlisted the help of Tim Holly, N6QJ. Tim is an extremely knowledgeable engineer. He works in the CBS sound department and, among other things, is the frequency coordinator for the lot. Fortunately for us, Tim also happened to be a GLAARG VE.

We booked a conference room at the studio and on October 6th seven staff members took and passed the test. Two of the group scored 100%! It looks like several more will follow in the next few weeks.

Fighting Back

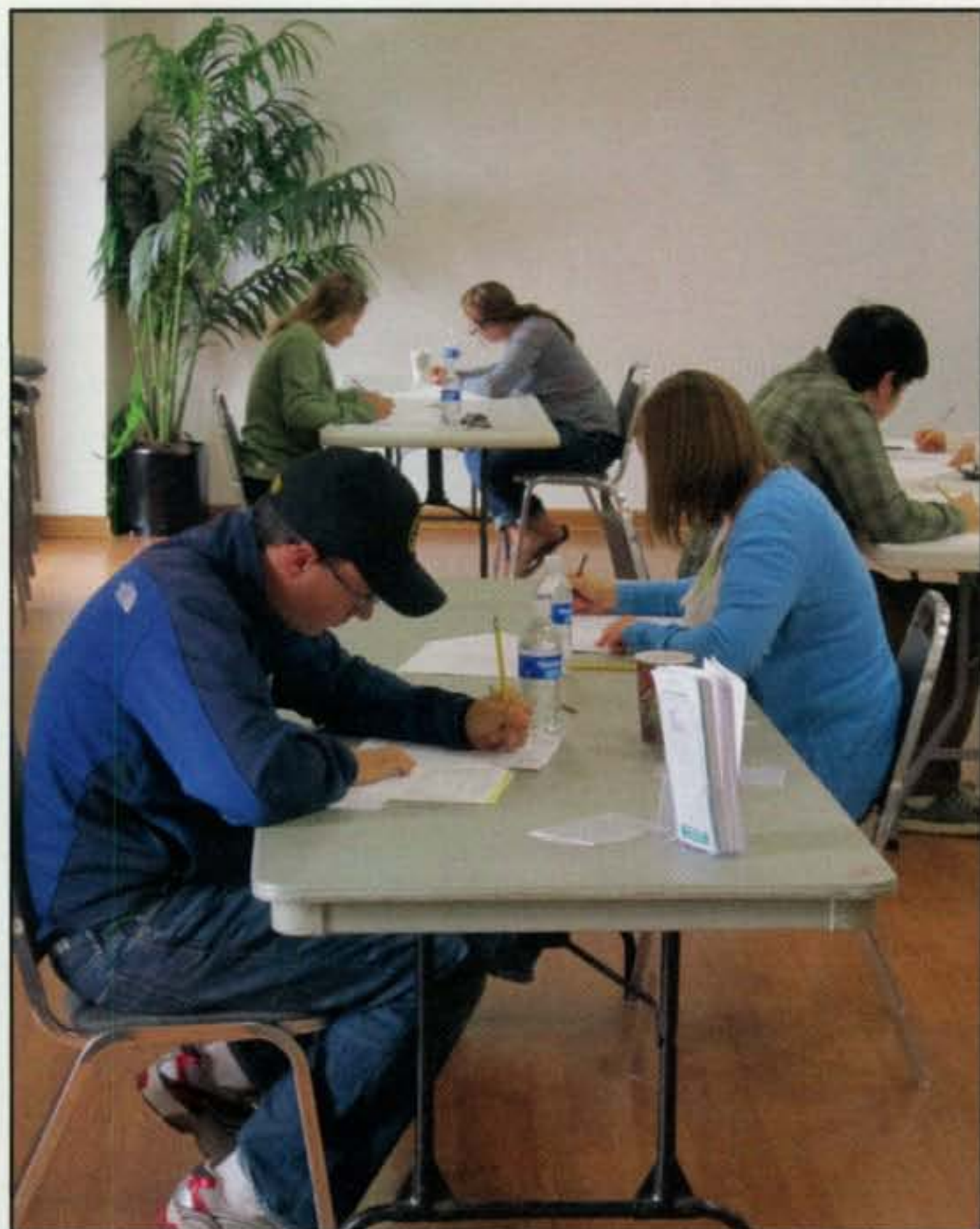
So what's the point? In my opinion, amateur radio is under attack from hundreds of channels of TV, the internet, texting, video games, and more. There are many corporations that would like to carve up our frequency allocations for some new profitable wireless device. I think we have to fight back by producing more, and hopefully younger, amateur radio operators.

Seven new hams may not be a lot, but for the moment my contribution is Nicole, KJ6RUZ; Billy, KJ6RVA; Val, KJ6RVF; Brian, KJ6RVB; Hayley, KJ6RVC; Ashley, KJ6RVD, and Matt, KJ6RVE.

I hope you can interest some new radio enthusiasts and I hope to have more soon, too. Stay tuned!

Note

1. No, Tim Allen is not among the seven staff members on the show to get a ham license. But, says author NN6JA, "I'm working on him. He has always been fascinated with radio and technology in general." So you never know...-W2VU



Valerie Lindow and Matthew Baker (foreground) take the Technician exam. (Photo by John Amodeo)



Tim Holley, N6QJ, and author John Amodeo, NN6JA, grade the Technician tests (Photo by Nicole McMillan)

wavelengths can travel—or propagate—in different ways. An audio frequency is one that you can hear, generally in the 20 cycle to 20-thousand cycles per second range. They cannot travel very far from their source. The radio frequencies lie just above the audio range.

Radio communication basically works by impressing intelligence on an invisible radio wave of a specific length, sending it into space and separating the wanted information from the radio wave at the receiving end. Sometimes just starting and stopping the radio wave can convey information, such as in the case of Morse code.

Simply stated, transmitted information rides piggy-back on invisible carrier radio waves of known length. A receiver tunes to that wavelength and extracts the information.

Q: I keep hearing that other services and industry want our frequencies. How can they get them if they are allocated to the Amateur Service?

A: The allocation of radio frequencies involves the setting aside of segments of the radio spectrum for the use of spe-

cific radio services. The band assignments are influenced by the behavior of radio waves at different frequencies and the needs of the user.

All frequency assignments must be performed within a framework of international agreements both regional and worldwide in scope. The worldwide governing body over telecommunications is the International Telecommunication Union. The ITU, with nearly 200 member countries, is a specialized agency of the United Nations.

In the United States, non-government use of the radio spectrum is managed by the FCC. Radio frequencies may be allocated to one radio service or shared among two or more radio services.

It is legal under international law for our FCC to extend use to another radio service—or to reallocate amateur spectrum to other uses—as long as the new use conforms to the agreed-upon international table of allocations.

When more than one radio service shares an allocation, the services are designated as “primary” or “secondary.” Radio services that are designated as secondary may not interfere with pri-

mary services and are not protected from their interference.

Some ham bands are allocated to the Amateur Service exclusively in all three ITU Regions (such as all ham bands 10 through 20 meters.) Some bands are exclusive ham spectrum in ITU Region 2 and used by other services in other regions.

With the exception of the 222–225-MHz ham band, all amateur radio bands above 2 meters (148 MHz) that are allocated by the FCC to the U.S. Amateur Service are also internationally allocated to other services. It thus is possible for the FCC to permit these other services to also share these frequencies, or to reallocate spectrum used by the Amateur Service to other internationally approved radio services.

Q: Why can't I obtain a 2-by-3 amateur station callsign beginning with the letters NA through NZ or AA through AL?

A: The short answer is that when the FCC assigned formats to the various callsign groups, there were more than enough 2-by-3 letter (Group D) callsigns beginning with WA–WZ and KA–KZ. There are more than 9 million possible Group D callsigns.

The Group Call Sign System, which began on March 24, 1978, did not provide for the nearly 6.5 million possible 2-by-3 callsigns with NA–NZ or AA–AL prefixes. Therefore, the NA–NZ and AA–AL by three are the only callsign blocks authorized to ham radio by the FCC Part 2 rules that remain unavailable to the amateur community.

Q: How do I get the one-by-two format callsign of an amateur who died? It is still listed as an active callsign in the FCC's Amateur Service database.

A: In every case, an active callsign must be canceled by the FCC before it can be reassigned. Callsigns become available to the Vanity Call Sign System two years plus one day following license expiration or cancellation, whichever is sooner. A family member or a club of which the deceased was a member has an advantage and does not have to wait the two years.

You can get a callsign cancelled by sending to the FCC an obituary from a newspaper, a copy of the death certificate, or a printed page from the Social Security Death Index (SSDI). Mail your callsign cancellation request and documentation to: FCC, Amateur Section, 1270 Fairfield Road, Gettysburg, PA 17325-7245. Then start checking the amateur radio database soon after you submit the deletion request to deter-

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mine the cancellation date. You may apply for it two years plus one day after the cancellation date. The date of cancellation is the tricky part.

The callsign will be canceled as of the date of death if the deceased radio amateur died less than two years ago. Be aware that effective November 9, 2010 the FCC has a different procedure for canceling the callsign of a deceased amateur when the death occurred more than two years ago. The new rules provide that the cancellation of a license more than two years after the licensee's death should not take effect until 30 days after the licensing database is updated by the FCC staff. This 30-day waiting period is intended to prevent a person from submitting a cancellation request and then immediately filing an application for the deceased's callsign before other licensees know that the callsign is about to become available for reassignment. The FCC believes that other licensees should have an opportunity to learn of the availability of a desirable callsign and to apply for it, so watch when the cancellation takes effect and apply for the callsign two years and one day afterward. Be aware that there could be competition for the callsign, in which case it will be awarded by lottery.

Q: What amateur radio station callsigns are not available for assignment?

A: Certain combinations of letters are not assignable as sequential or vanity callsigns. These include certain callsign blocks that are allocated to Antarctica, military stations, and FEMA. They are KA2AA-KA9ZZ, KC4AAA-KC4AAF, KC4USA-KC4USZ, KG4AA-KG4ZZ, KC6AA-KC6ZZ, KL9KAA-KL9KHZ, KX6AA-KX6ZZ, and any 2-by-3 format callsign having the letters AF, KF, NF, or WF as the prefix and the letters EMA as the suffix.

Callsigns with 2-by-3 format having the letter X as the first letter of the suffix are not assigned to radio amateurs. These go to non-amateur "experimental" stations.

To avoid confusion with distress calls and Q-signals, callsigns having the letters SOS or QRA through QUZ are not assigned.

Letter combinations that prior recipients have found offensive are not assigned under the sequential callsign program. These apparently may be requested under the vanity callsign system. The FCC did not say what these offensive letter combinations are.

Q: May I hold more than one vanity callsign?

A: No. An individual amateur may hold one—and only one—station callsign. Secondary callsigns (a callsign for a station at another location) were abolished in 1978. An amateur must trade in his/her existing callsign when he/she receives a vanity callsign. Four or more amateurs may form a club, however, and apply for a club station callsign. One of the club members is eligible to be the station trustee. Interestingly, a club may hold any number of station callsigns. The club trustee may only apply for a club call appropriate for his/her license class "group." In other words, a station trustee holding a Technician Class license may only apply for a Group C or D callsign.

That's it for this month. Periodically we will run questions from readers along with our answers. Please continue to send them to us and we will do our best to answer the ones that apply to a broad spectrum of radio amateurs.

73, Fred, W5YI



What You've Told Us...

Our September survey asked about the impact of the 9/11 terrorist attacks on your ham radio activity in the past decade. We started out by asking how big a factor emergency communications played in your decision to become a ham, and split the question between those licensed before 9/11 (87% of those responding) and after (12%). Among those licensed before 9/11, 5% said it was their main motivation (vs. 19% of those licensed in the past ten years), 38% said it was one of many considerations (vs. 37% of post-9/11 hams), and 55% said it did not figure into their decision at all (vs. 44%).

Asked how your involvement in public service and emergency communications has changed since 9/11, 8% of you said it has become your primary ham radio activity, 25% said it has taken on a larger role, 35% said it hasn't changed much, 7% are less involved now than in the past, and 25% are not involved at all in public service communications.

A majority of you (51%) feel you are better-prepared personally for an emergency today than you were ten years ago, while 44% say about the same and 5% feel less able to respond. Asked what steps you have taken to become better-prepared, 49% of you have gotten a source of backup power; 32% have gotten more formal training; 31% now have a ham radio "go kit"; 25% have joined an emcomm group or taken on a leadership role; and 23% now have a family emergency plan. In addition, 37% say they have improved their preparedness in ways not listed, and 29% say they have made no changes.

Finally, we asked how the perception of ham radio in your community has changed since 9/11. Thirty-one per cent of you said there's been no real change, followed by 24% who feel it now gets significantly more respect, 20% report a little more respect, 18% don't know and 5% say ham radio has less community respect today than a decade ago.

This month's free subscription winner is Charles Hinkle, W8CFO, of Pioneer, Ohio.

Reader Survey December 2011

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, as we bring our second digital issue online, we'd like to know a little more about how you heard we were "going digital" and whether you plan to become a digital subscriber.

Please answer by circling the appropriate numbers on the reply card or by going to the web link on our homepage www.cq-amateur-radio.com.

1. Before reading this survey, were you aware that *CQ* has recently introduced a digital edition in addition to its print edition?

- Yes29
No30

2. If you answered yes to the previous question, how did you find out about *CQ*'s digital edition?

- Read about it in *CQ*31
Received e-mail announcement from *CQ*32
Read about it on the *CQ* website33
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Read about it on a non-*CQ* website (e.g., QRZ.com, eHam)35
Heard about it from an on-air news report (e.g., Newsline)36
Heard about it from a friend37
Other38

3. Which version of *CQ* are you reading now?

- Print39
Digital40
None (found survey online)41

4. How did you get the copy of *CQ* that you are reading now?

- By mail subscription42
By digital subscription43
Single-issue purchase (print)44
Single-issue purchase (digital)45
Other (e.g., library copy, borrowed from friend)46

5. Now that *CQ* is available in digital form, how likely are you to purchase a digital subscription (choose one)?

- Already have one (digital only)47
Already have one (digital + print)48
Very likely (digital only)49
Very likely (digital + print)50
Somewhat likely (digital only)51
Somewhat likely (digital + print)52
Unlikely (digital only)53
Unlikely (digital + print)54
Will not consider digital subscription55

6. What do you foresee as the greatest benefit for you of a *CQ* digital subscription?

- Greater flexibility in how I read each issue56
No storage space needed for back issues57
Reduced delivery issues vs. postal delivery58
Other59
None60

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

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It works on all modes -- SSB, AM, CW, FM -- and frequencies from BCB to lower VHF.

You can null out strong QRM on top of weak rare DX and then work him! You can null

out a strong local ham or AM broadcast station to prevent your receiver from overloading.

Use the MFJ-1026 as an adjustable phasing network. You can combine two antennas to give you various directional patterns. Null out a strong interfering signal or peak a weak signal at a push of a button.

Easy-to-use! Plugs between transmitting antenna and transceiver. To null, adjust amplitude and phase controls for minimum S-meter reading or lowest noise. To peak, push reverse button. Use built-in active antenna or an external one. MFJ's exclusive Constant Amplitude Phase Control™ makes nulling easy.

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When Solar (and other) Storms Strike, New Propagation Forecasting Helps Ham Radio First Responders

Images from the March 11 Fukushima tsunami, devastating parts of Japan and taking thousands of lives, had a profound effect on a group of Utah State University researchers, several of whom are radio amateurs, so much so, they wanted to do something about increasing the predictability of high-frequency band conditions to better arm emergency communications first responders with the most accurate, up-to-the-minute propagation data possible.

This month, Bill Sexton, N1IN, who writes the bimonthly "Military Auxiliary Radio Service" (MARS) column in WorldRadio Online magazine (<http://www.WorldRadiomagazine.com>), brings CQ's "Public Service" an exclusive look at how those researchers quickly made it happen after the tragic tsunami, and how it played a valuable role during Hurricane Irene.

—Richard Fisher, KI6SN

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e-mail: <ki6sn@cq-amateur-radio.com>

A new high-tech approach to predicting high-frequency (HF) propagation made a dramatic—if hurried—debut during the Japanese tsunami in March 2011. It returned to the internet main stage for Hurricane Irene in August. Now hams and the communications industry are promised a permanent engagement.

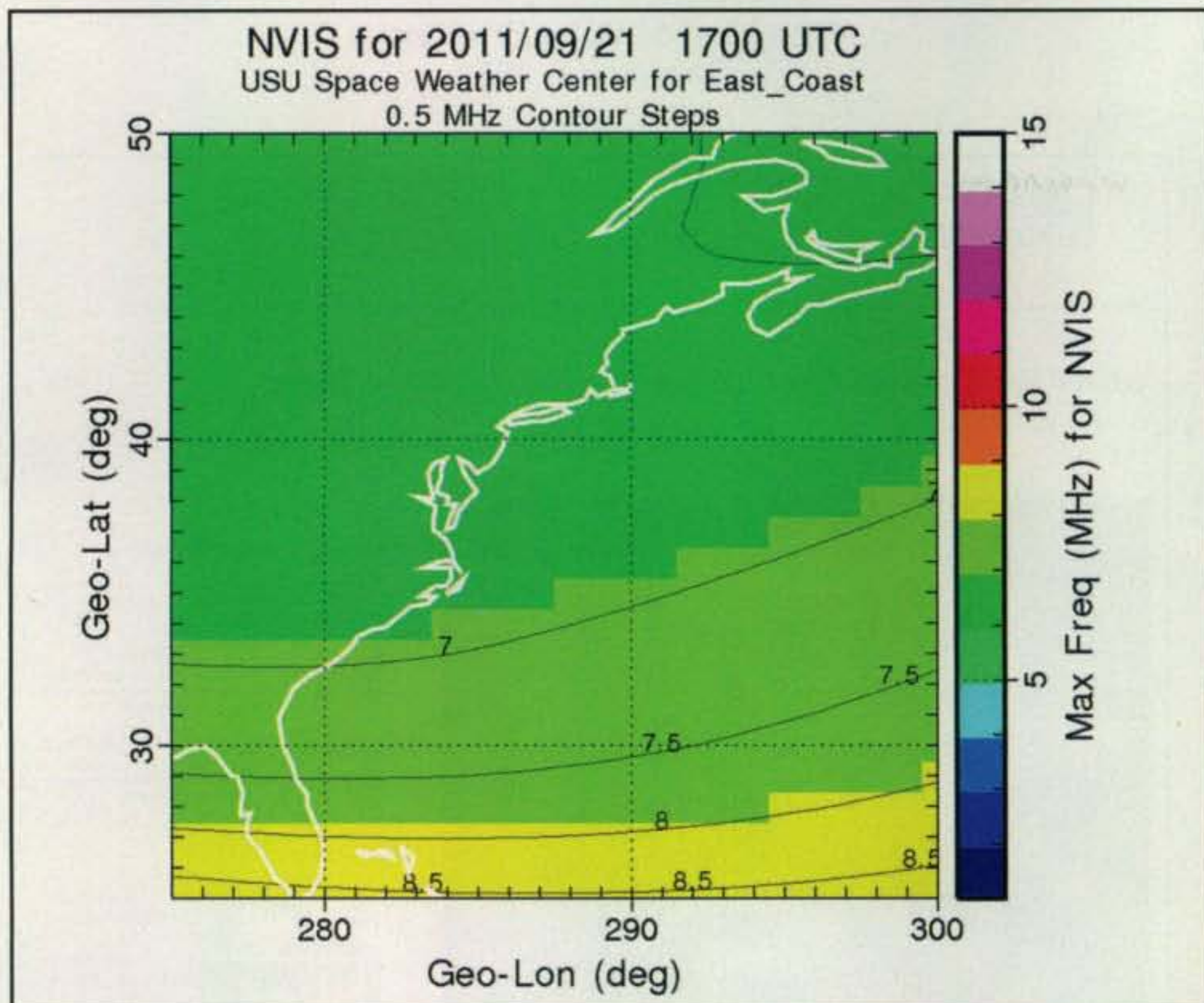
Staff members of Utah State University's two-year-old Space Weather Center had been thoroughly shaken watching TV's first-day images of the catastrophe in Japan on Friday, March 11. (Video: Japanese residents run for their lives as the Fukushima tsunami hit in the video: <<http://bit.ly/p6qIUZ>>.—ed.)

The next day they decided to create a physics-based application of the new HF forecasting methodology for Japanese rescuers. At that point radio was the only means of communication in much of the savaged region.

Consultation quickly followed with research colleagues in Japan as well as the staff of the Japan Amateur Radio League, which furnished the JARL's emergency network frequencies. By Thursday, the Space Weather Center (<http://>



With Utah's Wasatch mountain range in the background, staff members on the laboratory rooftop work with one of the amateur radios and its portable power supply used in field research for Utah State University's Space Weather Center. From left to right are Electrical Engineer Don Rice, AC7ZB; Systems Engineer Eric Hunsaker, N7YTB; Lead Scientist Jan Sojka, and Dr. W. Kent Tobiska, Director of the Center. (Courtesy of Jared Fulgham)



Near-Vertical Incidence Skywave (NVIS) HF communications is useful for tactical support in the region affected by disaster. HF NVIS typically links a regional command center to field workers where hills or tall buildings block line-of-sight VHF, and repeater networks have been knocked out. This plot shows the expected maximum frequency for the east coast of the U.S. NVIS operations over a distance of 50–130 miles (80–200 km). These values would be a conservative estimate over larger areas. In this example, 40 meters should work in the south but would be marginal for short hops in New England. However, 40 meters probably would be fine over longer distances (greater than 200 km) in New England. (Courtesy of USU Space Weather Center)

www.spaceweather.usu.edu) was delivering NVIS (Near Vertical Incidence Skywave) propagation charts for the disaster zone, especially useful where mountainous terrain hindered VHF. Other charts covered the Japan-U.S. disaster support path.

Unlike traditional propagation programs, the SWC charts are based on real-time measurements of solar activity from hundreds of satellites and ground-based sensors in a global network. These sample upward of 10,000 pieces of data four times every hour.

Ready and Waiting for Irene

SWC's Irene response proved even more impressive than the hurried start-up for Japan. Propagation charts were already posted when the hurricane made its North Carolina landfall August 27. In addition to NVIS prediction for the entire east coast, hams were given regular skywave readings for the Hurricane Watch Net frequency to WX4NHC at the National Hurricane Center in Miami.

(Virtual Tour: WX4NHC at the National Hurricane Center in Miami: <<http://www2.fiu.edu/~w4ehw/>>.—ed.)

Active coverage continued well after the storm's departure from New England. As for future emergencies, Dr. R. Kent Tobiska, director of the Utah State center, said his staff would be ready for quick response to events in this country and worldwide very soon. A permanent website was already under development in early autumn.

As this was written, a global NVIS forecast is available on the Space Weather Center's website and via the SpaceWx applications (apps) for the iPhone, iPad and iPod: <<http://www.spacewx.com/iPhone.html>>. The app is available for the Android, as well: <<http://bit.ly/mRSjrl>>.

"USU SWC takes very seriously the importance of emergency responder support and will continue to evolve products for use by hams and by agency, corporate, and international users," Tobiska said. He encouraged radio amateurs to share their ideas for

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Amateur Radio Plays Its Part

With two hams on the scientific staff of 32, the SWC crew already has plenty of input on emergency communicators' needs.

Systems Engineer Eric Hunsaker, N7YTB, tends the 18 servers—"equivalent to more than 256 one-core PCs," according to Hunsaker—that the center uses for analyzing data and generating models.

Electrical Engineer Don Rice, AC7ZB, is a member of the Implementation Team. Rice's experience scouting propagation test ranges would easily qualify him for county hunting; at USU he is dealing with GPS and ionosonde data. (See the sidebar "AC7ZB: From Radio Amateur to Space Scientist.—ed.)

A third ham who helped out in the initial Japanese response was Atsushi Taketani, JF3NRI/N9KAU, at the JA1RL emergency communications center.

SWC's main business at the Logan, Utah campus is building and maintaining an early-warning mechanism for detecting ionospheric disturbances, which can build up very quickly. The center was established in 2009 by the

The King of Solar Eruptions: September 1859

By Bill Sexton, N1IN

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What If the Biggest Solar Storm on Record Happened Today?

Repeat of 1859 Carrington Event would devastate modern world, experts say.



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Meteor Shower This Weekend

This year, the Draconids could see peak rates of 600 meteors an hour, posing possible risks to the space station and other satellites.



Photos: Saturn Moon Covered in Snow

The ice prisms on Saturn's moon Enceladus coat the surface in "the finest powder a skier could hope for," scientists say.

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A National Geographic News story underscores how seriously scientists today are taking the threat of a solar eruption of the magnitude of the Carrington Event, September 1, 1859. (National Geographic News screen grab: <http://bit.ly/n2g9Wl>.—ed.)

Studious recording of solar activity only goes back to the mid-1800s, but that was early enough to capture an eruption on the Sun that even today gives pause to researchers.

It was named the Carrington Event after Richard Christopher Carrington (<http://bit.ly/psNS36>), who was at his telescope when the massive flare exploded on September 1, 1859. Eighteen hours later a burst of charged particles and magnetic energy reached Earth.

A brilliant red, green, and purple aurora borealis filled the skies as far south as the Caribbean and Hawaii just before dawn. In the northeast U.S., newspapers could be read by the aurora's glow.

Everywhere, sparks flew from telegraph wires and communication was disrupted. This was the first documented "magnetic storm."

"Another Carrington Event would be incredibly devastating if it happened now," Don Rice, AC7ZB, of Utah State University's Space Weather Center said. "And it could."

(In Depth: National Geographic News wonders about the impact of a Carrington-magnitude event in our time. See "What Would Happen If the Biggest Solar Storm On Record Happened Today?": <http://bit.ly/n2g9Wl>.—ed.)

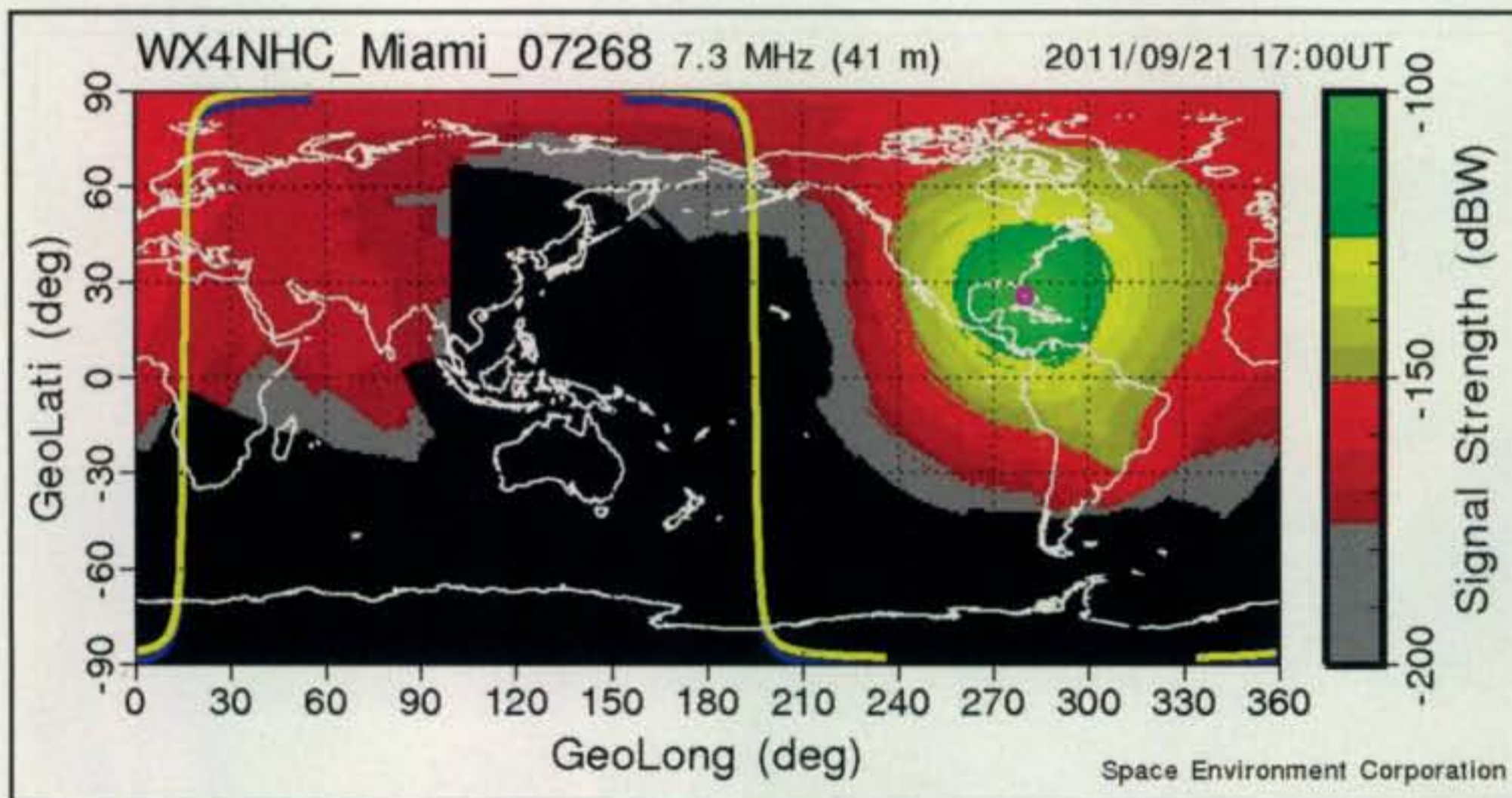
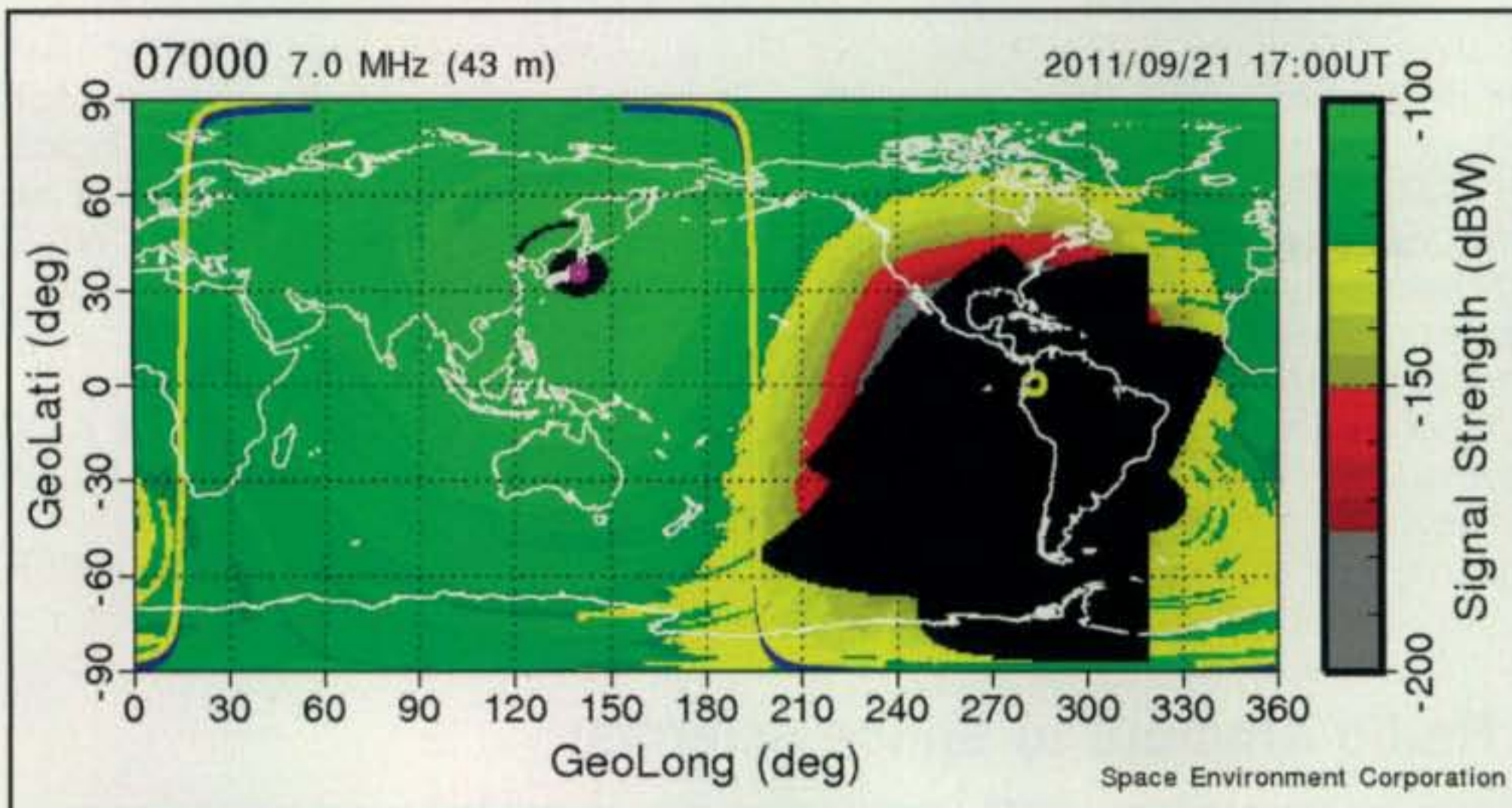
Utah Science Technology and Research initiative (USTAR)—see: <http://www.ustar.utah.edu/>—with financing from state government and the federal stimulus program. It is only the latest undertaking in Utah State's long-standing commitment to space research. The Department of Defense and NASA are among other sponsors of research there. (Visit: USU's homepage at: <http://www.usu.edu/>.—ed.)

