

Amateur Radio

45241

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

COMMUNICATIONS & TECHNOLOGY

MARCH 2009

CQ

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*****SCH 3-DIGIT 230 07847

CQ 50065 XXXX 1
JACK SPEER
BUCKMASTER PUB
6196 JEFFERSON HWY
MINERAL VA 23117-3425



On the Cover: Ken Franklin, KF10, of West Warwick, Rhode Island. Details on page 78.

KENWOOD

Listen to the Future

AIRWAVE SUPERIORITY

Never before has a compact HT offered as many features, and such high powered performance as the TH-F6A. Arm yourself with one today and gain your own airwave superiority.

- Triband (144/220/440 MHz)
- Receives 2 frequencies simultaneously even on the same band
- 0.1-1300MHz high-frequency range RX (B band)¹
- FM/FM-W/FM-N/AM plus SSB/CW receive
- Bar antenna for receiving AM broadcasts
- Special weather channel RX mode
- 435 memory channels, multiple scan functions
- 7.4V 1550mAh lithium-ion battery (std.) for high output² and extended operation
- 16-key pad plus multi-scroll key for easy operation
- Built-in charging circuitry for battery recharge while the unit operates from a DC supply
- Tough construction: meets MIL-STD 810 C/D/E standards for resistance to vibration, shock, humidity and light rain
- Large frequency display for single-band use
- Automatic simplex checker
- Wireless remote control function
- Battery indicator • Internal VOX • MCP software

¹Note that certain frequencies are unavailable. ²5W output

TH-F6A TRIBANDER



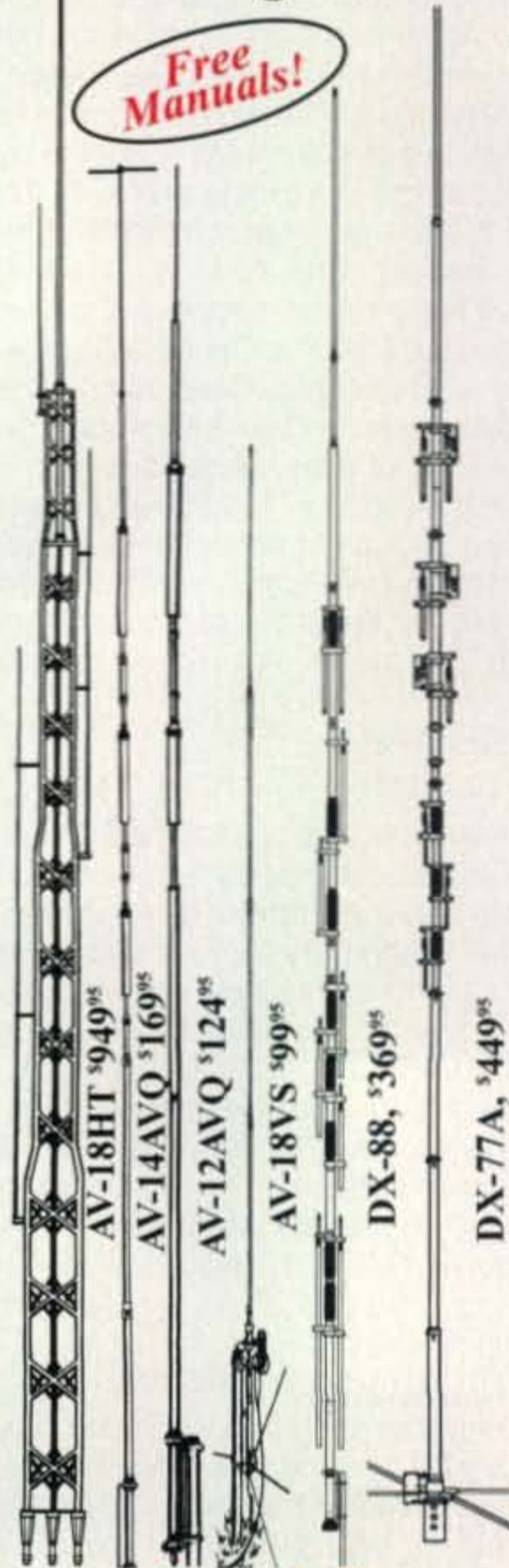
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ADS#31608

hy-gain HF VERTICALS

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



hy-gain[®] Classics

All hy-gain multi-band vertical antennas are entirely self supporting -- no guys required. They offer remarkable DX performance with their extremely low angle of radiation and omnidirectional pattern. All handle 1500 Watts PEP SSB, have low SWR, automatic band-switching (except AV-18VS) and include a 12-inch heavy duty mast support bracket (except AV-18HT). Heavy duty, slotted, tapered swaged, aircraft quality aluminum tubing with full circumference

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

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

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

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

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

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

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

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

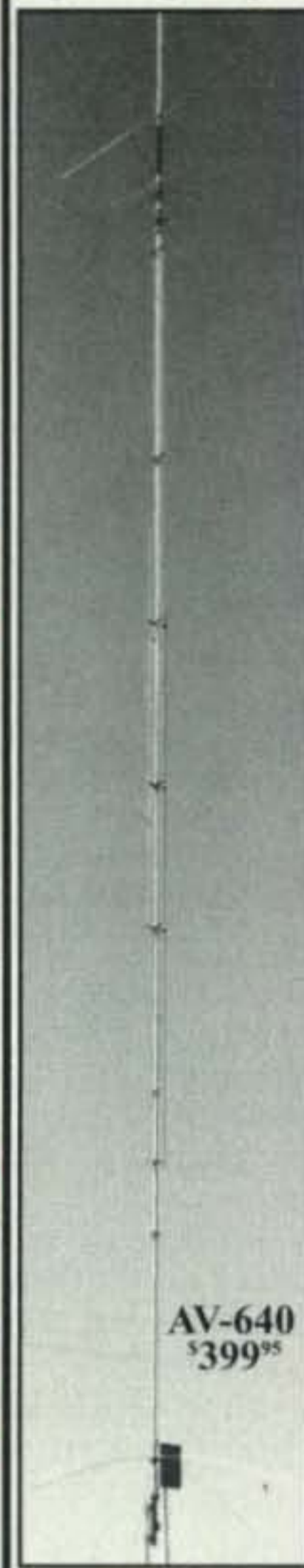
DX-77A, \$449.95. (10, 12, 15, 17, 20, 30, 40 Meters). 29 ft., 25 lbs.

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

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

hy-gain[®] PATRIOT

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



No ground or radials needed
Effective counterpoise replaces radials and ground.

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

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

Full legal limit
Handles 1500 Watts key down continuous for two minutes.

Built-to-last
High wind survival of 80 mph. Broadband matching unit made from all Teflon[®] insulated wire. Aircraft quality aluminum tubing, stainless steel hardware.

hy-gain[®] warranty
Two year limited warranty. All replacement parts in stock.

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

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

Free Hy-Gain Catalog and Nearest Dealer . . . 800-973-6572
Call your dealer for your best price!

hy-gain.

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<http://www.hy-gain.com>

Prices and specifications subject to change without notice or obligation. © Hy-Gain, 2008.

Julius Genachowski May be New FCC Chairman

President Obama reportedly has chosen longtime friend, fundraiser, and technology adviser Julius Genachowski to be the next Chairman of the Federal Communications Commission. While no official announcement had been made as of press time, Genachowski's pick was widely reported in the mainstream media and the White House made no effort to deny it.

Genachowski was Obama's chief technology advisor during the campaign and transition period. He had previously served at the FCC as Chief Counsel under former Chairman Reed Hundt. He is co-founder of Rock Creek Ventures, which provides funding for web startups, according to Bloomberg.com. From 1997–2005, Genachowski also helped run IAC/Interactive, a company whose holdings include Ticketmaster, Lending Tree, and the Home Shopping Network.

If nominated and confirmed by the Senate, Genachowski would succeed Kevin Martin, who resigned as both Chairman and FCC Commissioner as of January 19. Martin joined the Aspen Institute's Communication and Society Program as a Senior Fellow. He followed in the footsteps of his four most recent predecessors in joining the institute upon leaving the Commission. President Obama will have an additional vacancy to fill in the FCC. Commissioner Deborah Taylor Tate's term expired on January 3. Former President Bush had nominated her for an additional term, but Congress did not act on the nomination before adjourning last December.

Currently serving commissioners are Michael Copps, Jonathan Adelstein, and Robert McDowell.

New Ham Licenses on the Rise

The number of new amateurs entering the hobby has risen substantially for the second straight year, according to the ARRL. In 2006, before the FCC removed the Morse code requirement for all levels of ham licenses, there were just over 21,000 newcomers to the hobby. In 2007 that number rose to 26,728, and in 2008 it was just over 28,000. The ARRL also reported that upgrade applications continue to be very strong, with more than double the number of upgrades in 2008 than in 2006 (in 2007 the number of upgrades vs. 2006 rose nearly 300%). The total U.S. ham population at the end of 2008 was 663,500, an increase of 1.2% from 2007. That number can be deceptive, however, considering that the numbers of new licensees show that more than 100,000 new hams have joined our ranks in just the past four years.

Applicants Sought for FAR Scholarships/ Young Ham of the Year Program

The Foundation for Amateur Radio (FAR) administers four-dozen scholarship programs for various organizations, giving deserving college students who are also hams financial aid ranging from \$500 to \$5000. Applications should be requested by March 30, and must be returned by May 1, 2009. There are some limitations on eligibility for different awards. A complete description of each scholarship, along with specific requirements and limitations, may be found in this month's issue of *WorldRadio Online*, which may be accessed by going to the CQ home page at <<http://www.cq-amateur-radio.com>> and clicking on the *WorldRadio Online* link.

Nominations are also open for the 2009 Newsline Young Ham of the Year Award, of which CQ is a co-sponsor. These nominations are due by May 30. For more information and applications, go to <www.yhoty.org> or <www.arnewsline.org> and click on the YHOTY link at the bottom of the page.

Projecting the Impact of a Geomagnetic "Superstorm"

As the sun begins to rouse from its prolonged quiet period at the bottom of the sunspot cycle, hams around the world are looking forward to the next solar peak and the big band openings on HF and VHF that will accompany it. But a big solar peak can also result in big solar flares, followed by big geomagnetic storms here on Earth, and that has some researchers working for the National Academy of Sciences very worried. Their report, funded by NASA and released in mid-January, looks at the potential impact of a "super solar flare" followed by an extreme geomagnetic storm. According to NASA, the researchers looked at a huge geomagnetic storm that took place in 1921 (estimated to be 10 times stronger than the 1989 storm that left 6-million people in Quebec without power for nine hours). They then modeled its likely effects on the modern power grid. Conclusion: The electrical power distribution system is likely to collapse across the eastern one-third of the U.S. as well as the Pacific Northwest, leaving more than 100-million people without power! Projected economic impact is some 20 times greater than that caused by Hurricane Katrina. So enjoy those sunspots, but just hope the sun doesn't get carried away with itself!

Seven Small Ham Satellites Slated for January Launch

Seven small ham radio satellites were scheduled to be launched January 23 as secondary payloads on Japan's GOSAT IBUKI satellite launch. The AMSAT News Service reports that the primary payload is an environmental monitoring satellite measuring greenhouse gas levels. The seven small ham satellites—named Kagayaki, STARS, KKS-1, PRISM, SOHLA-1, SPRITE, and SDS-1—will operate in the 70-centimeter band. Most will operate in digital modes and CW; only the STARS satellite will have FM voice capability. For more information and links to individual satellite websites, see the story on the main AMSAT-NA web page at <www.amsat.org>.

Online Edition of WorldRadio Launched

The first web-only edition of *WorldRadio Online* was posted online on January 20. It is the first wide-distribution general-interest ham magazine to be published in an online-only format. It is published by CQ Communications, Inc., the parent company of this magazine. *WorldRadio Online* is freely accessible by going to the CQ magazine website at <www.cq-amateur-radio.com> and clicking on the *WorldRadio Online* link. Readers may also sign up for an e-mail alert list which will notify them when each new issue has been posted online.

CQ to Accept eQSL Confirmations for Award Credit

Electronic confirmations of contacts made via the eQSL.cc system will now count toward all CQ-sponsored operating awards, including Worked All Zones (WAZ), the USA-Counties Award (USA-CA), the CQ WPX Awards, and the CQ DX and DX Field Awards. A joint announcement by CQ and eQSL was made in January. See this month's Awards column on page 90 for complete details, as well as commentary in this month's Zero Bias editorial.

(Continued on page 10)

TOKYO HY-POWER

Two of the **LIGHTEST** and **MOST COMPACT** Amplifiers in the Industry!



Outstanding for
Field Works and
DX-peditions!

NEW!

**600W OUT,
Weighing
only
22.5lbs.**

HL-1.1KFX Lightweight HF Linear

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

Features

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

Specifications

Frequency:
1.8 ~ 28MHz all amateur bands including WARC bands

Mode:
SSB, CW, RTTY

RF Drive:
75 ~ 90W

Output Power:
SSB 600W PEP max.
CW 600W.
RTTY 500W (5 minutes)

Final Transistor:
SD 2933 x 4
(MOS FET by ST micro)

Circuit:
Class AB parallel push-pull

Cooling Method:
Forced Air Cooling

Multi-Meter:
Output Pf 1kW, Reflected Power 100W, Drain Voltage Vd 60V, Drain Current Id 50A

Input/Output Connectors:
Type M-J (UHF SO-239)

AC Power:
1.4kVA max. when TX.
AC 100 ~ 250V (Auto Select)

Dimensions:
9.1 x 5.6 x 14.3 inches
(WxHxD)

Weight:
Approx. 22.5 lbs.



To go with the
popular Yaesu
FT-817 series.

NEW!

**Compact
45W
Power
Amp.**

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

Features

- HL-45B is a solid-state HF/50MHz band linear power amplifier with the maximum output power of 45W. Designed RF drive power is 5W.
- This amplifier is particularly designed for the use with popular portable radio of YAESU FT-817. When combined with FT-817, you can enjoy a unique and very comfortable feature of automatic band selection as well as send-receive switching, by connecting the amp and radio with the supplied special control cable.
- LED power level meter will always indicate the relative output power level for the convenience of the operator.

Specifications

Frequency:
HF Band (1.8 ~ 28MHz and 50MHz Amateur Bands)

Mode: SSB(A3E), CW(A1A), FM(F3E)

RF Output Power:
SSB (PEP)/CW 45W

RF Drive Power: 5W max.

DC Power: DC 13.8V, 8.5A max.

In/Out Impedance: 50Ω

In/Out Connectors: SO-239

Major Circuits and Functions:

1. Class AB wide band linear power amp
2. Automatic/manual switching output low pass filters
3. WARNG (Protection circuit) for over-voltage and over-drive
4. LED meter for indicating transmitting power level

5. Send-receive switching remote terminal
6. ALC

Final RF Power Transistor:
RD30HVF
(by Mitsubishi Electric) x 2

Accessory Parts:
DC Power cord (Red/Black) x 1
Coax jumper cable with PL-259 connectors x 1
Remote control cable for FT-817 x 1
Spare fuse 10A x 2

Dimensions:
150(W) x 47(H) x 211(D) mm
(5.9 x 1.9 x 8.3 inches)

Weight:
Approx. 1.6kgs. (3.4lbs.)

More Fine Products from TOKYO HY-POWER



HC-1.5KAT
HF 1.5KW
Auto Tuner



HL-350VDX
VHF/2m 330W
Amplifier



HL-1.5KFX
HF/6m 1kW Linear
Auto Band Set with
modern ICOM, Yaesu,
Kenwood Radios

TOKYO HY-POWER

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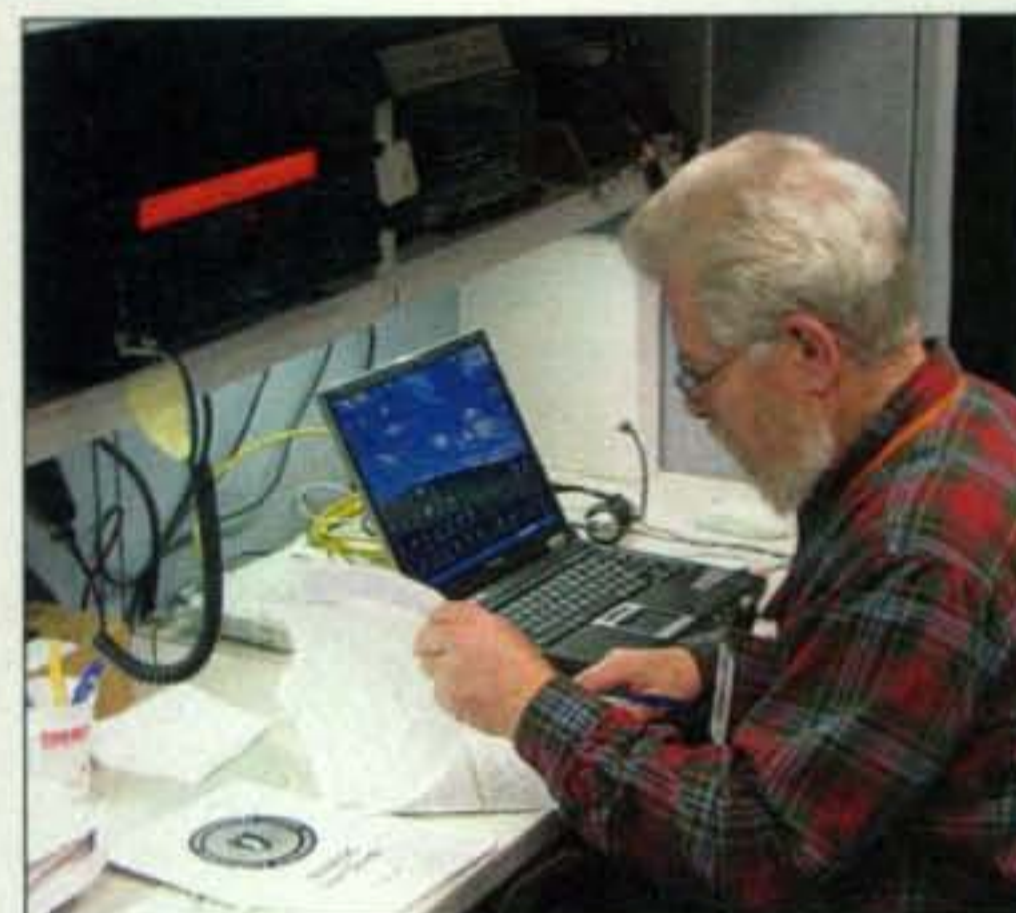
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Did You See It?



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

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IP57
Submersible
3 feet for 30 min
Body/Front panel

**DUAL BAND
DUAL RECEIVE**

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

Great New Features to Support
Outdoor Motor Sports Activities
Mobile Transceiver... Great Appearance ...
Easy to Operate



IP57
Submersible
3 feet for 30 min
Front panel

**DUAL BAND
DUAL RECEIVE**

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

**YAESU PRESENTS
THE THIRD GENERATION
ULTRA-COMPACT HAND-HELD
FM TRANSCEIVER
THE VX-3R!**



**2 m / 70 cm
Dual Band**

1.5 W Ultra Compact
2 m/70 cm Dual Band FM Hand held
VX-3R



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

**QUAD BAND
DUAL RECEIVE**



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

DUAL BAND



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

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

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



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

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



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

**2 m / 70 cm
Dual Band**



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

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



5 W Heavy Duty Submersible
2 m FM Mono Band Hand Helds
VX-120
(8 key Version)

**2 m
Mono Band**

(8 key)

(16 key)



70 cm FM Mono Band Hand Helds
VX-170
(16 key Version)

**70 cm
Mono Band**

(8 key)

(16 key)



Ultra-Rugged 5 W Full Featured
2 m FM Hand helds
VX-150/VX-110 2 m
Mono Band

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Ride Cycle24 to the Top with Yaesu

The radio... FT DX 9000



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

HF/50 MHz Transceiver FT DX 9000MP

Two Pairs of Meters, plus LCD Window; Data Management Unit and Flash Memory Slot Built In. Main/Sub Receiver VRF, plus Full Dual Receive Capability, External 50 V/24 A Switching Regulator Power Supply and Speaker with Audio Filters. Display color (Umber or Light Blue) may be selected at the time of purchase. Modification from 400 to 200 W not possible.



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

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



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

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

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

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



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



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



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

"The Best of the Best Just Got Better"

Introducing the new FT DX 9000 Series with PEP-9000 and FT-2000 Series with PEP-2000 (Performance Enhancement Program)
Contact Dennis Motschenbacher K7BV at k7bv@vxstdusa.com for details

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

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

YAESU
Choice of the World's top DXers™

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

Its Rightful Place

I am writing this the day after Inauguration Day. As always, I am in awe of the strength of our democracy as evidenced by the peaceful transfer of power from one administration to the next, and particularly from one political party to another. The images of President and Mrs. Bush warmly greeting President-Elect and Mrs. Obama at the White House, then riding together to the Capitol, and sitting on the stage together for the inauguration, speak volumes about our ability to come together as one people once the verbal battling of the election campaign is over. In far too many other countries, such battles are fought with bullets instead of ballots and “transfer of power” comes at the point of a gun. Inauguration Day, once again, was a proud moment for American democracy.

In listening to President Obama’s inaugural address, one line in particular caught my attention. “We will restore science to its rightful place,” said the President. I certainly hope that will happen, sooner rather than later. We need to let science be science.

Far too often in recent years, science has been hijacked by politics and by politicians to advance their goals. And this is not limited to any one party. At one end of the spectrum, you have a new scientific “orthodoxy” about the causes of global warming that rivals scientific orthodoxy in the days of Galileo. If you are a scientist and do not agree that global warming is caused by human activity—despite the absence of conclusive evidence (correlation does not necessarily equal causation)—you risk virtual “excommunication” by the mainstream scientific community for its equivalent of scientific heresy. At the other end of the spectrum, we have had scientific reports changed by politicians, and even had final conclusions reversed, when those were at odds with the politicians’ preconceived notions. Both of these requirements to toe the “party line” amount to nothing more than scientific censorship and stifle the spirit of independent and unfettered inquiry that has been the hallmark of scientific endeavor since the end of the Middle Ages. It is, indeed, time to restore science to its rightful place.