Tobiska joined the center as its director following research positions at the NOAA Space Environment and UC Berkeley Space Sciences laboratories, the Jet Propulsion Laboratory, and Northrup-Grumman. He's widely known

for contributions on solar irradiance. (For a brief explanation of solar irradiance and then to calculate its level at your location, visit: <http://bit.ly/ppqWNa>.—ed.)

What's New in Forecasting Propagation

Here's how the SWC's director explains the methodology: "Many common models (including most used by hams) are based on decades of measurements, so the answer given is an average for the season and geophysical condition (for example, *Kp*, sunspot number), a sort of fancy lookup table.



NVIS has limitations. In the daytime, lower HF bands may be unusable due to noise and absorption; at night, the maximum NVIS frequency may drop below 80 meters in some locations. There may also be the need to communicate with more distant command centers in unaffected regions. For these reasons, HF DX propagation estimates are generated. The plot on the top shows estimated signal levels for a 100-watt transmitter in Japan (small purple circle) with an omnidirectional antenna at any point on Earth. The current subsolar point is indicated by the yellow circle and the terminator is shown by the yellow/blue lines. Japan is in darkness at the time of this plot. The plot on the bottom shows estimated signal levels for a 100-watt transmitter in Miami (purple circle) as received with an omnidirectional antenna at any point on Earth. WX4NHC is marked by the purple dot. The current subsolar point (where the Sun is directly overhead at this hour) is indicated by the yellow circle, and the terminator is shown by the yellow/blue lines. The terminator can also be called the "dawn/dusk line." The time is near local noon in Florida at the time of this plot. (Courtesy of USU Space Weather Center)

"A physics-based model (the SWC's standard) uses systems of physics equations to solve for unknown quantities based on known or observed quantities," he said. "This involves a lot of number-crunching and should produce more realistic results than the averages reported by simpler models (but) at the cost of a lot more compute time," Tobiska added, "USU SWC has the unique capability to provide the gold standard of real-time ionosphere accuracy using the GAIM model." That's the

Department of Defense-supported Global Assimilation of Ionospheric Measurements model, and it is only the beginning of a complex high-speed filtering and linking process that produces the colorful charts. (In Depth: NASA looks at GAIM: <<http://1.usa.gov/q5EL8f>>.—ed.)

Actually, HF radio probably ranks well down the list of societal vulnerabilities that claim attention at USU. Space weather, like Earth's, can be really unruly, with potentially detrimental



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effects on survey and navigation systems that use GPS satellites, over-the-horizon radars, airways control services, and the satellites themselves, as well as power grids and pipelines.

At this early stage of research no one can guess where the outer limit of detrimental impact might be. There's only a limited historical record from the pre-satellite epoch. (See the sidebar "The King of Solar Eruptions, September 1859"—ed.) Earth-weather forecasters have centuries of data to work from and still haven't mastered the art of tornado tracking.

"Space weather disturbances can wreak havoc on human systems and operations," Dr. Robert Schunk, one of the

GAIM designers and a pioneer space researcher at Utah State, has written. "As society becomes more dependent on sophisticated space-borne and ground-based technological systems, forecasting space weather becomes crucial to our economy, safety, and security." —Bill Sexton, NI1N

Season's Greetings . . .

From everyone on the CQ "Public Service" team, we send you the warmest of holiday greetings and best wishes for the happiest, healthiest of New Years.

73, Richard, KI6SN

AC7ZB: Radio Amateur to Space Scientist

By Don Rice, AC7ZB

I got into radio as a kid in Alaska. It was my grandfather who got me hooked. He had always been interested but never had the time or money to become a ham. But he encouraged me, bought me some Heathkits, and I got licensed as KL7JIQ while still in high school in 1979.

My main interest in radio has been HF (high-frequencies) ever since I listened to exotic faraway stations on my grandfather's humble old receiver, a Sears Wayfarer. (See: *The Sears and Roebuck Silvertone Wayfarer*: <<http://bit.ly/nHezOO>>.—ed.)

Once licensed, I soon became fascinated with HF, which behaves very strangely in the far north. That's what started me off getting a Bachelor of Science degree in electrical engineering at the University of Alaska, Fairbanks (UAF). With its location so near the top of the Earth, the UAF Geophysical Institute is one of the major research centers, and that's where I studied for my (Master of Science degree) in space physics with Dr. Robert Hunsucker, KL7CYS/ AB7VP, as my adviser. (Visit: *The UAF Geophysical Institute*: <<http://www.gi.alaska.edu/>>.—ed.)

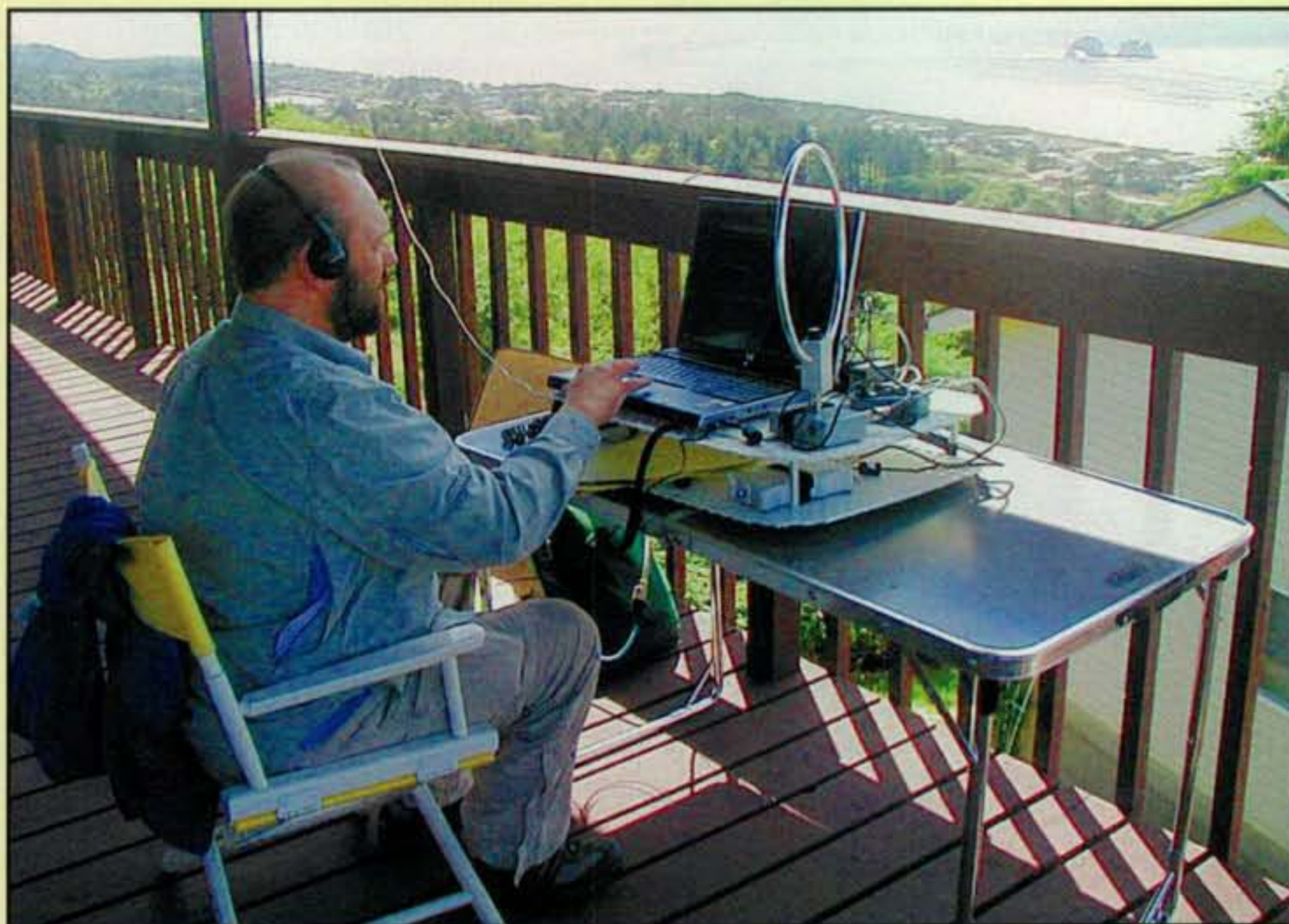
He had been involved in radio science since the International Geophysical Year 1957–58, probably the biggest global research effort in history. We still work together on propagation projects. He is in Klamath Falls, Oregon now. I'm in River Heights, Utah.

With Bob Hunsucker as my Elmer (mentor), I quickly realized how many mysteries there still are relating to HF.

For a long time, it seemed science's attitude was that HF propagation was an uninteresting "solved problem." But now we're seeing a new appreciation for both the complexities and usefulness of the whole discipline of propagation research.

Frankly, I've been skeptical of propagation modeling software because even though the science behind the models may be quite good, I often think, "There are more things in heaven and earth, Horatio, than are dreamt of in your philosophy," as Shakespeare's Hamlet put it.

The models just don't deal with things such as sporadic-E, winter absorption anomalies, and the x-ray flares that wipe out



On-the-job "Field Day" for Don Rice, AC7ZB, might include locating end points for a propagation test range. The project here was measuring actual WWV reception for comparison with model predictions on HF. This comfortable setup at Rockaway Beach, Oregon featured a WinRadio G313e receiver, an LF Engineering H-900 active antenna mounted on a fiberglass mast (not shown), and an AOR LA380 loop antenna. (Courtesy of Susan Rice, KD7RUM)

HF for minutes or hours, depending on your operating frequency. Not to mention oddball ducting modes and the like that ray-tracing may or may not catch.

What's different about the USU Space Weather Center (<http://www.spaceweather.usu.edu>) effort is that the underlying model, GAIM-GM, takes in current observations from various sources, so it has the potential to adapt to real-world conditions.

I'm hoping we can make it more aware of relevant space weather, such as sporadic-E and absorption anomalies. It is definitely a work in progress, but very promising.

I would encourage hams (and SWLs) to check it out, and to get involved with projects like PropNET© (<http://www.propnet.org>), the team of hams who exchange PSK31 messages using special (free) software. It generates a map of worldwide con-

tacts showing point-to-point propagation at a given moment: It's a great idea for weekend warriors who have equipment gathering dust in the back room.

Other than PropNET©, I really like PSK31. It has an elegance that is much like CW, in my mind, and 10 watts will do the job almost every time. I got a ridiculous PSK31 capture from G07OGX in the UK at Bear Lake, Utah a few years ago on 10 meters, and my best analysis of the propagation was that it involved sporadic-E and a bank shot off Hudson Bay. Those are the things the propagation models will never predict.

(Don Rice, AC7ZB, is a member of the Implementation Team at the Space Weather Center at Utah State University in Logan. He is also affiliated with Space Environment Corp. in Providence, Utah, <<http://www.spacenv.com/>>—ed.)



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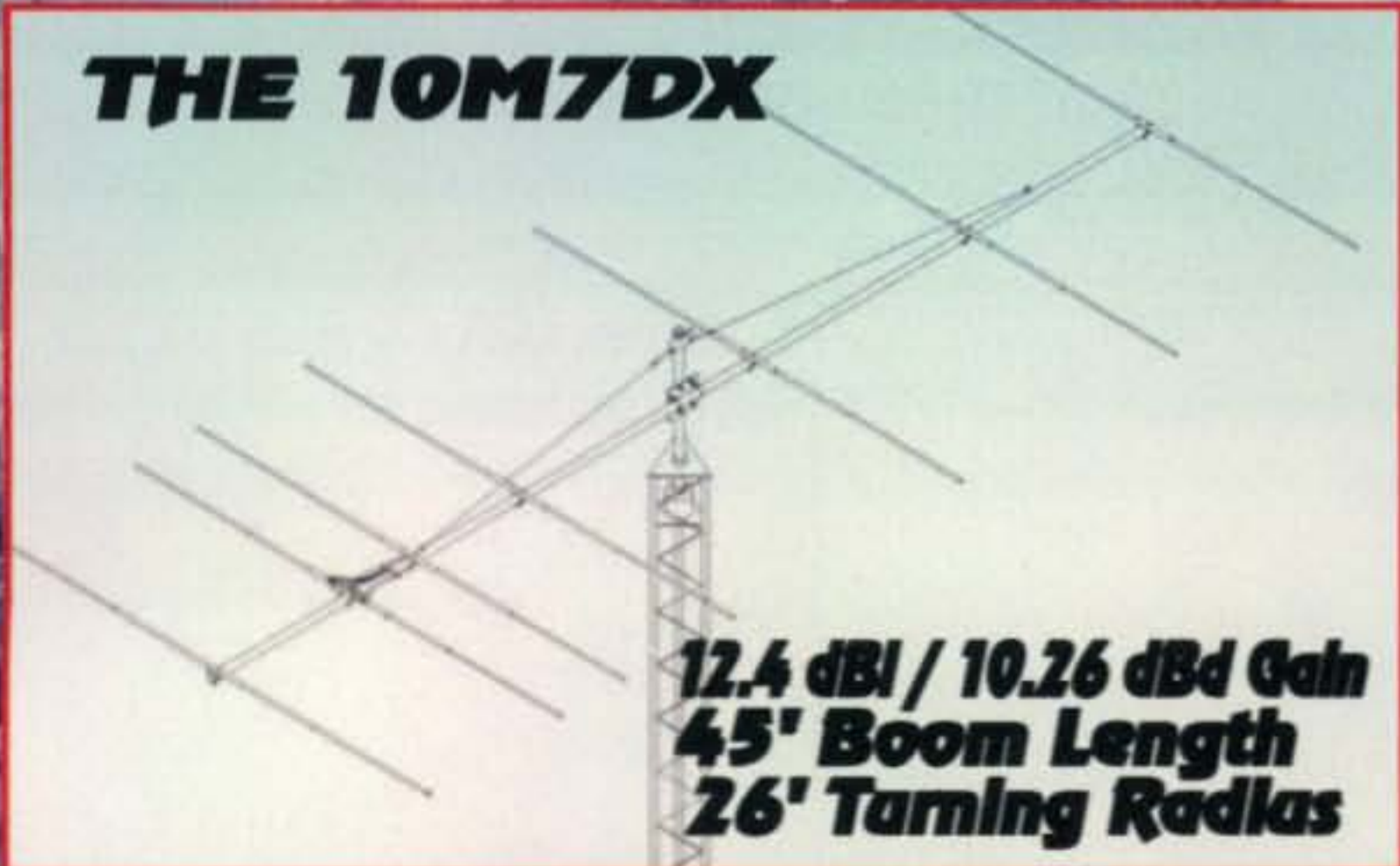
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Happy Holidays to the QRP community! Here's wishing you the holiday best, and may there be a QRP package or two under the tree this year!

If you live in an area where it's pretty chilly this time of year, you might find it odd to be reading about kayaking. Fear not, as warmer days will come. Right now it's a good time to be planning those QRP adventures for the days ahead when the sun is out and the water has thawed.

N7MOB does Zen Lotus Kayak QRP Ops

Our Field Day group sets up in a public campground, and each year it seems I have to get to the campground earlier in the week to squat on our preferred sites. This year I went up Wednesday morning, got some tents set up, and paid the campground host. I also launched a 20-meter dipole about 60 feet up between some pines. It's great fun to have a couple days with nothing more to do than to tune the bands, have some good ragchews, and work the world with 5 watts, especially when

you're at 7000 feet altitude, the weather is good, and the bands are entirely free of man-made noise.

It was during this time that I ran into Bill, N7MOB, who mentioned he was operating QRP from an island he'd accessed by kayak. I had to know more about his QRP/P/kayak operations, so I e-mailed him when I got home and got this response:

"I generally operate with my Sierra and a 14-MHz crappie fishing pole vertical while camped just above the surf line. The simple vertical, with two radials, has been known to create pile-ups into Europe when I do any IOTA calling, but for the most part, I just answer CQs and have a rag chew." As it turns out, Bill doesn't operate *from* the kayak; he uses it to paddle his way to the shore of an island and set up right near the water so as to have an excellent salt-water ground plane.

He continues, "As of the last year or so, I have been using EFHW (*see explanation below—ed.*) wires from the rig to the 20-foot pole and down (lazy L configuration, see fig. 1) with great success. A 66-foot wire allows me 40/20 with a simple tuner, and I can force the wire to tune 30 meters if I use one of my other tuners ... all homebrew in Altoid® tins. A complete Sierra kit with three modules, batteries, key, and solar panel fit into a 4x pistol case from Plano ... about \$20 delivered from several

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Fig. 1—N7MOB's portable antenna, usually set up on or near a salt-water ground plane.

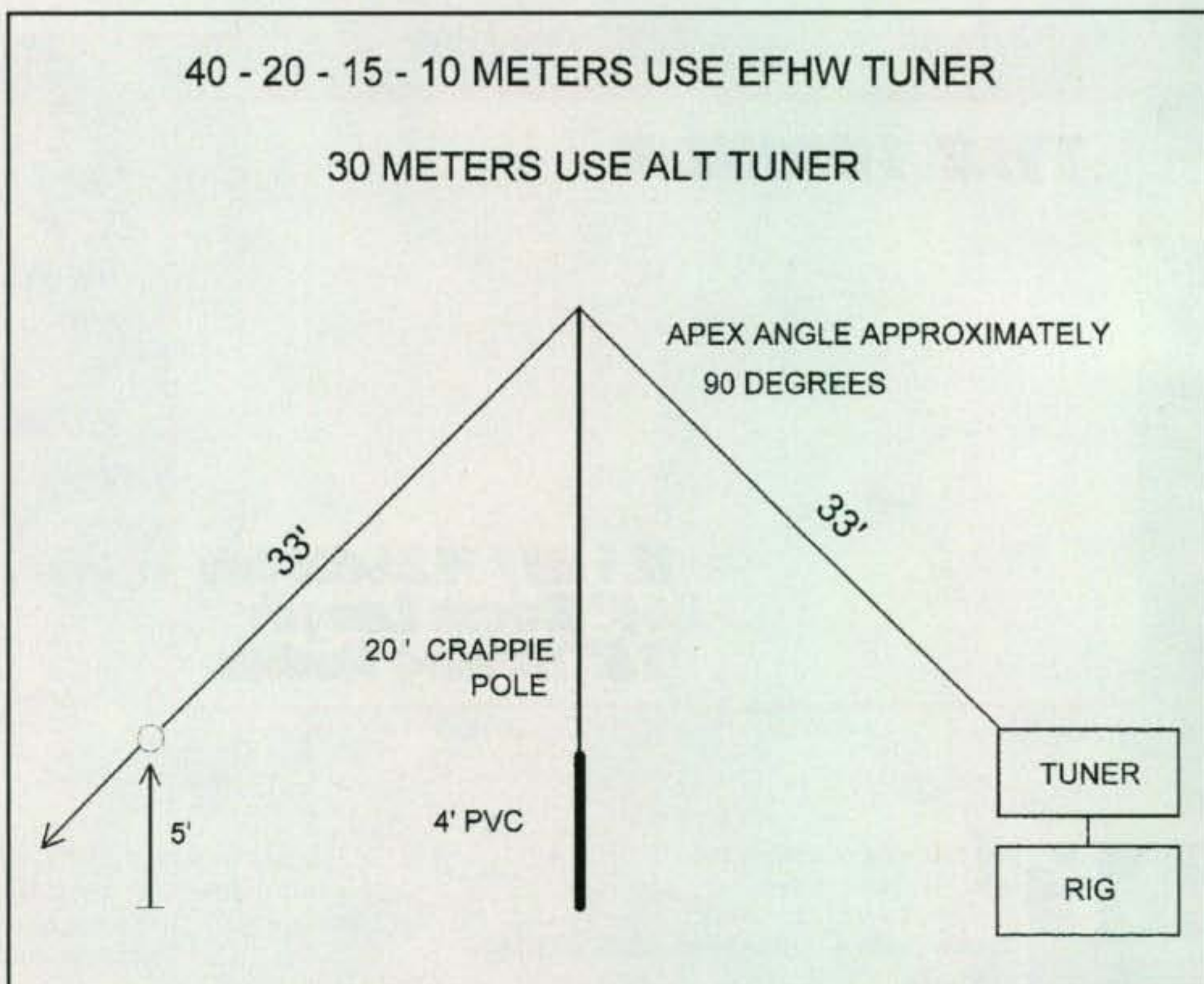




Photo A—N7MOB's QRP station in a padded case. Besides the Sierra he includes batteries, two antennas, two tuners, a key, earbuds, and a folding solar panel.

EBay resources." That would be the setup as seen in photo A.

Bill is a fan of Altoids tins, as he noted: "The Altoid tins are great for organizing different things: EFHW antennas (40 meters fits perfectly), EFHW, and LW (longwire) tuners, odds 'n ends, etc. I have a super small Altoids tin to hold the ear buds!"

Bill carries two tuners to be able to match the end-fed wire on all bands, 40 through 10 meters. One is a homebrew EFHW (End-Fed Half-Wave) tuner and the other is an ALT, or Altoids Longwire Tuner which was formerly sold by Hendricks QRP Kits. This is a simple L-match tuner. The only things he doesn't pack in a tin box are the batteries, for obvious reasons. For these he uses a plastic soap dish!

"Now as to operating position, if I could, I would drag a large picnic table (commonly found at state parks) out into about 2 feet of water, erect the bottom part of the antenna (fiberglass), and throw the c/p (counterpoise) wires into the water! The perfect EZNEC ground! I can do a good Zen Lotus position on the table and still operate."

I'm past the point of operating from the Zen Lotus position (much less actually getting into it), but I can easily conjure an image of Bill parked on top of a picnic table, taking advantage of a salt-water ground plane and working the

world with his Sierra. Thanks for the great QRP/p operating info, Bill!

JUMA TRX-2

For those of you who have a bad case of the "I need a new rig right NOW!" itchies and just can't wait for a KX3, maybe you should take a look at the Juma TRX-2 (see photo B). Steve Silverman, KB3SII, brought this radio to my attention. You can check out the Juma products at <http://www.nikkemedia.fi/juma/>.

Designed and sold in Finland, the Juma line includes a variety of mono-band and multi-band transceivers along with amplifiers and other accessories. The one that Steve introduced me to was the TRX-2A. In basic form it is a two-band transceiver but can be upgraded to a full nine bands.

The Juma TRX-2A is a very compact and lightweight (2.5 lbs) 160 through 10 meters CW/SSB 10-watt rig. It uses the quadrature sampling technique for demodulation and modulation utilizing the low-noise phasing method. It has a built-in keyer and a SWR/power meter, so it is quite self-contained.

A blue/white LCD module displays all the usual data including frequency, power, SWR, S-meter, filter selection, VFO speed, VFO step, mode, etc. The SCAF filter works well, and CW sounds great as does the click-free transmitted CW.

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The user interface is especially simple to learn and use and doesn't require digging out the manual to figure out how to access various functions. Since it is a full SSB transmitter, it accommodates all the various digital modes without compromise using line-level audio signals. The assembly instructions are very complete and well illustrated with photos and drawings.

The TRX-2's architecture is more like an SDR (*software-defined radio—ed.*), but it is an "all-analog radio" except for the DDS. It even brings out the I/Q signals if you want to use a sound card and PC-based software to perform processing outside the box. However, as a self-contained, fully featured transceiver that is a snap to use. It's hard to find a better QRP rig.

Steve's description piqued my interest, so I pulled up the Juma website to have a look for myself. All of the specifications are there, along with a multitude of pictures, circuit descriptions, schematics, block diagrams, and a manual for download. This turns out to be a very interesting little rig, but it's quickly apparent that it's not a beginner's kit. The parts are all surface mount and there are over 800 of them if my quick scan of the parts lists was correct.

The instructions are definitely not Heathkit-like, nor are they of the current trend wherein the builder is asked to build and test each section before moving on. They are more or less like "build the entire main board, and then do these tests when you are done." As I said, it's not a beginner's kit. Steve noted that the Juma website includes a list of qualified hams who offer their services as builders in case the rig is something you need to have, but the build job is not.

Looking over the block diagram, one can see that this is not your Elmer's superhet. The rig uses a quadrature sampling front end/detector, much like the NC 2030, Flex radios, or the Elecraft KX-3. The local oscillator is a DDS. The I and Q signals are processed through a polyphase network to suppress the unwanted sideband and then passed through active audio filters to provide either the CW or SSB bandwidths. After some AGC circuitry, the audio is further shaped by an adjustable low-pass SCAF filter before going to the final audio amp circuits. The transmitter circuitry is almost a mirror image of the receiver.

Checking out the Juma price list, I decided that this is quite a bit of radio for the money. Then, though, it hit me that the prices were listed in Euros, not dollars. Converting the Euros to dollars can suck the breath out of a guy real quick, making the KX-3 look like quite the bargain. Still, the TRX-2 is a very competent little rig, and according to Steve a good performer that I'm sure will have appeal for many a QRP'er worldwide.

Huntsville Hamfest QRPers Fly High

The Huntsville Hamfest is one of the larger well-attended gatherings on the annual hamfest calendar. Like many of the larger ham gatherings, it includes a special QRP "Fest-Within-a-Fest" but with a twist. This year, Craig Behrens, NM4T, and Randy Moore, KS4L, rounded up and herded 26 avid QRPers (from six different states) to Monte Sano State Park cabin #2 to experience "An Evening of QRP on Monte Sano, Southern Style." This event started with a southern BBQ and was followed by another one of NM4T's crazy interactive QRP contests and concluded with prize drawings. Craig related the events as follows:

The avid QRPers gobbled-up pulled-BBQ pork and smoked turkey with all the fixin's. We had fresh-baked Gibson lemon icebox and chocolate pies topped with meringue plus authentic southern pecan pies (topped with creamy vanilla bean ice cream, if



Photo B— The JUMA TRX-2A, a compact 160- through 10-meter, 10-watt, CW and SSB transceiver.

desired). (I'm checking my frequent flyer miles right now; the food part of it sounds that good!—ed.)

Eric Swartz, WA6HHQ, and his wife Lerma, KD6ANH, of Elecraft were our special guests (photo C). This was the second time Eric served as our QRP event contest judge. He also judged our "Mystery Brown Bag Antenna" building contest in our "Two Days in Huntsville" event in the Monte Sano Campgrounds in 2001.

Two three-person teams were assembled for the "Flying High with QRP" contest. Each team had a stealth bomber pilot, a co-pilot, and navigator. Each team waged war via making QSOs with the Elecraft K3 transceiver for 30 minutes. Each QSO was worth a point with big multipliers for each unique state, country, and ARCI number they obtained. The pilot and co-pilot operated the Elecraft K3 transceiver and two RadioWavz antennas, an all-band Windom, and a G5RV (80 meters and up).

Donated prizes for this event included: a Ten-Tec 40/20 QRP Transceiver (our grand prize); an Elecraft XG3 RF Signal Source; a RadioWavz Antenna Gift Certificate; a Ham Plaques Gift Certificate; a CQ magazine subscription; and a number of QRP-centric smaller gifts.

Craig went on to list some of the positive "take-aways" for QRPers from an event like this:

"Hamfests and special amateur radio events provide excellent opportunities for QRPers to gather (and) consider creative (but achievable) activities that help attendees interact in a manner that they get to know each other better."

Feeding them southern BBQ certainly can't hurt, but a fun and quirky contest can also be a big draw and a positive gathering and bonding experience.

Craig finishes with this thought: "Amateur radio vendors are a generous lot that serve our community well. Thank them by promoting their companies and products."

To which I say, "Well said."

Lighting Up the Reverse Beacon Network

As I write this in late September, the sunspots have been working overtime. The solar flux peaked at the highest level it's been during all of Cycle 24, but there were times I turned on the radio, scanned 15 meters, and it sounded as dead as ever. Certainly it helps to call CQ, but if there's no one listening at exactly the same time and exactly the same frequency, you'll get no answer and the band will still appear to be dead.

Thanks to the Reverse Beacon Network, now there's someone listening to all the frequencies, all the time. Not exactly *someone*, but *something*. I used the RBN during the third week of September when it was the Californians' chance to operate in the QRP ARCI Golden Jubilee. I chose to spend my time on 15 meters. It often sounded dead, but thanks to the RBN I knew it wasn't and that my signal was being heard all across the country. You can find the RBN at the following website: <<http://www.reversebeacon.net/main.php>>.

When you first go to this website and bring up the main page, you're greeted by a list of DX stations heard, much like a DX spotting site. The big difference is that in this case, the "spotters" are software-defined radios connected to computers running Skimmer software,

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The KPA500 features 160-6 m coverage, instant RF-based band switching with any radio, alphanumeric status display, bright LED bar graphs, and a rugged, built-in linear supply. The amp's manual band switches can be used to change bands on the K3. The K3 can even select per-band amplifier drive levels automatically when the amp is placed into operate mode, so you'll rarely need to adjust power output.

The K3 already gives you the competitive edge, with its optional high-performance sub receiver, roofing filters as narrow as 200 Hz, new audio peaking filter (APF), and one of the cleanest SSB signals around. Adding the P3 and KPA500 will take you, and your station, to the next level.



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Photo C—Elecraft's Eric Swartz, WA6HHQ (center), answering questions about the KX-3 at "An Evening of QRP on Monte Sano, Southern Style," during the Huntsville Hamfest.

which are in turn connected through the web to the Reverse Beacon Network. No humans needed. The Skimmers are programmed to listen for stations calling "CQ" and when one is heard, the skimmer software passes along the basic info regarding that station. This would include the station's call, frequency, date and time when heard, code speed and signal/noise ratio. Sorry to the sidebanders present, but this is a CW-only system.

All well and good, you say, but how does this help me? Just above the list of spotted DX stations on the website

there's a line that says "search spot by call sign." Click on that line and type your own call into the box that pops up, and then poke the "Search" button. Next find an empty frequency and call CQ. Within about 30 seconds your call will pop up on the screen, listed by each Skimmer that heard you. It's a real trip to see your call suddenly show up as being heard at, say, five different locations around the country!

Armed with that information last September, I set my keyer to send "CQ de K6JSS/6" in repeat mode and proceeded to play with the RBN. The more I used it, the more interesting things I found I could use it for. Next time a band seems to be dead, dial up the RBN and call CQ. You'll be amazed who hears your signal!

Signing Off

These are indeed exciting times in the QRP world. New rigs from Elecraft and Ten-Tec are on the horizon, and interesting little boxes such as the SDR Cube and the Juma rigs keep showing up to keep things lively. It also looks like the new year will be one filled with sunspots. Exciting times, indeed!

72/73, Cam, N6GA

Wanted: Your QRP Stories!

The April issue of *CQ* will be our first annual **QRP Special**! If you've had unusual QRP adventures or are doing something unique or exciting in the realm of low-power operating, we'd love to hear from you. Some stories will work best here in the QRP column; others may work as standalone feature stories. If you have a story or a project to share, drop a note to QRP Editor N6GA (qrp@cq-amateur-radio.com) or magazine editor W2VU (w2vu@cq-amateur-radio.com) with a brief description and we'll let you know if we'd like to see more. Please let us hear from you by the end of December. Thanks.

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NEW! AT-200Proll

The AT-200Proll now includes LEDs to show antenna position and if the tuner is in bypass. A two position antenna switch stores 2000 memories per switch. Handles up to 250 watts SSB or CW on 1.8 to 30 MHz and 100 watts on 54 MHz. Rugged and easy to read LED bar graphs simultaneously show RF power and SWR. Includes a six foot DC power cable.

Suggested Price \$259.99

- RF Sensing
- Tunes Automatically
- No Interface Cables Needed



radio not included

AT-897Plus for the Yaesu FT-897

If you own a Yaesu FT-897 and want a broad range automatic antenna tuner, look no further! The AT-897Plus Autotuner mounts on the side of your FT-897 just like the original equipment and takes power directly from the CAT port of the FT-897 and provides a second CAT port on the back of the tuner so hooking up another CAT device couldn't be easier. **Suggested Price \$199.99**



AT-600Pro

The AT-600Pro handles up to 600 watts SSB and CW, 300 on RTTY (1.8 – 30 MHz), and 250 watts on 54 MHz. Matches virtually any kind of coax-fed antenna and will typically match a 10:1 SWR down to 1.5:1 in just a few seconds. You can also use it with longwires, random wires and antennas fed with ladder line just by adding a balun. Two antenna ports with a front-panel indicator, and separate memory banks for each antenna. LED bar-graph meters shows RF power, SWR and tuner status, tactile feedback control buttons and an LED bypass indicator. Operates from 11 – 16 volts DC at 750 mA. Includes six foot DC power cable.

Suggested Price \$359.99



Z-11Proll

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

Suggested Price \$179.99



radio not included

Z-817

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

Suggested Price \$129.99.



Z-100Plus

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

We have a tuner that will work for you!

We make tuners that will work with any transceiver. Don't know which one is right for you? Give us a call or see the **Tuner Comparison Chart** on our web site for more selection help!

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NEW! Z-817H

The ultimate autotuner for QRP radios including the Yaesu FT-817(D) with addition of the Tokyo High Power HL-45B. Interfaces to the CAT port (ACC) on the back of the radio with the provided cable. One button push on the tuner and the Z-817H takes care of the rest. Will also function as a general purpose antenna tuner with other QRP radios or QRP radios with up to 75 watt HF amps. Powered by four AA internal Alkaline batteries (not included). 2000 memories cover 160 through 6 meters.

Suggested Price \$159.99



- RF Sensing
- Tunes Automatically
- No Interface Cables Needed

AT-100Proll

This desktop tuner covers all frequencies from 1.8 – 54 MHz (including 6 meters), and will automatically match your antenna in no time. It features a two-position antenna switch with LEDs, allowing you to switch instantly between two antennas. The AT-100Proll requires just 1 watt for operation, but will handle up to 125 watts. Includes six foot DC power cable.

Suggested Price \$229.99



AT-1000Pro

The AT-1000Pro has an Automode that automatically starts a tuning cycle when the SWR exceeds a limit you set. Operates at any power level between 5 and 1,000 watts peak. RF Relay protection software prevents tuning at greater than 125 watts. Tunes from 1.8 to 54.0 MHz (inc. 6 meters), with tuning time usually under 4 seconds, transmitting near a frequency with stored tuning parameters, under 0.2 seconds. 2000 memories. 2 Antenna connections. Includes six foot DC power cable.

Suggested Price \$599

IT-100

Matched in size to the IC-7000 and IC-706, for either manual or automatic tunes, and status LEDs. Control the IT-100 and its 2000 memories from either its own button or the Tune button on your IC-7000 or other Icom rigs. For your Icom radio that is AH3 or AH-4 compatible. **Suggested Price \$179.99**



YT-100

For Yaesu FT-857, FT-897 and FT-100 (and all D models) an integrated tuner, powered by the interface. Press the tune button on the tuner, and everything else happens automatically. **Suggested Price \$199.99**



KT-100

For AT-300 compatible Kenwood transceivers (except TS-480HX). The KT-100 actually allows you to use the Tune button on the radio. 2,000 memories for instant recall of the tuning parameters for your favorite bands and frequencies. **Suggested Price \$199.99**



YT-450

Designed for Yaesu's newest 100 watt radios. Interfaces directly with the Yaesu FT-450 and FT-950 radios. Press the tune button on the tuner and the rest happens automatically. It will quickly match nearly any kind of coax fed antenna with an SWR of up to 10:1. 2000 memories recall settings in an instant! Seamless connection to a PC. **Suggested Price \$249.99**



YT-847

YT-847 Autotuner is an integrated tuner for the Yaesu FT-847. An included CAT/Power cable interfaces with your FT-847. Just press the tune button on the tuner and everything else happens automatically! **Suggested Price \$249.99**



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"The Unseen (Kid) Heroes"

"Up next is the Blackberry Blackout, and how we've become so dependent on them," said the news anchor one evening. The "blackout" of Blackberry phones experienced a couple of months ago is just one example of how modern technology is not completely flawless, as some may think. The people who know this best are often amateur radio operators, including some young hams who appreciate both the commercially "wired" world and our amateur "wireless" one. One of these young hams is 15-year-old Brandon Tenold, KDØKMT.

After discovering a post on QRZ.com about his winning the South Dakota State Fair in the electronics category for a repeater he built, I talked to Brandon over the phone. Despite being totally at home with Facebook, cell phones, and other forms of social media, Brandon is a dedicated radio operator.

A homeschooled student in South Dakota, Brandon has delved head-first into the world of radio. "It basically revolves around my world; my whole life is radio," he said of the hobby. Brandon first got into amateur radio when his friend Larry Miller, WAØBDN, showed him his own personal ham shack. Brandon got himself a handheld radio

and started listening while he began to study for his test. His dad also decided to get his license at the same time. "He decided he'd get it so that if I made a mistake [he could help me, and] so he could get on there and talk, just so he can talk. And he was up all night on the computer taking the practice test, and get this. . . . We got the same answers wrong and the VE noticed, but we were on opposite ends of the room."

Since getting his license much of what Brandon does to succeed is through radio-related activities. An example is the contests that Brandon won. He participated in the Harding County Fair, in which his repeater won 1st prize, and he went on to compete in the state fair, in which he also won 1st prize. Brandon also helps maintain radio equipment for the local fire department.

One of his favorite parts of amateur radio is the emergency preparedness aspect. He is very aware of the repeater situation in South Dakota, which is why the repeater he built—which bridged the communication gap between South and North Dakota—won first prize. He hopes to help fix this problem by helping to repair repeaters when possible.

He is also looking at becoming a member of ARES®, the American Radio Relay League's Amateur Radio Emergency Service. Brandon enjoys being a storm spotter, something that is invaluable in his area, where there are not many storm spotters. "I helped relay information all day about (a) tornado. They were really happy. I got a few e-mails about their appreciation for the reports, because we are really the only spotters."

Of the whole modern technology vs. amateur radio debate, Brandon seems to have the perfect balance. He's completely capable of using Skype, Facebook, and cell phones, while having a very healthy love and respect for radio's necessity in today's world. "I'm more into the emergency part of it. Like we had a storm around here and it dropped into a tornado and I was with the National Weather Service all day. Called National Weather Service 200 miles away, and everyone was like, my cell phone doesn't work, the internet doesn't work, well [of course]!"

Even with friends, Brandon encourages them to at least give radio a try. He says one friend is not ready for the test but is definitely taking an interest. He has another friend who was asking why not just use Skype to talk? So, he gave the friend some coax cable and a beam antenna, and used Skype to see each other's faces, but radio to talk on the air. There definitely needs to be a balance between modern commercial technology and amateur radio, because when power goes out, Skype doesn't work, but these two friends can still talk with amateur radio.

Brandon also promotes amateur radio through his 4H club. "I'm the only one in my 4H club who's interested in radio, and I bring presentations every

*c/o CQ magazine



Brandon Tenold, KDØKMT, of Reva, South Dakota, standing in front of his repeater that won first prize in the electronics category at this year's South Dakota State Fair. Brandon regularly promotes ham radio in his 4-H Club and is considering a career in engineering.

two weeks, and demonstrate if a cell phone doesn't work how radio can work, and the kids are pretty interested." Brandon does these demonstrations for kids age 5-13, a hefty accomplishment to take a hobby that may not be immediately interesting to young kids and make it a routine topic of a 4H club.

As amateur radio has done with many people, I wanted to know if Brandon's love of amateur radio might continue to grow into a career influenced by his hobby. Though only 15 years old, he is thinking about becoming a software engineer, specifically working for Motorola. He has been offered work with the company, and described one occasion on which he was asked by someone from Motorola questions such as "What does a voltage regulator do?" and surprised the employee because he knew every answer!

Will amateur radio keep living on as a flourishing hobby? With young amateurs such as Brandon Tenold, so full of passion, incredible potential, and looking for ways to improve the world through the hobby, yes, it no doubt will grow.

I always like to call amateur radio operators the "unseen heroes," people who prepare nearly as much as firefighters or police officers, and who will play just as big a role when disaster strikes. It is kids like Brandon who are the future of emergency preparedness and who "will be there at the next attack or the next natural disaster. You're going to have hams there who are ready and prepared and willing to help. When all else fails, we're just there . . . we're just there."

KB1OGL Going QRT

This column will be my last with *CQ* magazine. My time at *CQ* has been one of the best experiences of my life, one that not many people my age have had. As much as I love amateur radio, as well as writing about it, I now have to use my time to focus on college auditions and applications. I hope to be accepted to the University of Maryland for the fall semester of 2012, where I plan to double major in jazz piano performance and business management.

I would like to thank everyone I have worked with on my columns. It was so much fun to talk to young amateurs all over the country. I'd also like to thank Rich Moseson, W2VU, Editor of *CQ*, for the guidance throughout my time as a writer for *CQ*.

73 de Britany, KB1OGL


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"The British Invasion," plus an Intro to "Limerick-Style" Construction

I am reminded again of one of the reasons that ham radio kits still exist. That reason is to make available a device that could not be profitably made commercially, either due to its limited appeal or the ability to mass produce such an item. Kits can come in all sizes and shapes and sometimes radically different assembly styles. Among these kits are offerings from our friends at the G-QRP group in the United Kingdom.

"Sudden" Kits

The G-QRP group makes a pair of kits with the "Sudden" name that comprise a QRP transmitter/receiver pair. The "Sudden" name comes from the city where George Dobbs, G3RJV, the creator of the Sudden Receiver, lived. What makes these kits unique is their construction. These G-QRP kits create the case by using parts of the printed circuit board to form the case shell and cover as well as hold the parts. The way the parts are placed is also unique.

*7133 Yosemite Drive, Lincoln, NE 68507
e-mail: <k0neb@cq-amateur-radio.com>



G-QRP Sudden Receiver kit completed with cover off.

These kits utilize common through-hole parts that are mounted on the top of the board in a style similar to "Manhattan" style. Manhattan-style construction uses a plain, unetched piece of circuit board with islands made of small pieces of board material glued to the top of the board. These islands are insulated from the plane of the board and provide a place for components to be joined together by soldering them, with ground leads soldered to the board itself.

The G-QRP kits take that one step further by having traces etched on the board and component locations silk-screened on the top like a conventional board, but with no holes to mount the parts. The component leads are placed on the open and marked pre-tinned squares, and unlike Manhattan style, only one lead is soldered to each square. In Manhattan designs, several leads can be soldered to one island. This new style of construction was created by Rex Harper, W1REX, and is called "Limerick," named after his home town in Maine.

In Limerick construction the components are mounted by bending and pre-trimming the leads and placing them to stand just above the square pads. The parts are mounted by soldering one lead to hold the part in place and then the other lead or leads to complete the mounting process. This results in a very neat-looking appearance, compared to Manhattan construction. Placement of multi-lead parts such as IC sockets is easily done by bending the leads outwards, lining up the socket on the pads and soldering one corner lead to hold it straight, aligned in the right position for the other pads. The other leads then easily solder to the remaining pre-tinned pads. The controls are mounted on their own special PC board with their wire leads connecting to pads on the main board. The back panel is done in similar fashion.

Once the main board is completed, the case is formed by carefully soldering the other pieces of PC board material, including the control panel and back panel, to the base. The top cover is made similarly, making for a completely shielded case without having to drill holes.

The matching Sudden Transmitter kit has a number of parts mounted to the back panel, making it much more than just a holder for the interconnections. Both kits are the same size, making for a stylish looking pair of radios with a unique construction technique. The G-QRP group plans a matching antenna tuner kit in the future. You can order these kits at <<http://www.gqrp.com/sales.htm>>.

QRSS Beacons

The other kits I ordered from the UK are the QRSS beacons by Hans Summers, GØUPL, and Steve

Ameritron 1200 Watts Solid State Amplifier

1200 Watts PEP SSB/CW Output, 1.5-30 MHz. No Tune, Instant-On, Instant Bandswitching, Super Reliable, Whisper Quiet, Remote Controllable, QSK, Fully Protected, Fully Metered ...



Just select the band and transmit!
Ameritron's new solid state no-tune, instant-on, instant bandswitching ALS-1300 desktop linear amplifier gives you 1200 Watts PEP SSB/CW with less than 100 Watts drive. Covers 1.5 to 22 MHz (10/12 Meters with optional MOD-10MK). You'll bust through weak band conditions, heavy QRM and QRN because the ALS-1300 is less than 1 dB down from a full legal limit 1500 Watt amplifier.

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Eight conservatively rated MRF-150 FETs mounted on two huge heat sinks spreads heat evenly. Four whisper quiet temperature controlled fans keep the FETs at a safe temperature. You get unparalleled Ameritron reliability and trouble-free service. Competing amplifiers using a single expensive device concentrate heat at a single hotspot that greatly reduces reliability.

50-Volt operation gives you highly linear operation with a superbly clean signal.

Put out-of-the-way and Remote Control

The ALS-1300 amplifier and its matching power supply can be placed out-of-the-way and controlled remotely. Remote Control Head, ALS-500RC, \$49.95, lets you monitor data and manually switch bands. Radio Interface, ARI-500, \$119.95, reads band data from your transceiver and

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automatically bandswitches the ALS-1300 as you change bands on your transceiver.

Features Galore!

An Operate/Standby switch lets you run "barefoot" and instantly switch to full power when you need it.

Fast 5 millisecond T/R relays (10 million operation lifetime specs) give you full QSK operation. The T/R relay sub-board is easily replaced if the relays ever fail.

Ameritron's exclusive front-panel ALC control prevents overdriving your transceiver.

The ALS-1300 can be keyed by any transceiver that can sink 15 mA at 12 VDC without requiring a special interface.

Super-clean modular construction makes service quick and easy.

Fully Protected!

The ALS-1300 is fully protected to prevent amplifier damage if you: switch to a band different from your transceiver, use the wrong antenna or have overly high SWR, if the heat sink temperature exceeds a safe level, if the dual 600 Watt modules are significantly RF unbalanced. Whenever the amplifier faults, it is automatically bypassed.

If output forward or reflected power exceeds a safe level, output power is auto-

matically reduced to prevent amplifier damage by controlling ALC to the transmitter.

Fully Metered!

Two accurate Cross-Needle meters use LEDs with adjustable brightness for back-lighting -- no more burned-out meter lamps.

The left meter continuously monitors DC current of both 600 watt amplifier modules.

The right meter is a multi-meter. Read antenna SWR, forward, reflected output power simultaneously (has adjustable PEP meter hold time) ... amplifier balance ... ALC between amplifier and transceiver ... DC drain voltage of each power amplifier.

LEDs show which band is selected (manually bandswitched or automatically with optional ARI-500 Radio Interface) ... ALC activity ... when the amplifier is keyed ... high SWR ... power amplifier fault.

The desktop size amplifier is a compact 10½Wx6¾Hx19D in. Weighs just 23 lbs.

Hash-Free Switching Power Supply!

The hash-free fully regulated 50 VDC, 50 Amp switching power supply is wired for 220 VAC but can be rewired for 110

VAC. Includes six foot cable to ALS-1300. Draws 12 Amps at 220 VAC, 25 Amps at 110 VAC. Has inrush current protection, current-limited outputs, exceptional filtering and RFI suppression. Works on 50-400 Hz, 200-260/ 100-135 VAC making it ideal for remote DX-peditions. 10Wx6½Hx9½D inches. 12 pounds.

Options

MOD-10MK \$39.95, low-pass filter assembly gives you 12 and 10 Meter operation. Requires FCC ham license.

QSK-5, \$359.95, pin-diode T/R switch gives lightning fast silent QSK operation.

Here's what they say ...

I have had my amp now for a few days and WOW! I picked the amp up at the factory and Mike was very helpful in showing me the ins & outs of the amp. Mine is S/N 8 and these amps are in high demand. It will truly talk 1200 watts all night long and never get warm. Thanks to Ameritron for the way they treat their customers and taking time that I was satisfied. N5SBZ

I've been using SN3 for about six weeks now. No processors or digital read-outs, but very easy to use and it puts out 1200 watts on most bands with no problem. I have been operating QSK as the internal relays are plenty fast enough. AD5X

I have had this fine amp now for a week and have made a number of QSO's (20). It can make the difference, and has in a number of occasions, getting thru the QRM and making a contact. Some of my QSO's have lasted up to 1 hour and there has not been a single problem...runs cool and gives me excellent results. KB4KKX

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Inside the ALS-1300 Solid State Amplifier

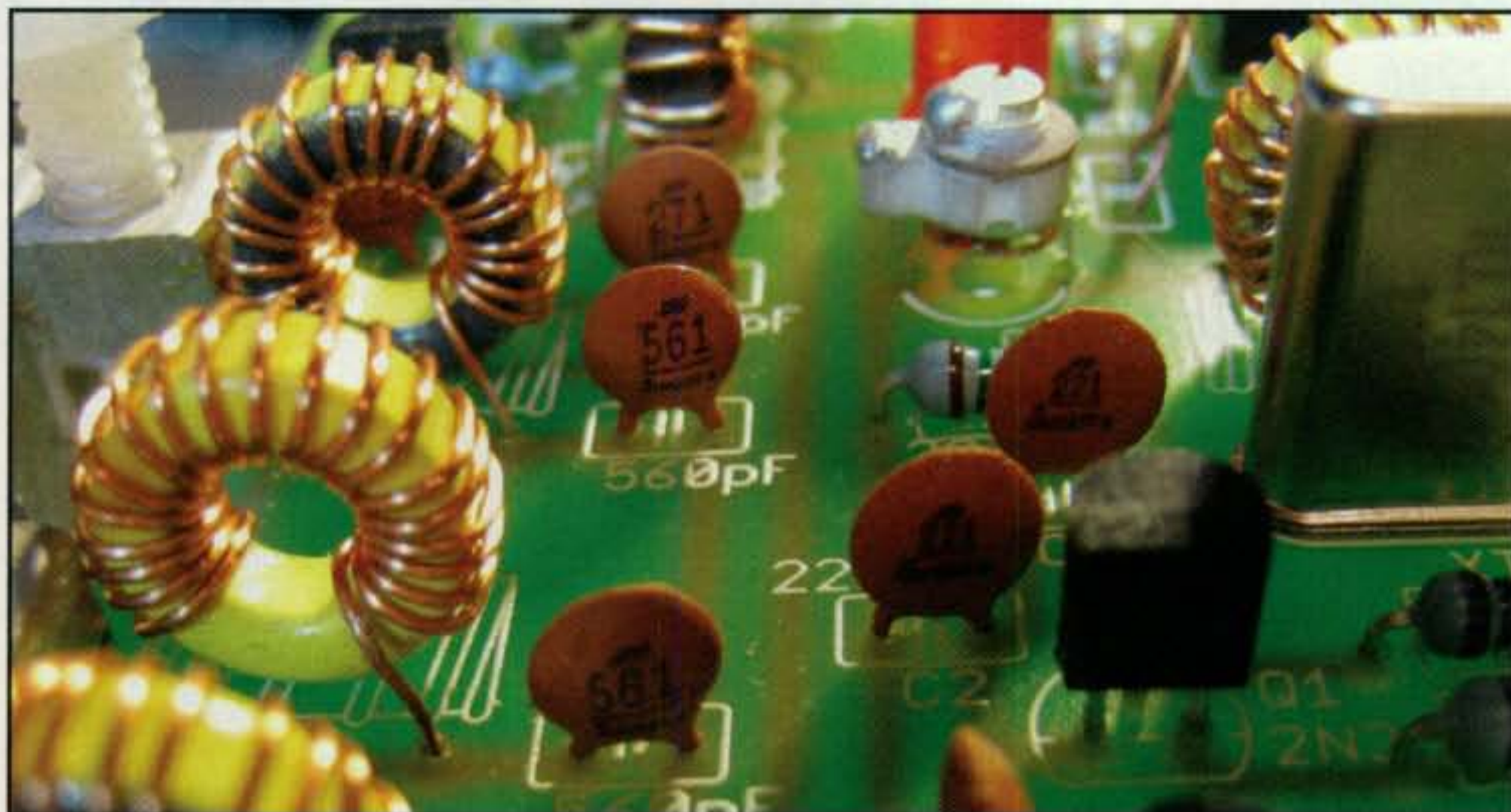


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Farthing, GØXAR. These kits are very simple 100–150-mw beacons designed to transmit a very narrow FSK CW beacon for researching propagation. The method used is called QRSS, which is very slow-speed CW. In this method, dits can be measured in seconds, or even minutes if desired. It takes a long time to receive the beacon callsign, but it can be accomplished with very low power levels. The signals are received with assistance from any of a number of free QRSS grabber programs and can be viewed on the web from grabber sites all over the world.

The board is single-sided with the parts locations silk-screened on the top for easy placement. The fun of building these QRSS kits is that it can be done in a relatively short time, but they do have five toroids to wind. The toroids are simple ones with no secondary windings and do not have an excessive number of turns. Be sure to wind them according to the chart in the instructions for the band you are building. Be sure to also double-check the number of turns on each toroid as you wind them, as well as the proper capacitor placement.

Mounting the pot is a little tricky, and this kit also introduces you to the concept of a "gimmick" capacitor. Normally,



QRSS Labs 30-meter QRSS beacon board close up.

the smallest capacitor available is 1 pf. By twisting two wires together, a capacitor around 1 pf can be formed that can be varied in value by trimming it. The gimmick capacitor in this kit is used to set the offset shift frequency for very narrow FSK CW. The QRSS beacon kits are available for 80, 40, or 30 meters, and come with the crystal needed to place it in the band segment recognized for this mode of operation. An Altoids® tin or any one of a number of inexpensive small plastic or metal enclosures is good for mounting this kit. The selling price is under \$20 plus shipping and comes with your callsign pre-programmed on the supplied IC by

QRSS Labs. You can order them online at <<http://www.hanssummers.com>>.

Back on This Side of the Pond...

While looking for new kits to build, I stumbled upon the N3ZI kits. Doug Pongrance, N3ZI, makes a general-coverage receiver kit that requires a DDS kit and an LCD display, which he sells as well. Doug's Digital Dial kit can be used with many older radios, as well as many kit and homebrew radios, to provide a digital display. No cases are sold with Doug's kits, but many standard enclosures will work. N3ZI kits are available at <<http://www.pongrance.com>>.


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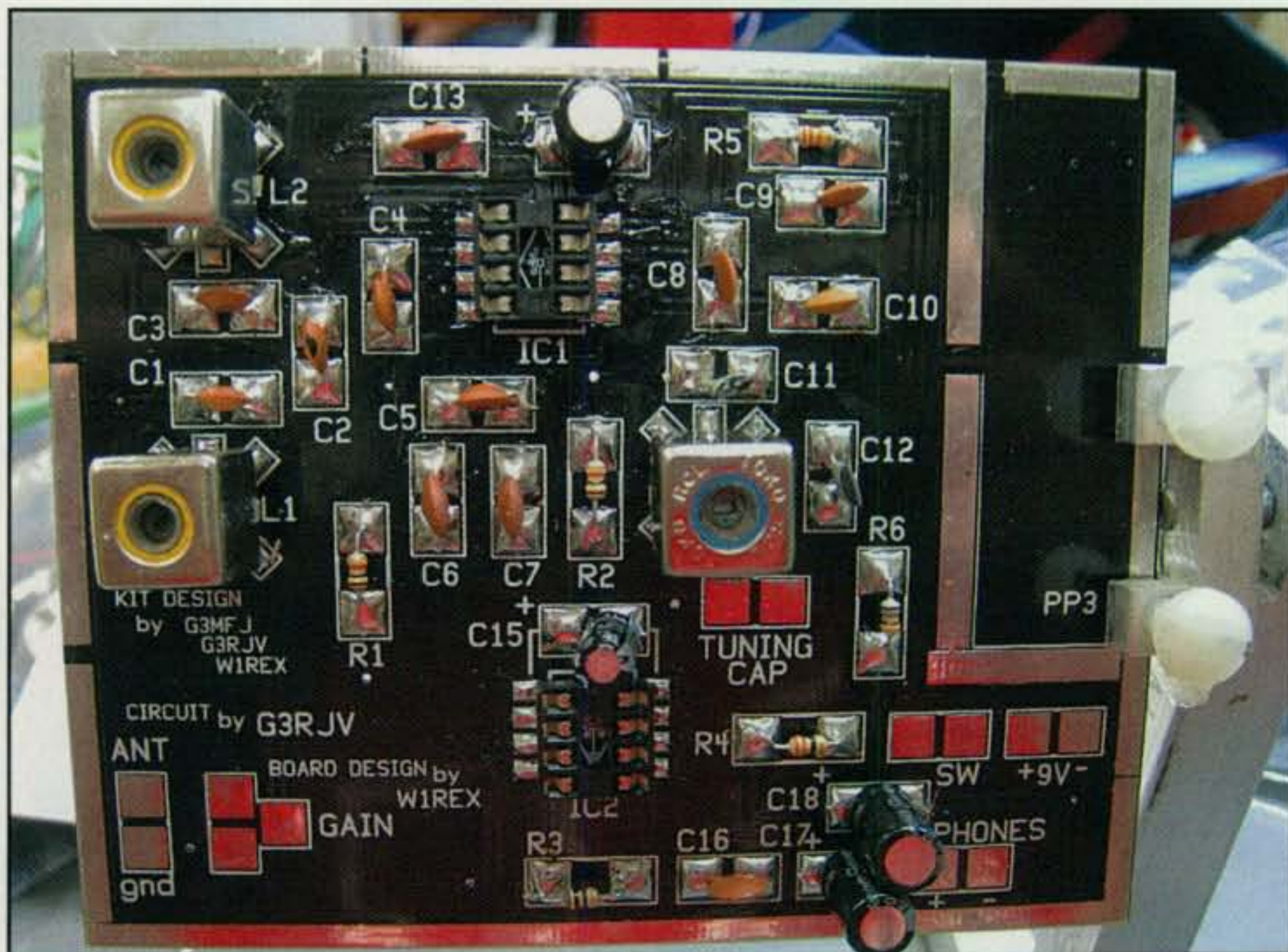
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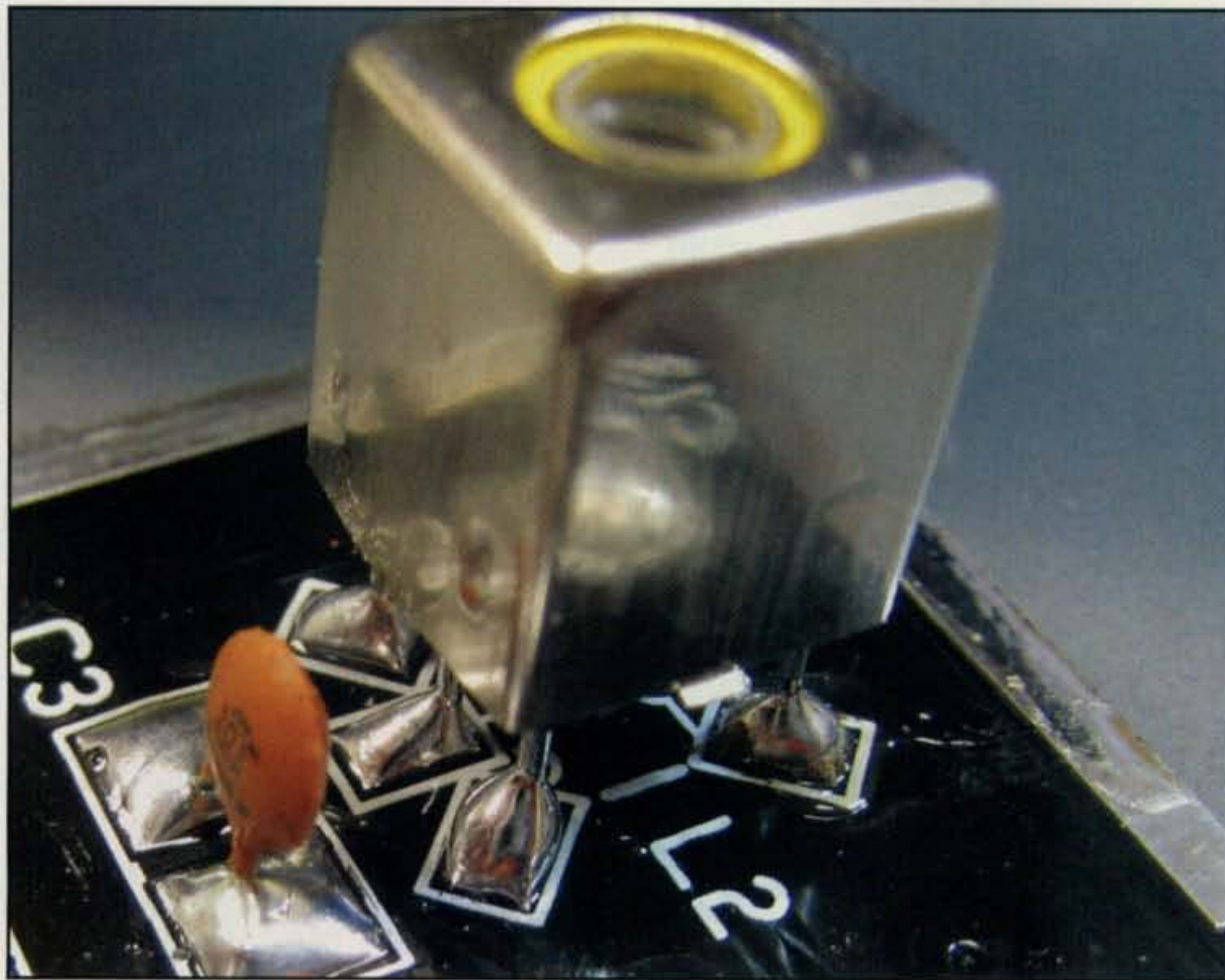
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Sudden receiver board. Notice how each component lead has its own square pad in Limerick-style construction (see text for details).

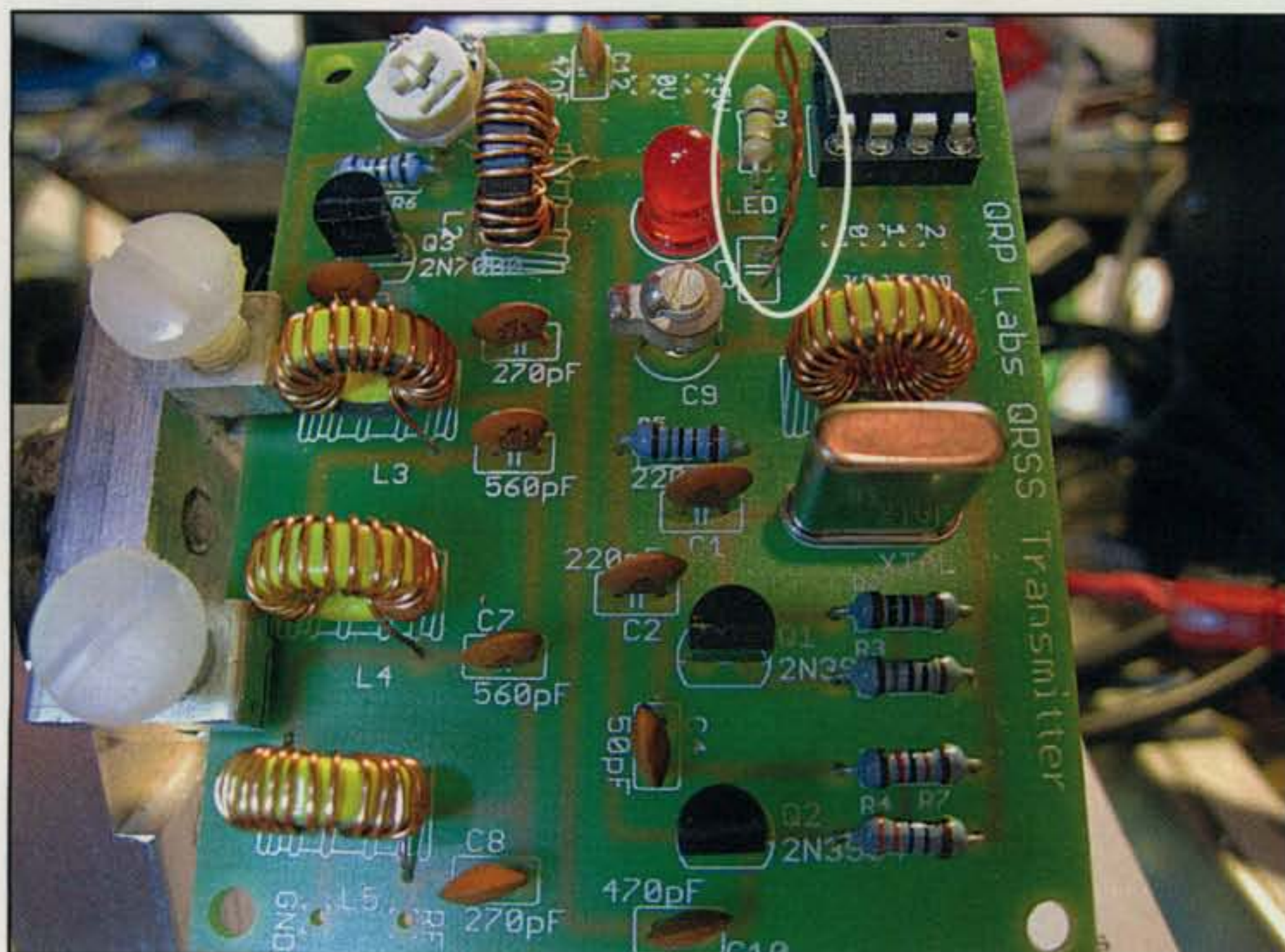


Closeup of RF transformer mounted Limerick-style.