As hams, we have a vital interest in this matter. Technology and science go hand-in-hand. Sometimes, the greatest discoveries are made by going against the common wisdom. Cancer treatment inventor John Kanzius, K3TUP, interviewed in these pages just two months ago, said that if he had been formally educated in the process he developed, he would have known it was impossible, so he wouldn’t have tried. But he didn’t know it would never work. So he tried anyway. And lo and behold, it worked!

There is much science to be done in ham radio, for those so inclined. We depend on the ionosphere and the interactions between the sun and the Earth to propel our signals over great distances. There is room in ham radio for learning about earth science, space science, physics, communication theory and other scientific subjects. More importantly, though, ham radio presents a unique tool to help people learning science, especially young people, to get hands-on experience putting the theories they learn in their textbooks to practice in real-life settings.

We are facing a nationwide shortage of scientists and engineers. Ham radio can help provide a low-pressure, low-intensity, high-fun introduction to a wide variety of fields. We can start helping by taking individual responsibility for welcoming one young person—perhaps one of our own children or grandchildren—into

the excitement of amateur radio. In this issue, 2008 Newsline Young Ham of the Year Emily Stewart, KCØPTL, writes about her challenge to do just that to hams in her home state. The result of that challenge is the Kansas Legacy Project. Emily’s story is on page 28. Accompanying her article is the announcement for the 2009 Newsline Young Ham of the Year Award (CQ is a co-sponsor of this program, by the way). If you know a ham who is 18 or younger and who is doing incredible things, read the rules and submit a nomination. Another way to help young people through ham radio is through the four dozen scholarships administered by the Foundation for Amateur Radio. There’s a lot of scholarship money just waiting to be matched up with worthy recipients. The complete list of FAR-administered scholarships, along with eligibility details, is in the March issue of *WorldRadio Online*, which should be available for download from the CQ website by the time you receive this issue. Just go to our website at www.cq-amateur-radio.com and click on the *WorldRadio Online* link.

Speaking of *WorldRadio Online*, and speaking of inaugurations, we posted the inaugural online issue of the magazine on our website on Inauguration Day, January 20. Initial response has been overwhelmingly positive. We believe *WorldRadio Online* is an excellent complement to CQ, and urge you to check out either the February or March issue for yourself.

Enter eQSL

In January, we announced that we would begin accepting QSO confirmations from eQSL.cc for credit toward CQ awards. Within a week, A71EM qualified for the very first all-eQSL Worked All Zones award. Our award managers have been working closely with the team at eQSL in setting this up. They are all confident that the confirmations they receive via eQSL are at least as secure as those they receive in the form of traditional QSL cards. In fact, their ability to check for a QSO in the log of the *non-applicant* station makes it even more secure than a traditional QSL card. Maintaining the integrity of our awards is their top priority, and we are confident in the integrity of the eQSL process that has been set up.

We believe that the future of QSLing for award purposes is electronic, due primarily to the ever-escalating costs associated with traditional QSLing. However, we do not believe that traditional QSLing for its own sake will ever go away. The feeling one gets when opening a packet of cards from the QSL bureau, or receiving your SASE back in the mail carrying the card of an exotic DX station, cannot be duplicated on a computer screen. But when it comes to operating awards, waiting for cards to come in can literally add years to the process, so we look to the online confirmation services for more and more of the QSOs that will be claimed for award credit.

Many readers have asked why we have not set up a similar arrangement with ARRL’s Logbook of the World (LoTW). It is certainly our intention to do so. We have been talking and working with the folks in Newington for nearly three years now, but progress has been slow. We plan to continue working with them and hope to be able to announce an arrangement for one or more of our awards in the not-too-distant future. Meanwhile, if you want to use online confirmations for CQ awards, then eQSL.cc is the place to be.

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

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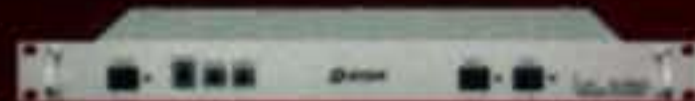
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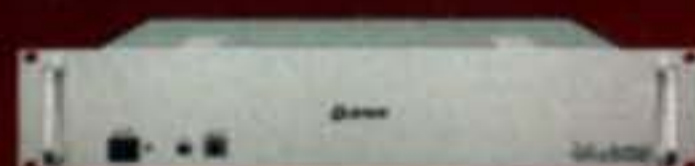


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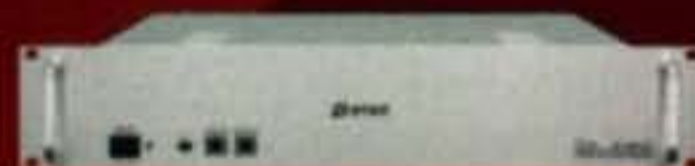
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Special Event Station W5G: Commemorating the 260th anniversary of the founding of Goliad, the second oldest town in Texas,; from Goliad County Fair; March 19–22 on 7.215, 14.270, 21.320 MHz. For QSL send QSL and SASE to Skip Stem, WB4DAD, 655 North Loop 337 #405, New Braunfels, TX 78130.

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

March 14–14, **2009 Charlotte Hamfest**, Cabarrus Arena & Events Center, Concord, North Carolina. Details go to: <<http://www.w4bfb.org/hamfest2009/hamfest.html>>. (Talk-in 146.655 [-600 kHz, 146.94 [-600 kHz]; exams) *See us at the CQ Booth.*

March 21, **Charleston, WV Hamfest**, Coonskin Armory, Charleston, West Virginia. Contact Jim Damron, N8TMW, e-mail: <n8tmw@arrl.net>, phone 304-965-5349, web: <www.w8gk.org>. (Exams)

March 21, **MicroHams Amateur Radio Digital Conference**, Microsoft Campus, Redmond, Washington; Microsoft Corporation ARC. For information go to: <www.microhams.com>.

March 28, **Orange County ARC Spring Hamfest**, Town of Wallkill Community Center, Middletown, New York. Contact Don Sayre, AA2DS, e-mail: <AA2DS@hvc.rr.com>, phone 845-342-2056 (after 6 PM). (Talk-in 146.76, PL100; exams)

March 28, **HAM-EX™ 2009**, Brampton Fall Fairgrounds, Brampton, Ontario, Canada. For more information go to: <info@ham-ex.ca>. (Talk-in VE3PRC 148.880, VE3MIS 145.430; exams for Basic, Advanced, and CW Qualification)

March 28, **Columbus (IN) ARC Hamfest**, Bartholomew County 4H Fairgrounds, Columbus, IN. Details: Marion Winterberg, WD9HTN, e-mail: <in@bcremc.net>, phone 812-342-4670. (Talk-in 146.790/146.190 PL 100; exams 11 AM)

March 29, **Contoocook Valley Radio Club Hamfest**, Henniker Community School, Henniker, New Hampshire. For details contact Jim McElroy, NS1E, 603-428-7436 or at <www.k1bke.com>. (Talk-in 146.895 [-600 Hz, PL 100 Hz; exams)

Contest University Registration Open

Registration is now open for Contest University, a popular pre-Hamvention® feature held in Dayton, Ohio, on the Thursday preceding the opening of the Dayton Hamvention®. There are separate tracks for new contesters and more experienced competitors. Additional information and online registration are available at <www.contestuniversity.com>. For a first-time participant's perspective on CU, see W6AQ's "Contesting 101 (and 102)" in the March issue of *WorldRadio Online*.

UK Ham Club Hits Lottery

The Chelmsford Amateur Radio Society in the United Kingdom is a big winner in a national lottery that provides grants to community groups. According to *Newsline*, the club was chosen to receive a grant of £10,000 (approximately \$13,800US at current exchange rates) from the "Awards for All" program. *Newsline* says the club will use the money to further develop its training programs through the purchase of laptop computers and a video projector; and to buy transceivers, antennas, and a linear amplifier to outfit a ham station at the local Sandford Mill Science and Industry Museum.

Ham Radio on Venus!

This is the March issue, not April, so this is for real. The Japan Amateur Radio League (JARL) and JAMSAT, the Japanese amateur satellite organization, are working with the Japanese University Space Engineering Consortium (UNISEC) to send an amateur radio payload to Venus as part of the JAXA Planet-C Venus Orbiter mission planned for next year. According to the AMSAT News Service, UNITEC-1 will transmit a CW beacon at about one bit per second. Hams around the world will be invited to listen for the signal and to help with two major science goals: (1) development of technologies to receive and decode very weak and low bit-rate signals coming from deep space; and (2) development of technologies to estimate the orbit of the satellite and the Doppler shift of its signals based on the received RF signals. These technologies will be necessary for tracking and receiving signals from satellites in deep space. More information (in English) is available on the UNITEC-1 website at <http://unitec-1.cc.u-tokai.ac.jp/en/news_en>.

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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HAM-IV
\$649⁹⁵



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\$799⁹⁵

T-2XD
\$1229⁹⁵
with DCU-1

CD-45II

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



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\$449⁹⁵

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

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

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

HAM-V

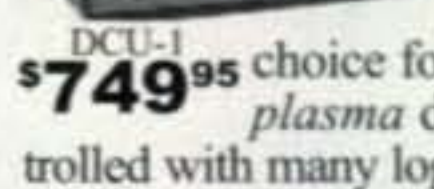
HAM-V
\$1099⁹⁵
with DCU-1

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

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MSHD, \$99.95. Heavy duty mast support for T2X, HAM-IV and HAM-V.
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Digital Automatic Controller

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



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



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

AR-35 Rotator/Controller

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



AR-35
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HDR-300A
\$1499⁹⁵

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

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IC-2820H Dual Band FM Transceiver

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IC-V8000 2M Mobile Transceiver

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IC-2200H 2M Mobile Transceiver

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IC-T90A Triple Band Transceiver

- 6M/2M/70CM @ 5W • Wide-band RX 495 kHz - 999.999 MHz**



IC-91AD Digital Dual Band Transceiver

- 2M & 70CM @ 5W • Independent (dual watch) wide-band RX 495 kHz - 999.999 MHz** • Compliments the ID-800H mobile



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*Except 60M Band. **Frequency coverage may vary. Refer to owner's manual for exact specs. ***Tested to survive after being under 1m of water for 30 minutes. ** AA Alkaline batteries not included, radio comes with a AA alkaline battery tray. *For shock and vibration. + Icom rebate promotion offers guaranteed through March 31, 2009. Purchase must be made from HRO between 07/01/08 and 3/31/09. Contact HRO for details. CQ MARCH 09. The Icom logo is a registered trademark of Icom Inc. 50078

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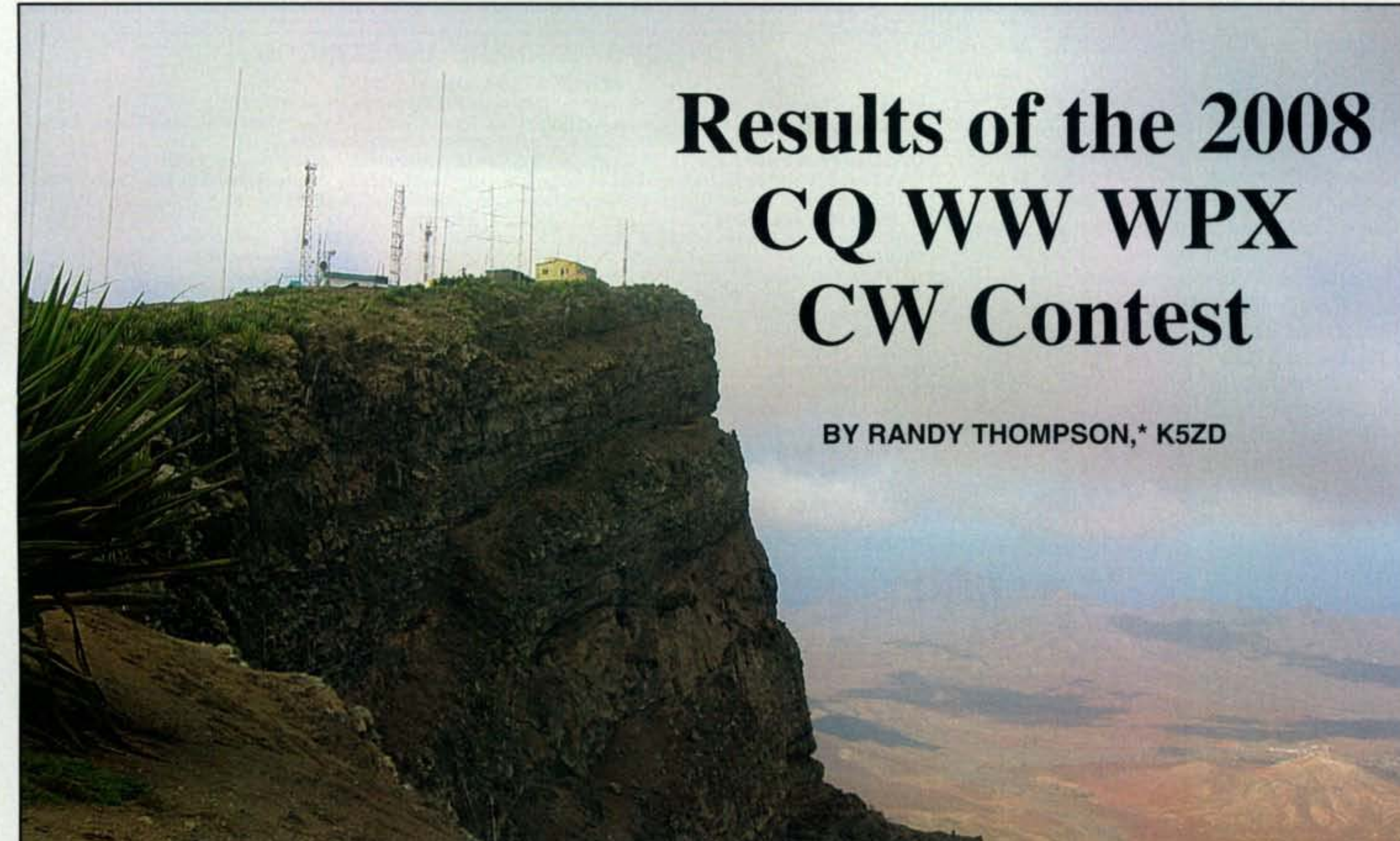
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Results of the 2008 CQ WW WPX CW Contest

BY RANDY THOMPSON,* K5ZD

The incredible mountaintop location of D4C.

The weekend of May 24 and 25, 2008 marked the 50th running of the CQ WPX CW Contest. While the solar flux didn't jump as high as it did for the SSB weekend in March, the sun helped celebrate the contest's golden anniversary by providing some exciting conditions. More sunlight on the North Pole always seems to create some pleasant surprises. Sporadic-E over Europe enabled six stations to break the 1-million point milestone on 10 meters!

The WPX CW contest continues to grow, with 3148 logs submitted—an increase of 25% over 2007! The sweet sound of CW is indeed alive and well, as demonstrated by the contents of the logs received. More than 16,700 active calls made more than 2-million contacts during the 48-hour contest period.

The scavenger hunt for prefix multipliers always serves up an interesting twist. Just as on SSB, the top prefix collector was the multi-multi team at DR1A with 1313 in the log. Thirty-four stations, all multi-ops, managed to find 1000 or more prefix multipliers. Just three years ago in 2005 only six stations could do so! The top single-op prefix hunter was Assisted category entrant YT5A with 981. IR4X was tops among the unassisted single-ops with 974.

Single Operator, All Band

World high score in the Single Operator, All Band category was D4C operated by Jurgis, LY2CY. Jurgis had the largest 15-meter QSO total of the top scorers, but only 139 contacts

on 10 meters. In second place, 4L0A, operated by Andy, UU4JMG, worked over 700 stations on 10 meters and set a new all-time single-operator record for Asia. Last year's number two finisher was pushed down to third this year, as Steve, K6AW, operating from HC8N, was just too far away from Europe to compete with D4C and 4L0A. ZF2AM, operated by John, K6AM, was close behind in fourth place. John had the highest QSO total among the single ops on 40 meters (1379), but didn't work anyone on 10 meters! Fifth place went to PJ2T, operated by Jim, WI9WI. The world's top five single-op scores were made from five different continents!

In the USA, Jeff, K1ZM, operated from his station on Cape Cod to make it into the top ten in the world and tops in the USA. Jeff accomplished the rare double of having the top USA score for both modes in the same year. Close behind in second place was last year's winner Dan, K1TO, operating from Florida with the call NE4AA. Dan had almost the same QSO and prefix counts as Jeff, but not enough three- and six-point Europeans to keep up for the final score. Finishing third and chasing valuable WRTC qualifying points was Krassy, K1LZ. Best score away from the East Coast was NN5J in seventh place, operated by Kevin, N5DX.

Ken, K6LA, travelled to VY2TT to claim the top score in Canada. In the phone contest, John, VE3EJ, just got past Ron, VE3AT, operating VB3E by about 400k points. Ron got his revenge this time, beating John by less than 100k! It doesn't get much closer than that. John may have gotten the last laugh, though, as his total for

both modes earned him his second consecutive trophy for World High Combined Score.

The competition for Single Operator All Band in Europe was incredibly close. IR4X (by IZ3EYZ) was the clear winner, but check out the three-way battle for second place. Only 25k points separated Rastislav, OM3BH; Ranko 4O3A; and Anti, HA3OV. Making only 10 more three-point contacts (or a few less logging errors) by any of them would have changed the order of finish!

The Single Operator, All Band, Low Power category also saw a two-mode sweep as John, KK9A, matched his world high score on SSB with one on CW. John didn't make any contacts on 10 meters, but more than made up for it on 40 and 20. The next three places were a battle among North American entries. Yuri, VE3DZ, travelled to Bermuda (using VE3DZ/VP9) and took advantage of being closer to Europe than the others to take second place by a good margin. Alfredo, WP3C, claimed third place operating from his home in Puerto Rico. In fourth, Eric, K9GY, also did some travelling to operate from Nicaragua as H7/K9GY. Next up was Bob, I2WIJ, who had the top score from Europe. Seventh in the world and high scorer for the USA was perennial winner Ed, N1UR, operating as NV1N from Vermont. Representing Asia in the top ten was UP6P operated by Yuri, UN6P.

Single Operator, Assisted

World high in the Single Operator, Assisted category was a three-way battle in southern Europe. The winner was Mladen, YU7NU,

*e-mail: <k5zd@cqwpx.com>

operating as YT5A. Boyan, LZ2BE, piloted LZ8A to second place. Ionut, YO9WF, operated as YQ9W for third. The challenge for Assisted category entrants is to maintain high QSO rates while effectively using the spotting networks to pick up additional multipliers. In addition to a very accurate log, Mladen achieved the highest prefix total of any single operator with 981. Boyan found 898 prefixes while Ionut managed 877.

In the Assisted Low Power category, Pascal, F5JSD, operated F9IE to a clear victory. Second and third was a close race between Mario, S56A, and Mark, M0DXR, with southern Europe again having the advantage. Brooke, N2BA, finished fourth in the world just ahead of LQ0F, operated by Javier, LU5FF.

Single Operator, Single Band

The most surprising band of the contest was 10 meters. Alexander, 5B8AD, used the call C4N to claim the world high score with 1177 QSOs and 1.6-million points. Alexander enjoyed propagation to Europe from sunrise to sunset both days of the contest. He also worked a handful of JAs and one USA. Only 100k points behind in second place was Todor, LZ4ZP, operating as TC37F. Check out the race for third between Slaven, E77AA, and OH0J (Jouko, OH1RX). Their scores were only 120 points apart after the log checking! IU9S, operated by Joe, IT9BLB, turned in a very accurate log to stay above the million-point mark. Who would have expected such excitement on 10 meters at this point in the sunspot cycle?!

Fifteen meters also produced six scores over 1-million points. The perennial 15-meter champion was again ZX5J, but this time operated by Carl, AI6V. Carl managed 1426 contacts in about 29 hours of operating. Winner of the battle for Europe was 9A5Y operated by Sasa, 9A3NM. In his 1596 QSOs Sasa worked 756 prefixes! Third place went to IU3X operated by Andrea, IV3SKB. Next up was a close three-way race among YT0Z (Milan, YU1ZZ), HA800NAR (Laszlo, HA0NAR), and Ivica, E76AQ. Only 34k points separated the three of them. In the USA, NR5M operated by Eric, NM5M, edged out W4KZ operated by Rick, NQ4I. One has to wonder if Rick's use of a more common W4 call gave away an advantage to Eric.

On the workhorse band of 20 meters, Steve, ZC4LI, took advantage of his "three-point" location to score 4.3-million points and outrun a close race in Europe between CT1JLZ (Jiri, OK1RF) and TM7XX (Laurent, F5MUX). Jiri and Laurent were within three multipliers of each other, but Jiri's extra contacts made the difference. Marcelo, PY1KN, operated as PT1T to finish fourth. Far from multiplier-rich Europe, Bill, K4XS, piloted KH7B to fifth place. The top USA score was made by Jim, VE7ZO, operating from the 20-meter position at NQ4I.