As I reported earlier, Heathkit is back in the kit business. Now don't expect the huge variety of kits that were offered in the past to be available immediately, but do expect more and more to be introduced as time goes on. Among the first kits to watch for will be a revival of the traditional Cantenna high-power dummy load. Along with that will be dry dummy load and wattmeter kits along

with a possible receiver kit to be introduced shortly. Simple kits will be first, followed by more complex kits as long as there is demand. Look at <http://www.heathkit.com> for the latest news, as well as these pages.

There are lots of fun kits to build for lots of fun for the cold winter months ahead! Until next time . . . 73 de KØNEB



Completed 30-meter QRSS beacon board. Notice "gimmick" capacitor made of two wires twisted together at C3.

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It's Snowing . . . It Must Be Antenna Time! plus a Review of the DX Engineering ATSA-1 Stealth Antenna

It's antenna time again! That's right, this column we will be doing some more antenna exploration. Antennas are the lifeblood of the amateur radio station. They become even more important when one decides to enter the QRP (under 5-watt amateur radio) arena. In effect, you are going to be giving up about 13 dB of power when you drop your RF output from 100 down to 5 watts. This sounds like a lot, and, to be perfectly honest, it really is, but it is *not* an insurmountable obstacle. I have been playing the QRP game for close to 50 years and have had my share of successes, and, yes, my share of failures, too. However, I have always focused on the successful QSOs and developing ways to increase my success rate. This almost always means looking at my antenna farm and improving same.

While this is not a QRP column (Cam Hartford, N6GA, will have something to say about this!), I feel that if I erect an antenna that works at QRP power levels, it will definitely work great at higher power levels as well. With that in mind, let's ven-

ture into the world of vertical antennas as a way to become more competitive for the 2011–2012 DX and contest season, which is now upon us.

Why verticals? Well, for one thing, they offer a very small footprint and quite often offer multi-band operation. Properly done, they can even be classified as "stealth" antennas, which is an attractive idea in itself. With more and more radio amateurs having to endure Draconian housing covenants and stringent regulations, a stealth-type antenna may be their only way to get on the air.

Over the years I have used quarter-wave trapped verticals, single-band monopole verticals, and wire verticals. All have worked, some better than others, but they all have allowed me to get on the air from a variety of locations (including some that actually forbid antenna installations) and enjoy the radio hobby.

My current HF vertical is an MFJ-1792 dual-band (80/40 meter) vertical that is a full quarter-wavelength on 40 with a top loaded capacity hat to allow it to function on 80 ([see <http://bit.ly/rIEofl>](http://bit.ly/rIEofl)). It's not small; 33 feet tall is not small! Therefore, it is not exactly what I would consider a stealth antenna. It works extremely well and I have used it to work my share of DX at QRP power

*770 William St. SE, Dacula, GA 30019
e-mail: <k7sz@live.com>



In order to decouple the coaxial feedline from the ground radials on the DX Engineering ATSA-1 stealth antenna system, I had to "elevate" the coax. Had this been a permanent installation, I would have trenched the coax underground.



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This is a closer shot of the ATSA-1 tuning unit taken from only 10 feet away. Notice that you can barely see the vertical wire extending upward from the left of the unit just above the coaxial cable. From a few feet farther away the vertical radiating element is totally invisible. Talk about "stealth"!

levels over the last two years it has been part of the Bent Dipole Ranch antenna farm.

A few months ago I started thinking about a stealth vertical antenna system that would give me multi-band performance. After all, why not do some "research" for the column and my new QRP book and get some experience using a nifty little system that DX Engineering (<<http://www.dxengineering.com>>) is marketing?

Now when I think of DX Engineering, I think of *big* antennas, tall towers, high-power linear amps ... well, you get the picture. I was delighted to find the folks at DX Engineering were open to the idea of my test-driving one of their new stealth vertical antenna systems. So get ready, Bucky, here we go!

And Now for Something Completely Different!

With all of the strict housing regulations and Draconian covenants that today's ham radio operators encounter, wouldn't it be really nice to have an "invisible" (or at least extremely low profile) vertical or slanted antenna with which to prowl the HF bands? You bet it would, and the folks at DX Engineering have been listening. That's right; DXE has a very low profile multi-band vertical antenna system in its product line that seems to be just what the doctor ordered for the antenna-challenged DXers and contesters among us.

For the last couple of months I have been evaluating a sample of their multi-band DXE- ATSA-1 auto-tuned stealth HF antenna, rated at up to 200 watts (*Visit: <<http://bit.ly/ploFlo>>*). This is a second-generation stealth antenna system based on an MFJ remotely tuned automatic ATU (antenna tuning unit) feeding a 45-foot vertical wire. The RF counterpoise consists of twenty 25-foot radial wires attached to the central mounting bracket that holds the ATU. Power for the tuner is fed through the coaxial cable using a power coupler from MFJ. This antenna takes several hours to erect and install (the most time-consuming portion of this installation being the planting all the radials using sod staples which come with the DXE kit).

What does this thing look like? Provided you bury the coaxial feedline, it looks like a small black box sitting atop a slightly larger stainless-steel mounting bracket in the soil, which serves as an anchor for the tuner as well as housing the matching network and attachment point for the radials. At a distance of 15–20 feet, you cannot see the vertical wire going up into the tree! Add a fake rock from a landscaping store to

cover the black box and the mounting bracket and you have a fully-disguised vertical antenna system that produces contacts and allows multi-band operation from 80–10 meters!

I have included several shots of my test-bed installation. I had to elevate the coaxial feedline to reduce any interaction between the feedline and the radial counterpoise. If I were going to make this a permanent installation, I would trench the coax. Home Depot and Lowe's both rent trenching equipment, so it would be a simple matter to dig a small trench about 12–14 inches below ground level and install the coaxial feedline inside some 1-inch PVC pipe. Another option would be to use direct buriable coaxial cable such as DXE-8X or DXE-213U. Either approach keeps the coaxial feed away from the radials, which actually lie upon the surface of the ground. As a matter of fact, I would highly recommend trenching the coaxial cabling going to a tower installation, vertical antenna, etc., just to keep the feedline safe and decoupling it from the RF counterpoise.

My initial impressions of this stealth system centered on the overall workmanship are, in a word, *great!* Performance is on par with other vertical antennas that I have used over the years. I compared this new stealth system with my current MFJ vertical on 80 and 40 and I could not discern any difference in performance on these two low HF bands. Where this new DXE stealth antenna really shines is in the multi-band nature of the beast, coupled with the stealth advantage. With the MFJ 1792 vertical, using an ATU, I can tune 80, 40, and 15 meters. The DXE stealth system allows me access to *all bands* from 80–10 meters! It will work on MARS frequencies as well. I like it!

There is only one small "wart" for QRP operation: The 200-watt rated MFJ tuner won't go into the auto-tune mode with only 5 watts of RF excitation. The MFJ manual suggests a minimum carrier power of 10 watts. I had to increase the RF output of my QRP rigs to around 7 watts in order for the tuner to do its job. Once this was accomplished, I quickly dropped the power back down to QRP levels.

Hiding from the neighbors isn't the only talent of this stealth antenna system. Pack a pre-assembled ATSA-1 in a go-kit and it can be deployed as an EmComm (emergency communications) antenna. It can also be a portable solution for vacation homes, amateur radio technology displays, and Field Day. Attach the vertical wire element to a telescoping fiberglass pole and you have an easy-to-erect multi-band vertical antenna.

Would I recommend this DX Engineering Stealth Antenna System? Yes! Simply stated, DXE has taken the drudgery of designing a stealthy multi-band vertical antenna system and presented it in a very nice, relatively easy-to-install package. It works as advertised and retails for \$459.

Unfortunately, time has not allowed me the luxury of taking the next step, which is to determine the feasibility of

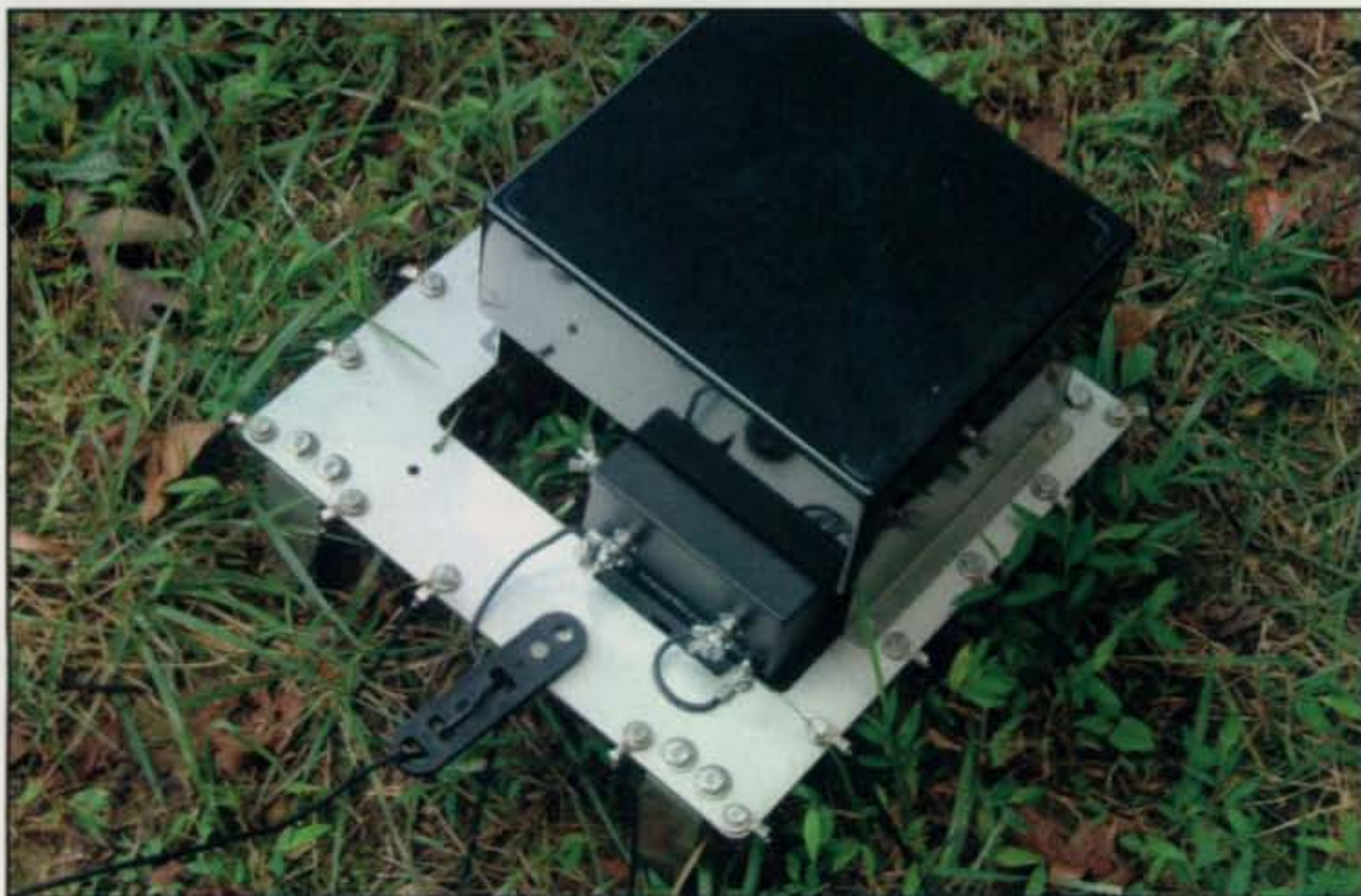
replacing the 45-foot vertical radiating wire with a much longer wire. Provided the MFJ tuner is up to the task, I don't see any reason why one could not adapt an extremely long end-fed wire antenna to this system and not only increase the bands available (such as 160 meters), but provide some gain-producing directivity inherent with long wire antennas.

This column has focused on a new

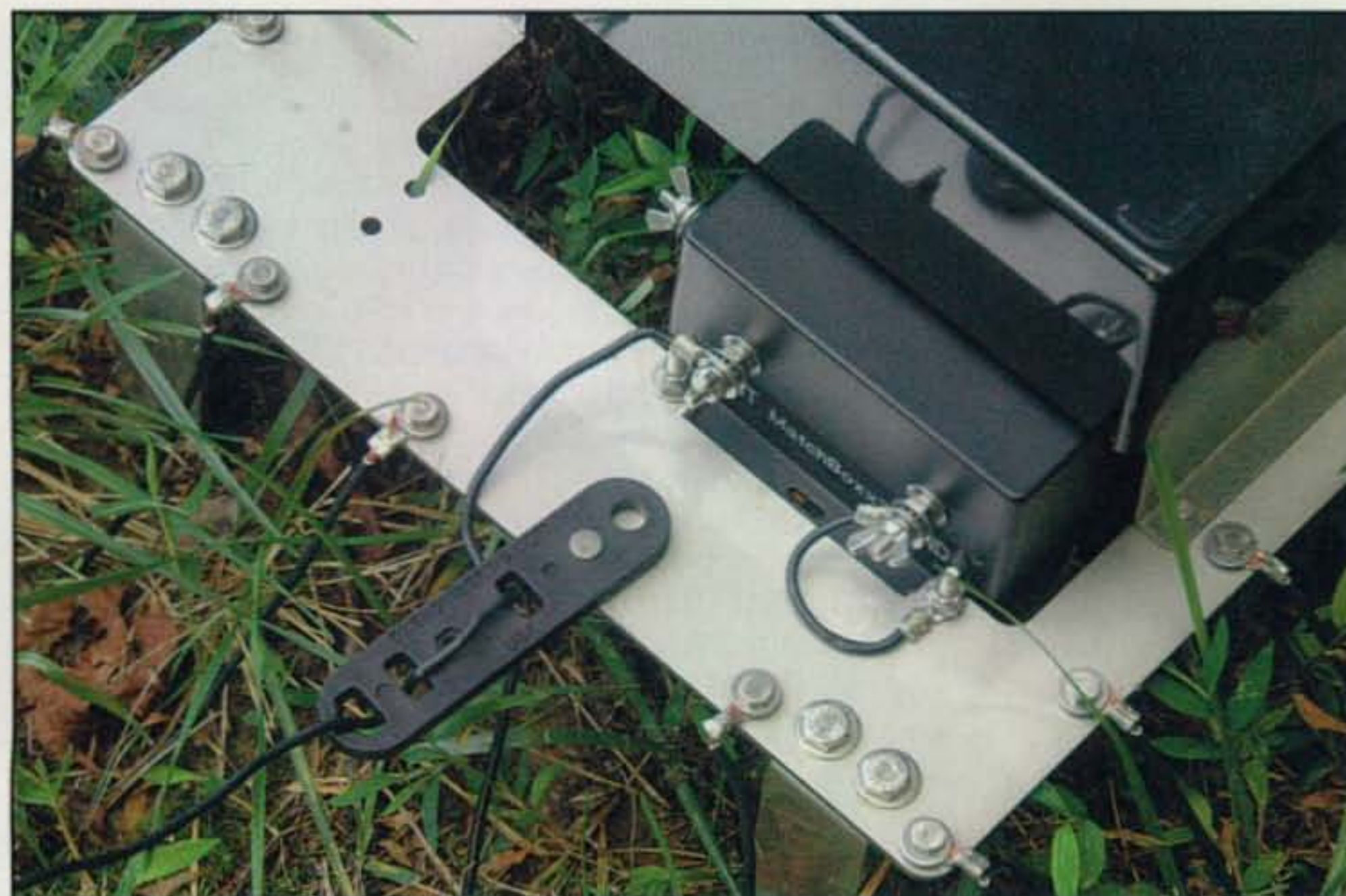
breed of vertical antenna, namely the DX Engineering multi-band DXE-ATSA-1 auto-tuned stealth antenna, which I predict will only be the tip of the iceberg. With more and more hams being forced into housing situations where they cannot erect common HF antennas such as dipoles, towers, and beams, this new type of multi-band stealth vertical antenna system has a real place in the antenna market. I'd like to thank the folks at DX Engineering for allowing me to borrow one of their ATSA systems.

That's it for this month, gang. I look forward to seeing everyone after the new year. Have a safe holiday season and don't forget to get on the air and enjoy our hobby. Remember, the ARRL's Straight Key Night is right around the corner (January 1st), so hopefully you'll hear my 5-watt 6L6 tube transmitter during that event. My receiver will be either my Drake 2B or my newly acquired Allied 2516. I will be on 40 meters on 7040 and 7035 kHz (my only two crystals!), so look for me there!

73 es Gud DX, Rich, K7SZ



This shot shows an overhead look at the tuner (under the black plastic casing) and the radial base plate which anchors the entire unit into the ground. Using all stainless-steel hardware ensures that the unit won't rust in the weather and that all the connections remain serviceable.



A close-up of the antenna feedpoint (the black plastic insulator on the bottom left of the stainless-steel base) and a close-up of how the radials are attached. Quality materials are used throughout. Stealthy 80-10-meter coverage at up to 200 watts: What's not to like?

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Holiday Presents for Any Ham

Well, it's the holidays once again, and as I promised last month, I have a bag full of suggestions that you can turn into a delightful present for another ham or for yourself. How's that? Yes, you can make anything mentioned in this column a present for yourself this Christmas (or whatever wintertime gift-giving holiday you celebrate) if you simply circle your favored item with a red pen and then leave the magazine casually lying open to the page in a high-traffic location anywhere in your home. Coffee tables, dinner tables, and breakfast bars come to mind, but anywhere in the home can work if it is where family members and loved ones pause and have a moment or two to notice the circled item. While it's not scientifically proven, you have about a 90-percent chance of getting the item you've circled because in this month's column I am going to tell them what the item does, how much it costs, and where to purchase it.

To get the ball rolling during this most tradition-filled time of year, I present for your consideration a product that has become a Christmas tradition in this column, the 11th annual Morse Express Christmas key, something that can be very useful with the ARRL's Straight Key Night on January 1 being just around the corner.

Morse Express 2011 Christmas Key

The 2011 Christmas Key (photo A) is a miniature camelback key made by GHD Telegraph Key in Sendai City, Japan. It incorporates traditional Japanese craftsmanship with GHD's impeccable engineering and finish.

In keeping with GHD's larger keys, the Morse Express 2011 Christmas Key is fully adjustable, with precision pin bearings at the trunnion, miniature binding posts, a comfortable knob, and excellent balance. The contacts are hard-silver and the finish is satin chrome plate. The distinctive base is beautifully grained mahogany, and the knob is hand-turned. GHD's Toshihiko Ujiie uses both modern and traditional techniques to produce a miniature key that will be equally at home in the radio shack, in the field, or decorating a Christmas tree.

"The Christmas keys have always been a labor of love for me and my first priority has always been usability," said Marshall Emm, N1FN. "GHD has brought considerable expertise to the precision manufacture of the Christmas keys, and the 2011 product is about as small as you can make a key and still have good functionality." The 2011 key measures 2" x 1 1/8" at the base and it weighs less than two ounces.

The 2011 Christmas Key, LT-MX11, is a limited edition of 180 keys priced at \$89.95, plus shipping and handling. Each key has a label with "Christmas 2011" and a unique serial number. Pictures and



Photo A—A Christmas tradition, the 11th annual Morse Express Christmas key is a miniature camelback key made by GHD Telegraph Key in Sendai City, Japan. It incorporates traditional Japanese craftsmanship with GHD's impeccable engineering and finish.

more information are available on the Morse Express website, <www.MorseX.com>, where you will also find secure ordering facilities. Call 800-238-8205 toll free to order by phone, or 303-752-3382 for more information. The 2011 Christmas key will add something special to straight key operations through the holiday season and on Straight Key Night.

FastPCB

Just in case your Christmas wishes trend to printed circuit boards, you may want to talk to John Jiang of FastPCB. He tells me that his company has mastered HDI (high density interconnect) and 50-layer PCB production technologies and has rich production experience in HI-thick PCB, thick-copper PCB, mixed lamination PCB, high-frequency PCB, inserted components PCB, metal-base PCB (Al/Cu/Fe), buried-copper PCB, rigid-flexible PCB, and impedance-control PCB. The aspect ratio is up to 16:1, maximum thickness 7.0 mm, maximum copper thickness 20 oz., minimum mechanical drill hole 0.15 mm, minimum laser drill hole 4 mil, and minimum line width/distance 2.5/2.5 mil.

If that doesn't tell you all you need to know, visit FastPCB on the web at <www.china.fastpcb.com>.

MFJ Dipole Kits

Putting together the pieces of a project is sometimes the hardest part of the process, especially if you are trying to construct it on Christmas Day when all the stores are closed. It seems there is always one piece that can't be found, located, or purchased, and that has the potential of killing the entire project and throwing cold water on the

*1870 Alder Branch Lane, Germantown, TN 38139
e-mail: <wv5j@cq-amateur-radio.com>



Photo B— The MFJ-994BRT remote automatic tuner, a solid match for Ameritron's solid-state ALS-600/S amplifier and popular tube-type AL-811/H amplifiers, handles 600 watts. It also matches 12–800 ohms.

builder's enthusiasm. Now MFJ lets you avoid this starting-point problem by giving you everything you need to create an 80–10-meter dipole antenna or up to three different dipoles for 40 meters and up.

In the kit you get 142 feet of 14-gauge stranded-copper antenna wire, nine ceramic "dog-bone" insulators, and six aluminum wire clamps with stainless-steel nuts and screws.

The special wire clamps allow you to adjust your wire length easily and to hold a measured length in place before you make that final cut. This kit, the MFJ-2772K, is priced at \$39.95.

MFJ also makes a deluxe dipole antenna kit, the MFJ-2774K, priced at \$59.95.

According to MFJ, this kit has everything that is included in the MFJ-2772K plus three multi-purpose center insulators, 100 feet of 1/8-inch nylon rope, two PL-259s, two RG-58 reducers, two SO-239 connectors, and all the stainless-steel screws and nuts needed to complete the project. The MFJ-2774K also includes six ceramic "dog-bone" insulators. This kit can make a full-size G5RV, doublet, or dipole antenna for 80–10 meters.

MFJ's multi-purpose center plates have pre-punched holes designed to secure and relieve stress of any feedline weight. Ladder line or coax can be used. The center plate comes with a pre-punched hole for an SO-239 connector.

Optional MFJ feedlines are available: MFJ-18H50, 50 feet of 450-ohm ladder line for \$19.95; MFJ-18H100, 100 feet of 450-ohm ladder line for \$34.95; MFJ-5850, 50 feet of RG-58 coaxial line terminated with PL259s for \$24.95; and MFJ-58100, 100 feet of RG58 coaxial line terminated with PL259s for \$29.95.

MFJ 600- and 300-watt Remote Automatic Tuners

MFJ-994BRT (photo B) and MFJ-993BRT Remote IntelliTuners™ are mounted in a durable hard plastic case that measures just 9 1/4"W × 3"H × 14 1/4"D. Both cover 1.8 to 30 MHz, have heavy-duty 16-amp/1000-volt relays, and are a highly efficient L-network. They also include the MFJ-4117 BiasTee power injector to send DC/RF down your coax.

The 994BRT handles 600 watts—a solid match for Ameritron's solid-state ALS-600/S amplifier and popular tube-type AL-811/H amplifiers. This MFJ unit also matches 12–800 ohms. The 993BRT model handles 300 watts SSB/CW and matches 6–1600 ohms.

The MFJ-994BRT and MFJ-993BRT let you automatically tune any antenna, balanced or unbalanced, and are a comprehensive antenna tuning center. MFJ's exclusive



Photo C— The MFJ-7000 is an EmComm box that turns the ICOM IC-7000 into an instant and foolproof portable/mobile emergency communications center. It covers all HF, VHF, and UHF amateur radio frequencies available on the IC-7000.

IntelliTuner™, Adaptive Search™, and InstantRecall™ algorithms provide automatic tuning with over 10,000 VirtualAntenna™ memories.

MFJ says these tuners learn while you're having fun on the air. As you're ragchewing, contesting, or DXing, your MFJ IntelliTuner™ is learning. When you transmit, it automatically tunes for minimum SWR and remembers frequency and tuning settings. The next time you operate on that frequency and antenna, the tuner settings are instantly restored and you're ready to operate in milliseconds.

MFJ's InstantRecall™ first checks its memories to see if you have operated the frequency before. If so, tuning is instantaneous and you're ready to operate. If not, MFJ's IntelliTuner™ algorithm—based on MFJ's famous SWR Analyzer technology—kicks in. It measures the complex impedance of your antenna. Next it calculates the components it needs and instantly snaps them in. Then it fine-tunes to minimize SWR and you're ready to operate. It's all done in a fraction of a second. MFJ claims that when the impedance is within its measurement range, the MFJ-993/994BRT tuners are the fastest automatic antenna tuners in the world.

If it can't accurately determine impedance, MFJ's AdaptiveSearch™ algorithm goes into action. Frequency is measured and relevant component values are determined. Only those values are searched for ultra-fast tuning. For even faster searches, you can set the target SWR to 2 (settable from 1.0 to 2.0).

MFJ EmCOMM Go-Box for IC-7000

The MFJ-7000 (photo C) is an Emergency Communications (EmComm) box that turns your ICOM IC-7000 into an instant and foolproof portable/mobile emergency communications center. Priced at \$399.95, it covers all HF, VHF, and UHF amateur radio frequencies available on the IC-7000. It is literally a complete "grab-and-go" communications center that can provide a full 100-watt SSB/CW signal simply by plug-



Photo D— MFJ's 1918 is a lightweight, portable tripod that holds 66 lbs. of antenna.

ging into any available vehicle cigarette-lighter socket or light-duty 10- to 15-amp 12-VDC power supply.

MFJ's exclusive PeakPowerBoost™ circuit delivers instantaneous SSB/CW power peaks using several farads of super-capacitance. A built-in, full-range automatic antenna tuner turns any random wire or other antenna into a highly effective HF antenna. Simple fool-proof automatic tuning is done with a single push of a button.

A $\frac{3}{8}$ -24 antenna mount gives you the ability to screw on a loaded whip (such as a Ham whip) for long-range HF communications or use a high-gain VHF/UHF antenna for local communications.

The IC-7000 control head can easily be removed and placed in a convenient location, while the larger MFJ EmComm box can be placed in the trunk or on the floor or backseat of your vehicle. It is a compact $6\frac{3}{4}$ "W x $4\frac{1}{2}$ "H x $13\frac{1}{2}$ "D.

When you're ready to move on, just grab the handle and go. The handle is positioned so the MFJ EmComm box is perfectly balanced for carrying. Tough front and back covers secure and fully protect all of the enclosed electronic gear. A convenient compartment stows your microphone and other small accessories so you are always ready for emergencies. The IC-7000 speakers are fully exposed so speech audio is always loud and clear. The transceiver is well ventilated to prevent overheating so you can provide continuous high-power communications. The MFJ-7000 can be used horizontally, vertically, or at any other angle.

When a sudden emergency arises, you literally can grab an entire communications center, rush to the site, and be in instant HF/VHF/UHF communication in minutes! MFJ also manufactures an MFJ-706, priced at \$399.95, for the Icom IC-706 series.

Icom radios and microphones are not included with this product.

MFJ New Portable Tripods with Mast Extensions

MFJ has now added portable tripods with mast extensions to its impressive product line with the model MFJ-1919EX priced at \$139.95 and the MFJ-1918EX priced at \$89.95. These tripods use a black steel base to form strong braced equilateral triangles on each side, plus there are no-skid feet, a strong base, and mast locks to ensure stability.

The MFJ-1919, priced at \$89.95, is a heavy-duty portable tripod that holds steady 100 lbs. of antenna. It extends 7.8 feet, and the base extends up to 4.8 square feet for extra wind survivability. The 1919 quarter-inch-diameter mast accepts most U-bolts. It easily collapses to 54 inches by 6 inches in diameter. It weighs just 9.75 lbs.

The MFJ-1919EX, priced at \$139.95, has the base of the MFJ-1919 plus an extra telescoping fiberglass mast with military style QuickClamps™. It is 18 feet fully extended and just 5 feet collapsed. Made of strong $\frac{1}{8}$ -inch wall fiberglass, it has a $\frac{3}{4}$ -inch diameter top and $1\frac{1}{2}$ -inch diameter bottom sections. The extension mast weighs 15 lbs.

The MFJ-1918 (photo D), priced at \$49.95, is a lightweight, portable tripod that holds 66 lbs. of antenna. It is 6 feet

fully extended with a 1-inch diameter mast and is only 38 inches long and 4 inches in diameter collapsed. The MFJ-1918 weighs just 6.75 lbs.

The MFJ-1918EX, priced at \$89.95, has the base of the MFJ-1919 plus a $9\frac{1}{2}$ -foot telescoping fiberglass mast extension with military-style QuickClamps™. The mast is 3.8 feet collapsed with a $\frac{3}{4}$ -inch diameter top and a 1-inch diameter bottom section. The extension mast weighs just 6.5 lbs.

MFJ Universal Vertical Antenna Tilt Base

The new MFJ-1903 (photo E), priced at \$69.95, features a unique design that allows this tilt base to fit most vertical antennas with or without a base bracket. Now you can easily put your vertical antenna up or down to make changes or repairs as needed or to bring it down in case of stormy weather.

MFJ provides pre-punched holes to make it easy to mount many different types of vertical antennas. The MFJ-1903 fits Hy-Gain's AV18VS, 14VS, 18AVQ, 640, 620, AV-6160; Cushcraft's R8, R6000; and MFJ's 1796, 1798, and 2990 verticals; plus others with tube bases or mast pipes up to 2.25 inches outside diameter.

MFJ says installation is easy. Just mount one side of the MFJ-1903 tilt base to the mast and the other to the antenna base. There is no climbing a ladder, as you can walk your antenna



Photo E— The MFJ Universal Vertical Antenna Tilt Base, model 1903, features a unique design that allows this tilt base to fit most vertical antennas with or without a base bracket. You can easily put your vertical antenna up or down to make changes or repairs or to bring it down in case of inclement weather.

A Detective Louis Martelli, NYPD, Mystery

HOUSE OF CARDS

Dead Men Tell No Tales



THEODORE
JEROME COHEN

Photo F— Ted Cohen, N4XX, who co-authored *The New Propagation Handbook*, published by CQ Communications, is now writing novels (some involving ham radio) and has come out with his newest book, a mystery thriller entitled *House of Cards—Dead Men Tell No Tales*. It is available from Outskirts Press (see text).

up and down easily before severe weather by yourself.

MFJ also provides ground-radial holes to make grounding your vertical antenna easy. The MFJ-1903 is constructed of tough 1/8-inch thick aluminum. The package includes two 2 1/4-inch U-bolts, mast saddles, and stainless-steel nuts and bolts.

Also don't forget, all of the MFJ devices, tuners, and all of the parts in MFJ kits are protected by MFJ's famous NoMatterWhat™ one-year limited warranty. MFJ will repair or replace (at its option) your MFJ parts no matter what for one complete year.

To order any of these MFJ products, receive a free catalog, or for your nearest dealer, call 1-800-647-1800; write to MFJ, 300 Industrial Park Road, Starkville, MS 39759; go online to <<http://www.mfjenterprises.com>>; or fax to 1-662-323-6551.

Book Corner

Ham radio's very prolific author Ted Cohen, N4XX, who co-authored *The New Propagation Handbook* published by CQ Communications, was for many years CQ's editor of the Washington (DC) column, "Dateline: Washington."

Recently, he added to his credit several novels involving ham radio, Antarctic exploration, and corruption within the federal government and on Wall Street. Now he has released yet another novel, a mystery thriller based on the financial meltdown of 2008. Entitled *House of Cards—Dead Men Tell No Tales* (photo F), the story begins with the assassination of the head of one of the largest investment banking and securities firms in Times Square amidst New York City's annual Halloween celebration. From there, the reader follows the activities of Homicide Detective Louis Martelli, with a dash of assistance from NYPD Information Specialist Missy Dugan.

Martelli proceeds to unravel the mystery of the banker's murder and the murders that follow, but not without putting his life in danger. This is one thriller that literally will keep you on the edge of your seat to the last word. But be warned, the book uses adult language, so make sure a gift recipient can "handle it."

At 270 pages paperback, N4XX's book retails for \$13.95 U.S. and is available from Outskirts Press, <<http://outskirtspress.com/bookstore/>>, phone 1-888-672-6657, or your favorite online retailer; it is also available in the Kindle eBook format. Information about the author and his novels can be found at: <www.theodore-cohen-novels.com>, where you will also find book excerpts, interviews (MP3), videos, and book trailers.

Another recent book release is from ham Don Keith, N4KC. This, his 22nd book, may be of great interest to the radio amateur community. *Undersea Warrior* deals with an active amateur radio operator and is now available at book dealers. The non-fiction work tells the story of Commander Dudley "Mush" Morton, the legendary World War II submarine skipper who literally changed the way submarine warfare was con-

ducted. The book tells the fascinating story of Morton and his boat, USS *Wahoo*, and is based on considerable research and interviews.

Keith, an Amateur Extra class licensee, has written extensively about submarines, including four books about the Silent Service in World War II.

Undersea Warrior will be published in hardback by NAL/Caliber, an imprint of Penguin Group USA. Four of Keith's previous books were featured selections of The Military Book Club.

Don, N4KC, may be reached directly at <don@donkeith.com> or <n4kc@arrl.net>, or visit his website at <www.donkeith.com>. Don also maintains a website devoted to his writings on amateur radio at <www.n4kc.com> and a blog on rapid technological change and its effect on media, society, and amateur radio at <<http://n4kc.blogspot.com>>.

Another Year, Another Christmas

Well, I hope my suggestion about circling in red ink the item you want out of the variety of products mentioned in this column helps a few hams get what they want for the holidays. I've done all I can from here, so all I can do now is wish you Merry Christmas, Happy Holidays, Happy New Year, and may God bless. Have a safe, enjoyable holiday season, and I'll meet with you again in January 2012 in CQ's "What's New" column.

73, John, WV5J

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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Project OSCAR: 50 Years Later

It was 50 years ago this month when amateur radio made its entry into space with OSCAR 1. Launched on December 13, 1961, the little satellite lasted in orbit for 22 days broadcasting the Morse code message "dit-dit-dit-dit dit-dit," which translated from Morse code means HI.

In this column your editor quotes former columnists who published articles in the January 1995 issue of *CQ* magazine in celebration of *CQ*'s 50th anniversary. These three icons of the past are George Jacobs, W3ASK, Bill Orr, W6SAI (SK), and Don Stoner, W6TNS (SK). Here are their words of recollection from that issue:

The following excerpts are from "CQ Ham Radio History, 1955-64.":

OSCAR I: The World's First Ham Radio Satellite

By Bill Orr, W6SAI

In December 1961, an event occurred that made a deep impact on amateur radio and its place in the world of communication. The first amateur

e-mail: <n6cl@sbcglobal.net>



The January 1962 cover of *CQ* announced ham radio's entry into the space age. OSCAR-1 was the first non-governmental satellite ever placed in orbit.

VHF Plus Calendar

Dec. 2	First quarter Moon
Dec. 6	Moon apogee
Dec. 10	Full Moon; Total eclipse of the Moon
Dec. 13	<i>Geminids</i> meteor shower
Dec. 18	Last quarter Moon
Dec. 22	Moon perigee
Dec. 22	<i>Ursids</i> meteor shower
Dec. 24	New Moon

—EME conditions courtesy W5LUU

satellite, OSCAR 1, a 2-meter beacon, was launched successfully! It was the first non-governmental satellite ever placed in orbit.

The road to that launch started almost immediately after Sputnik's launch in 1957. Hams in the aerospace world began thinking about launching an amateur communication satellite. Thoughts were turned into action in 1959 after *CQ* Semiconductor columnist Don Stoner, W6TNS, wrote about a transistorized, 50-milliwatt, 2-meter transmitter that he'd designed. "Does anyone have a spare rocket for orbiting purposes?" he asked. That column led directly to the formation of Project OSCAR by hams in the San Francisco Bay area. Their goal was to launch ham radio into space. (See below for Stoner's perspective.—ed.)

The launching process was a painful and complex task. It required the know-how to build the satellite; the approval of the ARRL in order to gain political clout; the OK from the FCC (which was bemused by the idea of an unattended US amateur transmitter circling the globe); and finally, the agreement of the US Air Force to launch the satellite on a regularly-scheduled space mission. All of this took time and the devotion of many hams, both in and out of government.

The OSCAR launch was from an air base in California and an agonizing period elapsed until hams at KC4USB in Antarctica heard the satellite on its first pass around the globe! Reception reports poured in from many countries and the attendant publicity of the experiment encouraged Project OSCAR (and others) to start thinking about a translator (linear repeater) that would permit two-way VHF communication over great distances.

OSCAR I was the forerunner of a spectacular series of ham satellites, growing in complexity and sophistication over the years, as hams worldwide joined AMSAT (the Radio Amateur Satellite Corporation), the offspring of Project OSCAR.

Even though relatively few amateurs took part in the early satellite experiments, their long-term results were profound. The Amateur Satellite Service was recognized internationally, giving stature to amateur radio as a whole. Gradually other nations, led by the Soviet Union, built and launched amateur satellites, leading eventually to live amateur radio in space, with the advent of the continuing series of manned space station launches.

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The following is from "W3ASK on Space":

In addition to editing *CQ's* "Propagation" column George Jacobs, W3ASK, was a pioneer in the development of the amateur radio OSCAR satellites and the formation of AMSAT. For many years, he was also editor of *CQ's* "Space Communications" column.

CQ in the Space Age

By George Jacobs, W3ASK

All of us in amateur radio were very excited over the Soviet launching of the first SPUTNIK satellite in October 1957. Shortly after the SPUTNIK launch, Don Stoner, W6TNS, in a classic article in *CQ* challenged radio amateurs to develop and have launched for them a piggy-back radio amateur satellite. An outstanding group of licensed radio amateurs living in California, including some of America's leading satellite engineers and scientists at the time, formed the OSCAR committee in 1959 to meet this challenge. The name was derived from Orbiting Satellite Carrying Amateur Radio. I joined the OSCAR team as publicist and government contact. This gave birth to *CQ's* "Space Communications"

column, which made its debut in December 1960 and appeared monthly for six years. This was another first for *CQ*, for no other publication took OSCAR seriously at that time.

One of my biggest thrills in amateur radio was the successful launch of OSCAR-1 on December 13, 1961. I still "tingle" today as I recall hearing the satellite's beacon peep out HI from space in the 2-meter band.

A second OSCAR beacon satellite was successfully launched in 1962. On March 9, 1965 OSCAR-3, the first amateur radio two-way communication satellite was launched successfully. Amateur radio had now truly entered the age of space communications. OSCAR-3 made history right from the start with world-wide contacts being made through it. This erased any doubts that amateur radio had an important role to play in space communications.

In 1969 I reviewed the success of the OSCAR program with a group of east coast space scientists and engineers near Washington, D.C. It was evident to me at that time that with the design and building of larger and larger satellites, and with world-wide participation, the OSCAR concept had to be enlarged. As



Two of the pioneers of the amateur radio space program were *CQ* columnists Bill Orr, W6SAI (SK, left) and George Jacobs, W3ASK, seen here holding the OSCAR-1 satellite shortly before its 1961 launch.

a result of my comments at this meeting the AMSAT-OSCAR organization was formed, with the official name Radio Amateur Satellite Corporation. The first satellite launched for AMSAT was dubbed AO-5. It was designed and built by students at the University of Melbourne in Australia. It contained beacon transmitters on 2 and 10 meters. The rest is history...

I am especially proud to have been a part of the radio amateur satellite program from its inception. It has touched my life in a very positive way, as I am sure that it has also touched the lives of the thousands of radio amateurs and others who have voluntarily participated in amateur radio space communications during the past thirty-four years. What better way is there to learn about space communications than by participating in it?

The following is from 1955-64, "CQ & OSCAR, W6TNS" by Don Stoner, W6TNS:

CQ has always taken great pride in its leadership in promoting such innovations as single sideband, mobile communications, RTTY and amateur space communications. Nowhere is this tradition of leadership more evident than in the story of how CQ got Project OSCAR off the ground.

DI-DI-DI-DIT, DI DIT

By Donald L. Stoner, W6TNS

Each of us, at one time or another, has said something, made a recommendation, or taken an action that has had a profound effect on others. Some, like myself know the inner thrill of affecting history with nothing more than a simple statement.

In the late 50s, I was the Semiconductor Editor of CQ magazine. The gigahertz-busting devices we employ in our SHF preamps today were just a gleam in the eyes of physicists back in the "good ole daze." In fact, when I started writing the CQ column, silicon and gallium had not been used in those tiny, metal miracles. Germanium was the element de jour, and getting a transistor to work at 144 MHz required an equal mix of skill and black magic incantations (as in "oscillate, dammit!").

As the decade came to an end, I had pushed up my various transmitter designs from 5 or 10 milliwatts to a rock crushing 50 milliwatts (yes, all of 0.05 watts). On a nice summer weekend, my bride and I piled into the family jalopy and headed for WA6EJL's home away from home in the San Bernardino Mountains at Running Springs, California. Tony had offered to let me put the tone modulated beacon and a 38-inch dipole antenna up on the roof of his cabin as an experiment.

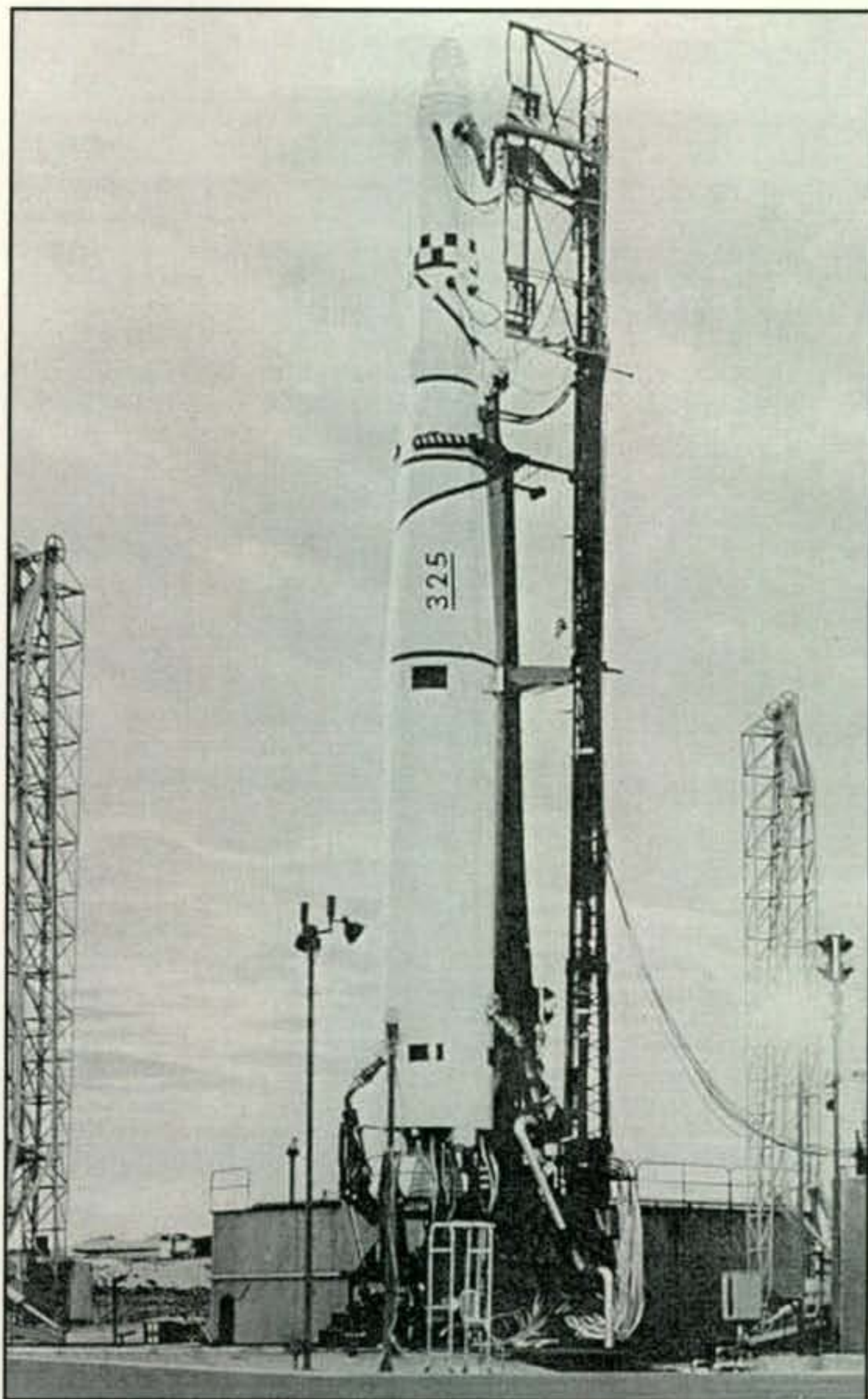
Lo and behold! My germanium gargantuan was heard in San Diego, 120 miles south, and with an S9 signal strength! Now you don't have to be a propagation guru to realize that signals from 120 miles straight up should be as good as, or better than, signals from 120 miles over land!

And so it came pass that I published the circuit for the tiny transmitter in CQ magazine along with the cutsie comment, "Does anyone have a spare rocket for orbiting purposes?"

And someone did!

No sooner had the magazine hit the mailboxes than I received a call from Fred Hicks, W6EJU, up in Sunnyvale, south of San Francisco. Fred was involved with the Lockheed Amateur Radio Club. He excitedly told me that Lockheed, which had an excellent working relationship with the Air Force, just might be able to inject a beacon into orbit.

Talk about skeptical city. Lockheed made and orbited top



A rare photo of the Discoverer-36/OSCAR-1 launch vehicle awaiting liftoff. (KC4YER photo, reprinted from December 2001 CQ)

secret goodies for the government. Share a ride with something that didn't officially exist? No way, I thought. But thanks to the influence and perseverance of those too numerous to mention, it did happen. And, as they say, the rest is history.

The moral of the story, guys, is: Watch what you say. Someone might just take you seriously.

For more information on Project OSCAR, see the following on the World Wide Web: The website Project Oscar (<http://projectoscar.wordpress.com/>) contains more information and photos about the history of OSCAR. The AMSAT-NA website contains a pdf of a PowerPoint slideshow ([http://www.amsat.org/amsatnew/images/fck_images/AMSATOSCAR_Space_Day_5-7-11\(1\).pdf](http://www.amsat.org/amsatnew/images/fck_images/AMSATOSCAR_Space_Day_5-7-11(1).pdf)) presented at the 2006 AMSAT Symposium in San Francisco. In May 2011 the ARRL fired up its model of OSCAR 1 and later had it on display at this year's Dayton Hamvention®. The background story on getting it on the air can be found here: <http://www.arrl.org/news/oscar-i-and-amateur-radio-satellites-celebrating-50-years>. Jim Eagleson, WB6JNN, was involved in the early years of OSCAR. He recalls his involvement in a piece at his website: <http://www.qsl.net/wb6jnn/history.htm>.

Last month AMSAT's annual symposium was held in San

Jose, California, where several members of the Old Guard from Project OSCAR still reside. No doubt there was information presented at that symposium that may also be found in its *Proceedings*. More information about the symposium will be forthcoming in a future column and in the "Satellites" column in *CQ VHF* magazine.

Current Meteor Showers

Two showers occur this month. The first, the *Geminids*, is predicted to peak around 1330 UTC on 13 December. The actual peak can occur 2.5 hours before or after the predicted peak. It has a broad peak and is a good north-south shower producing an average of 60 meteors per hour at its peak.

The second, the *Ursids*, is predicted to peak around 0200 UTC on 23 December. It is an east-west shower, producing an average of no greater than 10 meteors per hour, with the very rare possibility of upwards of 90 meteors at its peak.

For more information on the above meteor shower predictions see Tomas Hood, NW7US's "Propagation" column elsewhere in this issue. Also visit the International Meteor Organization's website: <<http://www.imo.net>>.

And Finally . . .

I had been a licensed amateur radio operator for not quite a year when OSCAR-1 was launched. I remember the worldwide headlines that it created and the news reports on television. As a junior high student, I was busting with pride when my fellow students asked me about the satellite.

Unfortunately, its short lifespan caused it to disappear all too quickly from the world's media. Even so, it was the talk around the local South Bay Amateur Radio Society club meetings and with the local weak-signal operators, which included my friend Herb Adams, K6BTO, the father of my junior high school buddy Frank Adams, WA6OAC.

So many names in this column are now Silent Keys, including both of the Adams family I mention above. With each passing of our pioneers it gets a bit harder to recall all of the facts of those events. It is hoped that as you have read this column's reprints of first-person recollections, you also have your recollections and perhaps you may wish to share some of them in a future issue of this, your column.

Until next month . . . 73 de Joe, N6CL

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DX Activity and the QSL Managers Society

As I write this, here it is early October and the weather is turning cool already in the mountains of North Carolina. We just concluded the W4DXCC-SEDCO Convention in east Tennessee (in September) and had a great time with DXers from all over the eastern USA and a few from out west, too. Same time, same place next year!

The upcoming contest season should be one of the best in recent memory. The old sun has been more active here in the early fall season, with 10 meters being more open than we've heard it in years. I've been hearing some big signals from EU here on the east coast as well as propagation almost everywhere on those upper bands that have seen little or no activity. How long has it been since we've heard JAs on 10 meters?

DXpeditions

The 4W6A, Atauro Island, Timor-Leste DXpedition went well, and I must compliment the team for uploading their logs to LoTW so quickly after the conclusion of the operation.

There were other major operations in late September/early October, too. The team at 3D2R from Rotuma put in a solid performance, making the DX world happy on 160 through 10 CW/SSB/Digital. They even put in a short operation on the 60-meter band before closing down on October 5th, a few days earlier than expected.

The major, major Five Star DX Association DXpedition to East Kiribati-Christmas Island got

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

off to a rousing start over the weekend of October 1-2. With less than what they had planned to have available in the way of equipment and antennas, the team did an outstanding job of handing out over 50,000 QSOs in just the first four days of the DXpedition. Digital modes were left for later, as they concentrated on working down the massive pile-ups on 160-10 meters CW/SSB. Their signal (at my QTH) wasn't record-breaking on some bands, but they "heard" very well and my compliments to them for that. With nearly three weeks to go in their operation, the final total numbers should be "out of sight."

We still have a few to look forward to as we get on into the contest season: 9N0MD from Nepal should have been on the air toward the end of November, along with E5 from North Cook, T2 from Tuvalu (a replacement for the planned C2 operation that had to be cancelled due to transportation trouble), and an operation from KH8, American Samoa at the end of November, too. In December that activity from Palestine (E44PM) is still on the calendar at this writing.

Looking ahead a bit, we find Pista, HA5AO, and George, HA5EK, going on a South Pacific tour starting January 12 with stops at Fiji, Tuvalu, Western Kiribati, and Bananaaaba. That last one should attract a lot of attention.

Malpelo, HK0-M has not seen a major DXpedition in decades, but the one planned for late January should make it drop far down the most wanted lists. At this writing the team now included 18 operators from 8 countries, which includes some major DXpedition names. Huge amounts of excellent equipment and antennas are in the



These three kept trying and finally got to SABLE ISLAND (CY0) on the third try. Left to right: Randy, N0TG; Jeff, N1SNB, and Wayne, K8LEE. They are making plans to go back in mid-2012. (Photo courtesy of Randy, N0TG)



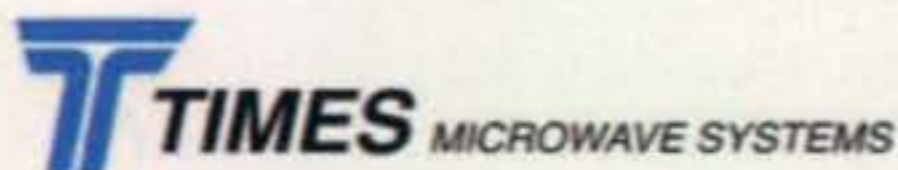
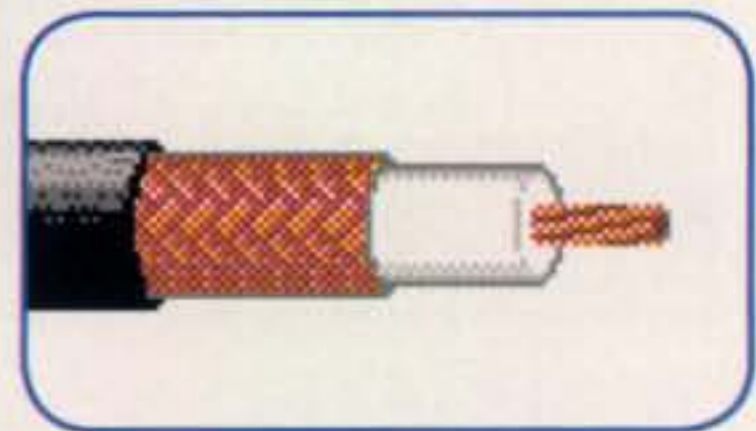
Vlado, N3CZ, built this QRP radio with miscellaneous parts scrounged at hamfests, from junk boxes, etc. At this writing, he has almost worked 100 countries with it. The whole story will be told in an upcoming issue of The DX Magazine. (Photo Courtesy of Vlad, N3CZ)

The DX Store

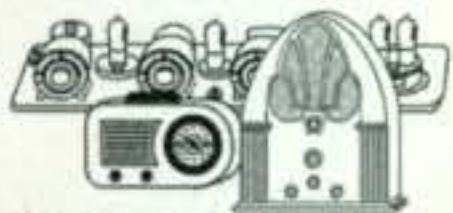
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	all RG-8 size cables	\$1.50
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RFCUG-260/8X	BNC Male Clamp RG-9X, LMR-240	\$2.00
SMAM/BNCF	Handheld Adapter	\$3.00
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UG-83B/U	N Female to PL-259, Teflon USA	\$8.50

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Looking Ahead in



Here are some of the articles we're working on for upcoming issues of CQ:

- Who Needs a Microphone for a Phone Contest? by NS3T
- The ON4WW Ultimate Beverage Switchbox, by ON5UK
- Hamming on the High Seas, by K6CUK
- A Small Spiral Antenna, by KM5KG

Do you have a ham radio story to tell? A possible article for one of our specials? We'd like to hear from you. See our writers' guidelines on the CQ website at <<http://www.cq-amateur-radio.com/guide.html>>.

The WPX Program

SSB	
3104.....K5WDW	
Mixed	
2168.....JG5DHX	2169.....JA1CKE
Digital	
63.....RA1AOB	65.....DL8VKO
64.....KH6SAT	

CW: 1750 N3RC. 3650 WA5VGI.
SSB: 1300 N3RC. 1400 AA1VX. 2200 KW0U
Mixed: 500 JG5DHX. 1050 JA1CKE. 1700 DH5MM.
2750 RA1AOB.

20 Meters: N6BM

Asia, Oceania, North America, South America: JA7OXR

Award of Excellence:

30 meter Bar: RA1AOB

17 Meter Bar: RA1AOB

12 Meter Bar: RA1AOB

Digital Bar: RA1AOB, N3RC

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, LU3YLW4, NN4Q, KA3A, VE7WJ, VE7IG, N2AC, W9NUF, N4NX, SM0DJZ, DK5AD, WD9IIC, W3ARK, LA7JO, VK4SS, I8YRK, SM0AJU, N5TV, W6OUL, WB8ZRL, W8BYTM, SM6DHU, N4KE, I2UIY, I4EAT, VK9NS, DE0DXM, DK4SY, UR2QD, AB9O, FM5WD, I2DMK, SM6CST, VE1NG, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, HA8UB, HA8XX, K7LJ, SM3EVR, K2SHZ, UP1BZZ, EA7OH, K2POA, N6JV, W2HG, ONL-4003, W5AWT, N3XX, 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, NN1N, HB9AUT, KC6X, N6IBF, W5ODD, I0RIZ, I2MQP, F6HMJ, HB9DDZ, W0ULU, K9XR, JA0SU, I5ZJK, 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, K0KG, DL6ATM, VE9FX, DL2CHN, W2OO, AI6Z, RU3DX, WB9IHH, CT1EEN, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, KT2C, UA9CGL, AE5B, K0DEQ, DK0PM, SV1EOS, UA0FAI, N4GG, UA4RZ, 7K3QPL, EW1CQ, UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UT9FJ, UT4EK, K9UQN, UR5FEO, LY2MM, N3RC, OH3MKH, RA3CQ, UT3IZ, S55SL, RU3ZX, YO9HP, RA3DNC, K8ZT, KE5K, JH8BOE, TF8GX, S58MU, UX1AA, AB1J, DM3FZN, AG4W, UA3QNS, RX3AGD.

160 Meter Endorsements: N4MM, W4CRW, K5UR, K2VV, VE3XN, DL3RK, OK1MP, N4NO, W4BQY, W4VQ, KF2O, W8CNL, W1JR, W5UR, DL8ILC, K9BG, W1CU, G4BUE, LU3YLW4, NN4Q, VE7WJ, VE7IG, W9NUF, N4NX, SM0DJZ, DK5AD, W3ARK, LA7JO, SM0AJU, N5TV, W6OUL, N4KE, I2UIY, I4EAT, VK9NS, DE0DXM, UR2QD, AB9O, FM5WD, SM6CST, I1JQJ, PY2DBU, HI8LC, KA5W, K3UA, K7LJ, SM3EVR, UP1BZZ, K2POF, I1TQH, N6JV, ONL-4003, W5AWT, N3XX, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YB0TK, K9QFR, W4UW, NX0I, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, NN1N, W5ODD, I0RIZ, I2MQP, F6HMJ, HB9DDZ, K9XR, JA0SU, I5ZJK, I2EOW, KS4S, KA1CLV, K0IFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, S53EO, S57J, DL1EY, DJ1YH, KU0A, VR2UW, UA0FZ, DJ3JSW, OE6CLD, HB9BIN, N1KC, SM5DAC, S51U, RA0FU, CT4NH, EA7TV, LY3BA, K1NU, W1TE, UA3AP, OK1DWC, KX1A, I25BAM, DL6ATM, W2OO, RU3DX, WB9IHH, G4PWA, OK1FED, EU1TT, S53MJ, DL2KQ, RA1AOB, UA9CGL, SM6DHU, K0DEQ, DK0PM, SV1EOS, N4GG, UA4RZ, 7K3QPL, EW1CQ, UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UR5FEO, N3RC, UT3IZ, RU3ZX, YO9HP, RA3DNC, K8ZT, KE5K, JH8BOE, S58MU, UX1AA, DM3FZN, AG4W, UA3QNS, RX3AGD.

Complete rules and application forms may be obtained by sending a business-size, self-addressed, stamped envelope (foreign stations send extra postage for airmail) to "CQ WPX Awards," P.O. Box 355, New Carlisle, OH 45344 USA. Note: WPX will now accept prefixes/calls which have been confirmed by eQSL.cc. Other electronic QSL confirmation means are not accepted.

*Please Note: The price of the 160, 30, 17, 12, 6, and Digital bars for the Award of Excellence are \$6.50 each.

works. Also, efforts are being made to extend the operation beyond the original dates of January 24 to February 8. N2OO and his friends at the South Jersey DX Association will be handling the QSL chores for this one.

Has the "DX Code of Conduct" Helped?

Most DXpeditions now indicate that they subscribe to the "DX Code of Conduct," which has been heavily promoted by the FOC (First Class CW Operators' Club) and others. Although I still noticed a lot of the usual "stuff" on the recent 3D2R and T32C operations, such as "UP UP UP" along with profanity that I won't bother to repeat, there didn't seem to be as much as in the past.

Has the "DX Code of Conduct" helped? We would like to think that it has. We (as in all of us) still have work to do in our local areas in educating the "less knowledgeable" in DXing how to operate in a DX pile-up. I may be too kind with "less knowledgeable" term, but I don't want to offend too many out there. I do remember one particular event on 10 meters RTTY when several of those I mentioned above just didn't seem to understand when they heard/saw "TU T32C UP" and failed to transmit UP. Instead they proceeded to transmit right on the DX station's frequency. Of course, you know what happened then. . . . Some of our "brothers"

The WAZ Program

10 Meters SSB

594.....JO1ABS

15 Meters SSB

650.....JO1ABS 651.....K12G

20 Meters SSB

1203.....DS5ACV

17 Meters CW

81.....WA5IPS

20 Meters CW

607.....JO1ABS

160 Meters

391...SM3CCM (40 zones) 392.....SP1S (30 zones)

160 Meter Updates

K4CIA.....38 zones

All Band WAZ

Mixed

8833.....SP1MWK 8835.....HB99TUD
8834.....UA3FX 8836.....KM2O

SSB

5183.....TG9AJR 5185.....RA3BL
5184.....K9DT

CW

644.....K4MQM 648.....YO6HSU
645.....K3KEM 649.....JE2CPI
646.....DS5DNO 650.....KD7H
647.....OZ1BI

RTTY

216.....I8JIT

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, P.O. Box 449, Wiggins, MS 39577-0449. 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>.

just had to come on that frequency to berate the offender by callsign with nasty comments and profanity. And you know the result. ... the "frequency cops" caused as much or more interference than the offender, totally wiping out the DX station. Folks, *don't* do that!

It didn't do any good in this case and it won't in the future either. If you want to do something constructive, sit down and write a note to the offender and mail it to him/her. If he is the least bit interested in improving himself, it will do some good, and if not, well, at least you tried. It seems like someone once said something similar... "Tis better to have

5 Band WAZ

As of October 1, 2011, 856 stations have attained the 200 zone level and 1747 stations have attained the 150 zone level.

New recipients of 5 Band WAZ with all 200 zones confirmed:
None

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

N7US, 199 (18)	HB9ALO (1)
N4WW, 199 (26)	IZ1ANU, 199 (1)
W4LI, 199 (26)	IN3ZNR, 199 (1)
K7UR, 199 (34)	K2FF, 198 (18, 23)
IK8BQE, 199 (31)	EA5BCX, 198 (27, 39)
JA2IVK, 199 (34 on 40)	G3KDB, 198 (1, 12)
IK1AOD, 199 (1)	JA1DM, 198 (2, 40)
VO1FB, 199 (19)	9A5I, 198 (1, 16)
KZ4V, 199 (26)	G3KMQ, 198 (1, 27)
W6DN, 199 (17)	N2QT, 198 (23, 24)
W3NO, 199 (26)	OK1DWC, 198 (6, 31)
RU3FM, 199 (1)	W4UM, 198 (18, 23)
N3UN, 199 (18)	US7MM, 198 (2, 6)
W1JZ, 199 (24)	K2TK, 198 (23, 24)
W1FZ, 199 (26)	K3JGJ, 198 (24, 26)
SM7BIP, 199 (31)	W4DC, 198 (24, 26)
N4NX, 199 (26)	F5NBU, 198 (19, 31)
EA7GF, 199 (1)	W9XY, 198 (22, 26)
JA5IU, 199 (2)	KZ2I, 198 (24, 26)
RU3DX, 199 (6)	W9RN, 198 (26, 19 on 40)
N4XR, 199 (27)	W5CWQ, 198 (17, 18)
HA5AGS, 199 (1)	I5KKW, 198 (31&23 on 20)
N5AW, 199 (17)	UA4LY, 198 (6&2 on 10)
JH7CFX, 199 (2)	IK4CIE, 198 (1, 31)
K7LJ, 199 (37)	K2FF, 198 (18, 23)
RA6AX, 199 (6 on 10)	JA7XBG, 198 (2 on 80&10)
RX4HZ, 199 (13)	JA3GN, 198 (2 on 80&40)
S58Q, 199 (31)	
G3NKC, 199 (31 on 10)	
K8PT, 199 (26)	
N8AA, 199 (23)	

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

DS5ACV (170 zones) YO6SHU (161 zones)

5 Band WAZ updates:

K9OZ (200 zones)

*Please note: Cost of the 5 Band WAZ Plaque is \$100 shipped within the U.S.; \$120 all foreign (sent airmail).

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and \$1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, P.O. Box 449, Wiggins, MS 39577-0449. 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>.



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tried and failed, than never to have tried at all."

I know, I know, I've been beating this drum for years now and I won't do it all the time. However, every now and then, allow me a few lines to at least try to reach a few more of the "less knowledgeable," OK?