The highest single-band score in the contest was on 40 meters. Jiri, OK1RI and operator of OK5R, made a last-minute decision to switch from an all-band effort to single band. It was a good choice, as he finished with 5.2-million points and a new European

TROPHY WINNERS AND DONORS

SINGLE OPERATOR, ALL BAND

WORLD: Steve Bolia, N8BJQ Trophy. Won by: **D4C** operated by Jurgis Ignotas, LY2CY
WORLD Low Power: Caribbean Contesting Consortium Trophy. Won by: **P40A** operated by John Bayne, KK9A
USA: Dennis Motschenbacher, K7BV Trophy. Won by: **Jeffrey T. Briggs, K1ZM**
USA Low Power: Ken Boasi, N2ZN Trophy. Won by: **NV1N** operated by Edward Sawyer, N1UR
USA Zone 3 High Power: Northern California Contest Club Trophy. Won by: **NY6N** operated by Dan Craig, N6MJ
USA Zone 4 High Power: Society of Midwest Contesters Trophy. Won by: **NN5J** operated by Kevin Stockton, N5DX
USA Zone 4 Low Power: Society of Midwest Contesters Trophy. Won by: **John F. Meyer, K9QVB**
CANADA: Radio Amateurs of Canada (RAC) Trophy. Won by: **VY2TT** operated by Ken Widelitz, K6LA
CANADA Low Power: Contest Club Ontario Trophy. Won by: **Alexey Yushin, VE2XAA**
AFRICA: Chris Terkla, N1XS Trophy. Won by: **CS9L** operated by Frank Steinke, DL8WAA
ASIA: Rick Tavan, N6XI Trophy. Won by: **4L8A** operated by Andy Kotovsky, UU4JMG
EUROPE: Ivo Pezer, 5B4ADA/9A3A Trophy. Won by: **IR4X** operated by Matteo Marzilli, IZ3EYZ
NORTH AMERICA: Louisiana Contest Club Trophy. Won by: **ZF2AM** operated by John Barcroft, K6AM
SOUTH AMERICA: David Kopacz, KY1V Trophy. Won by: **HC8N** operated by Steve Merchant, K6AW
SOUTH AMERICA Southern Cone (CE, CX, LU): Tom Morton, K6CT Trophy. Won by: **CW5W** operated by Jorge Diez, CX6VM
OCEANIA: Lloyd Cabral, KH6LC Trophy. Won by: **KH7X** operated by Michael Gibson, KH6ND
JAPAN: Simone Candotto, IV3NVN Trophy. Won by: **Masaki Okano, JH4UYB**

SINGLE OPERATOR, SINGLE BAND

WORLD 28 MHz: Steve Hodgson, ZC4LI Trophy. Won by: **C4N** operated by Alexander Savelyev, 5B8AD
WORLD 21 MHz: Andrei Stchislenok, NP3D Trophy. Won by: **ZX5J** operated by Carl Cook, AI6V
WORLD 14 MHz: Gene Walsh, N2AA Trophy. Won by: **Steve Hodgson, ZC4LI**
WORLD 7 MHz: 6Y1V Contest Station Trophy. Won by: **OK5R** operated by Jiri Sanda, OK1RI
WORLD 3.5 MHz: Ranko Boca, 4O3A Trophy. Won by: **TM5Y** operated by Le Gall Sebastien, F8DBF
WORLD 1.8 MHz: Dusko Dumanovic, ZL3WW Trophy. Won by: **SN7Q** operated by Sasa Pokorni, 9A3NM
USA 21 MHz: Charlie Wooten, NF4A Trophy. Won by: **NR5M** operated by Eric Silverthorn, NM5M
USA 14 MHz: Kansas City DX Club Trophy. Won by: **NQ4I** operated by Jim Roberts, VE7ZO
USA 7 MHz: Darin Divinia, WG5J Trophy. Won by: **WI4R** operated by Jeff Kinzli, N6GQ
USA 3.5 MHz: Wes Printz, W3SE Trophy. Won by: **Steven Sussman, W3BGN**
EUROPE 28 MHz High Power: SKY Contest Club Trophy. Won by: **Slaven Galic, E77AA**
EUROPE 21 MHz High Power: SKY Contest Club Trophy. Won by: **9A5Y** operated by Sasa Pokorni, 9A3NM
EUROPE 14 MHz High Power: SKY Contest Club Trophy. Won by: **CT1JLZ** operated by Jiri Pesta, OK1RF
EUROPE 7 MHz High Power: SKY Contest Club Trophy. Won by: **Vitomir Kregar, S56M**
EUROPE 3.5 MHz High Power: SKY Contest Club Trophy. Won by: **OL4W** operated by Milan Stejskal, OK1IF
EUROPE 1.8 MHz High Power: SKY Contest Club Trophy. Won by: **Arunas Vaglyis, LY2IJ**

SINGLE OPERATOR ASSISTED

WORLD: Hal Kennedy, N4GG Trophy. Won by: **YT5A** operated by Mladen Bogdanov, YU7NU
USA: Ron Sigismonti, N3RS Trophy. Won by: **Charles D. Fulp, Jr., K3WW**
EUROPE: Martin Huml, OL5Y Trophy. Won by: **LZ8A** operated by Boyan Petkov, LZ2BE

QRP/p

WORLD: Chris Kantarjiev, K6DBG Trophy. Won by: **TI5N** operated by Bill Parker, W8QZA
NORTH AMERICA: Dale Martin, KG5U Trophy. Won by: **Douglas Zwiebel, KR2Q**
USA: John T. Laney, K4BAI Trophy. Won by: **Gary Hembree, N7IR**

OVERLAY CATEGORIES

WORLD Tribander/Single Element: Helmut Mueller, DF7ZS Trophy. Won by: **Ricardo Martins, CT3KN**
USA Tribander/Single Element: Paul Newberry, N4PN Trophy. Won by: **WN2O** operated by Mike Musitano, N2GC
Europe Tribander/Single Element: Matija Brodnik, S53MM Trophy. Won by: **OJ0B** operated by Pertti Simovaara, OH2PM
WORLD Rookie: Val Edwards, W8KIC Memorial Trophy (K3LR Sponsor). Won by: **Alexandr Konnov, RK9AJZ**
NORTH AMERICA Rookie: Chris Kantarjiev, K6DBG Trophy. Won by: **Eric Irvine, VY1EI**

MULTI-OPERATOR, SINGLE-TRANSMITTER

WORLD: Steve Miller, N0SM Trophy. Won by: **CT9M** operated by OM3GI, OM3NA, OM3LA, OM3RM, OM7JG
USA: Phil Allardice, KT3Y Trophy. Won by: **KT3Y/4** operated by KT3Y, K3EST
ASIA: W2MIG Memorial Trophy (NX7TT Sponsor). Won by: **P33W** operated by RA6LBS, RK3AD, RU4HP, RW4WR, RA3AUU
EUROPE: Andy Ruse, YO3JR/YR1A Trophy. Won by: **OM7M** operated by OK2BFN, OM3PA, OM3PC, OM5AW, OM5RM, OM5RW, OM5ZW
NORTH AMERICA: Jim George, N3BB Trophy. Won by: **WE3C** operated by K3CT, K3TEJ, N3RD, W2GD, W3FV, WE3C
USA Zone 4: Mike Fatchett, W0MU Trophy. Won by: **N5RM** operated by N2IC, WA5Y, K7IA

MULTI-OPERATOR, TWO-TRANSMITTER

WORLD: UA1DZ Memorial, W3UA Trophy. Won by: **3V8BB** operated by YT1AD, YT3W, YU1KX, Z32ZM
USA: Florida Contest Group Trophy. Won by: **KD4D** operated by K3MM, K3RA, WX3B, NI1N, KD4D
EUROPE: Tom Georgens, W2SC Trophy. Won by: **ES9C** operated by ES5RY, ES2DW, ES2MC, ES5JR, ES5NC, ES2RR, ES5TV, OH1NOA, ES3VI

MULTI-OPERATOR, MULTI-TRANSMITTER

WORLD: Steve Merchant, K6AW Trophy. Won by: **DR1A** operated by DB6JG, DJ6ET, DK9IP, DL1MFL, DL1MGB, DL3DXX, DL5LYM, DL6FBL, DL7FER, DL8WPX, DO2WW, HB9CVQ, JK3GAD
USA: Jim Reiser, AD1C Trophy. Won by: **NR4M** operated by EY8MM, K1SE, K4EC, K4EU, K4GMH, K4ZW, K7SV, N2YO, NR4M, W4DF, WA4JUK
EUROPE: David Robbins, K1TTT Trophy. Won by: **LZ9W** operated by LZ1ZD, LZ1RGM, LZ1ANA, LZ1UQ, LZ1PM, LZ2UU, LZ2UZ, LZ2FV, LZ2CJ, LZ3FM, LZ3UM, LZ4UU, LZ5VK

CONTEST EXPEDITION

WORLD: Phil Goetz N6ZZ Memorial Trophy. Won by: **VE3DZ/VP9** operated by Yuri Onipko, VE3DZ

COMBINED (SSB & CW)

Single Operator All Band

WORLD: Yuri Blarovich, K3BU Trophy. Won by: **John Sluymmer, VE3EJ**
USA: Bill Fisher, W4AN Memorial Trophy (KM3T Sponsor). Won by: **Jeffrey T. Briggs, K1ZM**

CLUB (SSB & CW)

WORLD: CQ Magazine Trophy. Won by **Bavarian Contest Club**

Please contact awards manager Doug Grant, K1DG, at <plaques@cqwpx.com> if you are interested in sponsoring a trophy.

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"Once again, Ten-Tec has produced a superb transceiver, with great SSB audio and their famous QSK." - K4SQR

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Single Operator All Band champion Jurgis, LY2CY, at the controls of D4C.

record! Vitomir, S56M, also broke the old European record to finish in second place. Third place went to northern Europe with OG6A operated by Jari, OH6QU. The USA battle was between WI4R (operated by Jeff, N6GQ, from the 40-meter position at the NQ4I station) and Chuck, KØRF, in Colorado.

Eighty meters provided its share of record scores as well. TM5Y, operated by Sebastien, F8DBF, demolished the world record by a margin of over 30%! In second place, and also breaking the world record, was 7XØRY operated by Frantisek, OK1DF. OL4W and SN3F had a close race for fourth place. Eighty meters wasn't quite as popular in the U.S. over the holiday weekend, but Steve, W3BGN, took advantage of conditions to break the 15-year-old USA record held by K1ZM.

There are some dedicated DXers and contesters who pursue their passion on 160 meters, even in the summer months. This year SN7Q, with Chris, SP7GIQ, at the key, won the world with 519 QSOs and 307 multipliers. He missed breaking the 10-year-old world record by only 2000 points! However, he did take home the European record for his efforts. Arunas, LY2IJ, finished in second ahead of Jukka, OH6LI, operating from OH4A.

In the Low Power division, the top single band score was made by Yuri, RA9JR, operating on 20 meters. The next highest band was 40 meters won by Ivan, S54A. 3V8SS, operated by Zoran, Z33F,

WORLD TOP SCORES

SINGLE OPERATOR ALL BAND	
D4C (LY2CY)	12,694,731
4LØA (UU4JMG)	11,213,664
HC8N (K6AW)	10,893,707
ZF2AM (K6AM)	10,019,490
PJ2T (WI9WI)	9,326,950
CT3KN	9,162,456
VY2TT (K6LA)	9,117,264
YW4D (YV1DIG)	8,474,873
K1ZM	8,211,332
UA9CDC	8,048,263
28 MHz	
C4N (5B8AD)	1,643,187
TC37F (LZ4ZP)	1,511,048
E77AA	1,093,968
OHØJ (OH1RX)	1,093,840
IU9S (IT9BLB)	1,009,766
UW1M (UR5MW)	839,475
9A4W	814,215
RW2F (UA2FB)	788,794
UT11A	681,884
S57S	627,840
21 MHz	
ZX5J (AI6V)	2,743,611
9A5Y (9A3NM)	1,959,930
IU3X (IV3SKB)	1,555,410
YTØZ (YU1ZZ)	1,269,188
HA8ØØNAR (HAØNAR)	1,246,050
E76AQ (T96Q)	1,235,292
NR5M (NM5M)	772,317
W4KZ (NQ4I)	716,856
JA3YBK (JS1PWV)	644,787
WU3A/1 (W3UA)	621,824
14 MHz	
ZC4LI	4,352,124
CT1JLZ (OK1RF)	4,132,771
TM7XX (F5MUX)	4,008,056
PT1T (PY1KN)	3,930,108
KH7B (K4XS)	3,583,140
S57AL	3,479,903
SN3X (SP3SLA)	3,470,412
LY8Ø	3,350,384
NØ4I (VE7ZO)	3,210,000
IO3P (IV3NVN)	3,162,835
7 MHz	
OK5R (OK1RI)	5,222,912
S56M	4,368,680
OG6A (OH6QU)	3,375,540
9A7D (9A2SD)	3,054,744
4M1T (YV5ØHW)	2,548,707
W14R (N6GQ)	2,242,897
IO3J (IV3ZXØ)	2,233,153
SX1L (SV2FVW)	2,187,584
SP4TKR	2,042,568
KØRF	2,000,786
3.5 MHz	
TM5Y (F8DBF)	1,983,366
7XØRY (OK1DF)	1,701,260

OL4W (OK1IF)	1,317,801
SN3A (DJØIF)	1,310,220
OK3R (OK1DVM)	1,309,645
M1A (MØBVB)	1,271,592
S51YI	1,196,046
S53Ø	1,004,400
GM4FAM	994,335
YT4T	968,400
1.8 MHz	
SN7Q (SP7GIQ)	339,542
LY2IJ	277,590
OH4A (OH6LI)	236,174
OG9W (OH2BCI)	222,819
LN9Z (LA9HW)	212,848
YT6T (YU7CM)	212,420
YL2SM	212,267
SP6A	181,536
DF2UU	127,972
UR6F (UXØFF)	74,250
LOW POWER SINGLE OPERATOR ALL BAND	
*P4ØA (KK9A)	8,232,796
*VE3DZ/VP9	6,053,388
*WP3C	4,044,752
*H7/K9GY	3,624,580
*I2WIJ	3,478,860
*NV1N (N1UR)	3,276,504
*UP6P (UN6P)	2,945,152
*WJ9B/4	2,872,404
*YU8A	2,829,069
*RK9AJZ	2,734,313
28 MHz	
*T97G	454,399
*LY2T	379,857
*UA2FL	370,946
*US5XD	315,126
*DL9ZP	297,208
*9A3VM	296,534
*HA8TP	260,354
*UA3QG	260,192
*SP2AVE	260,130
*HA8LLK	247,212
21 MHz	
*YU7EE	787,776
*YR8B	540,882
*UN4PG	419,664
*UA9AFS	344,955
*ZD8RH (G4DBW)	339,001
*IWØGX	224,114
*YE1AA	171,717
*YD1HUH	163,542
*LY3ID	162,486
*JF3BFS	157,412
14 MHz	
*RA9JR	1,620,680
*HG4F	1,446,530
*XW1A	1,401,744
*S51W	1,169,512

*LZ5XQ	1,007,424
*S57U	906,750
*SV1BJW	833,175
*UZ5UA	819,680
*IK6MNB	778,499
*JG2KKG	717,481
7 MHz	
*S54A	1,591,557
*ER3DX	1,428,973
*EC5KXA	1,129,024
*HQ9R (WQ7R)	1,125,740
*SP5CNA	971,736
*OK1DKZ	958,167
*SN7Ø (SP7IVO)	937,300
*YUØU	913,248
*SP6ØJE	909,580
*SN2I	793,956
3.5 MHz	
*3V8SS (Z33F)	959,812
*4Ø4A	886,224
*DJ6BQ	797,525
*OK2BYW	487,890
*HA6FQ	480,342
*LY3CW	456,435
*YR5Ø (YO5BRZ)	426,218
*HG6V (HA6IAM)	350,920
*SP7DCS	285,532
*SP9BNM	271,397
1.8 MHz	
*TA2RC	258,480
*HA8BE	184,730
*S51DX	127,233
*T99Z	107,724
*SN3ØJ (SP5JXX)	86,760
*LY2ØU	79,296
*UX5NQ	78,200
*ER2RM	53,340
*OK1JØK	51,183
*ØM5FA	41,844
ØRP/p	
T15N (W8QZA)	A 1,269,016
ØM7DX	A 1,234,761
ØK7CM	A 1,047,442
KR2Q	A 886,542
RW6HJV/6	A 791,204
RA6DB	A 743,036
DL8MF	A 700,960
VA3DF	A 657,800
EW6DX	28 143,576
HA8KW	21 325,650
UA6LCJ	14 258,336
EU8RZ	7 618,184
LY2GW	3.5 186,238
DL9YX	1.8 32,085
SINGLE OPERATOR ASSISTED	
YT5A (YU7NU)	A 6,877,791
LZ8A (LZ2BE)	A 5,668,176
YQ9W (YO9WF)	A 5,347,069

K3WW	A 5,111,106
LR4E (LU5DX)	A 5,102,136
UW5Ø	A 4,853,512
HG7T (HA7TM)	A 4,668,840
WR3Z	A 3,994,080
NO2R	A 3,767,095
S5ØR (UT9FJ)	28 3,488,256
EM9F (UT9FJ)	28 951,286
9A2U (9A3ZA)	28 613,120
9A1V (9A4M)	21 927,605
S52ZW	14 2,569,142
SP8IMG	14 2,276,094
S56X	7 3,568,290
SP4Z	7 3,031,170
LY4U	3.5 849,932
HA3LI	3.5 809,348
LOW POWER	
*F9IE (F5JSD)	A 2,297,815
*S56A	A 1,597,639
*MØDXR	A 1,490,216
*N2BA	A 1,391,652
*LQØF (LU5FF)	A 1,384,620
*IK2HDF	A 1,352,290
*FBAKC	28 335,125
*HA2QW	21 264,252
*RV9JR	14 1,250,420
*UZ8M (USØMR)	14 1,112,952
*YU9DX	7 2,351,232
*IZ8GCB	3.5 94,248
*YT4A	1.8 48,600
TRIBANDER/ SINGLE ELEMENT	
CT3KN	A 9,162,456
RU9CK	A 5,290,447
UP4L (UN7LZ)	A 4,901,589
ØJØB (ØH2PM)	A 4,755,475
S53MM	A 4,553,405
ØM7CW	A 4,515,447
MØØCCE	A 4,377,024
S59ABC (S51DS)	A 3,855,135
HG8R (HA8JV)	A 3,497,520
EV2A	A 3,062,496
ØQ5M (ØN5ZØ)	28 287,280
EA5FID	21 563,746
9A/VE3ZIK	14 1,665,528
9A3MA	7 608,685
HA3LI	3.5 809,348
LOW POWER	
*VE3DZ/VP9	A 6,053,388
*EA7TN	A 2,337,220
*LZØ8KM (LZ3YY)	A 1,681,728
*PG7V	A 1,647,354
*VE2XAA	A 1,629,725
*DK5DQ	A 1,548,323
*VE3KF (ØMØS)	A 1,476,312
*LY6ØW (LY5W)	A 1,453,940
*ØK1HX	A 1,438,110
*N2BA	A 1,391,652
*UR5IKN	28 174,556
*S57U	14 906,750
*S54A	7 1,591,557

*YUØA	3.5 154,560
*YT4A	1.8 48,600
ROOKIE	
*RK9AJZ	A 2,734,313
*RX3ZX	A 1,132,231
*RN3DBA	A 799,722
*DF1HE	A 609,609
EW8KY	A 521,626
*SP5XØ	A 449,304
*SØ5M	A 428,146
*ØK5ØK	A 321,356
*ØM6AL	A 250,584
VY1EI	A 197,730
*UU4JC	28 123,840
*YD1HUH	21 163,542
*KJ9A	14 489,942
YU7BH	7 1,204,610
*SP6ØJE	7 909,580
MULTI-OPERATOR SINGLE TRANSMITTER	
CT9M	24,125,802
EF8M	22,762,392
P33W	21,314,175
9K2HN	12,013,866
ØM7M	10,698,780
RU1A	10,549,847
ZY7C	9,994,240
IR2C	9,850,823
E73MMM	9,606,974
WE3C	9,344,146
MULTI-OPERATOR TWO TRANSMITTER	
3V8BB	22,325,208
6Y1V	20,507,972
ES9C	18,557,028
P4ØL	18,220,175
9A6ØA	16,164,144
KD4D/3	14,116,239
EA3FP	13,382,334
DQ4W	13,122,255
G6PZ	13,057,583
ØL7R	12,336,030
MULTI-OPERATOR MULTI-TRANSMITTER	
DR1A	24,285,248
LZ9W	19,377,645
HG8ØHQ	15,510,742
NR4M	15,425,340
LX7I	14,790,657
ØMØM	14,410,494
E77DA	13,212,176
LY7A	12,697,272
ØL3Z	9,712,920
PA6Z	7,828,444
*Low Power	

EUROPE TOP SCORES

SINGLE OPERATOR ALL BAND	SN3A (DJ0IF).....1,310,220	*S57U.....906,750	SINGLE OPERATOR ASSISTED	*DK5DQ.....A 1,548,323
IR4X (IZ3EYZ).....7,565,058	OK3R (OK1DVM).....1,309,645	*SV1BJW.....833,175	YT5A (YU7NU).....A 6,877,791	*LY600W (LY5W).....A 1,453,940
OM3BH.....7,224,768	M1A (MO8BB).....1,271,592	*U25UA.....819,680	LZ8A (LZ2BE).....A 5,668,176	*OK1HX.....A 1,438,110
4O3A.....7,207,746	S51YI.....1,196,046	*IK6MNB.....778,499	YQ9W (YO9WF).....A 5,347,069	*OK2QX.....A 1,308,150
HA3OV.....7,200,532	S53O.....1,004,400	*LZ6W (LZ4UX).....639,431	UW5Q.....A 4,853,512	*OV3X (OZ8AE).....A 1,279,786
YR7M (YO3JR).....6,955,416	GM4FAM.....994,335		HG7T (HA7TM).....A 4,668,840	*UR5IKN.....28 174,556
S50A.....6,717,006		7 MHz	S50R.....A 3,488,256	*S57U.....14 906,750
9A5W.....6,486,588	1.8 MHz	*S54A.....1,591,557	OG6N.....A 3,428,646	*S54A.....7 1,591,557
RL3A (RV3BA).....6,173,244	SN7Q (SP7GIO).....339,542	*ER3DX.....1,428,973	DL0IL (DF2KK).....A 3,120,000	*YU0A.....3.5 154,560
DL3YM.....5,935,334	LY2IJ.....277,590	*EC5KXA.....1,129,024	YL1S (YL1ZF).....A 3,024,320	*YT4A.....1.8 48,600
OK4RQ.....5,464,565	OH4A (OH6LI).....236,174	*SP5CNA.....971,736	YQ6A (YO6BHN).....A 3,009,090	
	OG9W (OH2BCI).....222,819	*OK1DKZ.....958,167	EM9F (UT9FJ).....28 951,286	ROOKIE
28 MHz	LN9Z (LA9HW).....212,840	*SN7O (SP7IVO).....937,300	9A1V (9A4M).....21 927,605	*RN3DBA.....A 799,722
E77AA.....1,093,968	YT6T (YU7CM).....212,428	*YU0U.....913,248	S52ZW.....14 2,569,142	*DF1HE.....A 609,609
OH0J (OH1RX).....1,093,840	YL2SM.....212,267	*SP6OJE.....909,580	S56X.....7 3,568,290	EW8KY.....A 521,626
IU9S (IT9BLB).....1,009,766	SP6A.....181,536		SP4Z.....7 3,031,170	*SP5XD.....A 449,304
UW1M (UR5MW).....839,475		3.5 MHz	LY4U.....3.5 849,932	*SQ5M.....A 421,156
9A4W.....814,215	LOW POWER SINGLE OPERATOR ALL BAND	*4O4A.....886,224	HA3LI.....3.5 809,348	*OK5OK.....A 328,346
RW2F (UA2FB).....788,794	*I2WIJ.....3,478,860	*DJ6BQ.....797,525		*UU4JC.....28 123,840
UT1IA.....681,884	*YU8A.....2,829,069	*OK2BYW.....487,890	LOW POWER	
S57S.....627,840	*EA7RM.....2,723,231	*HA6FO.....480,342	*F9IE (F5JSD).....A 2,297,815	MULTI-OPERATOR SINGLE TRANSMITTER
21 MHz	*OL6P (OK2WTM).....2,627,660	*LY3CW.....456,435	*S56A.....A 1,597,639	OM7M.....10,698,780
9A5Y (9A3NM).....1,959,930	*S51F.....2,536,042	*YR5O (YO5BRZ).....426,218	*M0D0XR.....A 1,490,216	RU1A.....10,549,847
IU3X (IV3SKB).....1,555,410	*RW4FO.....2,486,435	*HG6V (HA6IAM).....350,920	*IK2HDF.....A 1,352,290	IR2C.....9,850,823
YT0Z (YU1ZZ).....1,269,188	*EA7TN.....2,337,220	*SP7DCS.....285,532	*PA4AO.....A 1,191,105	E73MMM.....9,606,974
HA800NAR (HA0NAR).....1,246,050	*SP4JCO.....2,145,955		*YU3A.....A 1,128,634	LZ5A.....9,237,240
E76AQ (T96Q).....1,235,292	*YL8M (YL2KL).....2,055,685	1.8 MHz	*Y03FRI.....A 1,048,318	TM0R.....9,212,940
S51FB.....514,724	*DL1EFD.....1,939,800	*HABBE.....184,730	*DM3PKK.....A 1,038,878	UZ2M.....8,538,115
YT1T.....437,675		*S51DX.....127,233	*F8AKC.....28 335,125	YT2T.....7,384,800
SN5N (SP5KP).....427,278	28 MHz	*SN30J (SP5JXK).....86,760	*HA2QW.....21 264,252	EE2W.....7,259,844
	*T97G.....454,399	*LY2OU.....79,296	*UZ8M (US0MR).....14 1,112,952	YT8A.....7,060,134
14 MHz	*LY2T.....379,857	*UX5NQ.....78,200	*YQ5O (YO5OHO).....14 906,714	
CT1JLZ (OK1RF).....4,132,771	*UA2FL.....370,946		*YU9DX.....7 2,351,232	MULTI-OPERATOR TWO TRANSMITTER
TM7XX (F5MUX).....4,008,056	*US5XD.....315,126	QRP/p	*IZ8GCB.....3.5 94,248	ES9C.....18,557,028
S57AL.....3,479,903	*DL9ZP.....297,208	OM7DX.....A 1,234,761	*YT4A.....1.8 48,600	9A60A.....16,164,144
SN3X (SP3SLA).....3,470,412	*9A3VM.....296,534	OK7CM.....A 1,047,442		EA3FP.....13,382,334
LY8O.....3,350,384	*HABTP.....260,354	RW6HJV/6.....A 791,204	TRIBANDER/SINGLE ELEMENT	DO4W.....13,122,255
IO3P (IV3NVN).....3,162,835	*UA3OG.....260,192	RA6DB.....A 743,036	LZ8A (LZ2BE).....A 5,668,176	G6PZ.....13,057,583
S57DX.....3,104,769		DL8MBS.....A 700,960	OJ0B (OH2PM).....A 4,755,475	OL7R.....12,336,030
OE2008S (OE2VEL).....3,003,762		RW3AI.....A 635,481	OM7CW.....A 4,515,447	OG8X.....11,503,136
	21 MHz	ES1CW.....A 623,891	M00CCE.....A 4,377,024	LX0RL.....9,547,200
7 MHz	*YU7EE.....787,776	US2IZ.....A 600,886	S59ABC (S51DS).....A 3,855,135	
OK5R (OK1RI).....5,222,912	*YR8B.....540,882	LY5G (LY2FE).....A 566,056	HG8R (HA8JV).....A 3,497,520	MULTI-OPERATOR MULTI-TRANSMITTER
S56M.....4,368,680	*IW0GX.....224,114	S52P.....A 534,378	EV2A (EW2AA).....A 3,062,496	DR1A.....24,285,248
OG6A (OH6QU).....3,375,540	*LY3ID.....162,486	EW6DX.....28 143,576	QQ5M (ON5Z0).....28 287,280	LZ9W.....19,377,645
9A7D (9A2SD).....3,054,744	*ER1RR.....128,525	DH8BQA.....28 137,632	EA5FID.....21 563,746	HG80HQ.....15,510,742
IO3J (IV3ZXD).....2,233,153	*UT3EK.....125,481	HA8KW.....21 325,650	9A/VE3ZIK.....14 1,665,528	LX7I.....14,790,657
SX1L (SV2FWV).....2,187,584	*SM0Q (SM00GQ).....108,885	HG3IPA (HA3JB).....21 298,452	9A3MA.....7 608,685	OM0M.....14,410,494
SP4TKR.....2,042,586	*UA4LW.....107,939	UA6LCJ.....14 258,336	HA3LI.....3.5 809,348	E77DX.....13,212,146
IZ1GAR.....1,891,642		HA808MT.....14 248,040		LY7A.....12,697,272
	14 MHz	EU8RZ.....7 618,184	LOW POWER	OL3Z.....9,712,920
3.5 MHz	*HG4F.....1,446,530	YU1LM.....7 293,828	*EA7TN.....A 2,337,220	
TM5Y (F8DBF).....1,983,366	*S51W.....1,169,512	LY2GW.....3.5 186,238	*LZ08KM (LZ3YY).....A 1,681,728	
OL4W (OK1IF).....1,317,801	*LZ5XQ.....1,007,424	DL9YX.....1.8 32,085	*PG7V.....A 1,647,354	



The big antennas at 9A7D were operated by 9A2SM to fourth place in the world on 7 MHz.

made a great score to take the win on 80 meters and set a new world record. Ozer, TA2RC, set a new world record for low power on 160 meters.

QRP

We received 210 logs in the QRP category this year. TI5N, operated once again by Bill, W8QZA, took the top honors for the All Band category. Very close behind was Stefan, OM7DX. Third place went to Antonin, OK7CM, the winner of the SSB contest. Igor, EW6DX, was tops among the 21 logs for single-band 10 meters. Anatoly, EU8RZ, made an incredible 618k points on 40 meters to set a new world record.

Tribander/Single Element

The Tribander/Single Element category is open to single-operator entrants in the High and Low Power categories with limited antennas. It's quite a popular category, with 410 entries this time. Ricardo, CT3KN, easily took the world high score for High Power. Eugene, RU9CK, lead a competitive group including UP4L, OJ0B, S53MM, and OM7CW. Leader of the Low Power entries was VE3DZ/VP9.



One of the most accurate operators in the contest—Mike, N2GC, operating as WN2O.

Rookie

The Rookie category had only 34 entries on CW, but we were very happy to receive each of them. It's not easy to be a newcomer to CW contesting in the middle of the high speeds, unusual callsigns, and complex exchange of the WPX Contest! The top scorer, with a very fine 2.9-million points, was 18-year-old Alex, RK9AJZ. In second with more than 1-million points was Victor, RX3ZX. In third place was another young operator, 12-year-old Sergey, RN3DBA! We were considering replacing the Rookie category with a young operator's category, but maybe there is no need!

Multi-Operator

The Multi-Single category continues to be extremely competitive. The top three finishers all broke the world record and had scores on par with the other multi-op classes as well! The winner, with the highest score of any multi-op category, was CT9M operated by the Slovak team of OM3GI, OM3NA, OM3LA, OM3RM, and OM7JG. Second place went to the Russian duo of RD3AF and RZ3AZ oper-

ating as EF8M. The third record-breaking score was from P33W operated by RA6LBS, RK3AD, RU4HP, RW4WR, and RA3AUU. The top European was OM7M, in fifth overall. The top USA score was by WE3C, who finished tenth in the world.

The Multi-Operator Two Transmitter competition was fierce, with the top four scores coming from four different continents. Taking a break from his normal single-op efforts, Hrane, YT1AD, led a four-operator team to victory from 3V8BB. They took full advantage of being close to Europe with a balanced number of QSOs across all bands. Second place went to another four-person team operating from 6Y1V. Their consolation prize was a new North American record for the category. In third was ES9C operating from the station of ES5TV. Even with 1400 more contacts and 100 more multipliers than those ahead of them, the points-per-contact disadvantage could not be overcome. Even so, they set a new European record. Close behind was P40L, who made only one contact on 10 meters! The top USA score was KD4D/3 operating from N3HBX.

The team at DR1A won the world high in the Multi-Operator Multi-Transmitter category and set a new European record with over 26-million points. The second-place team of LZ9W suffered through multiple power outages, but still made a nice score in spite of losing six hours of operating time. HG80HQ finished third with a team of only five operators. The top USA score was submitted by NR4M.

New Records

There were four new world records this year. TM5Y broke the 80-meter record set back in 2002 by over 500k points! With 24-million points, the group at CT9M smashed the seven-year-old Multi-Single record of P49V by more than 25%. On Low Power, 3V8SS set a new standard on 80 meters, while TA2RC did the same on 160 meters.

Congratulations also to these new regional record holders:

- USA, 3.5 MHz, W3BGN
- Africa, 3.5 MHz, 7X0RY
- Asia, Multi-Single, P33W
- Europe, 1.8 MHz, SN7Q (SP7GIQ)
- Europe, 7 MHz, OK5R (OK1RI)
- Europe, 7 MHz QRP, EU8RZ
- Europe, Multi-Two, ES9C
- Europe, Multi-Multi, DR1A
- North America, Multi-Two, 6Y1V

USA TOP SCORES

SINGLE OPERATOR ALL BAND	
K1ZM	8,211,332
NE4AA (K1TO)	7,864,538
K1LZ	7,299,000
WC1M	7,192,614
NY4A	7,040,844
WM3T (N3KS)	7,028,730
NN5J (N5DX)	5,589,816
AK1W (K5ZD)	5,325,880
AA3B	5,178,468
K3ZO	4,714,752
28 MHz	
NN5P (W5MJ)	42,600
21 MHz	
NR5M (NM5M)	772,317
W4KZ (N04I)	716,856
WU3A/1 (W3UA)	621,824
NJ4U (K4EA)	555,464
WN1GIV/4 (N4BP)	470,136
14 MHz	
N04I (VE7Z0)	3,210,000
K8IA/7	1,307,544
W9WI/4	1,054,409
NN4N (W4SD)	858,520
WC6H	624,360
7 MHz	
W14R (N6GQ)	2,248,797
KDRF	2,000,768
K6NA	1,906,940
NS1S/4 (K1ZZI)	1,562,346
W3YY/4	1,142,054

3.5 MHz	
W3BGN	641,092
1.8 MHz	
N3UA/4	33,306
LOW POWER SINGLE OPERATOR ALL BAND	
*NV1N (N1UR)	3,276,504
*WJ9B/4	2,872,404
*WK2G/4	2,433,699
*K9QVB	1,518,155
*N2WN/4	1,460,556
*N5DO	1,268,370
*KV8Q	1,163,331
*WD4AHZ	1,126,320
*N3CZ/4	1,111,887
*WA1S	924,766
28 MHz	
*NA4W (K4WI)	123,200
21 MHz	
*W9Ily	20,680
14 MHz	
*WA1FCN/4	629,280
*KR2AA	508,392
*KJ9A	489,942
*NT2Y	387,838
*W2AW (N2GM)	331,038
7 MHz	
*N4NX	465,771
*NS3T	326,211
*NSER	287,358
*AA7AX	282,494

3.5 MHz	
*W8TM	229,218
*AB1J	23,478
1.8 MHz	
*K3BU/2	80
QRP/p	
KR2Q	A 886,542
N7IR	A 377,000
NA0CW (N0KE)	A 368,401
AA1CA	A 266,855
W8WV	A 218,652
K8ZT	A 172,725
NA4BW	A 118,440
W8REI	A 100,084
NE1RD	A 85,140
K01H	A 69,860
K6MI	28 4
WA6FGV	21 17,072
N0LY	14 94,572
KT8K	14 88,765
KT5E/0	7 98,208
SINGLE OPERATOR ASSISTED	
K3WW	A 5,111,106
WR3Z	A 3,994,080
N02R	A 3,767,095
W8MJ	A 2,902,520
W8AV	A 2,869,174
NF4A	A 2,469,060
W1CU	A 2,377,650
K9CT	A 1,878,031
AB2E	A 1,755,468
KRAF	A 1,624,328
WA3AAN	14 231,168

3.5 MHz	
W2IRT	7 301,840
K4XD	3.5 131,544
LOW POWER	
*N2BA	A 1,391,652
*WK5X/4	A 492,250
*K4FPF	A 403,788
*W4EE	A 383,098
*K5GM	A 352,525
*N4KG	A 349,650
*W5GZ	14 60,225
*K2DB	7 7,783
TRIBANDER/SINGLE ELEMENT	
WN2O (N2GC)	A 2,972,749
WT4PF (N4PN)	A 2,819,971
NF4A	A 2,469,060
W1CU	A 2,377,650
KZ5D	A 2,347,860
N1WR/3	A 2,297,109
KFBT	A 2,097,186
AB2E	A 1,755,468
KR4F	A 1,624,328
K4PV	A 1,524,600
WN1GIV/4 (N4BP)	21 470,136
K8IA/7	14 1,307,544
AA4VV	7 151,536
LOW POWER	
*N2BA	A 1,391,652
*KV8Q	A 1,163,331
*WD4AHZ	A 1,126,320
*N3CZ/4	A 1,111,887
*WA1S	A 924,766
*K0PK	A 733,503
*N8NA/3	A 666,885
*W1TO	A 595,680
*NA4K	A 569,940

3.5 MHz	
*WT5R (W5ZL)	A 542,346
*WA1FCN/4	14 629,280
*AA7AX	7 282,494
*AB1J	3.5 23,478
*K3BU/2	1.8 80
ROOKIE	
*KA1G	A 103,455
*N3ZK	A 101,472
*KJ9A	14 489,942
MULTI-OPERATOR SINGLE TRANSMITTER	
WE3C	9,344,146
KT3Y/4	8,113,920
N5RM	5,524,881
KD2HE/3	3,943,798
W7VJ	3,350,130
AD6E	3,167,440
WN9O	2,951,200
N4CW	2,873,130
NK5Q	2,401,240
NM1Z	2,234,571
MULTI-OPERATOR TWO TRANSMITTER	
KD4D/3	14,116,239
WW4E	7,967,940
W7RN	6,104,163
NX5M	5,601,292
WX5S/6	3,741,920
MULTI-OPERATOR MULTI-TRANSMITTER	
NR4M	15,425,340
N0NI	4,076,897
*Low Power	

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HF/6m 200W Auto Tuner

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



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- USB to UART bridge by CP2102 single chip.
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Excellent high power antenna tuner covers whole HF band allows power up to 800W(PEP). Solid waterproof ABS plastic case fits for the toughest environments. Very fast tuning.

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SSB & CW COMBINED CLUB SCORES

United States Club Scores		
Club Name	Entries	Total Score
POTOMAC VALLEY RADIO CLUB.....	119	149,872,160
NORTHERN CALIFORNIA CONTEST CLUB.....	83	117,348,455
YANKEE CLIPPER CONTEST CLUB.....	72	92,586,379
FRANKFORD RADIO CLUB.....	38	69,964,196
FLORIDA CONTEST GROUP.....	74	68,230,258
SOUTHERN CALIFORNIA CONTEST CLUB.....	37	36,918,618
SOCIETY OF MIDWEST CONTESTERS.....	52	35,751,259
CENTRAL TEXAS DX AND CONTEST CLUB.....	20	34,868,939
SOUTH EAST CONTEST CLUB.....	27	34,394,348
MAD RIVER RADIO CLUB.....	21	26,434,587
TENNESSEE CONTEST GROUP.....	36	17,192,476
WESTERN WASHINGTON DX CLUB.....	17	15,031,290
GRAND MESA CONTESTERS OF COLORADO.....	19	14,874,219
CENTRAL ARIZONA DX ASSOCIATION.....	27	10,464,051
CTRI CONTEST GROUP.....	10	8,916,147
NORTH COAST CONTESTERS.....	4	7,986,158
ALABAMA CONTEST GROUP.....	17	7,388,136
MOTHER LODGE DX/CONTEST CLUB.....	4	6,892,930
CAJUN CONTEST CLUB.....	4	6,868,180
OKLAHOMA DX ASSOCIATION.....	6	6,387,069
NORTH TEXAS CONTEST CLUB.....	12	6,366,580
HUDSON VALLEY CONTESTERS AND DXERS.....	18	5,941,749
KANSAS CITY DX CLUB.....	3	5,533,254
MINNESOTA WIRELESS ASSN.....	29	5,171,457
WILLAMETTE VALLEY DX CLUB.....	13	4,314,157
UTAH DX ASSOCIATION.....	12	2,654,700
SOUTHWEST OHIO DX ASSOCIATION.....	3	2,412,676
CAROLINA DX ASSOCIATION.....	17	1,818,527
NORTHERN ARIZONA DX ASSN.....	3	1,504,842
SOUTHEASTERN DX CLUB.....	5	1,400,177
SOUTHERN CALIFORNIA DX CLUB.....	4	1,324,623
SPOKANE DX ASSOCIATION.....	5	1,283,271
ROCHESTER (NY) DX ASSOCIATION.....	7	1,199,481
ORDER OF BOILED OWLS OF NEW YORK.....	5	1,036,668
KENTUCKY CONTEST GROUP.....	5	826,133
WEST PARK RADIOPS.....	9	714,994
WIRELESS ASSOCIATION OF SOUTH HILLS.....	3	704,968
WESTERN NEW YORK DX ASSOCIATION.....	4	678,594
SOUTH JERSEY DX ASSOCIATION.....	3	646,245
NORTHERN ROCKIES DX ASSOCIATION.....	3	551,814
STERLING PARK AMATEUR RADIO CLUB.....	3	548,687
NORTH CAROLINA DX AND CONTEST CLUB.....	3	528,282
BERGEN ARA.....	6	486,751
METRO DX CLUB.....	6	271,024
LOW COUNTRY CONTEST CLUB.....	3	269,985
MAGNOLIA DX ASSOCIATION.....	3	187,557
PORTAGE COUNTY AMATEUR RADIO SERVICE.....	7	144,108
REDMOND TOP KEY CONTEST CLUB.....	6	107,457

DX Club Scores		
BAVARIAN CONTEST CLUB.....	143	182,067,552
ARAUCARIA DX GROUP.....	42	160,003,209
RHEIN RUHR DX ASSOCIATION.....	139	152,347,850
CONTEST CLUB FINLAND.....	36	101,238,866
CONTEST CLUB ONTARIO.....	57	83,657,168
LU CONTEST GROUP.....	28	83,262,283
SLOVENIA CONTEST CLUB.....	43	72,749,492
YU CONTEST CLUB.....	19	72,002,959
CROATIAN CONTEST CLUB.....	21	60,542,243
UKRAINIAN CONTEST CLUB.....	68	60,481,925
URAL CONTEST GROUP.....	33	60,036,701
LZ CONTEST TEAM.....	4	55,401,810
BLACK SEA CONTEST CLUB.....	38	51,986,145
KAUNAS UNIVERSITY OF TECHNOLOGY RC.....	31	47,155,828
HUNGARIAN DX CLUB.....	12	43,335,221
SP DX CLUB.....	59	36,278,471
TARTU CONTEST CLUB.....	5	34,710,199
LITHUANIAN CONTEST GROUP.....	17	34,634,898
LATVIAN CONTEST CLUB.....	34	28,518,994
SOUTH URAL CONTEST CLUB.....	19	25,660,169
RUSSIAN CONTEST CLUB.....	35	25,061,910
WORLD WIDE YOUNG CONTESTERS.....	30	24,767,456
BOSNIA AND HERZEGOVINA CONTEST CLUB.....	6	23,301,489
SKY CONTEST CLUB.....	10	22,863,785
BRITISH COLUMBIA DX CLUB.....	10	22,236,824
LA CONTEST CLUB.....	7	17,622,757
WEST SERBIA CONTEST CLUB.....	5	16,486,346
ALRS ST PETERSBURG.....	12	15,046,816
FOX CONTEST CLUB.....	13	14,874,626
CONTEST GROUP DU QUEBEC.....	11	13,813,239
VK CONTEST CLUB.....	21	13,317,168
GUARA DX GROUP.....	8	11,918,034
RIO DX GROUP.....	13	11,278,604
CENTRAL SIBERIA DX CLUB.....	9	11,055,578
LES NOUVELLES DX.....	4	10,730,819
RADIO CLUB VENEZOLANO.....	4	8,754,715
BEKASI DX CONTEST CLUB.....	5	8,612,313
RADIOCLUBUL RADU BRATU.....	4	8,427,883
VRHNIKA CONTESTERS.....	13	8,389,290
BELOKRANJEC CONTEST CLUB.....	5	8,369,737