QSLing

I need to mention another topic this month, and that is QSLing. These days we have computer logging and online log search and all manner of internet means of contributing to DXpeditions and getting a confirmation for it. However, in years past, logs were kept on paper and QSL managers kept those logs on hand for years, or at least as long as they lived. A recent inquiry brought this to mind:

W2CTN was a long-time QSL Manager for many DX stations. Unfortunately, when he passed away, his family didn't know what all that "stuff" was and apparently no one came forward to help them sort it out. The logs for all those stations he managed were thrown out. Years later, along comes someone who is looking for a confirmation and finds ... the logs are gone forever. This is a situation that does *not* have to happen. Any QSL Manager should make provisions for the preservation of all logs he has in his possession.

Bob, N2OO, and his friends have created a group called the QSL Managers Society. Bob recently asked me to publish the following: "If anyone knows any DX or DXpedition logs and blank cards that are in jeopardy of being trashed, PLEASE save them. If you are a QSL Manager and can't be bothered nay more, PLEASE contact the QSL Managers Society and it pledges to locate a quality replacement QSL Manager. Just because a DXpedition log is old does not mean that it is not worthy of being saved. SAVE DX LOGS. See the website: <www.qsl>."



Save DX logs! Pass them along! See the text for details of the QSL Managers Society.

net/qsmanagers>, or contact the group by e-mail at <qsmanagers@qsl.net>."

Silent Keys

I honestly cannot remember when I started writing this column for CQ. It seems like it was in early 1998, and if so, that would mean I've been at it for 14 years. Is that possible? It hardly seems that it could be that long.

I don't like to report Silent Keys, just a personal thing. I



Roger, G3SXW, says this group from 9L5VT last year will be going to Liberia for this year's CQ WW DX CW Contest in November. They are licensed as EL2A and will be a multi-multi entry. They will operate with personal calls outside the contest. Left to right: Ned, AA7A/EL2NS; Roger, G3SXW/EL2A; Fred, G4BWP/EL2WP; Mike, KC7V/EL2MF; Lee, KY7M/EL2LF, and Bud, N7CW/EL2CW. (Photo courtesy of Roger, G3SXW)

guess I just don't want to admit that someone is really gone. Let me take a moment, though, to remember all those who have become Silent Keys in the past year without trying to name them. Many I knew, many I didn't, but they were all brothers in amateur radio and we shall miss them.

I hope it has been a good year for you and here's hoping the next one will be even better.

Until next time, enjoy the chase and Have Fun!

73, Carl, N4AA

QSL Information

FM1II via NI5DX
 FM5BH via W3HNC
 FM5CD via F5VU
 FM5WD via W3HNC
 FM5WE via K4FJ
 FO/DL1AWI via DL1AWI
 FO/DL3APO via DL3APO
 FO/DL5XU via DL5XU
 FO/G3SWH via G3SWH
 FP/DL1DA via DL1DA
 FP/G3ZAY via G3ZAY
 FR/DL1DA via DL1DA
 FR/DL5CF via DL5CF
 FR/DL8AAV via DL8AAV
 FR/F5UOW via F5UOW
 FR/OE3GEA via OE3GEA
 FR/TU5KG via F4EFI
 FR0HV via DL1DA
 FR1AN via NI5DX
 FR7GO via F8KLY
 FS/DK5AL via DK5AL
 FS/DL1DA via DL1DA
 FS/KM3T via K2PF

FS5UQ via W3HNC
 FS5YL via W3HNC
 FT5WL/MM via F4EFI
 FT5WN/MM via F4EFI
 FT5WO via F4DYW
 FT5WP/MM via F4EFI
 FT5XP via F4EFI
 FT5XP/MM via F4EFI
 FT5XQ/MM via F4EFI
 FT5XR/MM via F4EFI
 FT5XS/MM via F4EFI
 FT5YJ via F5PFP
 FT5YJ/P via DJ9ZB
 FW0BF via DJ9ZB
 FW5RE via HA8IB
 FY/DL1DA via DL1DA
 FY/F5PHW via F5PHW

(The table of QSL Managers is courtesy of John Shelton, K1XN, editor of "The Go List," 106 Dogwood Dr., Paris, TN 38242; phone 731-641-4354; e-mail: <golist@golist.net>; <http://golist.net/>.)

CQ DX Honor Roll

The CQ DX Honor Roll recognizes those DXers who have submitted proof of recognition with 275 or more ACTIVE countries. With few exceptions, the ARRL DXCC Countries List is used as the country standard. The CQ DX Award currently recognizes 341 countries. Honor Roll listing is automatic when an application is received and approved for 275 or more active countries. Deleted countries do not count and all totals are adjusted as deletions occur. To remain on the CQ DX Honor Roll, annual updates are required. All updates must be accompanied by an SASE if confirmation of total is required. The fee for endorsement stickers is \$1.00 each plus SASE. Please make checks payable to the Award Manager, Keith Gilbertson. Mail all updates to Keith Gilbertson, KØKG. 21688 Sandy Beach Lane, Rochert, MN 56578-99604.

CW

NØFW.....340	EA2IA.....340	K9BWO.....339	K3JGJ.....338	W4MPY.....334	JA7XBG.....330	W9IL.....319	WD9DZV.....310	4Z5SG.....277
K2TQC.....340	N7FU.....340	N4MM.....339	F3TH.....336	K5UO.....334	K6YK.....330	W6YQ.....319	KT2C.....302	WA2VQV.....277
WB4UBD.....340	K4IQJ.....340	W7CNL.....339	DL3DXX.....336	N6AW.....334	K8SIX.....329	OZ5UR.....318	HA5LQ.....302	
K3UA.....340	K4MQG.....340	N5ZM.....339	YU1AB.....336	HB9DDZ.....334	KE3A.....327	CT1YH.....318	N2LM.....300	
N4JF.....340	W8XD.....340	N4AH.....339	WØJLC.....335	W7IIT.....334	K6CU.....327	EA3ALV.....317	K4IE.....296	
K2FL.....340	N7RO.....340	K9IW.....339	PY2YP.....335	G3KMQ.....332	W1DF.....327	RA1AOB.....315	HB9DAX/QRPP.....284	
WK3N.....340	N5FG.....340	K8LJG.....339	K9OW.....335	K6LEB.....332	KA3S.....326	KØKG.....315		
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County Hunting Q&A plus Awards from Poland

This month we are going to answer some of the questions we have received from readers regarding the CQ USA-CA Award. We try to answer here those that apply to quite a few of you. We will then move on to some awards from Poland.

Q: For higher grade endorsements, is it necessary to send the previous pages of a printout for my confirmed 500 and 1000 levels?

A: Yes. Since so many stations use computer-printed lists these days, this is a common question. When you submit for the 1500 level, I'd like to have a complete list of the 1500 counties. That way, I don't have pull your old list and make sure that each new one claimed is really new from the last list.

Q: Over the years I've lived and operated in three states and two DXCC countries. Do I have to start over on the USA-CA award or can I use all of the contacts?

A: Rule B.1. of the USA-CA Award states that the award is issued to you as an individual regardless of what calls you have ever held, operating QTHs, or dates of activity. Therefore, if you made the contact, and you have the card, you can count it. No need to start over.

Q: I see in the rules that "altered" cards are not accepted. What do you mean by altered? Sometimes when the county is not printed on the card, I use the zip code to determine the county and lightly write it in. Is that altering a card?

A: The definition of the word "altered" is sort of like the definition of "obscenity," in that you would recognize it if you saw it. I would define it as the applicant changing any data on the card with the intent of gaining award credit for data not written by the sender.

Q: Is it acceptable for USA-CA credit for two licensed amateurs to be in the same vehicle and "contact" each other on a 2-meter handheld transceiver as they travel?

A: Yes. I believe that several YL-OM teams have already worked all counties this way.

Awards from Poland

During the past few years, the Polish National Amateur Organization (the Polski Związek Krótkofalowców, PZK) has added several new awards to its already popular series. The awards are popular because the Poles are very active, especially in contests of all kinds, the awards are well-defined and can be achieved within a reasonable amount of time, the designs are well-executed, costs are reasonable, and the people handling the awards are prompt and efficient.

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USA-CA Honor Roll

500

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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 non-subscribers 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.

General Requirements. Awards are available to licensed amateurs and SWLs. Price for each award is 5 Euros, \$US5, or 5 "new" IRCs. All contacts, with the exception of satellite or repeaters, regardless of band or mode, are valid for the awards. You must possess the QSLs, but the GCR (General Certification Rule) applies. Foreign stations should send their applications to: PZK HQ Secretariate, Award Manager SQ7B, P.O. Box 54, 85-613 Bydgoszcz 13, Poland. Polish stations should apply to: PZK Awards Manager, Andrzej Buras SQ7B, P.O. Box 12, 27-200 Starachowice, Poland. E-mail: <sq7b@pzk.org.pl>; Internet: <<http://awards.pzk.org.pl/>>.

Poland Without Borders Award. Poland joined the European Union in June 2003. This award celebrates its pride in meeting the requirements of the EU, which call for a stable democracy that respects human rights and the rule of law, a functioning market economy capable of competition within the EU, and the acceptance of the obligations of membership, including EU law.



Issued by the PZK, the Polish National Amateur Organization, the Poland Without Borders Award is issued for confirmed HF QSOs with member states of the European Union.

This award is given for confirmed HF QSOs with member states of the European Union on or after 21 December 2007. SWL OK. It can be earned on HF bands with a total of 85 HF QSOs as follows:

- a. 3 contacts with different call areas in 23 EU countries (a total of 69 QSOs)
- b. 16 contacts with all SP provinces (a total of 16 QSOs)
- c. Contacts with European Union states: CT, DL, EA, EI, ES, F, G, HA, I, LX, LY, LZ, OE, OH, OK, OM, ON, OZ, PA, S5, SM, SP, SV, YL, YO, ZC4/5B4, 9H.

The SP provinces are usually identified by a single letter. A very high percentage of the stations will show this abbreviation on their QSL cards. The list that follows shows the call area and abbreviation in parentheses: SP1 (Z), SP2 (F, P), SP3 (B, W), SP4 (J, O), SP5 (R), SP6 (U, D), SP7 (C, S), SP8 (L, K), SP9 (M, G).

SP Great Cities Award. I guess it all depends on your definition of "great cities." The list of great cities in Poland includes what many of us would call small or medium towns. However, in this case, the bigger the list, the easier the award will be for you to claim.

Contact stations located in the principal cities of Poland. The award is available in three classes:

Class 1—for QSOs with 35 different cities

Class 2—for QSOs with 25 different cities

Class 3—for QSOs with 15 different cities

No time limits. SWL OK.

Internet (cities list; there are 220 cities on the list): <http://www.awards.pzk.org.pl/html/Miasta_Polskie_1.htm>.

The AC-15-Z (All Countries of the 15th Zone) Award. This award is not new. I list it here because it was one of the first awards I ever applied for, and a recent redesign of the certificate only adds to its interest. CQ Zone 15 is well known to contesters around the world for its great number of outstanding signals and the dedicated operators behind those signals. It should be no trouble for you to add this one to your collection.

Contact at least 23 countries/call areas located in CQ Zone 15 as follows: Aland Is. OH0, Albania ZA, Austria OE (2 call areas), Bosnia E7, Corsica TK, Croatia 9A, Czech Republic OK, Estonia ES, Finland OH (three call areas), Hungary HA, Italy I, Kaliningradsk UA2, Latvia YL, Lithuania LY, Macedonia Z3, Malta 9H, Market Reef OJ0, Montenegro 4O, Poland SP (four

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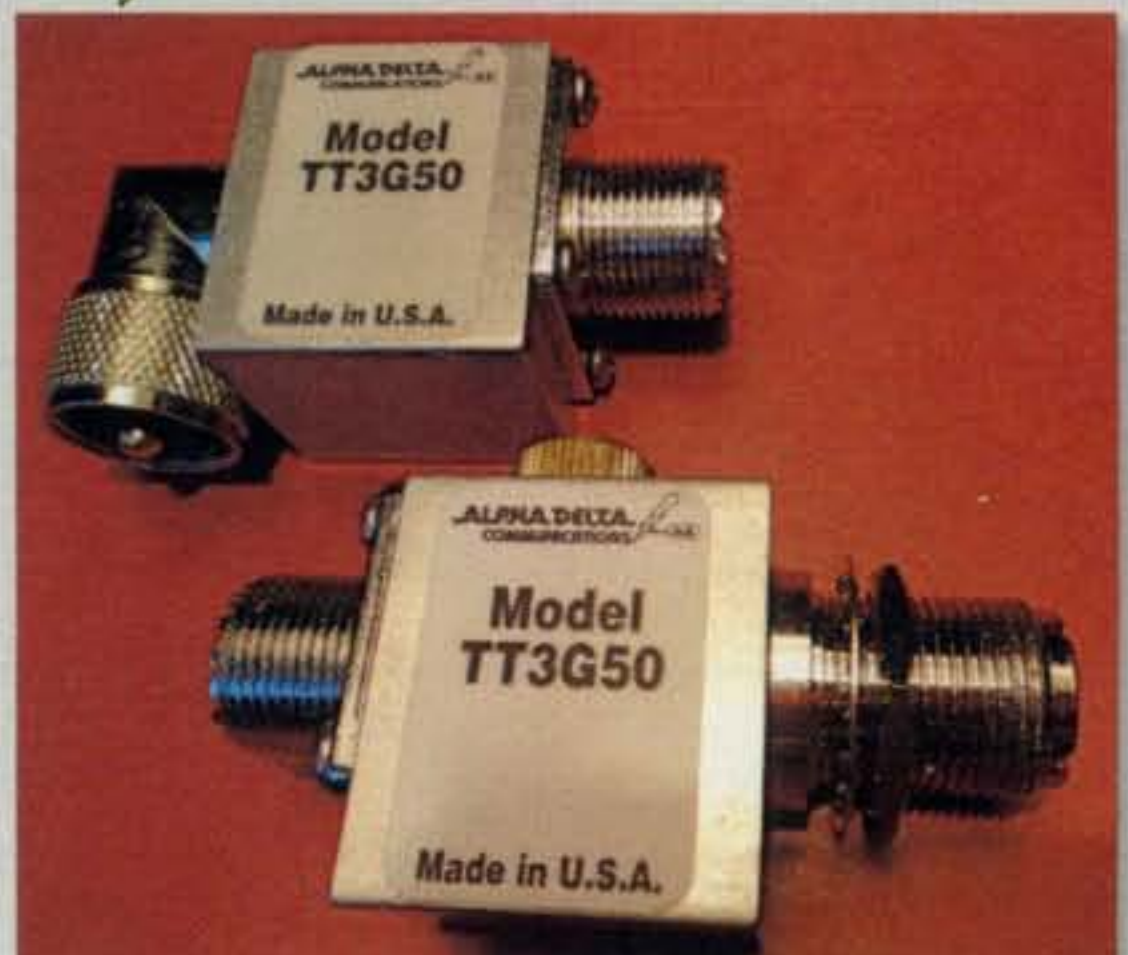
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To earn the SP Great Cities Award contact stations located in the principal cities of Poland.



The AC-15-Z Award is issued for contacting at least 23 countries/call areas located in CQ Zone 15 (see text for list).

call areas), San Marino T7, Sardinia IS, Sicily IT, Slovakia OM, Slovenia S5, Sovereign Military Order of Malta 1A0, Vatican City HV, Yugoslavia YU.

Contacts with four call areas of Poland are mandatory. Your list should be in alphabetical order. Contacts since 1 January 1955 count for the award.

PZK Award Hunter Award. This award is something I haven't run into very often but which makes a lot of sense—an award for earning a specific number of awards from the sponsoring organization.

This award is issued by the PZK to licensed radio ama-

teurs and SWLs for having earned a specific number of awards issued by the organization:

1. Class 1—for having collected 8 awards (VHF/UHF—4 awards)
2. Class 2—for having collected 6 awards (VHF/UHF—3 awards)
3. Class 3—for having collected 4 awards (VHF/UHF—2 awards)

Notes:

(a) Various versions of the "Polska" award, issued under different administrative divisions, are considered separate awards.

(b) The "SPPA" award and all endorsements (stickers) are counted as one award.

(c) Each version of the "HQ Award" is counted as a separate award.

(d) Higher classes of other PZK awards are counted as separate awards.

Your application must consist of a list of the earned awards issued by the PZK.

We're always on the hunt for new awards to feature in these pages. I invite your e-mails to the address shown elsewhere in this column.

73, Ted, K1BV

On The Cover

Hmmm... white hair, white beard, elfin smile ... Could it be? Well, if Jerry Keller, K3BZ, of Green Lane, Pennsylvania, has a second home at the North Pole, he wasn't saying. But he *did* say that his location high on a ridge about 40 miles northwest of Philadelphia gives his signals a good *take-off angle*. Maybe for reindeer, too? And he *did* serve in the Air Force back in the '60s. Hmmm... Just sayin'...

On the ham radio front, Jerry's main interest is DXing, in which he employs an ICOM IC-756 Pro III and PW-1 amplifier, feeding a four-element SteppIR Yagi with a 40-meter loop atop a 60-foot tower, along with wire antennas on 80 and 160 meters. Almost as important as his radio gear, says Jerry, is the DXLab software suite he uses for logging and much more. "It creates spots, has a map module, a digital module (and more) ... and it all works together to help you be successful at DXing." With his combination of hardware and software, Jerry has worked 320 countries and has just completed the requirements for 5-band DXCC. He also holds the scoring record for a non-Florida station in the Florida QSO Party.

Jerry has been licensed since 1959, at age 15, and previously held the calls KN1MER and K1MER. After serving as a radio intercept officer in the Air Force in the early 1960s, Jerry went to work for the Department of Defense as a civilian, retiring in 1997 as a contracting officer, responsible for negotiating high-value contracts for military hardware. He has built up his station since retirement, noting that this QTH is the first place he's ever lived where he could put up a decent antenna.

Jerry is a member of the Pottstown Amateur Radio Club and the ARRL, and says he's "addicted to CQ magazine. I just love it!" Thank you, Jerry, and Merry Christmas to you, too!

(Cover photo by Larry Mulvehill, WB2ZPI)



The PZK Award Hunter is available for having earned a specific number of awards issued by the Polski Związek Krotkofalowcow.

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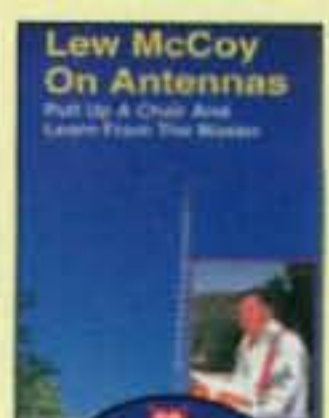


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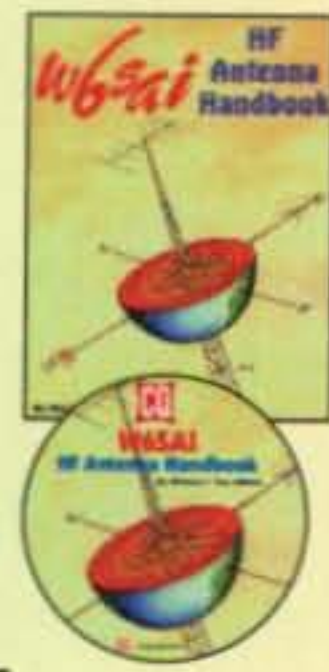


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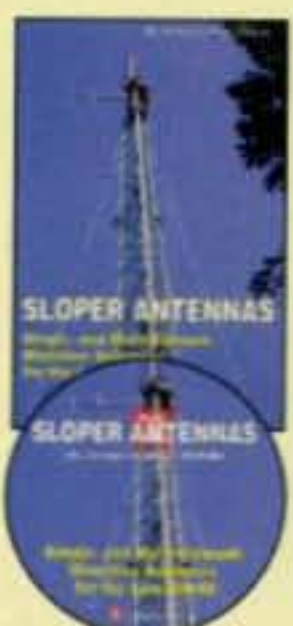
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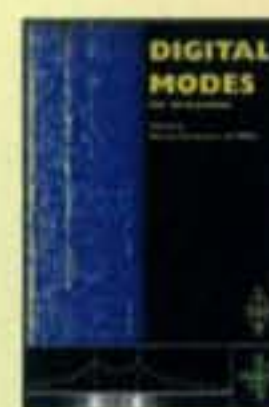
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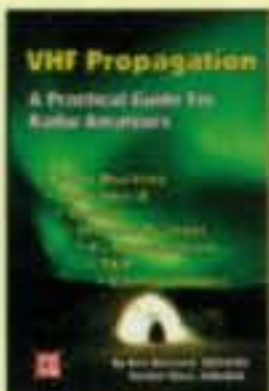
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Awards and Recognition Programs

Passion is something that comes from within. A contester must draw deeply from inside to develop the will to compete. Successful contesting at the highest level requires a strong commitment of time and effort. Contesters have normal lives, too, so that energy spent contesting must be balanced against the demands of everyday life. Every now and then, we all need a push to motivate us to strive higher and do better. Contest clubs can help. Many have awards and recognition programs that aim to do just that.

Of course, not everyone who enters a contest will win. Many contest clubs realize this and have designed programs to encourage the little pistols to try to continuously improve their skills. Contest clubs are a potential hotbed of talent, resources, and potential. The budding contester can be paired off with the more seasoned operator and that in turn can motivate both of them to advance. Multi-operator contest stations are a great place to develop young talent. There is a built-in motivational factor of being part of a group. Success comes from teamwork. Newbies can learn from old-timers and vice versa.

Some of the clubs have participation awards. If you compete in a number of specified contests, you can win recognition and an award. The Yankee Clipper Contest Club (YCCC) has a participation award that is readily attainable. A member will be eligible for a Participation Award upon submitting club score entries for any four of the major contests: CQ WW DX SSB, CQ WW DX CW, ARRL International DX SSB, and ARRL International DX CW. If a member enters a score for all four majors in the same year, this award can be achieved in the first year. Entries are lifetime cumulative, and once a member has entered four scores, he or she is eligible for the award no matter how many years it took to achieve. This is to provide for operators who choose to only operate a single mode. The award for participation is a YCCC cap (hat). The

*P.O. Box 657, Copiague, NY 11726
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Simple things are effective motivational tools and can help club members show pride in their club. The Yankee Clipper Contest Club gives hats and mugs to members as awards. (Photos courtesy respective contesting clubs)

Calendar of Events

All year	CQ DX Marathon (see 2012 rules in this issue)
Nov. 26-27	CQ WW DX CW Contest
Dec. 2-4	ARRL 160M Contest
Dec. 10-11	ARRL 10M Contest
Dec. 17	RAC Winter Contest
Dec. 17	OK DX RTTY Contest
Dec. 17-18	Stew Perry Topband Challenge
Dec. 17-18	Croatian CW Contest
Dec. 18	ARRL Rookie Roundup, CW
Jan. 1	SARTG New Year RTTY Contest
Jan. 7-8	ARRL RTTY Roundup
Jan. 27-29	CQ WW 160M CW Contest
Feb. 24-26	CQ WW 160M SSB Contest

member will receive only one hat for the first achievement of the award; following years the member's scores are highlighted on the website for participation.

Al Frugoli, KE1FO, is the YCCC awards program manager. Al says, "I first got involved with YCCC back in the mid 90s. I was in college, and had no station of my own and had just been licensed. I got connected with K1TTT and then quickly YCCC. Early on in my contesting and YCCC career, I won an award for contributing points to the YCCC club effort to win the large club category competition. I thought that was pretty cool. It got me interested in improving my code, improving my station, and getting my butt in the chair. I wasn't sure if I could ever win an award from the contest sponsor, but an award from one of the largest contesting clubs in the world was a pretty darn good incentive for me."



2011 ARRL DX CHAMPIONS

THE FRC 2011 CONTRIBUTORS:

W2OX K3WW N3AD AA3B AA1K N2TK N3RS
K3PP W3BGN WE3C W1GD N2MM K2NG K9RS
K3MD N2LT W8FJ K3CT K2SG W2IRT N3RD
K3TEJ K3IPK W3FV KF3B KQ3F NN3Q KQ2M
N3ZA N2RM NE3F W3EA N3DXX W2GD K3ND
AA2WN W2YC W3KB W2LE N2SR W7CTN1IBM
WB3FIZ W3CF W3MF K3PH AB2E N3MX W2ID
N1RK KQ3V N2ED K4IKM W2CG N3NA AA3K
K3ZV NK3Y K2GN W2EN N2RJ W3FW KD3TB
K2CJ W3CC N3PUR N2VW K3FT WA2VUY K2AX
W6XR N3OW K3ATO NT3V N2WKS KA2NDX
W0MHK WA2TML KC2NB N3RJ W3SQ N3BNA
K3QF N2AA K2QPN WA2VUN WA3WLH NG3J
N2CQ K3OO N2BA N3KR W2RDS KC2TN W2MC
N3RG W0BR W2VQ NW3H K3YD W3FVT KV2M
K3VA K3SWZ K3TUF W3IZ K2DM AB2IO N8NA
KC3WX K2UT KD2HE AF3I W2UDT K3OOO
WE3E NY3C N2VM W3TS KD3RF N3RW NO2R
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Raymond C. Sokola, K9BS 2011

The 2011 Frankford Radio Club ARRL DX Champions award lists all participants in the club entry.

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The Frankford Radio Club (FRC) also has an awards program. The FRC has awards for all members when the club wins a major contest. Each member who submitted scores gets a mug and certificate and that part of the program is alive and well. According to FRC President Ray Sokola, K9RS, "FRC previously had an extensive awards program but it has been defunct for the last four or five years for a variety of reasons. We are now looking at revitalizing it." Ray says that "the FRC previously had a one-time plaque for each time a guy *first* made 1M points in one of the four events with a maximum of four plaques."

The Potomac Valley Radio Club (PVRC) has a very active awards program that is called the "5 Million Point" program, and it is one of the major programs of the club. According to

PVRC President Mark Bailey, KD4D, "The award exists to recognize outstanding and ongoing support by members of the PVRC in significant amateur radio contests that sponsor club competition. We use a "normalized" scoring system and award a plaque at our annual dinner to members who have scored



Each club member participating in FRC's winning effort received a 2009 Frankford Radio Club CQ WW DX Champions mug.



The Potomac Valley Radio Club 5 Million Point Award, this one gracing the shack of Alan Knight, AA4FU.



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5-million "points," with various endorsement levels. We have several members who have amassed 100-million points!"

Mark continues, "We sometimes offer 'double' points for Sweepstakes and will again this year. One-million points represents the top single operator PVRC score and other scores are normalized. Five-million points represent a significant effort for members who don't operate at big stations with big antennas.

Another thing we do is distribute the club awards PVRC wins (gavels, plaques, cups, etc., for club competitions) to our members. Generally, we try to give the award to a club member who has not been awarded one of these before. This is a really cool idea: My favorite part of being PVRC president is awarding 5-million-point plaques/ endorsements and these PVRC club gavels, plaques, and cups!"



Don Binkley, N4ZZ, receives the Tennessee Contest Group's Outstanding Contester of the Year award from Alabama Contest Group President Tim Wininger, KY5R, at the Huntsville Hamfest contest dinner.

The Tennessee Contest Group (TCG) also has an active awards program. According to TCG President Kirk Pickering, K4RO, "It's been very successful. We have been doing it now for ten years. The number of QSOs made by TCG continues to increase every year.

Greg, K4KO, writes an excellent and entertaining yearly summary, which documents the several hundred thousand QSOs generated yearly by our small club. While the award has been dominated by one very active member (N4ZZ), others can and have won the award. It takes a full year's focused dedication to win this award."

Kirk adds, "It's called the TCG 'Radio Active Report.' The rationale is simple: Motivate more people to operate more contests and to make more QSOs when operating contests. The idea is to generate activity during contests, thus the name. Members report their contest scores to our discussion reflector. One of our members (Greg, K4KO) tallies up the total number of QSOs and the total number of contests operated for each member. The operator with the most contest QSOs in a calendar year receives a plaque. All contests and modes are eligible. The winner typically must operate many CW, SSB, and RTTY contests to be competitive."

Other clubs such as the Florida Contest Group (FCG) are thinking about implementing an awards program. FCG President Dan Street, K1TO, says, "While I've had thoughts of such a program for the FCG, we really don't have anything in place. Perhaps this will provide some impetus to moving us ahead!"

Regardless of your club affiliation, earning an award from a respected organization is something to be proud of. Individuals give of themselves because of the self-satisfaction of doing, but recognition of their accomplishments is an added bonus. Clubs and their members both benefit from such programs. If you belong to one of these groups, congratulations for being part of a contest club with a recipe for success. Amateur radio needs more such organizations. This may be why members of these clubs normally are near the top of the standings in their contest categories. Even a simple reward such as a club hat or pin can put a big smile on a contester's face and make him/her proud to be a member.

What is your club doing to promote success? Perhaps you might want to take some hints from some of the great organizations mentioned and start something for your members.

73, George, N2GA

Winter Opportunities on the Bands

BY TOMAS HOOD,* NW7US

propagation

CQ WW DX CW Contest Good Conditions Now Expected

The 2011 CQ WW CW Contest (<http://www.cqww.com/>) will start at 0000 UTC, Saturday, November 26, and run through 2359 UTC Sunday, November 27. Here's a quick update, hoping this issue will reach you before the start of the contest. The original forecast, published in this column last month called for fair conditions both days of the contest period. Based on the 27-day rotation of the Sun and the recent solar activity, the forecast is for fair to good conditions; fair on the first day, and improving on the second day. Expect conditions to be comparable to those of the CW weekend of 2003, possibly even 2002.

Daily 10.7-cm solar flux levels are expected to be 130 during the contest. The geomagnetic planetary A-index is expected to be quiet to unsettled. There is a chance of X-ray flares, though, so there may be short periods of deep fading on the lower to middle HF bands on sunlit radio paths. When paths are open, you should be able to make significant points. Certainly, the upper bands will be major players. Look for significant scoring on the 15- and 10-meter bands. For an up-to-the day "Last-Minute Forecast" visit my propagation resource center at <http://sunspotwatch.com/>.

A Quick Look at Current Cycle 24 Conditions (Data rounded to nearest whole number)

Sunspots

Observed Monthly, September 2011: 78
Twelve-month smoothed, March 2011: 37

10.7 cm Flux

Observed Monthly, September 2011: 135
Twelve-month smoothed, March 2011: 96

Ap Index

Observed Monthly, September 2011: 13
Twelve-month smoothed, March 2011: 7

One Year Ago: A Quick Look at Solar Cycle Conditions

(Data rounded to nearest whole number)

Sunspots

Observed Monthly, September 2010: 25
Twelve-month smoothed, March 2010: 12

10.7 cm Flux

Observed Monthly, September 2010: 81
Twelve-month smoothed, March 2010: 78

Ap Index

Observed Monthly, September 2010: 5
Twelve-month smoothed, March 2010: 5

Solar activity continued to increase during the latter half of 2011, and the excitement generated among the amateur radio community is infectious. A comparison based on smoothed monthly sunspot numbers for sunspot Cycle 23 and Cycle 24, with each cycle starting at the month with the lowest sunspot number (May 1996; August 2009) reveals that the current cycle is actually progressing rather typically. While the solar cycle minimum between both cycles was lengthy, it is possible that this new cycle is not in any way defective when compared at least in this manner. Certainly, when asking the amateur radio community active on 10 meters how this cycle is progressing, you will get a very enthusiastic "Very well, indeed!"

Conditions for December should continue in this upward trend. We still are far from the solar cycle maximum. The density of ionization in the Northern Hemisphere is expected to increase more rapidly after sunrise than during other seasons. Static and atmospheric noise levels will be at seasonally low values during the month. Reasonably strong signal levels are expected on most of the open bands, and the higher bands are becoming ever more active. While improbable, keep a lookout for one or two short 6-meter openings toward the end of December 2011 and into the early part of January 2012. Solar activity may bring a surprise.

The daytime openings on 10, 12, and 15 meters will be short but hold a lot of promise for paths into more areas of the world, not just on northerly/

LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for December 2011

Propagation Index.....	Expected Signal Quality			
	(4)	(3)	(2)	(1)
Above Normal: 4-8, 11-16, 24-25, 31	A	A	B	C
High Normal: 1-2, 9-10, 21-22 27-29	A	B	C	C-D
Low Normal: 3, 20, 23, 30	B	C-B	C-D	D-E
Below Normal: 26	C	C-D	D-E	E
Disturbed: 17-19	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 fair (C) on Dec. 1st and the 2nd, poor (D) to fair (C) on the 3rd, good (B) on the 4th through the 8th, etc.
3. As an alternative, the Last-Minute Forecast may be used as a general guide to space weather and geomagnetic conditions through the month. When conditions are Above Normal, for example, the geomagnetic field should be quiet and space weather should be mild. On the other hand, days marked as Disturbed will be riddled with geomagnetic storms. Propagation of radio signals in the HF spectrum will be affected by these conditions. In general, when conditions are High Normal to Above Normal, signals will be more reliable on a given path, when the path is ionospherically supported.