MARITIME CONTEST CLUB.....	10	7,999,681
BASHKORTOSTAN DX CLUB.....	9	7,864,773
TEMIRTAU CONTEST CLUB.....	8	7,799,236
CHILTERN DX CLUB.....	8	7,692,060
ORENBURG CONTEST CLUB.....	6	7,397,807
NOVOSIBIRSK CONTEST CLUB.....	5	6,137,116
BELARUS CONTEST CLUB.....	4	5,937,101
CROATIAN DX CLUB.....	3	5,569,144
TOP OF EUROPE CONTESTERS.....	3	4,962,866
MICHURINSK CONTEST GROUP.....	3	4,927,863
EAST COAST CANADA CONTEST CLUB.....	4	4,882,514
GRUPO DXXE.....	6	4,577,032
PERM RADIO CLUB.....	5	4,055,193
YO DX CLUB.....	4	3,901,922
STAVROPOL REGION RADIO CLUB.....	8	3,666,672
CE CONTEST GROUP.....	9	3,642,172
SHAKHAN CONTEST CLUB.....	3	3,229,485
SPEKTR.....	5	3,209,232
KKKK CONTEST CLUB KRASNODARSKOGO KRAYA.....	12	2,895,227
TUPY DX GROUP.....	6	2,661,041
MOSCOW RADIO CLUB.....	6	2,634,186
SP CONTEST CLUB.....	10	2,572,126
NOORD-OOST LIMBURG.....	4	2,518,926
RADIO CLUB DE HONDURAS.....	3	2,456,916
LYNX DX GROUP.....	3	2,334,368
MAYCOPSKIJ RADIO CLUB.....	11	2,227,991
CSM BAIA MARE.....	3	2,143,334
MT. RF.....	4	2,139,556
CONTEST CUMBRIA.....	3	1,951,077
AMATEUR RADIO MOLDOVA.....	4	1,942,644
SIAM DX GROUP.....	6	1,861,133
RADIO CLUB PARMA.....	4	1,859,675
ALBERTA CLIPPERS.....	4	1,824,543
DANISH DX GROUP.....	7	1,799,943
RU-QRP CLUB.....	11	1,670,391
VLADIMIR RADIO CLUB.....	13	1,661,535
SMOLENSK CONTEST CLUB.....	4	1,632,764
CSTA BUCURESTI.....	5	1,623,606
TIKIRRIKI CONTEST CLUB.....	6	1,549,108
UA2 CONTEST CLUB.....	7	1,517,661
RADIO AMATEUR SOCIETY OF THAILAND.....	4	1,449,910
KIEV CONTEST GROUP.....	3	1,449,560
YAMAL RADIO CLUB.....	6	1,352,971
JIANGSU DX CLUB.....	4	1,318,926
CSTA SUCEAVA.....	4	1,268,622
NOR NIZHEGORODSKOE A.R. COMMUNITY.....	3	1,182,760
TIRAS.....	3	1,174,357
CRIMEAN CONTEST CLUB.....	3	1,169,102
NOVOKUZNETSK RADIO CLUB.....	8	1,157,872
GRUPO PORTUGUESE DX.....	3	1,142,534
ALASKA DX CLUB.....	3	1,134,931
UNITED DX CLUB.....	4	1,076,743
HAROS RADIO CLUB.....	3	1,052,805
YAROSLAVL RADIO CLUB.....	7	1,047,712
MARCONI CONTEST CLUB.....	3	1,026,738
SK2AT FORENINGEN UMEA RADIOAMATORER.....	3	984,775
CS CRISUL ORADEA.....	5	931,709
DONBASS.....	5	878,436
ISRAEL AMATEUR RADIO CLUB.....	4	843,696
SASKATCHEWAN CONTEST CLUB.....	3	803,824
POISK.....	4	796,397
BALKAN CONTEST CLUB.....	5	687,772
OBNSK QRU CLUB.....	6	658,548
OMSK RADIO CLUB.....	4	529,303
SP-CW-C.....	6	518,988
PODOLSK.....	5	505,958
KIROV RADIO CLUB.....	3	433,511
CSM CLUJ-NAPOCA.....	5	430,832
R4F-DX-G.....	5	424,472
CS YO HD ANTENA DX GRUP DEVA.....	4	423,913
AFARU.....	3	416,428
PLIS PLAI CONTEST TEAM.....	3	406,947
URE-CARTAGENA.....	4	401,553
DOMODEDOVO.....	3	401,394
CSM CRAIOVA.....	7	400,232
MID LANARK AMATEUR RADIO SOCIETY.....	3	394,626
AMSTERDAM DX CLUB.....	6	360,685
SPORT CLUB MIERCUREA-CIUC.....	3	322,511
TERA RADIO CLUB.....	3	312,895
ARCK.....	7	303,331
BEEMSTER CONTEST CLUB.....	3	301,927
RADIO KLUB ZAGREB.....	3	270,380
RADIOAMATOR.....	3	256,531
SK5DB UPPSALA RADIOKLUB.....	3	250,717
UKRAINIAN YOUTH CLUB.....	3	169,807
KRIVBASS.....	3	158,050
HERSTMONCEUX MEGACYCLES.....	5	146,993
GRUPO ARGENTINO DE CW.....	4	142,738
TARL.....	4	131,308
NANAIMO AMATEUR RADIO ASSOCIATION.....	3	102,192
BAHIA DX GROUP.....	3	95,296
CS SILVER FOX DEVA.....	3	89,900
CHINESE RADIO SPORTS ASSOCIATION.....	3	48,004

Rules Changes

WPX CW 2008 was the first major CW contest to occur after the CW Skimmer technology created by VE3NEA captured the attention of contesters. In the absence of any rule against its use, an announcement was made that CW Skimmer could be used by single-operator entrants. A few operators did give it a try, but it is not believed to have impacted the order of finish of any of the world or regional competitions. Following the lead of the CQ WW Contest, the WPX rules for 2009 have been changed to limit the use of CW Skimmer to the Assisted and Multi-Operator categories.

There are a number of rules changes for the 2009 contest. Pay particular attention to the terms of competition, rules for Multi-Single, and changes to the Club category. See the complete rules on the web at <www.cqwp.com>; <www.cq-amateur-radio.com>, and in the February issue of CQ magazine.

Final Thoughts

The CQ WW WPX Contest lost a great friend this past year. CQ Contest Hall of Fame member Paolo, I2UIY, became a Silent Key in September. His participation in this contest as a member of the W7RN multi-op crew represented one of his final contest operations. We will miss Paolo's enthusiasm and his help.

There are many people operating behind the scenes to help produce the CQ WPX Contest. Thanks to W4AU, K1ZE, WA1Z, K2BB, NJ1F, W1UE, WO1N, WC2L, N8RA, WB1DX, W1TO, N1NK, W2JU, W1KQ, KM1P, W1KM, and W1ZT for their work typing in all of the paper logs. I also received help from K1PX and F6BEE on updating the score records. My job is made much easier with the assistance of Doug, K1DG, who manages the plaque program, and Barry, W5GN, who coordinates all of the certificate distribution. Trey (aka Mr. Cabrillo), N5KO, keeps the log-submission robot running. K5TR and KM3T provide incredible IT support for the website. Most of all, I have to thank K1EA for his hours of software development and responses to my requests.

The 2009 WPX CW Contest will be held on May 30 and 31. Submit your WPX CW logs to <cw@cqwp.com>. Please join us in the 2009 contest! 73, Randy, K5ZD

QRM

What a blast! First contest since NA Sprints from XE1/NV1P in 1992; so much has changed since then. Brought my 9- and 12-year-old sons along to get the next generation hooked on contesting. Thanks to all who recognized the 4U1ITU callsign and apologies for my rusty CW. See you in the next one! ... 4U1ITU (Ken/NV1P op). Another nice contest! I had some small problem with my radio (originally I planned to be active on 40m) but thanks to Rolando, 9A3MR, I was active from Murter Is. with his equipment. ... 9A/VE3ZIK. Great conditions. 10m was hot like in its best days. ... 9A7T. Worked an ICOM 718 at 5 watts to an attic dipole. Challenging, but fun. Amazing to be able to work Europe and other DX with this setup. ... AD5QB. Finally some good conditions! ... AK1W.

I am glad of contacting ham around the world. See everyone next contest. ... BV4VR. My first CW contest. It was fun although I didn't operate as much as I wanted. My CW skills are not good but managed to make 345 Qs. Nice to see all bands open. ... CT1ENQ. Many thanks to Girts YL2KL, Luca IK2NCJ, and Carlos D44AC, for possibility to operate from this fantastic position at Monte Verde, St. Vicente island. It was a great fun. ... D4C (Jurgis, LY2CY). Very nice sporadic-E made the single band QRP entry on 10m very worthwhile. Never thought to make over 430 QSOs with 5 watts and a 3-ele Yagi running my good ol' FT-817. Thanks everybody! ... DH8BQA. Don't forget: The fun is the power! ... DK3RED. Thanks guys for pulling me through. I am very grateful you were so determined to copy my QRP signal. Picture it: you could copy a station 25 dB below your own signal level. Please accept my sincere congratulations ... DL9YX. I definitely love this

contest! Conditions were outstanding, including nice openings on 10m all weekend. Most operators were very impressive and did not confuse operating skills with transmitting speed. ... F5SGI. Great to hear 15m and 10m buzzing with short-skip signals, as well as a few DX stations. Operated for 35 hours across all bands. But 20m remains the power-band until the sunspots return for real. ... G3TXF. 10m open at midnight in GM-land during sunspot minimum! Well, it was true. Maybe these contests create their own propagation after all. I used an IC-7400 at 5W, a Windom at 30 ft., and SD to log, but the most important was noise-cancelling headphones for the teenage QRM! ... GM4UBJ. Maybe the new sunspots are starting? Let's hope so! ... H7/K9GY. First participation from our new contest station. Only wire antennas have been used: The delta loops worked great! Due to QRL problems the second operator couldn't participate. ... HB9LL. After many years

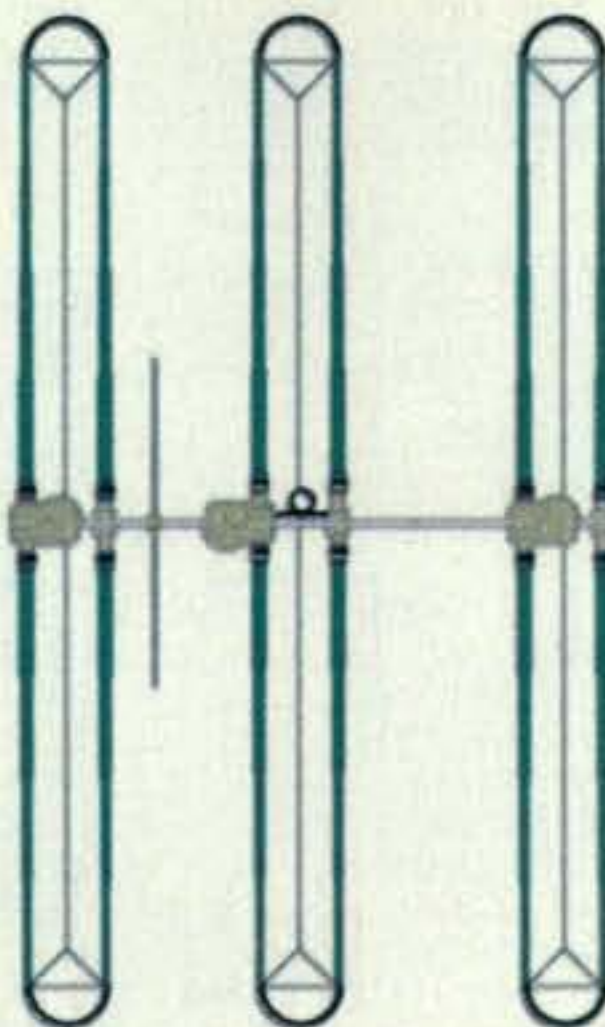
SteppIR™ Antennas

8 bands with SERIOUS GAIN on an 18' boom?

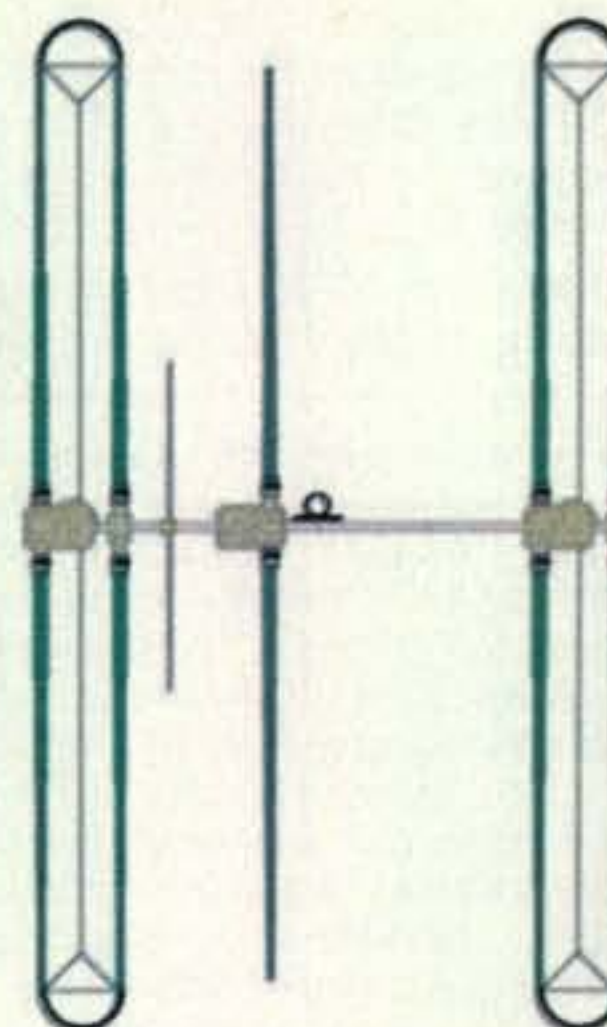
Competitive contesting from a postage stamp size lot?

INTRODUCING THE DREAM BEAM 18

DB-18 E



DB-18



Antenna Specs	DB-18 E	DB-18
Weight	78 lb / 35.38 kg	70 lb / 31.75 kg
Wind load	12.1 sq ft / 1.12 sq m	10.1 sq ft / .93 sq m
Turning radius	21.58 ft / 6.57 m	21.58 ft / 6.57 m
Frequency coverage	6.8 MHz – 54 MHz	6.8 MHz – 54 MHz
Boom length	18 ft / 5.48 m	18 ft / 5.48 m
Power rating	3 KW continuous	3 KW continuous

Dollar for dollar the best antenna value in the world!

DB-18E \$2950.00

DB-18 \$2550.00

Log-Checking Honor Roll

The 2008 CQ WW WPX CW Contest received 3148 logs containing 2,012,878 QSOs. The log-checking software was able to cross-check 97.4% of the QSOs with another log! Callsigns and exchanges were fully checked. We ask everyone to submit their log, as even small logs contribute to the overall quality of the log-checking process.

The Top 20 Single Operator All Band entries had an average score reduction of only 5.3% after penalties (about one-half percent higher than the SSB contest). The average for all Single Operator entrants was 12.4%. We urge every competitor to use these results as a benchmark for measuring their personal progress toward operating perfection. Detailed log-checking reports may be requested by sending an e-mail to <k5zd@cqwpw.com>.

Speaking of perfection, there were 106 entries with no score reductions. The top five "golden log" scorers (with number of contacts) were UA6LCJ (526), W1ZT (315), N3GJ (240), 9A2EY (225), and W0EB (219).

Just as important as copying information correctly is sending it. There were 133 entries that caused no errors in other logs. The top scorers among these golden transmitters were N5JR (164), YU7D (171), LZ1YQ (123), DM2RN (130), and UN8GA (117).

As a figure of merit, we looked at the top scorers in each category that had more than 1500 contacts in the log to see which was the most accurate.

Single Op All Band High Power, WN2O (0.7%)

Single Op All Band Low Power, OL6P (1.3%)

Single Op Assisted, OH6MW (1.3%)

Multi-Single, SN9F (3.8%)

Multi-Two, KD4D/3 (4.3%)

Multi-Multi, DR1A (4.6%)

Congratulations to all of these operators who demonstrated such extraordinary skill!

higher bands open! A good job also on lower bands. Very nice contest with many stations. ... **I2AZ**. Many new prefixes for me. I think receive many QSLs for my WPX award. Thank you. ... **IK2CZQ**. I entered on single-op 160m low power. The condition between the U.S.A. and JA was not good. BI could only make a QSO with W2VJN. I use M.V. (Micro Vert) antenna for 160m in this contest. It was very FB. Its gain was nearly equal full-size dipole. And I used a transceiver K2. It was the best rig for 160m! ... **JE1SPY**. I was happy to meet my goal of beating last year's score by a substantial margin. Not as many Qs this year but higher points/QSO did the trick. Also nice to see some propagation on 15 & 10 from this corner of the Black Hole. Thanks for a great contest! ... **K0PK**. Contesters MAKE their own band conditions! ... **K9WWT**. My highest number of QSOs so far in a CW contest. And that's in spite of my dead rotator leaving my beam pointed SW! Lots of fun, and thanks for all the contacts. ... **KA1ARB**. Terrible condx from the West Coast on 10/15m! 20m was the money band. There was an unexpected Russian/East EU opening late Friday night on 20m. A few EU on 40m came thru. Hopefully, next year there will be those elusive things known as sunspots. ... **KC6X**. Seems like more guys are taking the exchange seriously. I had more requests for multiple repeats than ever before. Or perhaps I am just weaker than ever before. I even had two guys tell me, after getting my call right away, that they had no copy on my serial number and I therefore voided the QSO. This is a good change! ... **KR2Q**. I bettered last year's QSO count

OLD CQ WW WPX CW CONTEST ALL-TIME RECORDS

The contest is held each year on the last full weekend of May. The All-Time Records are updated and published annually. Data shown below is: callsign, year of operation, total score, and number of prefix multipliers.

WORLD RECORD HOLDERS Single Operator

1.8	IH9/OL5Y('98)	341,068	182
3.5	TM5Y('08)	1,983,366	567
7.0	LU1IV('97)	7,671,456	702
14	4L8A('06)	6,083,910	870
21	ZX5J('05)	7,061,000	920
28	ZX5J('02)	6,787,440	857
AB	D4B('04)	16,619,000	1000
Multi-Operator Single Transmitter			
CT9M('08)		24,125,802	1182
Multi-Operator Two Transmitters			
EF8M('07)		33,324,192	1256
Multi-Operator Multi-Transmitter			
HC8N('99)		54,697,072	1264

U.S.A. RECORD HOLDERS Single Operator

1.8	K1ZM('95)	40,446	107
3.5	W3BGN('08)	641,092	332
7.0	KG1D('05)	3,594,822	651
14	N2NC('06)	5,418,630	915
21	NU5A('99)	4,411,299	789
28	WW4M('01)	2,547,046	674
AB	AK1W('05)	8,650,704	916
Multi-Operator Single Transmitter			
KM9P('01)		10,691,724	964
Multi-Operator Two Transmitters			
KM4M('04)		16,283,745	1095
Multi-Operator Multi-Transmitter			
KM3T('01)		21,103,320	1110

CLUB RECORD

Northern Calif. Contest Club('02).....253,543,497

WPX (Prefix) RECORD

DR1A('08).....1313

QRP/p RECORD

P40W('97).....4,018,208

CONTINENTAL RECORD HOLDERS

AFRICA

1.8	IH9/OL5Y('98)	341,068	182
3.5	7X0RY('08)	1,701,260	407
7.0	IG9B('04)	5,187,819	613
14	EA9LZ('98)	5,708,498	758
21	5X1Z('01)	6,362,352	782
28	ZS4TX('01)	4,602,028	722
AB	D4B('04)	16,619,000	1000

SOUTH AMERICA

1.8	YV1OB('86)	11,550	35
3.5	YX3A('89)	1,004,060	305
7.0	LU1IV('97)	7,671,456	702
14	YW1A('91)	4,617,456	732
21	ZX5J('05)	7,061,000	920
28	ZX5J('02)	6,787,440	857
AB	P40W('94)	14,168,115	845

ASIA

1.8	4X4NJ('96)	259,420	170
3.5	TA0/Z33F('02)	1,452,552	348
7.0	9K2HN('06)	4,541,970	606
14	4L8A('06)	6,083,910	870
21	A45XR('99)	6,557,697	843
28	HZ1AB('02)	3,669,994	659
AB	4L0A('08)	11,213,664	888

MULTI-OPERATOR SINGLE TRANSMITTER

AF	CT9M('08)	24,125,802	1182
AS	P33W('08)	21,314,175	1145
EU	9A7A('01)	10,915,020	1044
NA	8P4A('02)	18,516,960	1056
OC	AH2R('01)	11,541,420	957
SA	P49V('01)	19,760,744	1034

EUROPE

1.8	SN7Q('08)	339,542	307
3.5	TM5Y('08)	1,983,366	567
7.0	OK5R('08)	5,222,912	808
14	4O3T('06)	5,313,554	986
21	9H0A('02)	5,389,008	933
28	9H0A('01)	3,965,315	841
AB	CU2A('06)	8,153,512	964

MULTI-OPERATOR TWO TRANSMITTER

AF	EF8M('07)	33,324,192	1256
AS	RT9W('03)	12,006,568	872
EU	ES9C('08)	18,557,028	1266
NA	6Y1V('08)	20,507,972	1108
OC	ZL6QH('05)	13,312,768	952
SA	HC8N('03)	30,928,268	1187