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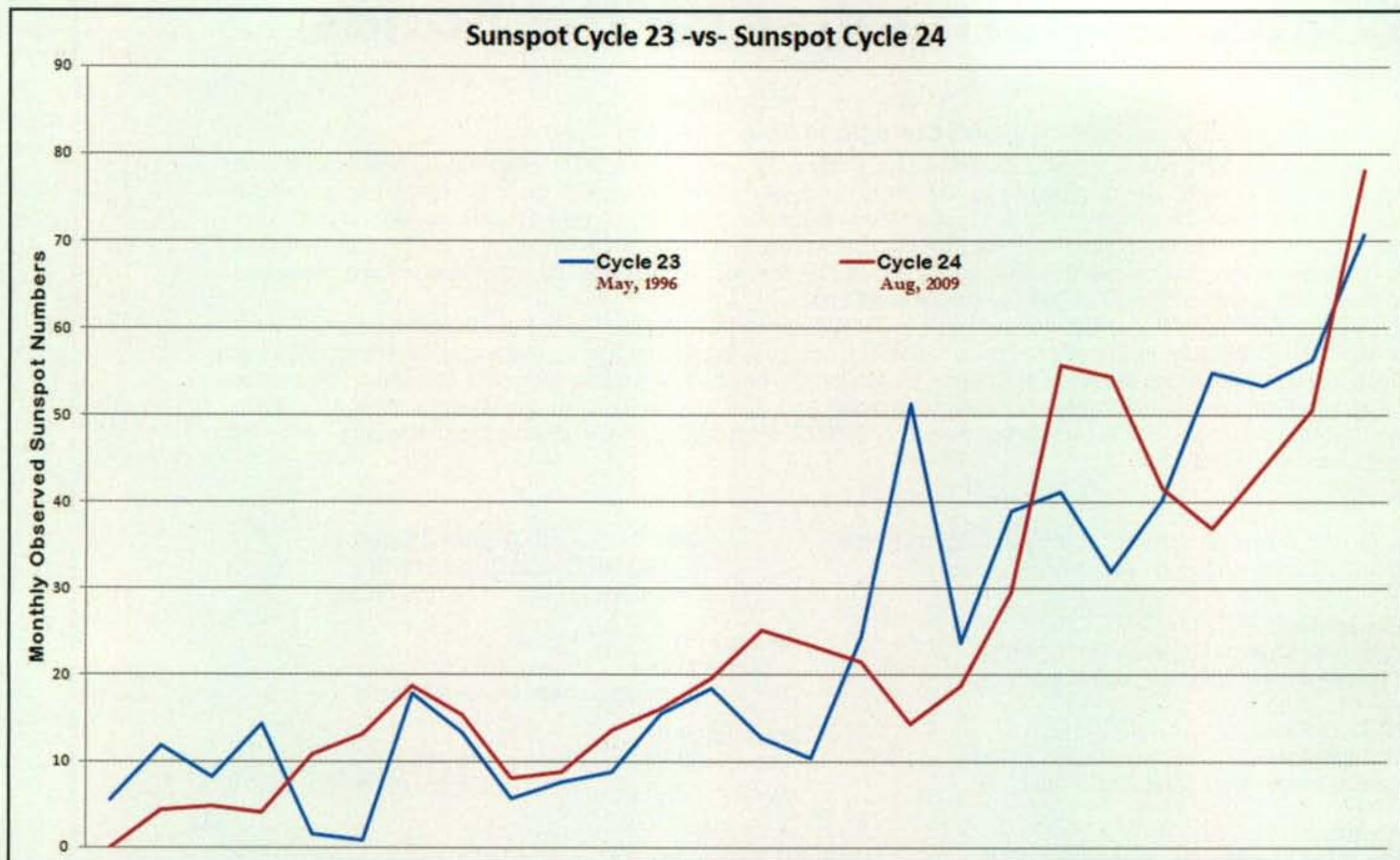


Fig. 1— A comparison of sunspot Cycle 23 and Cycle 24 reveals that the current cycle is actually progressing quite “normally” and is not sluggish nor weak as has been speculated. Most speculation is based on the prolonged solar cycle minimum that transpired between the two cycles. However, when comparing each cycle by matching up each with the month of the lowest smoothed monthly observed sunspot count (May 1996; August 2009), each cycle appears to have very similar growth in activity. Based on this, it might be that we’ll see this current cycle peaking at a reasonably high point much like that of Cycle 23, and yet a few years from now (2014?). (Source: NW7US)

southerly paths. Ten meters showed great performance as early as the end of September, but especially during October, with openings into many areas of the world. This continues as we enter into winter. During much of the daylight hours, especially where the propagation paths cross the sunlit regions, expect 10- and 12-meter DX openings. Fairly good DX openings are also expected on 17 and 15 meters, remaining open toward the west during the early evening.

Starting with early morning, expect strong openings on 20 meters in all directions until about an hour or two after sunrise, and then into one place or another through the day until early evening. The 30-meter band will not be a strong player for DXing during the daytime, but will come alive closer to the night hours.

Expect both the 30- and 20-meter bands to play most of the night for some paths, especially for stations at low- to mid-latitudes. When conditions are Above Normal, 30, 20, and 17 meters are likely to remain open towards the south and west from early evening until

about midnight, especially for DXers in the lower latitudes.

On 40 meters, regional daytime openings will remain strong for most of the day, while great DX will open early in the afternoon. From midnight to sunrise, 40 promises some of the hottest nighttime DX during December. The first DX openings should be toward Europe and the east during the late afternoon, then move across the south through the hours of darkness, while remaining open into most parts of the world. Just after sunrise, openings will be more in a westerly direction. Low seasonal noise will make DXing a pleasurable endeavor.

DX openings on 160 and 80 meters during the hours of darkness and into the sunrise period, with considerably decreased static levels, are a sure bet during the longer hours of darkness in the Northern Latitudes. Look for openings toward Europe and the south from the eastern half of the United States and toward the south, the Far East, Australasia, and the South Pacific from the western half of the country. Eighty meters becomes a reliable long-distance band throughout the entire peri-

od of darkness during December. Openings on 80 should peak toward Europe and in a generally easterly direction around midnight, and then open in a generally western direction with a peak just after sunrise. The band should remain open toward the south throughout most of the night.

For short-skip openings during December, try 80 and 40 meters during the day for paths less than 250 miles, and 80 or 160 meters at night for these distances. For openings between 250 and 750 miles, try 40 meters during the day, and both 80 and 160 at night. For distances between 750 and 1300 miles, 20 and 30 should provide daytime openings, while 40 and 80 will be open for these distances from sunset to midnight. After midnight, 80 meters will remain open out to 1300 miles until sunrise. Try 30 and 40 meters again for about an hour or so after sunrise. For between 1300 and 2300 miles, openings will occur on 20, 17, and 15 meters, with fewer on 12 and 10 meters, during the daylight hours. During sundown to midnight, check 20, 30, and 40 meters for these long-distance openings, and

then check 40 and 80 meters after midnight until sunrise. Try 40 meters again for an hour or so after sunrise.

VHF Conditions

Expect occasional geomagnetic storms due to recurring coronal-hole activity. Additionally, expect strong storm conditions if active sunspot regions unleash coronal mass ejections after any powerful X-ray flare, as these CMEs may trigger strong activity leading to auroras. When conditions are Disturbed or Below Normal, there is a possibility for Field Aligned Irregularities (FAI) and auroral-E propagation.

At the end of December there is a possibility for a slight increase in sporadic-E propagation providing activity on 10, 6, and 2 meters. Check the Last-Minute Forecast at the beginning of this column for those days during December that are expected to be in these categories.

Quite a bit of meteor shower activity is expected this month, and this should result in improved conditions for meteor-scatter openings on the VHF bands for distances up to about 1000 miles.

Meteor-scatter propagation is a mode where radio signals are refracted off the ionized plasma trails left by dust and small particles that have entered into our atmosphere at thousands of miles per hour. The ionized trail is produced by vaporization of the meteor. Meteors no larger than a pea can produce ionized trails up to twelve miles in length in the E-layer of the ionosphere. Because of the height of these plasma trains, the range of a meteor-scatter contact is between 500 and 1300 miles. The frequencies that are best refracted are between 30 and 100 MHz. However, with the development of new software and techniques, frequencies up to 440 MHz have been used to make successful radio contacts off these meteor trains. On the lower frequencies, such as on 6 meters, contacts may last from mere seconds to well over a minute. The lower the frequency, the longer the specific opening made by a single meteor train. A meteor train that supports a 60-second refraction on 6 meters might only support a 1-second refraction for a 2-meter signal. Special high-speed methods are used on these higher frequencies to take advantage of the limited available time.

Meteor Showers

Watch for the *Ursids* from December 17 through 26 with a maximum on December 23 between 0200 and 0400 UTC. Most people miss this, but this

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could have an hourly rate as high as 50. In 2008, it reportedly had two peaks with an hourly rate of 30 to 35. There might be another peak on December 22 at about 2100 UTC. The Ursid radiant is cir-

cumpolar from most northern locations, and culminates after daybreak, while it is highest in the sky later in the night. This one could be a good VHF player.

The *Geminids* are possibly the most

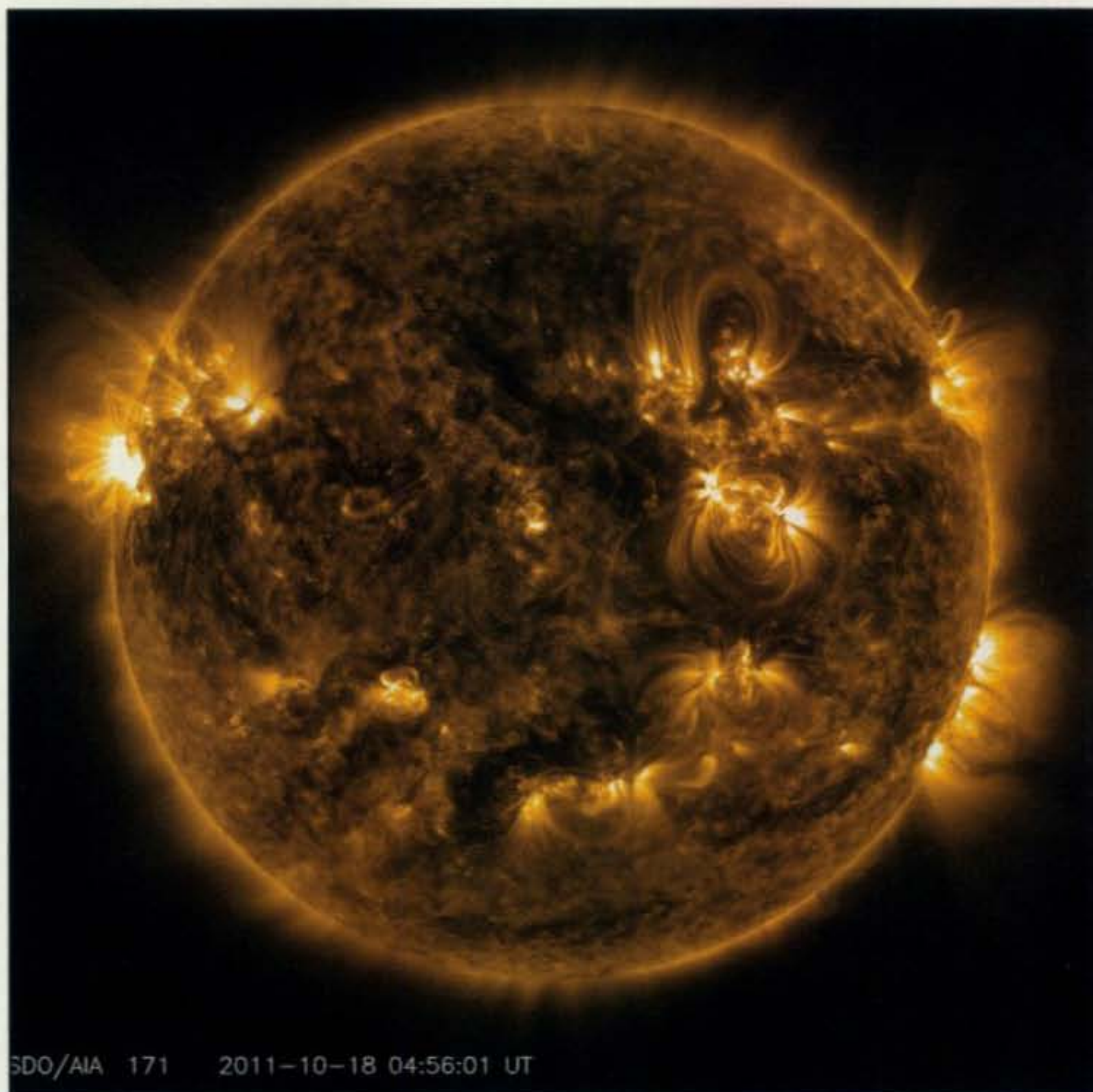


Fig. 2— The complex magnetic structures seen at the 171-Angstrom wavelength by the Solar Dynamics Observatory's Atmospheric Imaging Assembly on October 18, 2011. When we view the Sun's chromosphere at temperatures between 600,000 and 1,000,000 degrees Celsius, we clearly see complex magnetic structures punching up through the active sunspot regions. It is when these powerful, huge magnetic loops twist and break apart that X-ray flares erupt, sometimes sending huge clouds of plasma, or coronal mass ejections, out into interplanetary space. (Source: Solar Dynamics Observatory [SDO]/Atmospheric Imaging Assembly [AIA])

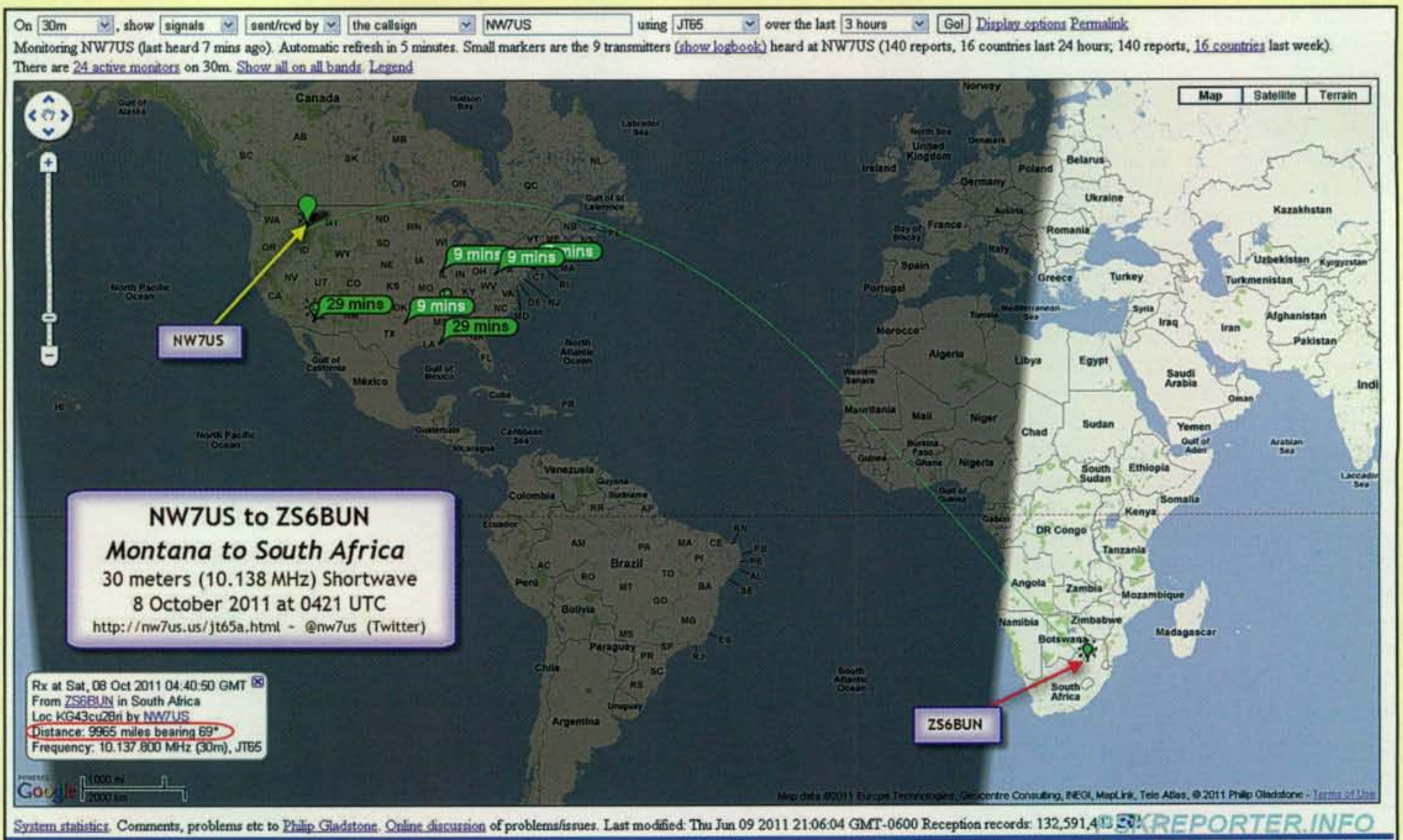
reliable of the annual showers. While the duration of this meteor shower is shorter than that of others, there's a definite plateau of maximum activity. The *Geminids* begin to peak during predawn on December 14, with a quick climb to a maximum rate of around 140 per hour. Its window is from December 5 through 20. In North America and Canada, VHF enthusiasts will have the best opportunity to work meteor-scatter propagation from December 13 through the wee hours on the 14th, but as *Geminids* are a "long tail" event, expect continuing

opportunity, though less often, several days or nights after the peak.

Finally, check out the *Quadrantids* from December 28, 2011 to January 12, 2012. This meteor shower may peak with around 60 meteors per hour to up to 200. Again, the best time is to start just before midnight and work through predawn.

Check out <<http://www.imo.net/calendar/>> for a complete calendar of meteor showers. A great introduction by W8WN on working high-speed meteor scatter mode is found at <[| UTC | Sync | dB | DT | DF | Exchange |
|-------|------|-----|-----|-----|---------------------|
| 04:24 | 3 | -18 | 1.2 | -11 | B NW7US ZS6BUN RRR |
| 04:22 | 8 | -17 | 1.2 | -11 | K NW7US ZS6BUN -25 |
| 04:20 | 5 | -18 | 1.1 | -11 | B CQ ZS6BUN KG43 |
| 04:18 | 5 | -18 | 1.2 | -11 | B CQ ZS6BUN KG43 |
| 04:17 | 7 | -11 | 0.1 | 404 | B ZS6BUN KX4WB 73 |
| 04:14 | 5 | -21 | 1.2 | 404 | K KX4WB ZS6BUN R-20 |
| 04:13 | 3 | -15 | 0.1 | 404 | B ZS6BUN KX4WB -15 |
| 04:12 | 4 | -19 | 1.3 | 404 | B KX4WB ZS6BUN KG43 |
| 04:11 | 6 | -17 | 0.1 | 401 | B CQ KX4WB EM55 |
| 04:10 | 3 | -19 | 1.1 | 404 | K KX4WB ZS6BUN KG43 |
| 04:09 | 6 | -16 | 0.1 | 401 | B CQ KX4WB EM55 |
| 04:08 | 4 | -20 | 1.2 | 404 | K KX4WB ZS6BUN KG43 |](http://</p>
</div>
<div data-bbox=)

Fig. 3— A screen capture and map plotting of the two-way radio contact between NW7US in Montana (USA) and ZS6BUN in South Africa. This exchange was accomplished using the JT65a digital mode (see <<http://nw7us.us/jt65a.html>>) on the 30-meter band. NW7US used a mobile Hustler antenna on a second-floor apartment balcony, with 100 watts into the antenna. The JT65a digital mode is considered a weak-signal mode, but that does not mean it is necessarily a low-power mode. The JT65 mode was created for Earth-Moon-Earth communications, where it is typical to use a kilowatt of power, yet the resulting signals are very weak. In this example, note that ZS6BUN returns a signal report to NW7US of -25dB. That is very weak, indeed. Yet, the QSO (two-way contact) is successful with this mode. On 30 meters, this is a testimony of the improved conditions occurring as the solar activity is increasing each month of sunspot Cycle 24. (Source: NW7US)



www.amt.org/Meteor_Scatter/shelbys_welcome.htm>. W4VHF has also created a good starting guide at <http://www.amt.org/Meteor_Scatter/letstalk-w4vhf.htm>. Links to various groups, resources, and software are found at <http://www.amt.org/Meteor_Scatter/default.htm>. If you are not yet a subscriber to *CQ VHF* magazine, grab the Fall 2011 issue and start your subscription today. You'll find a wealth of information regarding working meteors, and other VHF activity, in each issue.

Current Solar Cycle Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for September 2011 is 78.0 (compare that to one year ago, when it was 25.2), higher than August's 50.6, and the highest monthly number recorded so far in 2011 and since the start of Cycle 24. The lowest daily sunspot value of 35 was recorded for September 8. It is interesting to note that exactly one year ago, it was on the very same day—September 8, 2010—that the lowest of that month occurred; last year the lowest daily sunspot count was zero (0). The highest daily sunspot count this year was 124 on September 15 and 16. The 12-month running smoothed sunspot number centered on March 2011 is 36.9, compared with last year's 12.3. A smoothed sunspot count of 70, give or take about 9 points, is expected for December 2011.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 134.5 for September 2011, compared with last year's 81.1. The 12-month smoothed 10.7-cm flux centered on March 2011 is 95.8, while last year's was 77.5. The predicted smoothed 10.7-cm solar flux for December 2011 is 123, give or take about 9 points.

The observed monthly mean planetary *A*-index (*A_p*) for September 2011 is 13, up from last month's 8, showing a clear indication that the Sun is becoming much more active. The 12-month smoothed *A_p* index centered on March 2011 is 7.2. Expect the overall geomagnetic activity to vary greatly between quiet and active during most days in December, with a few periods of storm-level activity due to recurring coronal holes and other space weather. Refer to the Last-Minute Forecast for the outlook on conditions during December.

I welcome your thoughts, questions, and experiences regarding this fascinating science of propagation. You may

e-mail me, write me a letter, or catch me on the HF amateur bands. Please come and participate in my online propagation discussion forum at <http://forums.hfradio.org/>. If you are on Facebook, check out <http://www.facebook.com/spacewx.hfradio> and <http://www.facebook.com/NW7US>. Speaking of

Facebook, check out the CQ Amateur Radio Magazine fan page at <http://www.facebook.com/CQMag>.

With all the new solar cycle activity, I'll be keeping my ears to the radio, hoping to hear you on the air. Happy DX!

73, Tomas, NW7US

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Bluetooth Options
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CQ WW DX 160 Meter Contest 2011 CW RESULTS

SINGLE OPERATOR			
NORTH AMERICA			
UNITED STATES			
CONNECTICUT			
K1ZZ	395,890	881	56 54
N1ZZ	307,137	843	59 52
W10K	100,368	347	51 31
W1EQ	99,918	455	53 25
N4XR	60,880	210	51 29
*K2RS	50,400	322	50 13
K1KI	32,595	209	37 16
*K1BV	28,395	277	40 5
*N2YTF	270	13	9 0
*W1HBR	270	12	10 0
MAINE			
K8PO	986,668	1657	59 65
K1DG	899,795	1468	58 69
AC10	40,917	182	42 27
*N1JD	23,280	243	34 6
*N1VVV	8,544	104	28 4
MASSACHUSETTS			
K6ND	598,518	1194	60 63
W1MK	511,710	1101	58 53
K5ZD	241,592	583	59 45
*K1EP	232,750	909	56 39
W1TO	121,581	554	53 28
*W1BYH	106,444	404	54 35
*NB1N	39,704	272	43 13
*W1CCE	35,739	239	44 13
*N1DC	28,247	244	39 8
*W1FA	20,010	177	37 9
*AA1O	14,637	144	35 6
*AA9DY	11,094	98	38 5
*K1UR	8,381	121	26 3
*W1VIV	5,038	102	22 0
AA1M	2,856	56	21 0
W1MAW	1,547	39	17 0
NEW HAMPSHIRE			
K1GQ	233,142	787	53 38
*WA1Z	85,332	373	49 29
N1W	41,044	213	39 23
*W1END	27,795	235	47 4
K1TR	18,744	159	35 9
*AA1SB	14,036	125	40 4
RHODE ISLAND			
W1XX	298,620	807	57 48
*W1WBB	161,550	654	55 35
K1DFT	86,735	321	51 32
NB1U	7,372	68	32 6
VERMONT			
W1SJ	93,432	592	55 13
KB10DO	23,817	202	48 3
*KB1NHV	9,139	102	35 2
*N1UR	1	124	0 49
NEW JERSEY			
N2ED	288,709	909	59 44
N2MM	243,080	732	58 45
N2NT	236,542	581	55 46
K2TTT	132,088	651	56 23
*K1JT	85,500	447	54 21
N2NC	47,771	240	48 19
N11BM	47,005	142	44 35
W2LE	41,076	222	46 17
KC2LSD	33,496	295	46 7
*K2DMX	28,861	250	44 5
W2CVW	24,960	175	41 11
*K2ZC	12,512	104	39 7
*K3ZV	9,380	117	34 1
*K12P	7,099	100	30 1
*WA2CLP	360	21	8 0
NEW YORK			
K8FC	404,858	1067	59 59
WF2W	338,034	1003	59 47
W2XL	292,638	938	59 43
NX2X	230,205	792	57 46
N2GC	223,613	655	56 47
*W2TZ	178,633	723	56 35
N2YB	146,853	785	57 24
KW2J	119,638	587	57 25
*K2UF	119,392	541	53 29
*WA2JQK	80,823	336	55 32
K2NV	65,533	302	46 25
*WA2MCR	64,220	294	51 25
*K2DB	59,540	376	55 10
*N2FF	59,256	307	52 20
*N2RI	54,208	413	45 11
*W2LC	35,973	197	47 16
WW2DX	30,780	193	40 17
K2YR	30,000	223	34 14
*NA2M	28,545	199	46 9
*AI2N	15,360	126	40 8
*N2JJ	10,982	125	36 2
*KC2PJH	9,158	91	31 7
*KB2KOL	8,405	86	37 4
*W2RR	6,552	71	33 6
*K2TV	6,399	99	25 2
N2EK	5,984	84	31 1
*WA2YSJ	5,766	78	30 1
*K2NNY	3,360	66	20 0
*WY1H	1,962	55	18 0
*AA2YK	455	16	13 0
*NA2X	12	3	2 0
DELAWARE			
AA1K	724,626	1464	60 66
*WW3DE	80,648	490	50 18
*N8NA	55,380	225	49 22
*WB8MRU	420	13	12 0
DISTRICT OF COLUMBIA			
*KE3X	53,277	393	49 10
*K0DI	14,976	177	37 2

MARYLAND			
K3ZO	398,170	1148	58 54
N1WR	247,272	721	56 49
K3TC	210,800	718	57 43
N3UM	175,775	706	55 34
K3STX	139,958	531	55 36
*K2PLF	97,725	498	49 26
N3AM	61,912	326	51 20
*N1SZ	48,320	311	54 10
*K8GU	25,984	182	48 8
*K3YDX	25,872	242	46 2
*KB8NUF	2,050	38	25 0
PENNSYLVANIA			
N03M	580,683	1390	59 64
W3BG	478,688	1191	58 54
W3TS	326,403	1176	58 41
K3MD	192,301	629	57 46
W3TDF	152,256	790	55 23
W3GH	146,718	403	54 45
*W3WS	119,840	706	55 16
W3SO	112,980	507	55 29
*N4XU	78,064	455	51 17
N3BNA	68,688	285	54 27
WA3IIA	52,126	312	55 12
K3SV	51,356	198	47 27
*NA3F	42,862	316	50 8
N3INJ	41,208	207	49 19
*NA3V	30,745	229	48 7
W3FVT	27,097	240	45 4
K3GMT	25,064	182	39 13
W0BR	23,650	169	45 10
*N3LT	21,677	166	44 9
*KN3A	16,290	158	43 2
N3ST	14,053	64	27 20
K4JLD	13,392	91	35 13
WA3AAN	12,597	146	38 1
*N3RN	11,016	141	36 0
*N3CR	9,282	106	36 3
*KD3HN	1,672	41	19 0
*N3JNX	1,358	42	14 0
*K3ZYK	248	14	8 0
ALABAMA			
K4AB	218,493	747	58 41
N4NO	131,223	447	54 39
*K4WI	128,520	509	55 30
K4ZGB	125,226	609	58 23
AG4W	114,492	332	53 41
*N4JF	101,920	493	54 26
K4HAL	49,800	359	51 9
*K4FDV	35,392	271	47 9
KG4CUY	21,836	183	46 7
*N4UJ	16,464	182	40 2
*WA4WLI	15,867	166	39 4
*K8AJX	10,320	121	38 2
*W4TKI	3,690	54	28 2
FLORIDA			
K1TO	497,760	858	59 61
K90M	451,656	971	58 65
WJ9B	369,728	1132	59 50
N6AR	264,000	616	56 54
*W4AA	173,619	494	56 45
N8PR	128,736	340	54 42
*W2TX	121,800	504	52 35
*N9CM	113,960	454	56 32
*WK2G	49,898	353	48 13
*N4FY	9,635	98	34 7
*K4JAF	3,596	49	28 3
*KQ4Y	1,911	45	21 0
*AB4G	85	7	4 1
GEORGIA			
W4AN	1,059,696	1746	59 73
K4BAI	247,818	799	58 45
NO9E	189,481	799	56 33
AA4CF	179,070	636	55 39
*K0BE	152,613	615	58 35
*AD4J	98,118	489	54 25
*W4BAB	30,805	215	52 9
W4KLY	21,835	162	47 8
*ND4V	21,616	146	46 10
AE4O	20,034	163	47 6
*N4WD	17,490	118	41 14
*W14R	7,920	75	29 7
*K4EOR	1,600	32	18 2
KENTUCKY			
*K4IE	71,890	487	54 11
W5MX	16,539	211	36 1
AB4IQ	14,742	152	39 3
*W8KHP	11,664	104	44 4
*K4SPO	6,562	87	34 0
*K04OL	784	23	16 0
NORTH CAROLINA			
W4ZV	828,160	1530	59 69
N4XD	486,514	1108	58 60
*K2AV	223,908	907	57 37
K4SV	131,040	292	51 45
W1AJT	100,800	414	53 31
WX4G	95,568	303	50 38
W2HTI	79,056	339	51 30
*K4DJ	59,337	466	51 6
KY4P	59,285	317	51 20
*K4SAA	47,784	294	51 15
*W4MY	41,496	326	49 7
K4YKZ	31,059	264	44 7
*AI4GR	30,968	230	46 10
*K4UWH	27,104	199	45 11
N4AA	25,546	196	44 9
*W4KAZ	21,328	206	36 7
*N4DE	17,531	163	42 5
N4GU	16,764	158	39 5
*WD4OIN	11,997	135	41 2
AE4EC	11,660	121	39 5
*KJ4WD	9,500	110	36 2
*KT40M	6,290	78	33 1
*K4TP	5,536	82	31 1
K4JAB	3,640	65	24 2
*K4WES	874	25	18 1
*N4NTO	1	4	0 3
SOUTH CAROLINA			
AF4OX	274,329	787	56 43
K2SX	244,316	846	56 47
K4YYL	47,212	208	51 23
*K14TZ	23,632	174	50 6
K7OM	17,061	165	42 5
*WA8OJR	14,800	167	38 2

TENNESSEE			
N95	195,840	828	58 32
N2WN	191,090	640	55 42
NA4K	121,927	588	56 27
N4AAJ	104,346	713	56 10
AD4EB	99,890	594	55 15
K4EJQ	95,160	480	53 25
N4ZZ	85,808	612	53 9
N4DW	77,604	259	54 33
*N4IR	75,375	471	50 17
*WFTT	59,800	392	53 12
*W4DAN	58,912	499	52 4
*N4ARO	58,857	349	55 14
*W040	55,216	438	52 4
K0EJ	44,700	406	44 6
*K4LTA	44,220	363	50 5
*W4UT	43,440	313	51 9
NB4M	32,091	264	50 7
*KA4R	30,540	205	49 11
K4DZR	30,004	262	50 2
*K4BP	25,300	195	47 8
AB4GG	24,645	195	45 8
K4EDI	20,250	142	41 13
*NA4C	17,894	180	44 2
KN5S	14,586	112	41 10
W4BCU	13,674	138	40 3
*WD8RYC	12,374	111	43 3
K4AMC	11,920	129	37 3
*W4BK	11,174	143	36 1
W200	10,496	79	30 11
K3JWI	9,040	92	35 5
*N4UW	8,288	90	33 4
WB4YDL	6,552	53	30 9
*W40GG			

*DLZZA	38,036	222	0	37	YL2PJ	548,952	1106	19	70	*Y02MFC	13,386	119	0	23	*UY6IM	127,737	445	0	57	NEW YORK																								
*DKSIR	37,632	137	0	42	YL7X	189,514	452	18	56	YP2W	7,360	36	0	32	*UZBI	125,504	473	0	53	WO2N	15,922	176	34	4	DELWARE																			
*DL1RTL	37,128	207	5	46	*YL2PN	111,406	405	2	51						UR7VA	114,296	396	1	55	AE3J	3,752	59	27	1	PENNSYLVANIA																			
*DLSARM	36,982	200	1	40	*YL2CR	37,298	217	1	33						UY5HF	112,240	374	2	59	K3HX	19,530	195	43	2	ALABAMA																			
DL9MRF	36,945	157	2	43	YL2II	22,932	135	0	36						*UR7ET	111,700	454	0	50	N4AX	24,284	198	47	5	W4RYW	16,403	150	40	7	WBSNMZ	8,262	114	33	1	NV4B	2,652	85	26	0					
DM2BPG	36,328	212	0	38	YL2PP	15,360	68	1	39						*UT3UZ	107,744	387	3	53	K4CNW	7,208	100	33	1	FLORIDA																			
*DK5DC	35,728	119	5	51											*UT2LU	103,933	395	1	52	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DF6RI	34,720	194	0	40											*USSE	102,500	419	0	50	K4CNW	7,208	100	33	1	NORTH CAROLINA																			
DK7AN	34,560	188	0	40											*UT5PH	100,560	434	1	47	K4CNW	7,208	100	33	1	SOUTH CAROLINA																			
*DL8UKE	32,970	212	1	34											UR7QM	99,500	408	0	50	KS4X	18,411	160	47	4	KW4JS	11,480	128	38	2	TENNESSEE														
*DL4TJ	31,980	165	0	41											*UR5MM	94,230	346	1	53	AA4XX	75,250	457	56	14	W8IM	616	25	10	1	VIRGINIA														
*DK5TX	31,191	177	0	37											*UXSTQ	92,316	378	1	48	K40RD	46,806	341	48	10	WK4W	24,970	206	49	6	TEXAS														
DL8NBJ	29,840	158	0	40											UX1IL	85,950	343	0	50	W7FKF	15,198	122	45	6	KI0G	10,604	100	39	5	NF5P	8,085	111	33	2	NK5G	784	29	14	0	K6JSS	468	18	11	1
DL1EMJ	29,808	77	16	38											UT5EL	85,104	301	4	50	NORTH CAROLINA					UT3N	72,318	446	0	34	AC2N	1,152	29	17	1	W8IM	616	25	10	1					
*DF9DH	28,770	187	1	34											*UY2UQ	82,697	430	0	41	AA4XX	75,250	457	56	14	K3TW	13,508	130	39	5															
DL2MDZ	28,659	143	1	40											*UX7FC	76,800	315	1	49	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL9CGG	28,382	127	3	43											UT3N	72,318	446	0	34	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DM2XO	25,803	108	3	44											UT5ZV	65,385	274	1	46	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DPTA	24,440	130	0	40											*UW2Q	63,544	295	0	45	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
DJ4FZ	24,416	70	13	43											*UR7F0B	59,488	271	1	43	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DK4RL	24,160	127	0	40											*URSIFX	51,435	220	0	45	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DF6WE	23,100	150	0	35											*UR7UA	51,291	260	0	41	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*D12BC	21,328	96	1	42											UT3UJ	48,852	289	0	36	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL5CL	20,720	100	2	38											*UX3HA	45,584	257	0	37	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*D01MGN	20,262	147	1	32											*UT2HM	43,244	229	0	38	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL4EAX	20,230	137	0	34											*UX6IB	42,360	207	0	40	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL7UDA	20,196	129	0	34											*UT2UJ	40,918	200	0	41	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
DJ2IA	20,128	111	0	37											*UT4PR	36,290	195	0	38	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
DL4YAO	19,152	103	3	35											*UR5CY	36,260	202	0	37	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL6RBH	18,880	130	0	32											UT5MH	36,018	147	0	46	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DH2DAM	18,447	128	0	33											*US00G	35,631	196	1	36	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL3ARK	16,730	105	0	35											*UT3EK	33,218	204	0	34	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL7BY	16,678	124	0	31											*UX0UW	31,218	200	0	33	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL3ABL	16,596	93	0	36											*UY5AA	30,280	150	0	40	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL1WM	16,140	124	1	29											*US9DX	30,134	80	3	58	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DJ1LQL	15,138	110	0	29											*UT5UN	27,666	207	0	29	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DJ2FR	14,877	117	0	29											*US5ELM	26,544	115	1	41	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
DK9BW	14,848	102	0	32											*UT3UJ	24,932	96	2	44	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL2AXM	14,756	121	0	28											*US3IP	23,199	142	0	33	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL2GAN	14,529	108	0	29											*UT2ID	23,998	143	0	33	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DJ8EW	14,124	93	0	33											*UR7ZD	20,398	139	0	31	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
DJ8QA	13,949	112	0	29											*UT5ULX	20,032	128	0	32	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DF3MA	13,832	70	0	38											*UY5TE	18,956	153	0	28	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DJ5IW	13,620	98	0	30											UX6IR	15,318	79	0	37	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DK3YD	13,392	96	0	31											*UT7MR	14,250	99	0	30	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
DF8BB	12,390	55	5	37											UX7CQ	13,464	56	0	44	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL2MLU	11,206	97	0	26											*UT2QJ	12,464	53	1	40	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL5SWB	9,913	103	0	23											UT2IW	9,824	56	0	32	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DF2JAX	9,646	82	0	26											*URSLED	6,647	61	0	23	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DG7RO	9,072	84	0	24											US8IJ	2,660	19	1	18	AA4XX	75,250	457	56	14	AC2N	1,152	29	17	1	W8IM	616	25	10	1										
*DL6NDW	9,016	85	0	23	</																																							

*N3AM	6,156	73	34	2	W5PR	178,724	792	54	37	WEST VIRGINIA	9,144	112	36	0	VA7FC	78,948	306	45	9	BRITISH COLUMBIA	78,948	306	45	9	*OK1HFP	40,635	172	1	44			
KJ3RR	1,628	36	22	0	*AD5XD	39,176	288	50	9	*KABNJW					VA7IR	43,962	193	49	2	*OK2XKA	39,406	214	0	38	*OK2XKA	39,406	214	0	38			
PENNSYLVANIA																																
W3BGN	308,688	947	57	52	*AJ5ZX	13,420	98	47	8	ILLINOIS	356,265	1274	59	46	*VA7ST	392	11	8	0	OK7K	36,810	156	3	42	*OK5XX	32,994	170	0	39			
W3TS	153,675	865	55	20	*W1JCW	9,936	100	42	4	WB9Z	49,678	373	53	6	VA7HZ	104	7	4	0	*OK1FC	31,005	155	0	39	*OK1JOK	29,799	134	1	42			
W3GH	78,204	403	54	22	*NW5Q	7,068	79	35	3	N7US	33,972	259	52	5	NORTH AMERICA																	
W3SO	77,349	458	53	16	*N1CC	1,330	33	17	2	*W9JXN	31,185	245	51	4	Alaska																	
*KD3HN	31,976	228	47	9	*K05MMM	935	26	16	1	*N9LYE	25,806	216	49	2	38,016																	
*WB3BSA	31,496	177	44	18	*NSVYS	546	18	13	1	K9IDQ	24,310	184	48	7	175																	
*K3MD	30,960	298	40	5	CALIFORNIA																											
W0BR	20,405	144	45	10	W6YI	132,057	778	54	19	INDIANA	68,824	550	53	3	Antigua & Barbuda																	
W3FVT	13,631	125	36	7	NSAA	29,680	225	48	8	*K9QVB	14,550	112	45	5	51,038																	
*N3CR	4,950	64	27	3	W7CB	29,116	206	46	12	*N9VX	1,072	29	16	0	364,902																	
*K3SV	2,730	49	26	0	NJ6P	26,572	234	44	8	*W9QA	728	21	14	0	54																	
ALABAMA																																
N4BCD	83,700	430	52	23	W6PKC	16,422	129	42	9	K9WWT	31,773	279	48	3	54																	
N4NM	20,900	164	49	6	K6HRT	9,360	121	34	2	*KUBT	27,538	249	45	4	23																	
*K4WI	18,532	194	39	5	*K6YA	9,250	112	33	4	*KV9W	24,894	205	48	6	11																	
W4RYW	5,508	67	32	4	*NSWIN	8,070	126	28	2	*W9TC	15,088	146	45	1	1																	
FLORIDA																																
K1TO	71,456	321	52	25	*NSXT	4,410	59	25	5	*K9SOL	6,552	72	38	1	59																	
*W4GMH	65,721	537	51	6	KI6QDH	3,740	76	20	2	*W9HT	4,134	66	26	0	59																	
W5GFR	55,878	359	52	15	*N6RK	2,929	43	28	1	WISCONSIN	24,596	201	49	3	59																	
*NF4A	43,168	200	50	21	W4EF	2,500	41	23	2	K9TY	23,997	171	49	8	3																	
K4ADR	39,054	202	46	23	NEUJWW	2,040	61	13	2	*N9LB	14,535	140	44	1	3																	
NJ2F	17,472	131	38	14	*W6URJY	1,936	41	21	1	N9UY	8,360	81	34	6	3																	
N4DXI	7,848	98	32	4	W6BFG	1,890	39	20	1	*W9VW	4,995	53	34	6	3																	
N4FY	7,761	84	32	7	*K6EGF	1,717	43	16	1	K9MA	4,032	50	36	0	3																	
*K4GOP	3,509	56	26	3	*W6ZL	1,125	30	13	2	*W9FZ					3																	
*W8QYJ	2,616	48	19	5	N6AJR	990	48	10	0	COLORADO	60,477	489	52	5	3																	
*W1CCE	1,400	32	18	2	*WB6BET	432	27	8	0	NCDB	23,376	217	43	5	3																	
*AC2N	918	27	15	2	*K6CSL	280	20	7	0	W0KIT	14,976	137	46	2	3																	
*KH6OU	8	2	2	0	*AD6AF	64	8	4	0	W0RIC	12,314	119	45	2	3																	
GEORGIA																																
N4PN	620,535	1454	58	65	W06M	60	7	2	1	K0XTR	10,384	110	44	0	3																	
W04DX	196,435	982	55	30	*KY6LA	48	8	3	0	IOWA	310,464	1198	57	41	3																	
ND9E	58,740	378	53	13	ARIZONA																											
KC4YBO	10,120	115	39	1	KE2VB	15,708	163	43	1	KANSAS	86,144	596	55	9	3																	
KI4DFS	8,507	75	44	3	K7HP	6,327	78	35	2	*K0RH	41,888	335	50	6	3																	
*KD4YDD	7,917	85	35	4	KE7YF	4,800	73	28	2	*K0BJ	32,793	303	50	1	3																	
AK4I	4,810	54	32	5	*W7UPF	3,000	58	24	1	NDGMT	19,610	167	49	4	3																	
*N9MXI	3,094	37	32	2	*WU9B	1,168	29	14	2	*K0HNC	8,290	94	38	2	3																	
*N3FKS	774	20	18	0	*W7AAA	649	28	10	1	*KBDUKW	5,957	67	35	2	3																	
KENTUCKY																																
W5MX	198,576	928	56	28	NI7R	270	12	9	1	MINNESOTA	64,832	483	51	7	3																	
*W4LJM	93,789	492	55	22	IDAHO	92,049	621	53	12	*NBUJY	29,700	239	51	3	3																	
*W4CDA	36,540	250	51	9	*K7JAN	1,500	46	15	0	K0PK	23,358	182	46	5	3																	
K04XJ	19,090	195	46	0	MTONTANA	6,734	79	37	0	NEDU	22,678	209	45	1	3																	
NORTH CAROLINA																																
N3CZ	62,640	318	52	28	KD7DCR	5,992	92	27	1	K9WN	19,396	160	49	3	3																	
NX9T	44,275	329	44	11	*K7VQ	4,480	72	28	0	K4IU	10,902	106	45	1	3																	
K4QE	33,344	190	48	16	*AD7MQ	3,024	48	27	1	KD9R	8,514	87	42	1	3																	
*KK4RV	29,322	237	48	6	NEVADA	38,232	279	49	18	*NBUJJ	4,704	65	32	0	3																	
W04G	26,244	182	38	16	WU6W	8,667	149	24	3	*WGDM	3,564	58	27	0	3																	
NC4MI	18,044	138	43	9	OREGON	24,402	244	38	4	*W0CBO	90	6	6	0	3																	
AE4EC	8,400	87	36	4	W7VQ	24,393	234	46	1	K4SX	50,996	347	49	12	3																	
KY4P	8,029	101	35	2	K7RAT	24,393	234	46	1	*NEBS	50,841	342	50	13	3																	
*A14GR	6,304	92	31	1	W7JY	12,958	148	36	2	WBDPYF	17,199	159	45	4	3																	
N4CW	1,239	28	20	1	K7ZS	9,450	112	32	3	*WBHBH	12,320	123	42	2	3																	
K4JAB	1,116	28	18	0	*W7OR	8,600	92	37	3	WBAO	10,622	97	45	2	3																	
AD4L	1,003	29	17	0	*WA7KGX	4,075	64	21	4	*KF0F	10,350	102	45	1	3																	
K4DJ	850	25	17	0	*WX7E	3,640	53	25	3	*K8MCN	6,764	80	38	0	3																	
SOUTH CAROLINA																																
K4YYL	109,062	608	54	19	*W7JAZ	231	12	7	0	A0A0	4,260	65	30	0	3																	
NJ4F	13,708	102	34	12	*K7JKM	216	12	8	0	*W0GLU	3,348	53	26	1	3																	
K4HR	9,102	90	34	7	UTAH	54,778	408	49	12	*K0HPM	3,277	52	29	0	3																	
*K7OM	4,500	66	28	2	NEVADA	51,186	393	48	9	*K0NEB	1,105	31	17	0	3																	
*KM4RK	4,030	55	28	3	NK7C	51,186	393	48	9	NT0AF	98,595	693	55	8	3																	
AK4CR	1,296	24	23	1	*WF4U	19,032	156	47	5	CANADA	10,197	58	25	8	3																	
*KT400	576	21	18	0	*NS7K	16,320	142	48	3	NEWFOUNDLAND	10,197	58	25	8	3																	
TENNESSEE																																
W4PV	144,720	872	55	17	K7UA	3,996	63	24	3	NEW BRUNSWICK	1,722	27	14	0	3																	
K4BP	37,686	210	48	18	*AD7KG	2,997	48	27	0	NOVA SCOTIA	46,256	181	32	17	3																	
*N2WN	32,332	229	52	7	*W7SUR	1,224	33	17	0	QUEBEC	34,770	197	36	2	3																	
W4GHD	19,329	155	41	10	*W7GT	192	12	8	0	VE2DC	25,530	117	37	9	3																	
*NA4K	13,920	159	39	1	WASHINGTON	75,048	549	52	7	*VE2HAY	14,870	86	34	1	3																	
*KS4X	10,340	106	41	3	W7AL	56,056	470	46	6	VE2EZD	12,005	73	33	2	3																	
*K4CWA	7,920	92	37	3	N7AU	56,056	470	46	6	*VE2AWR	648	15	9	0	3																	
*N4DTF	7,421	75	38	3	*W7SAW	8,028	98	35	1	*VE2FXL	530	13	10	0	3																	
W8DQ	5,676	86	33	0	W7GKF	7,848	87	31	5	ONTARIO	357,136	582	54	58	3																	
KA40TB	5,394	72	31	0	K7AMS	4,776	81	22	2	*VE3NE	355,901	796	57	34	3																	
*NY4S	3,051	48	26	1	*WB7FJG	4,732	67	26	2	*VE3MGY	150,212	488	56	12	3																	
WDBRYC	2,240	32	32	0	K7TY	2,376	42	19	3	VE3CX	116,964	444	51	6	3																	
*W4BK	161	10	7	0	*KC7H	1,632	43	16	0	VA3CCO	81,588	336	47	5	3																	
VIRGINIA																																
K3ZM	587,780	1260	57	67	*WAGWWW	1,230	35	15	0	*VE3CR	69,856	249	49	10	3																	
N3ZV	110,814	656	55	18	WA7LK	759	30	11	0	VE3EJ	48,235	176	37	18	3																	
KC4D	96,096	459	54	24	*W7QN	441	31	6	1	*VA3WU	40,425	185	39	10	3																	
N4BCC	68,796	478	53	10	WYOMING	23,050	212	47	3	VE3RER	32,490	159	43	2	3																	
K4B0	29,862	206	41	13	MICHIGAN	60,726	458	53	5	*VE3TW	23,832	142	35	1	3																	
N4DVK	17,172	102	35	18	*W8CO	42,253	396	46	1	*VE3UJ	21,682	128	37	0	3																	
WF1L	14,104	147	39	2	*WBGP	40,712	315	50	6	VE3CUI	21,216	132	31	3	3																	
*W4GDG	13,608	141	40	2	AD8W	15,964	128	47	5	*VA3GKO	11,190	87	30	0	3																	
*KB4QLM	12,397	113	44	5	*WBDCQ	13,948	142	43	1	*VE3TU	9,060	67	30	0	3																	
W2YE	10,209	100	34	7	*NBGEO	11,676	123	41	1	*VE3RCN	4,050	48	18	0	3																	
*K4FJW	9,384	123	32	2	*NBERL	3,483	52	27	0	*VE3VZ	1,424	20	16	0	3																	
*K4FTO	9,174	118	32	1	*WSPGW	2,808	50	27	0	MANITOBA	41,340	174	51	1	3																	
*W1ATA	7,667	72	34	7	*ABXJU	1,496	32	22	0	ALBERTA	29,700	128																				

OH6OS	3,192	28	0	21	*EA1IDU	6,496	44	0	29	AFRICA				
*OH2LNH	60	4	0	3	EA3FAX	3,477	39	0	19	Ceuta and Melilla				
					*EA7MT	1,696	23	0	16	ED9NA	462,570	552	28	57
										Morocco				
										CN2A	1,484,000	1193	51	74
										ASIA				
										Asiatic Russia				
										RW8MM	558	13	0	6
										Asiatic Turkey				
										TA9KM	196,852	352	7	51
										Cyprus				
										P33W	738,267	780	23	74
										Georgia				
										4L8G	250,039	432	3	58
										EUROPE				
										Bosnia-Herzegovina				
										E7TZ	14,993	106	0	29
										Crete				
										SZ9ERK	65,753	269	1	46
										Croatia				
										9A8M	158,002	522	3	56
										Czech Republic				
										OL7M	646,695	1111	31	74
										OK7O	156,645	530	5	54
										OK1KDO	40,480	212	0	40
										OK1KPI	31,068	179	0	36
										England				
										G6MC	225,200	526	19	61
										G3V	146,280	401	15	54
										European Russia				
										RZ4FWW	93,574	294	6	55
										Finland				
										OH4AB	31,768	129	0	44
										Germany				
										DR1A	548,415	988	32	73
										DL8CS	497,799	1016	27	76
										DK0IW	213,416	657	15	59
										DK0EE	180,180	599	12	58
										DL0MAR	72,576	333	7	49
										DF0BV	63,986	312	0	46
										DB2B	21,720	120	2	38
										DL0BB	11,880	89	0	30
										Greece				
										SZ3P	131,712	402	3	61
										Ireland				
										E17M	763,025	1091	41	74
										Italy				
										IW3IFJ	186,966	467	16	62
										I2ZFOS	141,929	395	8	63
										Kalininingrad				
										UA2FW	749,428	1244	29	78
										Lithuania				
										LY7A	182,622	526	6	60
										Netherlands				
										PI4DX	114,106	380	5	54
										Scotland				
										GM6NX	109,681	357	7	52
										Serbia				
										YU1EXY	449,880	904	21	71
										Slovakia				
										OM3KAP	180,375	537	8	57
										OM5M	134,745	401	7	58
										Slovenia				
										S51V	696,520	1091	36	74
										S56P	416,234	856	25	66
										S59T	2,601	32	0	17
										Spain				
										ED1L	337,110	586	37	65
										ED1R	279,650	532	30	64
										ED1B	111,544	286	19	54
										EA5EH	57,072	197	8	50
										EA3AKA	49,300	203	4	46
										EE2K	44,784	190	2	46
										ED1X	30,080	127	6	41
										ED1T	22,428	111	0	42
										Sweden				
										SG6T	106,530	295	12	55
										Switzerland				
										H89CXZ	348,840	773	23	62
										H89EE	302,956	798	15	59
										H89EYB	64,764	315	0	42
										Ukraine				
										UT5A	289,046	627	12	74
										OCEANIA				
										Indonesia				
										YE2T	476	10	1	6
										CHECK LOGS				
										DL8USA, EA3FAX, EA5BY, HG1G, HG2011E, JT1DA, KY5G, LABUL, MW0IDX, R2EAA, R2SA, R7FK, R90Q, RV3LD, RX3XA, RY6Y, RZ6HWA, S08N, SP3CGK, SP3EPG, SP6CIK, SP7GAQ, SP9CVY, SP9HZW, UA3FX, UA30Q, UA6IK, W6AAN, Y02MKL, YU8NU.				
										Disqualified:				
										4L50 (unverifiable contacts)				
										HG3A (unclaimed assistance)				
										SP1RKT (unclaimed assistance)				
										NORTH AMERICA				
										Bahamas				
										C6ANM	301,050	641	55	35
										Mexico				
										XE1RCS	382,233	694	56	47
										SOUTH AMERICA				
										Brazil				
										PY2LGR	152	7	1	3
										Trinidad & Tobago				
										9Y4D	31,548	74	24	20
										MULTI-OP				
										NORTH AMERICA				
										UNITED STATES				
										MASSACHUSETTS				
										K1LZ	683,776	1228	58	70
										NEW JERSEY				
										N2CW	471,295	1122	58	63
										K2GE	34,800	307	46	4
										K2QAK	16,580	155	40	6
										NEW YORK				
										NN2W	84,972	455	54	19
										WB2JSM	133	8	7	0
										FLORIDA				
										AD4ES	29,064	199	37	19
										GEORGIA				
										NQ4I	412,960	1195	57	59
										NORTH CAROLINA				
										W4WS	235,422	888	57	42
										SOUTH CAROLINA				
										W4YCC	85,697	506	50	21
										VIRGINIA				
										N4HB	64,990	411	54	13
										ARKANSAS				
										W5DR	216,893	989	57	32
										MISSISSIPPI				
										K5GDX	120,240	620	53	27
										W5SGL	33,138	217	48	15
										NEW MEXICO				
										N1ST	123,048	734	54	18
										K5LRW	18,048	175	43	4
										OKLAHOMA				
										K80HH	32,330	219	49	12
										AB5CC	30,952	262	47	6
										TEXAS				
										N5AA	41,400	178	50	25
										W5RTA	26,622	239	46	5
										NX5M	14,960	99	41	14
										KU5B	14,740	97	41	14
										K5LIB	3,264	49	31	1
										CALIFORNIA				
										W6DR	66,300	485	50	10
										ARIZONA				
										K7AED	44,700	334	51	9
										OREGON				
										NK7U	42,067	294	48	11
										UTAH				
										K7PDW	20,688	192	45	3
										MICHIGAN				
										NF8J	239,785	1092	58	33
										W8CT	34,350	297	49	1
										OHIO				
										ND8DX	360,397	1311	58	45
										WISCONSIN				
										W8AIH	153,153	844	56	21
										MINNESOTA				
										W8MR	79,065	547	55	8
										WB0VAK	55,490	377	52	10
										CANADA				
										QUEBEC				
										VE2UMS	130,014	439	47	15
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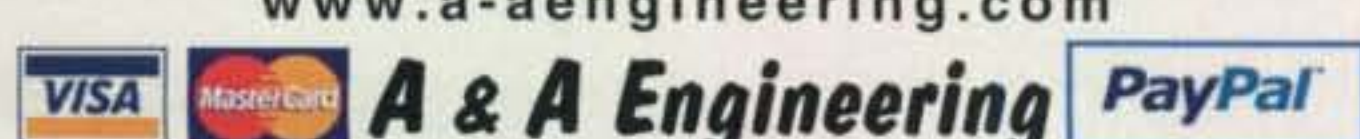
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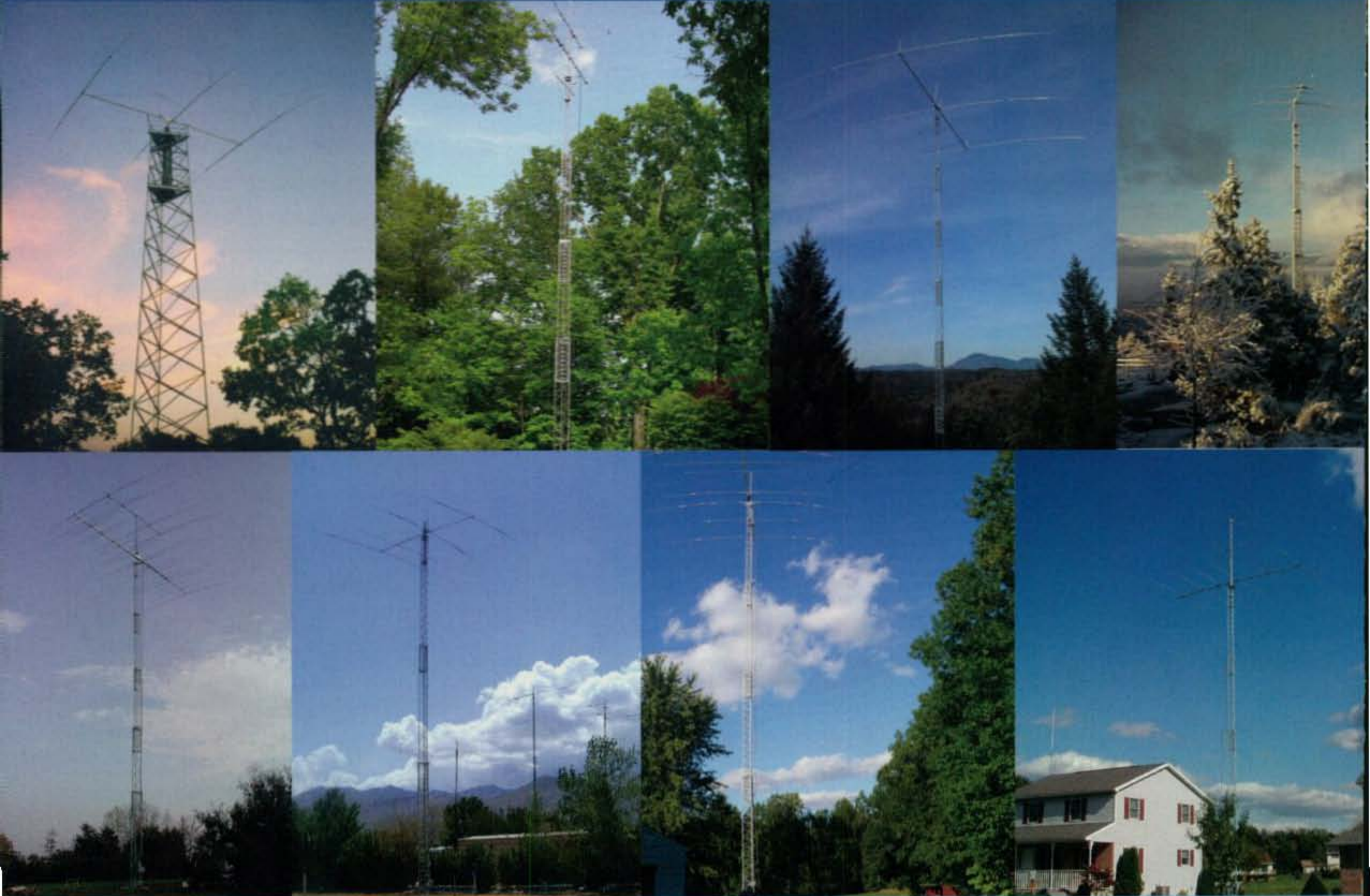
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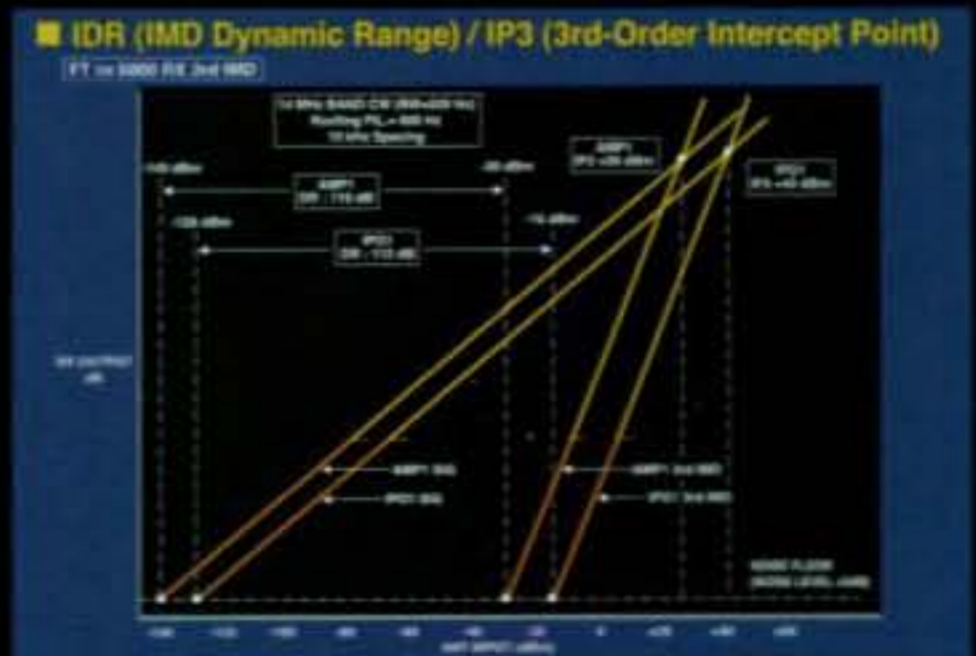
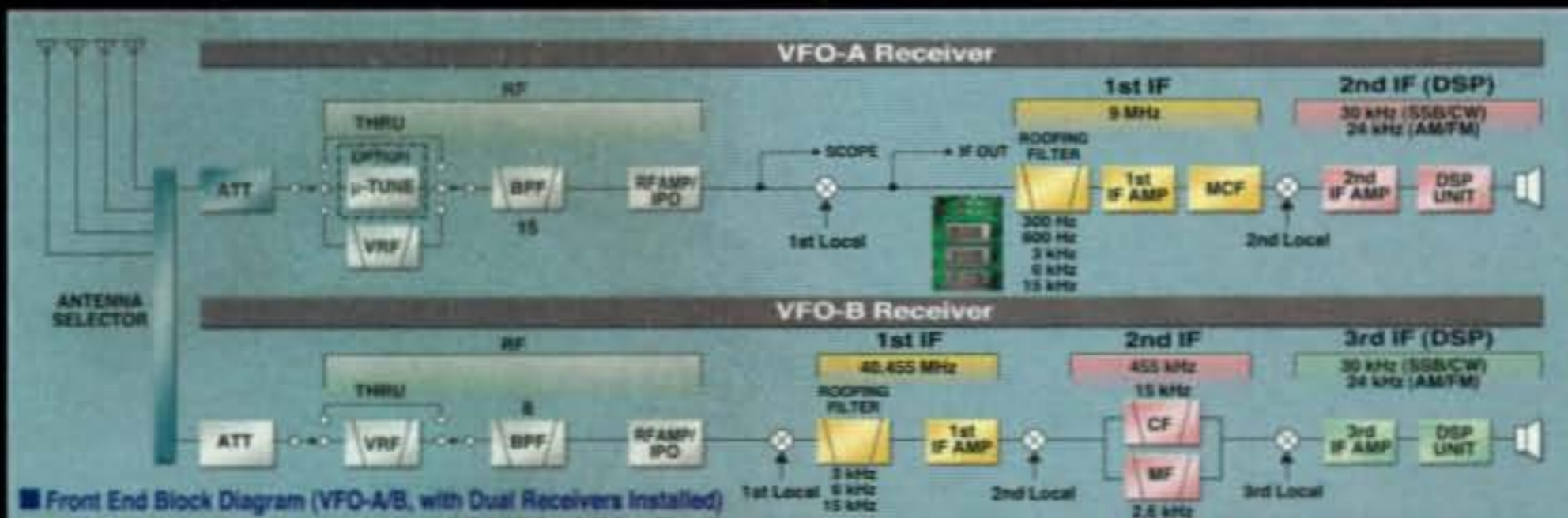
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