NORTH AMERICA

1.8	VA1A('99)	103,680	120
3.5	FM5BH('97)	833,490	315
7.0	V26BA('97)	6,227,550	659
14	N2NC('06)	5,418,630	915
21	ZF1A('99)	5,330,129	799
28	FM5GU('01)	2,849,769	621
AB	WP2Z('99)	12,506,280	890

MULTI-OPERATOR MULTI-TRANSMITTER

AF	6V6U('97)	9,938,896	758
AS	A61AJ('02)	42,766,232	1244
EU	DR1A('08)	24,285,248	1313
NA	6Y2A('02)	38,821,328	1274
OC	ZL6QH('04)	16,143,840	1010
SA	HC8N('99)	54,697,072	1264

OCEANIA

1.8	KH6ND('07)	22,100	50
3.5	KH6ND('05)	476,928	207
7.0	ZM3A('07)	6,043,950	666
14	KH6ND('03)	4,126,690	730
21	KH6ND('99)	6,107,256	813
28	KH6ND('00)	1,523,008	424
AB	KH6ND('02)	7,996,774	862

QRPP

AF	5Y4FO('92)	649,057	311
AS	ZC4BS('02)	2,515,388	521
EU	LY5A('01)	2,331,414	646
NA	TI5X('01)	2,568,470	615
OC	FO8JP('86)	572,131	259
SA	P40W('97)	4,018,208	632

by 60 contacts. First time calls were 18%. My morning hour propagation was poor. EU finally opened up late Saturday afternoon and brought in a lot of multipliers at 3 points. I had fun. ... **KS0M**. Lots of QRN on 80, especially the first night. It was nice to work Europe on 15 again for a change. Also nice to work a few stations on 10. Lots of real deep QSB throughout the entire contest here. Thanks for all the QSOs and I'll see you all next year. ... **KV8Q**. Still love contesting at my age of 89. ... **LY1BX**. Suprising opening on 10m. ... **LZ1MS**. I hope to improve. Sri for my rusty CW skills. Thanks to all for all points. Thanks Bob, Andy, Stavros, Andrew, and G0KPW for use of station in test

setup. 73 all and CU. TU all M6T/KPW team for support. ... **M0ITY**. Nice to be able to use all the bands. 10m was a nice surprise. Condx very good the first day. Second day was a 1-pointer day until the last few hours when 20m opened to EU nicely. Got a late start and quit a bit early to mow the yard before the rains came again. ... **N8BJQ**. What a great contest and operators. My first contest with the FT-950 which was a joy to operate. Ran 100W to either a 10-15-20 trap dipole or a 160m center fed Zepp for 40 and 80 ... **N9AUG**. This was my first effort in WPX CW and I had a ball. Openings on 15 and 10m made it interesting. My QRP signal and G5RV made it to Hawaii for the first time

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Andy, YO3JR, operated as YR7M to finish in fifth place Europe in the Single Operator All Band category.

in years. Perhaps we've finally turned the corner! I really enjoy a contest where everybody can work everybody. I can't wait until next year! ... **NE1RD**. This is the second WPX CW that we've had the pleasure of hosting an op from another country. This year Nodir, EY8MM, operated the contest with us. As everyone else noted, condx were tremendous for being at the bottom of the cycle. We've got a lot of antenna work to do yet, but what we've done has really paid off. Thanks to Steve, NR4M, for hosting us again. ... **NR4M**. Extremely good condx over this contest for in this minimum solar activity. 20m band was open overnight to W, VE (incl. W6, VE5), CX, PY, LU, JA, 9M, BY, and EU also! Only the 100W out was not legible for many fine DX stations. Overall, I am satisfied with my results, and I am 72 yrs old. ... **OK2QX**. Limited MM setup with fantastic hamfest spirit made this contest memorable. Lack of equipment and antennas was replaced with delicious food and cooking service by OM8KW/OM8YL. High activity and nice E-layer openings on 10

and 15m were totally unexpected. 30 USA + 31 JA on 10m, as well as 105 USA + 93 JA on 15m proof the nice condx. A special thanks goes to Yogi, OM4KW, who was the headhunter for this event. ... **OM0M**. Very exciting competition! Ten meters was open for Europe but unfortunately not for DX. Be patient! Good condx will be back soon. ... **ON3ND**. Poor conditions from South America, but it was still a lot of fun. ... **P40A**. Only goal here was to make more QSOs than last year (679 in 2007). Started serious contesting 2 years ago with the challenge to use LP/dipoles only. First time I made more than 1000 QSOs with setup. What a feast on 10 (15) but 20 in particular which was "open" to U.S. till early morning. Best moment wkg B4TB on 20m Sunday evening high in the band. Cu in 2009 ... **PA3ARM**. Thanks to all calling me. It was my first experience in Tribander category. Nice propagation on 10 meters! I love WPX Contest. CW forever! ... **RV2FW/1**. Nice contest! What a happiness to be a mult! Really helped especially at the end of the contest! ... **RV6LFE**. After 30 years with QRP tried Low Power this time and it was fun. Very relaxing on the low bands, not much difference on the higher ones. ... **SM3C**. Ten was open two days but mostly to EU and AS with some AF/SA, good activity on the band. Really missed NA. Anyway, much fun as usual! ... **UR5IKN**. Enjoyed listening to the big guns operate, and the old-style hand logging. ... **VE1AYY**. Did somebody cut my coax on Sunday morning? ... **VE7XF**. Band conditions poor, particularly contacts to Europe were very difficult from VK2! ... **VK2GR**. Enjoyed a single band entry, with a lot of power failures and few QSOs. Nice activity. ... **VU2UR**. Highlight working M1A on 80m with 1 watt. ... **W2JEK**. I could see out my shack window a bluebird on my feed line. Every time the transmitter would key, he would hop from foot to foot and hover in the air. Then he would settle back on the feedline. He finally got tired of the hot foot and left. ... **W5RYA**. Exceptional EU propagation on 20 and even a few EUs on 15 for the first time in 2 years on 15. JA was fair on 40 and very disappointing on 15. Did not use a second station for this contest as a result of a temporary antenna switch glitch, but don't think it made as much difference as it might have under better propagation. Thanks to all who took the effort to work us, and for an exceptional team of great operators and guys. ... **W7VJ**. Great contest. Nice conditions to Europe. See you guys next year! ... **XE1ZVO**. Working with 5W is terrible in this period of very poor propagation. Anyway had a great fun. See you next time. Many thanks to the stations who copy my signal in QRM see next year. ... **YV6BXN**. Tough going with a simple 160m dipole and no propagation. Conditions were very very poor. Thanks to Les, ZL2JU, and his XYL Faye for allowing me to invade their farm. Many stations didn't want to believe we were signing "ZM" instead of "ZL." We enjoyed the battle, though! ... **ZM2AGY**. First CW event for ZM2M. First time we've had a PC network. Helps a lot. ... **ZM2M**.

(Continued on page 105)

When virtually all television broadcasters in the U.S. shut down their analog transmitters this coming February 17, the glut of perfectly good discarded analog TV sets will be a bonanza for hams. Why? Because the FCC didn't order hams to stop using analog for amateur television! Here's your opportunity to try this fun mode on the cheap!

Go ATV With Discarded Analog Televisions

BY GORDON WEST*, WB6NOA

Get set for some great deals on analog-only color TV sets. Your neighbors are likely dumping their old analog TVs in favor of a new, high-definition TV, or a simple digital-tuner TV that will get great reception with rabbit ears in the garage after the February 17, 2009 switchover from analog to digital transmission. This gives you a unique opportunity to try one of ham radio's most fascinating modes—amateur television, or ATV—at very little cost.

ATV Downconverters

The way to get started with receiving amateur television is with an *ATV downconverter*. The ATV downconverter is inexpensive and simply converts one frequency down to another. What goes in is what comes out, just at a different frequency. ATV downconverters consist of a low-noise preamplifier, mixer, and local oscillator. The analog TV set is a receiver that does all the detection, AGC (automatic gain control), and fine tuning to the downconverted signal. Most amateur television downconverters for the 70-centimeter and 900-MHz bands will output the analog TV signals to a TV tuned to analog Channel 3 or Channel 4. For 1.2-GHz and higher reception, the output of the ATV downconverter may be analog TV Channels 7 or 8 for better image rejection. Downconverters are an inexpensive way to get started with ATV reception—in the \$100 to \$150 range—with you supplying an analog TV receiver.

Here's how they work: ATV down-

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e-mail: <wb6noa@cq-amateur-radio.com>



This may become a common sight in your neighborhood as people upgrade old analog TVs to new ones with built-in digital tuners. Remember the old saying, "One man's trash is another man's treasure." You can rescue one of those abandoned TVs and, with a downconverter and 70-cm. antenna, turn it into an amateur television (ATV) receiver. (Photos by the author)

converters take a wide band of frequencies determined by the bandwidth of the pre-amp input and output tuned circuits. For 70 cm, the ATV downconverter typically tunes the entire 420–450 MHz band.

A local oscillator on the low side mixes the band down to the same input bandwidth at the difference frequency. For instance, a downconverter tuned to 434 MHz would have a local oscillator at 61.25 MHz, lower at 372.75 MHz. The TV set IF SAW filter would then reject all the signals outside of the Channel 3

bandwidth of 60 to 66 MHz. "The downconverter passes all signals going through it, including CW, radar, SSB, FM, DTV, as well as analog ham ATV," comments Tom O'Hara, W6ORG, with PC Electronics, a manufacturer and distributor of ATV gear.

Any working analog color or black-and-white television set, likely found in the trash bin, should work great with an ATV downconverter. That discarded TV may also have direct cable-television channel reception, and this opens up the capability of tuning the 70-cm band



The author's ATV station monitoring an ATV repeater. You may be able to find a good camera cheap or in the trash if someone is getting rid of a camcorder with a mechanical tape drive problem. Chances are the camera part will still work fine. Then all you will need for full two-way video capabilities is an ATV transmitter.

directly on cable TV Channels 57 through 60 when an outside 70-cm antenna is put in place of the normal cable drop. If there is a strong ham ATV station in your area on 70 cm, that old, thrown-away TV, *all by itself*, might score a usable signal on the tube!

"The best TVs for ATV downconverter reception are actually the older color TV sets that do not automatically go to a blue screen when the picture gets 'snowy,'" comments O'Hara. "ATVers like to be able to see sync bars in the noise, and rotate their antennas for highest signal strength." Even with a downconverter, the screen can go to blue when no signal is present; downconverters do not contain a Channel 3 RF modulator. A Channel 3 RF modulator generates a 61.25-MHz carrier, modulated with composite video and a 4.5-MHz FM sound sub-carrier, using 25-kHz deviation mixed.

The blue screen on analog TVs operates like a slow-acting video squelch, and many times a halfway decent analog ATV picture (P-3) never gets detect-

ed from the steady blue screen. Even if the signal is strong, tuning the downconverter too quickly won't let the TV AFC lock the picture and display it in place of the blue screen.

Older TVs also may or may not have audio and composite video inputs and outputs. If they do, you can drive other monitors or VCRs or they can be used to monitor your ATV transmitter video. (However, Tom of PC Electronics reports that he does offer a Channel 3 analog receiver with A/V outputs that can connect between the downconverter and a TV's A/V inputs.)

Finally, O'Hara notes that all is not lost if you don't live in an area where lots of people receive their TV over the air and may be replacing old analog sets. "Even though broadcast stations will switch to all digital transmission in February of 2009, new digital TVs will also have analog channel tuners built in!" comments O'Hara. Devices such as VCRs, cameras, satellite receivers, and other video equipment with a Channel 3/4 RF modulator output will necessitate the brand-

ATV Resources on the Web

<www.hamtv.com> PC Electronics home page
 <www.hampubs.com> Harlan Technologies, publisher of *ATV Quarterly* magazine
 <www.atn-tv.org> Amateur Television Network
 <www.batc.org.uk> British Amateur Television Club
 <atv-newsletter@hotmail.com> (e-mail address) Contact to sign up for free ATV newsletter

The following sites offer streaming video of individual hams' ATV transmissions, but only when the ham is on the air:

<http://wb8lga.camstreams.com> Streaming video, WB8LGA
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3CX400U7	4CX250BT	YC-130	5867A
3CX800A7	4CX250FG	YU-106	5868
3CX1200A7	4CX250R	YU-108	6146B
3CX1200D7	4CX350A	YU-148	7092
3CX1200Z7	4CX350F	572B	3-500ZG
3CX1500A7	4CX1000A	805	4-400A
3CX2500A3	4CX1500A	807	M328/TH328
3CX2500F3	4CX1500B	810	M338/TH338
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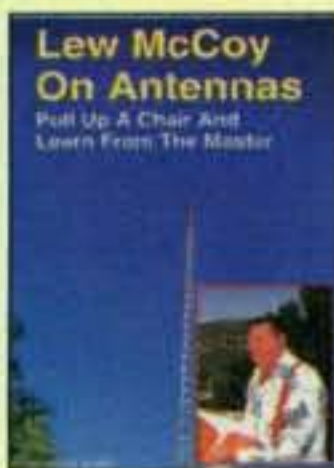


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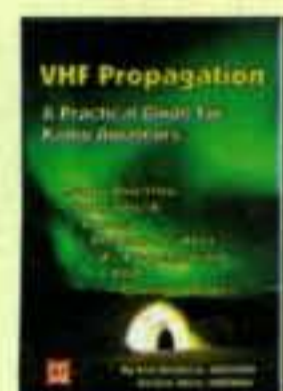


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A typical ATV downconverter from PC Electronics. This will take ATV signals from the 70-cm ham band and put them out on analog Channel 3 or 4 for viewing on a standard TV set.

new TV likely coming with Channel 3 or Channel 7 reception. Analog cable TV will also be available until at least 2012.

Look for Cameras, Too

You will likely find some old video cameras, too. Grab them up! Non-repairable cameras likely have mechanical damage to their tape mechanisms, but you won't be taping! The video and audio outputs are probably fine, and the camera will work great for transmitting ATV, too. Of course, getting fully involved in ATV will require eventually getting a transmitter as well. That will be a little more than a downconverter, but really not much in comparison to other ham gear. Receiving is a great way to start, though, as long as there is ATV activity in your area. (If there isn't, get together with a friend and pick up a couple of transmitters to go with your "surplus" camera, analog TV, and downconverter, and get some started!)

If ever you thought you might want to get into ham TV, 2009 should bring us plenty of discarded video cameras, along with thousands of perfectly good color televisions with analog Channel 3 and Channel 7/8 receivers, a perfect match to the inexpensive downconverter that only needs an outside 70-cm vertical or horizontal antenna to begin receiving local ATV ham radio pictures.



If you are using your TV set to receive regular broadcasts via cable as well, you will need one of these switches to select cable or an outdoor ATV antenna.

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Emily Stewart, KCØPTL, is the 2008 Newsline Young Ham of the Year. As a co-sponsor of the award, CQ invited Emily to write an article about the activity that earned her the title. Here is her story ... plus how you can help write the next chapter!

Building a Legacy

Ham Radio and Youth in the Heartland

BY EMILY STEWART,* KCØPTL

Ham radio is an old man's sport. At least that's the myth. After a few years of being the exception to the rule (a YL licensed at age 10), I decided to be my own "mythbuster." A small idea gathered momentum. Along the way, Kansas hams reached out to their younger family members, friends, and neighbors. Today, we have a growing group of young hams here in America's Heartland.

My own involvement in ham radio began in elementary school. When I was eight, my dad earned his license. He seemed to have fun with radios, and his interest led me to get my license a few years later. It took me three tries, but I passed the Technician test in April 2003. Since then, I've been known as KCØPTL. Soon after getting my license, it became apparent that there were not a lot of kids on the air. In my local club there were three licensed members under age 20. At most meetings I would be the only person under age 40. At local hamfests, only a few children browsed the aisles. Ham radio was a little bit lonely as a kid. It seemed to be a retiree's hobby.

None of my friends knew about amateur radio, so I decided to tell kids about my new hobby. As an elementary school and junior high student, I made ham radio presentations to my 6th and 7th grade classes. I arranged for other operators to be on the air and helped each student to make a contact using a portable radio. Gary Auchard, WBØMNA, and Dave Phillips, KEØDL, stood by on the local repeaters and talked with the students. From these two experiences I saw that kids got

*c/o CQ magazine



Photo A— Proud ham grandparents introduce their granddaughter to the microphone. Left to right: Gary Babb, KDØDXO, Cheryl Smith, KDØDYQ, Cheryl's granddaughter Darcy, and Dave Ferron, KDØDXY. (Photos by Brian Short, KCØBS)

interested if they saw ham radio in action. I also helped make a presentation to the Lansing Kiwanis club in May 2006 with Gary Auchard and my dad. These activities were fun, but they did not produce any new hams.

With the internet and iPods, not too many teenagers I knew had any interest in learning how to build their own electronics. How could I get more kids interested? Finally, I found my inspiration. An online article written by Andrea Hartlage, KG4IUM (Newsline's 2004 Young Ham of the Year), spurred me to do something more. After learning how

much she had done working with kids in Georgia, I felt that it was very important to tell future generations about amateur radio.

In April of 2006 I contacted the ARRL's Kansas Section Manager, Ron Cowan, KBØDTI. We talked on the phone, and he asked me a few questions. After the interview, he told me that he wanted me to serve as the Assistant Section Manager (ASM) for youth. As far as we know, I was the first person in the state to hold the office. Because of that, I started with very little guidance except the idea to get more kids in-

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Photo B— Contests and operating events are great ways to involve youth. Here Barry, KCØYDZ, and Lucie, KDØDMO, work pile-ups during Field Day at WØERH.

involved. Other state youth leaders (there were only a few nationwide at the time) shared their ideas of what had worked for them. I talked with Mr. Cowan to get his thoughts. As time went on, I began to write news briefs and short pieces for the *Kansas Amateur Radio News*, an e-mail newsletter published by Orlan Cook, WØOYH.

A year later, it was still hard to see any results. Newsletter articles drew some favorable comments, and the monthly news promoted existing programs such as the Jamboree On The Air and the School Club Roundup. However, it was still lonely being part of the under-18 crowd of hams.

Things changed after attending the 2007 Dayton Hamvention®. There I first met Andrea, who originally had inspired me. She, along with other Assistant Section Managers for youth and kids from different countries, operated the ARRL Youth Lounge. We hosted games and scavenger hunts in order to make radio more fun for the kids who attended. The youth lounge also made the Hamvention® more fun for the adults by giving their youngsters something to do. Seeing so many young licensees really encouraged me. It helped me realize my role in Kansas was important in helping reach kids. The experience led me to ask a very important question a few months later.

A Nervous Question

It was at the Kansas Section Convention in August 2007 where the situation changed. It started with an innocent question at the section meeting. After offending most everyone in the audience by saying they were old (I admit, I was nervous in front of the group), I asked how many attendees had persuaded their kids or grandkids to become licensed. Very few hands went up. From the audience, Brian Short, KCØBS, asked some questions about how to get kids more involved. Later he and I began to correspond about the comments from the meeting. We bounced around a few ideas, and together we developed a strategy to encourage licensed hams to involve their younger family members, growing the hobby. The result of a nervous question was the Kansas Legacy Project.

The Kansas Legacy Project aims to get more kids involved by having parents and grandparents pass along what they know about ham radio (see photo A). The program's objectives are:

1. Pass the spirit and knowledge of the Amateur Radio Service to a new generation.

2. Build ties between family members using ham radio activities.

3. Increase youth participation in ham radio.

The state newsletter was used to advertise the program's existence, and we placed a description of the program on the section website. Since then the program has shown results, especially in areas where it is promoted actively by local ham radio instructors. More importantly, we really saw results when young operators themselves took on the task of recruiting their friends into the hobby and getting them on the air.

Many Kansas hams have helped get more young people involved, directly or indirectly. Brian is "hamfamous" in the Kansas City area, and he promotes the training and licensing of young people through the Kansas Legacy Project. Along with Matt May, KC4WCG, and a host of volunteers, he has brought more than 300 people into the hobby, 45 of whom are under 18. The class format works well for youth and non-technical people of all ages and backgrounds. The youngest graduate so far is Lucie, KDØDMO (photo B), who was age seven when she earned her Technician license in March of 2008.

Ham radio clubs in the state have given presentations to school and Scout groups and have helped get young people licensed, too. The Boeing Employee Amateur Radio Society (BEARS) of Wichita, Kansas has sponsored a number of outreach events for Scouts. Recently, members set up an amateur radio and SKYWARN display at the Scout Encampment held at the Kansas State Fair Grounds on April 26, 2008 (photo C). The activities lasted for about seven hours and over 4000 Scouts and chaperones attended the Encampment, giving Boy Scouts many chances to learn about amateur radio. In addition, BEARS presentations at the Douglass (KS) High School Speaker's Day in 2006 and 2007 resulted in a number of new young hams.

A Memory Game

The most difficult part of the project is getting kids to take the license examination. Many of them are so absorbed with video games, texting, or surfing the web, they may not be drawn to reading a study guide. The good news is that online tests, such as those at QRZ.com, actually feel a lot like a



Photo C— Scouting events are great opportunities to introduce kids to ham radio. Here, Scouts at the Hutchinson, Kansas 2008 Encampment learn about amateur radio from central Kansas hams.

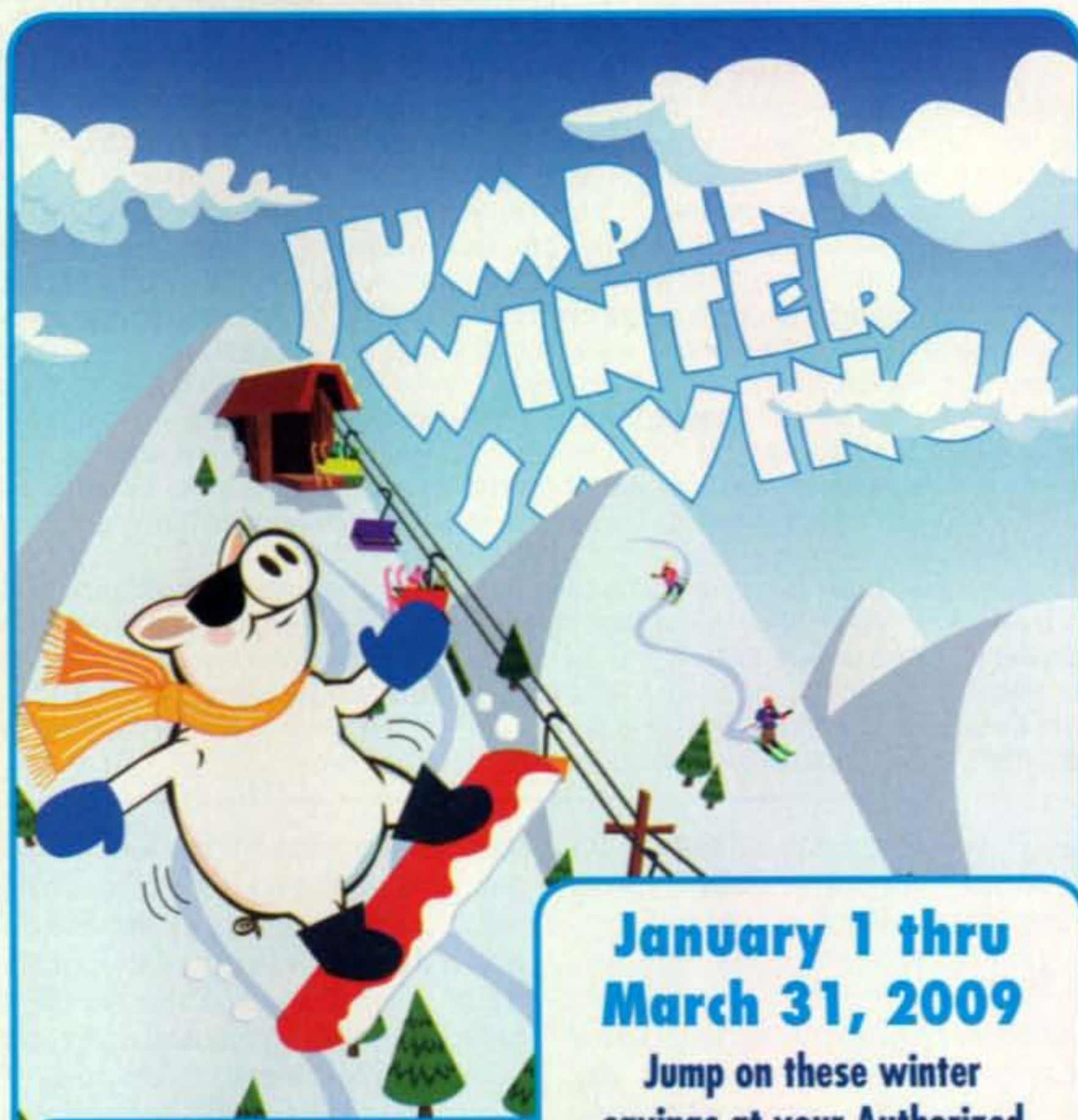


Photo D— Ryan, KD0EWB (foreground), and Duncan, KU0DM, work together during Field Day. Young hams play a role in teaching their friends about ham radio.

memory game. If a ham is there to help explain why the answer is correct, you may find your youngster doesn't even need to crack a book. The student can learn by testing, and once on the air, have a chance to cement that knowledge by doing.

While getting a kid to study and take the test is the most difficult task, the most important step is to get young people on the air, and keep them there. Duncan MacLachlan, KU0DM, is Brian's nephew and shares his passion for all things ham radio, including recruiting. Duncan (photo D) is the most active young operator I know, and he serves as the youth outreach coordinator for Johnson County, Kansas ARES. You may also know him as the new editor of the ARRL's "Youth@HamRadio. Fun" column.

Duncan began a new 2-meter net in 2008 known as the Junior Hams of Kansas (JHOK) net. He started this net to get kids on the air and give them a place to make mistakes in order to learn. He realized that younger operators might be shy or may not have many opportunities to get on the air, so the JHOK net gives them the chance to talk on the radio with other young people. Adults are welcome to check in, but the primary net participants are under age 18. Between an active recruiting program, and new opportunities to practice



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ICOM

Nominations Open for 2009 Young Ham of the Year Award

Nominations are now open for the 2009 Newsline Young Ham of the Year Award. The Young Ham of the Year Award is presented annually to a licensed amateur radio operator who is 18 years of age or younger; is a resident of the United States, Canada, or Puerto Rico; and who has provided outstanding service to his/her nation or community, or improved the state-of-the-art in communications through the amateur radio hobby/service. The Young Ham of the Year Award is sponsored by the Amateur Radio Newsline, with corporate support from Vertex-Standard (Yaesu) and CQ Communications, Inc.

A nominee should be someone who has done something outstanding as an amateur radio operator. Perhaps it was something special he or she did for his or her community through the amateur service. Maybe it was some outstanding achievement that led to an improvement in amateur radio in his or her area. Or perhaps he or she was successful in recruiting a lot of new hams, as was the case with 2008's honoree, Emily Stewart, KC0PTL. The accomplishments of previous winners may be found on the Young Ham of the Year website (see below).

All nominations must be received by May 30, 2009 on an official application and be accompanied by verification materials. Applications forms are available for a self-addressed stamped envelope mailed to the Young Ham of the Year Award, c/o Newsline, 28197 Robin Ave., Santa Clarita, CA 91350. These nominating applications are also available for electronic download or on-line submission on the Young Ham of the Year website at: <<http://www.yhoty.org>> or <<http://www.arnewline.org>>.

on the air, we're starting to see an increase in the number of active young operators here in Kansas (photo E).

Your Turn

Your kids and grandkids may know you're a ham, but do they know why *they* should be? You know what they like, so it's up to you to explain the benefits of ham radio. Teach them, by your good example, how much fun it can be to be a considerate amateur radio operator. Still, you may be wondering how you can get the iPhone generation interested in ham radio. Here are some activities and approaches we've found are successful:

1. Make youth recruiting your club focus for one year. Assign a task to each of your members to recruit one new ham each year, and one new ham under 18 in 2009.

2. Use special events and everyday opportunities to introduce them to ama-

teur radio (photo F). Put kids in front of the microphone on Kid's Day, on a local net, during a contest, or for Field Day. Show them how to operate your mobile rig or base station. Take an HT on a camping or hiking trip and use it to keep in touch with others in the group. Take them along on a public-service event to demonstrate how critical ham radio is during large-scale events when cell phones just don't cut it.

3. If you homeschool your kids, or know of someone who does, teach them all they need to know to get their license. There are lots of free resources online to help your sons and daughters get licensed.

4. Make sure kids have access to a radio if they're already licensed but not active.

5. One traditional route to getting young people started in ham radio is the Radio Merit Badge. It is a great way to get Scouts licensed. Talk to the local

Scout Master about teaching a Technician course. If the Scouts pass, they are definitely qualified for their Radio Merit Badge. Pair the licensing class with the next JOTA event to get the new licensees on the air.

6. Ask hamfest organizers about setting up a youth table or having a youth forum at the hamfest. Get young hams to staff the table and give them materials to help get young people at the fest started towards their licenses that day!

7. Take your kids to the hamfest. Explain the uses of the equipment that is on sale. Watch what they get excited about most and use that as a selling point for their licensing.

8. *Kids love to solder!* Buy kids a kit—maybe a crystal radio or a simple transceiver—and assist them with building and testing the radio. You do remember how to solder, don't you?

9. Ask one of your younger club members to write a youth column in the local ham radio club newsletter.

10. Start a local youth net on one of your area repeaters. Get a young net control operator to run the weekly net. Make sure you focus on helping the young hams become accustomed to operating.

11. *Kids love digital modes!* Today's young people are computer-savvy. Focus on modes with "Wow!" factor, including computer modes such as APRS, PSK-31, and SSTV. There are a number of weekly Echolink nets run by kids, too.

12. Contesting is a very exciting part of ham radio for new hams. Host an open house and put prospective young hams on the microphone at a local contest station during one of the big competitions. If you can expose them to the contesting bug, they will be bugging you to let them earn money by doing chores



Photo E— Ryan, KD0DGN, has a ham legacy that extends back several generations. Ryan's brother, David, now holds his great-grandfather's former call, W0QLF.



Photo F— George McCarville, WB0CNK (far right), teaches hams and non-hams, young and old, how to build emergency roll-up antennas.

around the house or farm so they can put together their dream station.

12. Teach a ham radio licensing class yourself. Target local schools, churches, and Scouting organizations for your students. You can find all the materials you need at <www.hamclass.org>.

13. Begin building your own local network of adults and kids to actively recruit the younger generation into the hobby. The newer the hams, the more likely they are to recruit their friends into the hobby! After a recent Technician class, a 12-year-old graduate recruited five new young hams for the very next class!

Expanding the Legacy Project

It would be wonderful to see more states grow their own ham radio legacies. You do not have to do all of the above activities to be successful. Pick one and give it a try, or you may have your own ideas about how to reach kids. The important point is to start somewhere. If you want to take an even bigger step, start your own state Legacy Project.

What started small has grown beyond my wildest dreams. Kansas's young ham population, with a lot of support and encouragement from adults and other young hams, has grown dramatically in the last two years. Young people in Kansas now have more opportunities than ever to learn about ham radio, and young operators now have many opportunities to get experience on the air. From practicing on weekly youth-run nets to operating the fantastic HF stations of Elmers throughout the state, Kansas kids are getting on the air.

New hams give us the best opportunity to ensure the ranks will continue to grow. Adults interested in teaching the younger generation about the hobby, which is also a service, can pass along their operating knowledge. Also, adults are learning from the young hams that magic is still a huge part of ham radio. We can teach our Elmers something about all those new-fangled digital modes, too.

Ham radio is a hobby for life, and it blends perfectly with nearly every other hobby. With ham radio, you are always learning something new. For kids, the Amateur Radio Service provides a window into a world of technology that they might want to make into a career. Families and friends that QSO together, stay together. Parents, grandparents, and children can all come together to share the joy and spirit of ham radio that have been captivating kids of all ages for generations.



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No Holiday Rest for Some Hams

As many of us were preparing to enjoy the holidays with our family and friends, other amateur radio operators were staffing emergency operation centers, shelters, and National Weather Service offices across the country. A mid-December ice storm activated members of the Radio Amateur Civil Emergency Service (RACES), Amateur Radio Emergency Service (ARES), SKYWARN, and several Military Affiliated Radio Service (MARS) groups. Emergency Management and National Weather Service officials notified the hams that the storm could be a long-term event.

In New York State heavy coatings of ice on the power lines and breaking trees snapping even sturdy telephone cables caused many telephone lines to go dead or have intermittent service. According to Emergency Management officials, users of internet-based services lost telephone service as electricity or broadband cables went down. Even some cell-phone users experienced interruptions. The loss of telephone service for several hours at a warming shelter in central New York prevented shelter officials from contacting the Emergency Management agency. Ham radio operators quickly provided the communications link once they were aware of the problem.

In Seattle, Washington, Barb Graff, Emergency Management Director, described the winter storm which began on December 11 as a "100-year storm." The only problem with the description, she

said, is that the 100-year storm is occurring on an annual basis. When she reported to the city council in early January on the area's response to the storm, she said that ham radio is often the last line of communications and often the first line of response. The hams are members of the Auxiliary Communications Services (ACS). Those with 4-wheel drive vehicles responded to 23 calls to help get dialysis patients and workers to area hospitals. She told council that she would continue to revisit a request for a coordinator for citizen volunteers. Knowing that budgets are tight, she made a point that for now "ACS Rocks!"

At deadline for this column in mid-January, emergency managers were still responding to weather-related issues. Widespread flooding was occurring in western Washington. Meteorologists said it rained 10 to 20 inches in the mountains and 3 to 5 inches in the lowlands. Most of that water went into the rivers. The meteorologists emphasized that the flooding was caused by rain and not melting snow.

Now Some Details . . .

In the Pacific Northwest snow and ice kept local ARES groups on the job in Clatsop County, Oregon supplying emergency communications support for the 911 system. According to the ARRL, ARES units provided 911 services for four villages and hamlets in the southern part of the county. Residents were told to go to the hams and have them relay their service requests to the county Emergency Operations Center. A spokesperson for the Clatsop County ARES unit said hams provided 24-hour radio communication support at fire stations or sheriff's substations in the affected area.

Meanwhile, in Massachusetts amateur radio operators knew that they were in for a bad storm on December 11. State officials were concerned about the possibility of a severe ice storm affecting the region. RACES, ARES, SKYWARN, and MARS groups had been notified in advance of a possible long-term event.

Tom Kinahan, N1CPE, Massachusetts State RACES Radio Officer, told *CQ* that Skywarn had been activated on the evening of December 11 just as the rain was changing to ice and temperatures had started dropping below freezing. At about 5 AM on December 12, state officials called RACES operators to the State EOC (SEOC) to start staffing the RACES position, where they were asked to join the ESF-2 Communications team and to help the state and local decision makers get an understanding of the situation across the state.

Initial activities at the State EOC had RACES operators working with the SKYWARN network to determine the extent of the icing as well as power and communications outages. Kinahan said there were reports of up to 1 inch of icing on trees and power lines, leading to massive tree damage and

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Worcester, Massachusetts residents try to unblock the road through their neighborhood in one of the larger cities caught by the December 12, 2008 storm. (Photo by Katherine Keenum)

power outages across the north central part of the state, as well as into the western part of the state. As the reports came in a picture was being painted as to how bad the situation was in the location of power outages. State officials were worried about the cold weather turning colder, as was predicted. With over 300,000 homes without power and downed trees blocking nearly every street in the affected areas, power was not going to be restored quickly.

Ice, up to 1/2-inch thick, coated trees and utility lines in a broad swath across Massachusetts, Connecticut, Vermont, New Hampshire, and Maine. Many local towns were issuing emergency declarations and EOCs around the state were opening up. Governor Deval Patrick declared a State of Emergency, allowing additional resources to be applied to the emergency. Amateur radio operators were activated in the communities of Leominster, Gardner, Worcester, Heath, and Westford, among others, as well as Central Massachusetts Red Cross headquarters, where the power was out. Shelters, operating on emergency power, were opened in many communities, and hams operating with local governments (RACES) and with the Red Cross (ARES) were stationed at them to provide communications support.

Ham Support

Not only was the duration of the activation long, many areas of the state were not affected and those hams still had to go to their day jobs and those in the affected areas had their own problems with no power and trees down on their property.

Kinahan said the call went out for additional ARES support between the neighboring ARRL sections of Eastern Massachusetts led by Section Emergency Coordinator (SEC) Rob Macedo, KD1CY, and Western Massachusetts led by SEC John Ruggerio, N2YHK. ARES Mutual Assistance Teams (ARES MAT) from the north shore area of eastern Massachusetts provided leadership and ARES management for shelters and EOCs in Gardner (where the Emergency Management director is a ham, Paul Topolski, W1SEX) under the direction of Jim Palmer, KB1KQW. Hams in Leominster provided support to their local EOC from the onset of the storm. In the early stages of the storm, all of the local 2-meter repeaters in Worcester County, the most severely damaged area, were out of service. The only means of voice communications to some communities was via ham repeaters.

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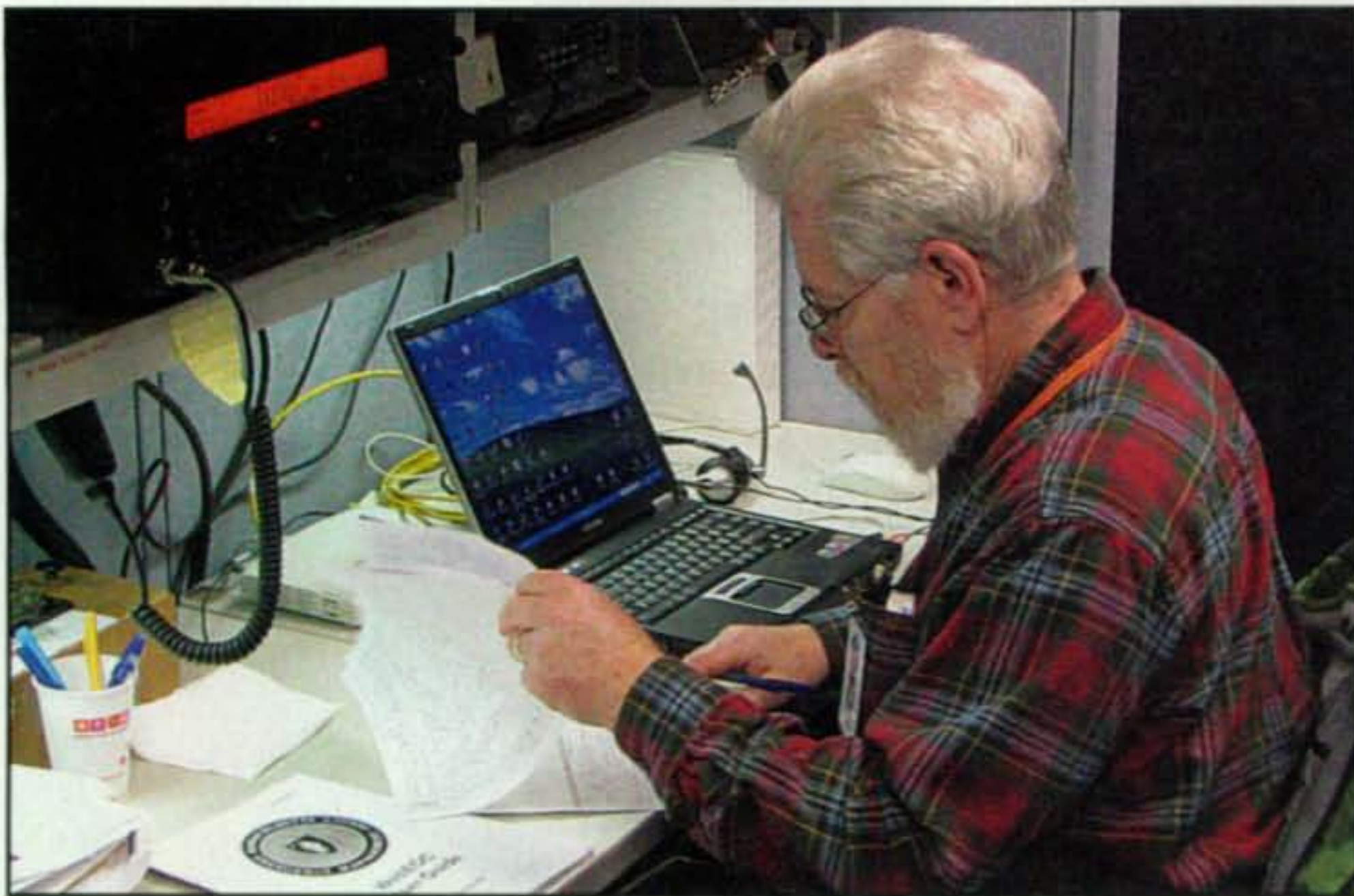
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Steve Telsey, N1BDA, at the Massachusetts State EOC RACES Operations Desk collects information from ham radio operators in the field. (Photo by Mike Neilsen, W1MPN)

the state was basically unaffected, those who didn't have damage or power issues still needed to continue to go to work. Kinahan said mutual aid for EOC operations was requested via MARS channels from as far away as eastern New York, but ultimately was canceled when communications operations ended. Some communities still didn't have power 14 days later on Christmas day.

Army MARS Helps

The regular Region 1 (New England) Army MARS traffic network immediately transitioned to emergency status after Region 1 Director Robert Mims, at Taunton, Massachusetts, just east of the worst-hit areas, coordinated with Chief Army MARS headquarters at Ft. Huachuca, Arizona. RACES asked MARS to provide trained operators for its nets.

Army MARS member Bill Sexton, N1IN, said, "Relief operations were mainly localized so that the long-range communications facilities of Army MARS weren't needed as much as individual operators to relieve communications personnel in state and county EOCs. Among these, Region 1 Director Mims worked during the weekend from the Massachusetts EOC bunker in Framingham. Two New Hampshire MARS members deployed to public shelters supplying their portable stations. Others joined members of Navy-Marine Corps MARS, Air Force MARS, and other amateur radio emergency communications organizations turning out in their localities. Northern New England Director Ray Machell coordinated from the Vermont EOC Monday."

ARRL Emergency Preparedness and Response Manager Dennis Dura, K2DCD, said, "creative thinking was the name of the game when repeaters went down. Simplex reigned, and other repeaters on the fringes of their coverage areas were utilized." Winlink2000 was used to provide detailed situation reports from local EOCs and Red Cross operations, and the data was entered into the state's WebEOC system.

Kinahan provided these details of hams helping around the state:

In Westford, N1QGE, WA1QYM, and others operated from shelters provided to keep people warm. In Tewksbury, at the Massachusetts Emergency Management Agency (MEMA) Region 1 headquarters, Charles Suprin, AA1VS, Bob Ravenstein, W1FDR, and Terry Stader, KA8SCP, operated for three days to support the northeast part of the state.

In Agawam, at the Massachusetts Emergency Management Agency Region 3, 4 headquarters, Steve Rodowicz, N1SR, led a team providing emergency communications. In Worcester, Mark Rubin, WB1ARZ, led the Worcester Emergency Communication Team's efforts to support the around-the-clock efforts of communicating with the shelters in Worcester, and as a hub of communications for the entire central part of the state.

"Early in the activation," Kinahan said, "we recognized that all of the local 2-meter repeaters had failed in central Massachusetts due to previous technical problems, or power outages due to

downed wires and limbs. Given the importance of the 2-meter repeater systems for local communities to request assistance when phones were out, and shelter operations that were happening, state officials requested the National Guard to deliver a portable generator to the 146.925 repeater in Worcester to provide power to the repeater. The generator ran for about 24 hours before normal power was restored at the site."

At the State EOC, RACES operators were on duty for six days on a 24/7 basis. Staffing for the position was provided by RACES, ARES, SKYWARN, and MARS operators who were not directly impacted by the storm. As half of



Fred Erickson, KA1GCN, provides communications from the Gardner Middle School Shelter #1. (Photo by Phillip McNamara, N1XTB)

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tuner gives you better efficiency, lower losses and a new true peak reading meter. Easily handles full 1500 Watts SSB/CW, 1.8-30 MHz, including MARS/WARC bands. Six position antenna switch, dummy load. New 500 pF air variable capacitors. New improved AirCore™ Roller Inductor. New high voltage current balun. New crank knob. 12 7/8 Wx6 Hx11 5/8 D".

MFJ-962D compact kW Tuner



MFJ-962D
\$299⁹⁵

A few more dollars steps you up to

a kW tuner for an amp later. Handles 1.5 KW PEP SSB amplifier input power (800W output). Ideal for Ameritron's AL-811H! AirCore™ roller inductor, gear-driven turns counter, pk/avg lighted Cross-Needle SWR/Wattmeter, antenna switch, balun, Lexan front, 1.8-30MHz. 10 3/4 Wx4 1/2 Hx10 7/8 D in.

MFJ-969 300W Roller Inductor Tuner

Superb AirCore™ Roller Inductor tuning. Covers 6 Meters thru 160 Meters!

300 Watts PEP SSB. Active true peak reading lighted Cross-Needle SWR Wattmeter, QRM-Free PreTune™, antenna switch, dummy load, 4:1 balun, Lexan front panel. 10 1/2 Wx3 1/2 Hx9 1/2 D inches.

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\$219⁹⁵

MFJ-949E deluxe 300 Watt Tuner

More hams use MFJ-949s than any other antenna tuner in the world!

Handles 300 Watts. Full 1.8 to 30 MHz coverage, custom inductor switch, 1000 Volt tuning capacitors, full size peak/average lighted Cross-Needle SWR/Wattmeter, 8 position antenna switch, dummy load, QRM-Free PreTune™, scratch proof Lexan front panel. 10 5/8 Wx3 1/2 Hx7 D inches.

MFJ-949E
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MFJ-948, \$159.95. Economy version of MFJ-949E, less dummy load, Lexan front panel.

MFJ-941E super value Tuner

The most for your money!

Handles 300 Watts PEP, covers 1.8-30 MHz, lighted Cross-Needle SWR/Wattmeter, 8 position antenna switch, 4:1 balun, 1000 volt capacitors, Lexan front panel. Sleek 10 1/2 Wx2 1/2 Hx7 D".

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MFJ-976, \$499.95. 1500 Watt fully balanced antenna tuner. 1-30 MHz.

MFJ-971 portable/QRP Tuner

Tunes coax, balanced lines, random wire 1.8-30 MHz. Cross-Needle Meter. SWR, 30/300 or 6 Watt QRP ranges. Matches popular MFJ transceivers. 6Wx6 1/2 Hx2 1/2 D in.



MFJ-971
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MFJ-902
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MFJ-904H, \$149.95. Same but adds Cross-needle SWR/Wattmeter and 4:1 balun for balanced lines. 7 1/4 Wx2 1/4 Hx2 3/4 D in.

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Together We Prepare

For over ten years, Gerry Jurrens, N2GJ, and volunteers of the Mercer County Amateur Radio Emergency Services/Radio Amateur Civil Emergency Services (ARES/ RACES) have managed an amateur radio station for the Central New Jersey Chapter. The station provides emergency communications during times of disaster. Chapter officials said that should all other communications systems fail, trained radio operators would be deployed to shelters and remote sites while others staff the main station at the chapter's headquarters, providing the ability to relay pertinent information to the Disaster Operations Center.

This team of amateur radio volunteers has helped the chapter be better prepared for disasters here and around the state by ensuring all equipment is properly maintained, tested, and readily available. The team participates in monthly tests with the State's Office of Emergency Management to ensure communications with other Red Cross Chapters and Offices of Emergency Management throughout New Jersey are always at the ready.

Mercer County ARES/RACES has also held licensing classes in an effort to increase the number of trained and licensed operators, building more depth to the team and increasing the number of volunteer operators in the field. The efforts of Mercer County ARES/RACES have made the chapter and the Central New Jersey region better prepared by ensuring reliable communications.

For their efforts, Mercer County ARES/ RACES was awarded the Together We Prepare award.



Sue Hassmiller, Board Member of the Central NJ Chapter of the American Red Cross, and Pam Farr, National Chair for Finance for the American Red Cross in Washington, DC, present Gerry Jurrens, N2GJ, with the Together We Prepare award for the work of Mercer County ARES/RACES providing communications support to the local chapter. (Photo courtesy American Red Cross)



Here is part of the new communications center built by members of the Mercer County ARES/RACES. This unit houses the Alinco DR-235T 220-MHz rig, a Kenwood TM-V71A dual-band radio, and the power distribution system. Other units house HF gear, APRS, and Red Cross radio. (Photo courtesy N2GJ)



The Mercer County ARES/RACES communications unit also includes shelter kits designed and built by Gary Wilson, K2GW. This unit holds a 2-meter FM rig, an Astron switching power supply, and a magnetic-mount antenna. (Photo courtesy N2GJ)



Michaela Woodward, daughter of Orange County Radio Amateurs members Raymond, K3VSA, and Mary Lisa Woodward, KG4PFB, presents a Christmas Day gift of Moravian coffee cake to Orange County EMT Amy Turner. (Photo courtesy of Mary Lisa Woodward)

He continued, "Adding to emergency response problems, the weight of ice collapsed numerous antennas at government and amateur stations, knocking out repeater facilities even where generator power was available."

Oahu Goes Dark

While many areas of the northern United States were dealing with harsh weather and no power, residents on the island of Oahu in Hawaii were left in the dark on the evening of December 26. According to reports the island started losing power at around 6:45 PM, and by 8:30 PM the island had no electric power. The state capital of Honolulu is located on Oahu.

Local amateur radio operators were participating in the nightly Emergency Amateur Radio Club (EARC) net. The net helps train operators on equipment readiness and proper net procedures. Within minutes, over 40 reports were taken from ham radio operators and passed on to the Department of Emergency Management (DEM) and the State Civil Defense. The reports were regarding power and water outages,

problems with traffic, or if police officers were needed in locations to help with traffic. Ham operators also volunteered to move to locations throughout the island in order to link up with state officials to provide emergency communication between agencies.

The EARC net remained on the air throughout the night and finally closed down the network at 10 AM the next morning. The training the operators did every night paid off in this instance. Each Friday night the group holds a "failure" net in which something will fail so the hams can see if they can still communicate effectively.

Taking Time Out

Finally, we want to recognize members of the Orange County Radio Amateurs in North Carolina who took time on Christmas to recognize other emergency workers with a gift of Moravian-style coffee cakes. OCRA President Raymond Woodard, K3VSA, his wife Mary Lisa, KG4PFB, and others presented members of the Orange County Sheriff's Department, the Orange County Emergency Operations Center, and the Hillsborough Fire and Police Departments with the coffee cakes.

"These delicious cakes follow a centuries-old North Carolina Moravian tradition of holiday hospitality," said Woodward, "and we cannot do enough to thank these people who are working, protecting all of us on Christmas day, when the rest of us are safe at home relaxing with our families." His wife added, "They're willing to risk their lives for us, and there's no pay grade big enough for that."

"We ham operators know what it's like to do emergency service, because we supply radio communications when the normal means of communication go down," Woodward said, "so we just wanted them to know that their service to the community is appreciated. This year, we took care of the agencies in the northern end of the county. Next year, we'll see about the southern end."

This month we took a look at how hams in many parts of the country gave up their holiday season to serve the public when communications failed. We want to thank Tom Kinahan, N1CPE; Bill Sexton, N1IN; the ARRL; and Ray Woodward, K3VSA for providing information this month.

Do you have a story about amateur radio public service in your community? Drop us a note. Until next time...

73, Bob, WA3PZO

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What You've Told Us...

CQ readers responding to our August survey turn on its head the common perception that hams are no longer technically minded. More than two thirds of you feel your own technical skills are competent or better, with 32% of you rating yourselves as competent, 23% as highly competent and 13% as expert. Another 28% rated yourselves as somewhat competent, while 5% of you do not feel you are technically competent. This, from a group in which only 36% say that electronics is their profession as well as their hobby.

Asked if you had ever designed your own circuits, 24% of you said yes, professionally; 36% said yes, but only on an amateur basis, and 44% said no. On the question of whether you have built at least some of your own equipment, 64% of you said had built gear from kits, 53% from published designs, and 33% from your own designs. Only 10% said they'd never built any gear at all. In addition, 68% of you responded that you have built your own antennas from published designs, 50% from your own designs, and 29% from commercial products. Only 7% have never built an antenna.

The growing complexity of today's radios is reflected in the responses to questions on troubleshooting and repair. Only 27% of you do "whatever needs to be done" that regard, while 59% make simple repairs (but not complex ones); 7% do their own troubleshooting but let someone else make the repairs, 3% make repairs but don't diagnose problems, and 9% don't try either. When you do *not* make your own repairs, 47% of you send your rig to the manufacturer's service department; 23% send it to an independent repair facility; 17% use a ham dealer's service department, and 10% take it to another local ham. In addition, 13% say they haven't needed anything fixed yet, and 6% say they're the person to whom everyone else brings their gear for repair.

This month's free subscription winner is Bob Perkins, W0JEE, of Smiley, TX.

Reader Survey March 2009

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

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

This month, as we begin accepting confirmations from eQSL.cc for our awards, we decided to repeat a survey on QSLing that we ran five years ago, and compare the results.

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

1. Which statement most closely reflects your QSLing habits?

- I QSL 100% – all contacts1
- I respond 100% to all QSLs I receive2
- I send QSLs only to DX stations3
- I send QSLs only to stations whose confirmations I need, or who have QSLed me4
- I respond to QSL requests only if they are accompanied by an SASE or IRCs5
- I respond to QSL requests only if they are accompanied by "green stamps" (US dollars)6
- I do not QSL at all7

2. What is your primary reason for exchanging/collecting QSLs?

- Credit toward operating awards8
- To have a record for myself of the people I've contacted9
- Because they're exciting to receive and fun to look at10
- Other11
- None (I do not exchange/collect QSLs)12

3. What is the main reason that it seems that fewer hams seem exchange QSLs (choose one)?

- Cost of postage13
- Cost of printing14
- Too little time15
- Too little interest16
- Talking only to people they already know17
- Operate only on repeaters, where nobody QSLs18
- Other19

4. Do you participate in the following electronic QSL/award credit programs?

- ARRL Logbook of the World (LoTW)20
- eQSL.cc21
- Single-station online QSLing22
- Other electronic QSL/logbook exchange23
- None24

5. Do you feel electronic/online QSLing is a reasonable alternative to the high cost of traditional QSLing?

- Yes25
- No26
- Unsure27
- Don't care28

6. Do you use the ARRL Incoming QSL Bureau (or equivalent outside the US)?

- Yes29
- No30

7. Do you use the ARRL Outgoing QSL Bureau (or equivalent outside the US)?

- Yes31
- No32

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

Searching for peak HF performance?



"This is the first receiver we've tested with better than 100 dB IMD dynamic range at the closer signal spacings." QST Product Review, April 2008

Introducing the **Elecraft K3** transceiver

No other rig in this price class comes close to the K3's performance. Its high dynamic range, down-conversion architecture provides roofing filter bandwidths as narrow as 200 Hz, while its 32-bit I.F. DSP handles advanced filtering and noise reduction. The K3 also offers an optional fully independent, high-performance subreceiver, as well as innovative new features like variable-bandwidth, DSP-tracking roofing filters, and 8-band RX/TX EQ.

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Low-Cost Test Equipment Revisited

Last year (January 2008 *CQ*) we described several pieces of test equipment that an experimenter on a budget could fabricate to save money. This time we will describe a device that can be used to calibrate and/or check the calibration of some of your test equipment, both homebrew and commercial. The circuit to be described uses a relatively new semiconductor from Analog Devices, the AD586L. This is a precision reference that produces an output of 5 volts with an accuracy of about 0.05%. In terms of a digital voltmeter (DVM) this relates to 0.001 volt on the 20-volt scale. Before going further, I should point out that the chip is relatively expensive (\$10 each at Mouser in the plastic DIP version). However, it is far less costly than a commercial standard and is quite stable. Thus, if you seriously care about the calibration of your equipment, read on!

Fig. 1 is the schematic of the simple voltage-only version. As you can see, an unregulated source of 12 to 15 volts is required to drive the chip, and the output is at exactly 5.000 volts (within ± 1.25 millivolts). Therefore, any DVM that you connect to this output should read 5.00 volts. Since the error is less than the last digit on a $3\frac{1}{2}$ digit meter, greater accuracy is not required. The AD586L has provisions for adjusting the output even closer if you wish, however. This means that you must have a very accurate standard with which to calibrate the output. If you wish to do this, fig. 2 shows this circuit. The 10K pot will allow the voltage to vary a few hundred millivolts from the nominal value, but be sure to use a very stable pot, as this will be directly related to the stability of the output voltage. For most amateur applications, however, the circuit of fig. 1 will be more than adequate. By the way, a suitable source of driving voltage would be a common 12-volt wall-wart type power supply.

*c/o *CQ* magazine

It should be noted that the AD586L is also capable of providing up to 10 milliamperes of output current without degrading the accuracy of the output voltage. Therefore, if you connect the output in series with a 1K precision (better than 1%) resistor, you will produce a precision current of 5.00 milliamperes. This could be used to calibrate the current-measuring section of your DVM as well.

As far as calibrating your particular DVM is concerned, that is another story, since each manufacturer's DVM will be different. If you are lucky enough to have an instruction or service manual, great. If not, you can either "poke around" inside for a calibration pot or simply note the error between the standard and the DVM's readings for reference.

The response time for the AD586L from zero to full output voltage is on the order of 60 microseconds. As a result, you can drive it with a low-frequency square wave and produce a signal that can be used to calibrate an oscilloscope. Fig. 3 shows this circuit. Here we have used an LMC555 timer in a conventional astable oscillator circuit to provide a near 50% duty cycle, 1-kHz square wave. This square wave is then used to drive the precision voltage reference, with the result that the output of the AD586L is a square wave with a peak amplitude of exactly 5.00 volts. When you apply this signal to a scope, you can set the vertical amplitude to exactly 5.00 volts. You can also use the overall period of the square wave to adjust the horizontal time base to 1000 microseconds (1 millisecond). The 60 microsecond rise time of the voltage reference will result in a small degradation of the rise and fall time of the square wave, but this should be insignificant for most purposes. By the way, the CMOS version must be used in this circuit, as the V_{cc} is 12 volts and the common bipolar version LM555 will not work at this voltage level.

To adjust the 555 oscillator frequency to 1 kHz, adjust the value of R_a . For best overall stability the

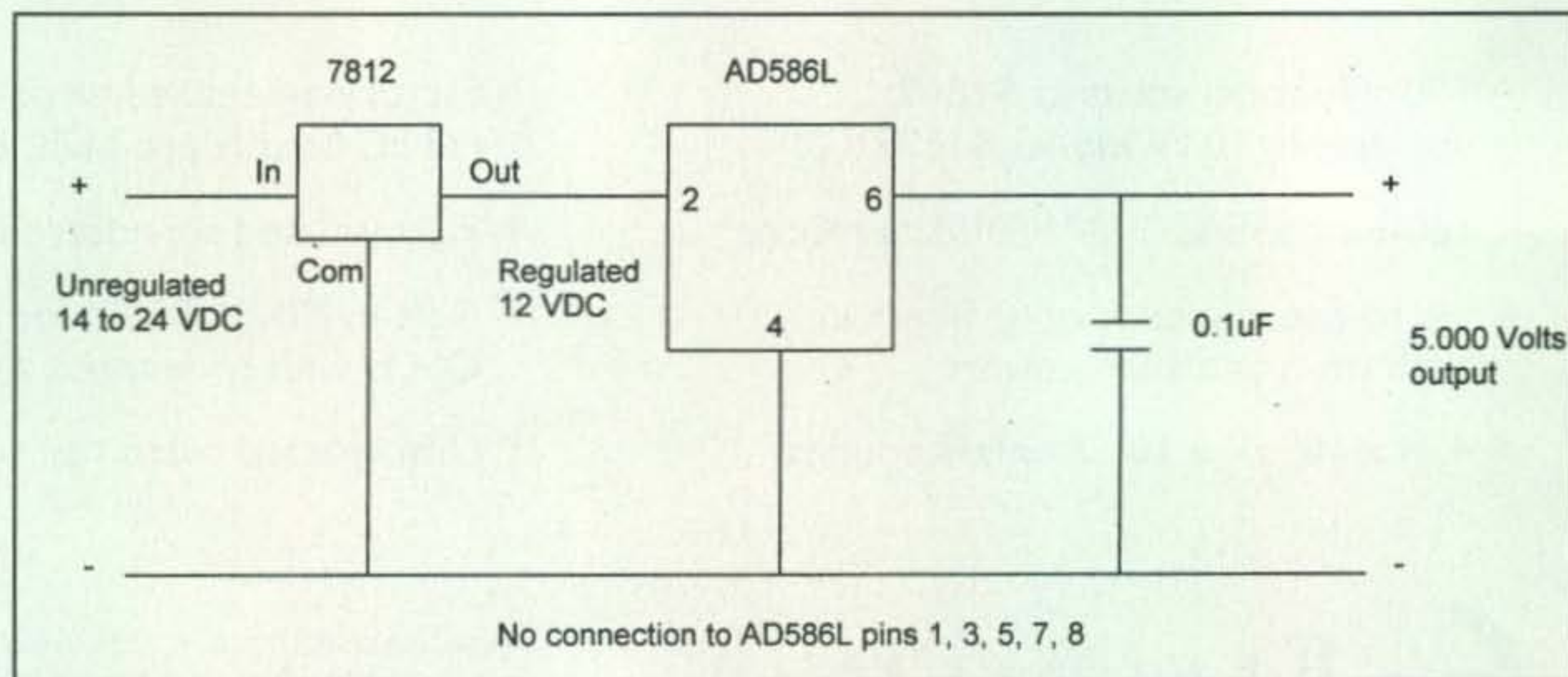


Fig. 1—Basic voltage reference.

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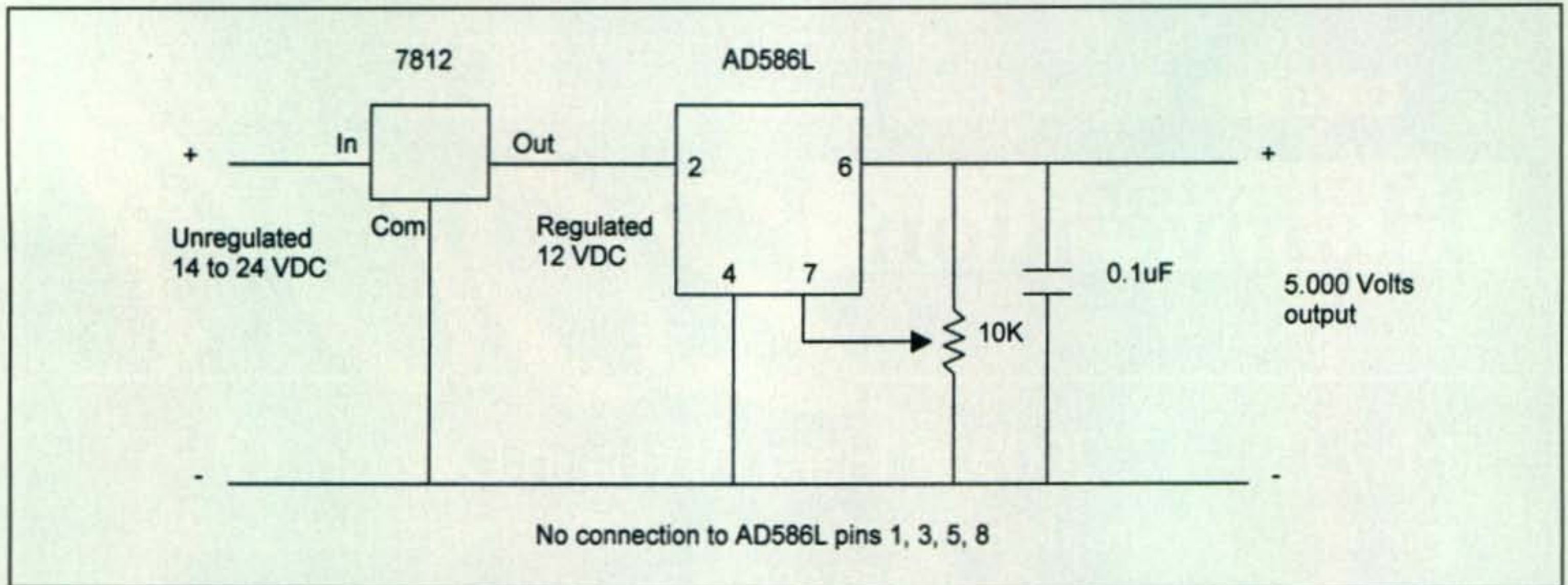


Fig. 2— Basic adjustable voltage reference.

0.01- μ F capacitor, the fixed 10K resistor, and 100K pot should be as accurate and (particularly) as stable as possible. The use of a good frequency counter for adjustment would be a great asset. Although in general the 555 is not as accurate (or stable, for that matter) as a crystal-controlled source, it should be

close enough to calibrate most scopes of the type that the average experimenter would use. A purist could, of course, replace the 555 circuit with a crystal oscillator and digital divider in order to achieve an exact 1-kHz (500 microseconds per half cycle) signal if desired.

When you have built as much of the circuit as you require, it would be a good idea to place it in a small aluminum enclosure with appropriate connectors. This will result in a neat instrument that will find many uses in your home lab.

73, Irwin, WA2NDM

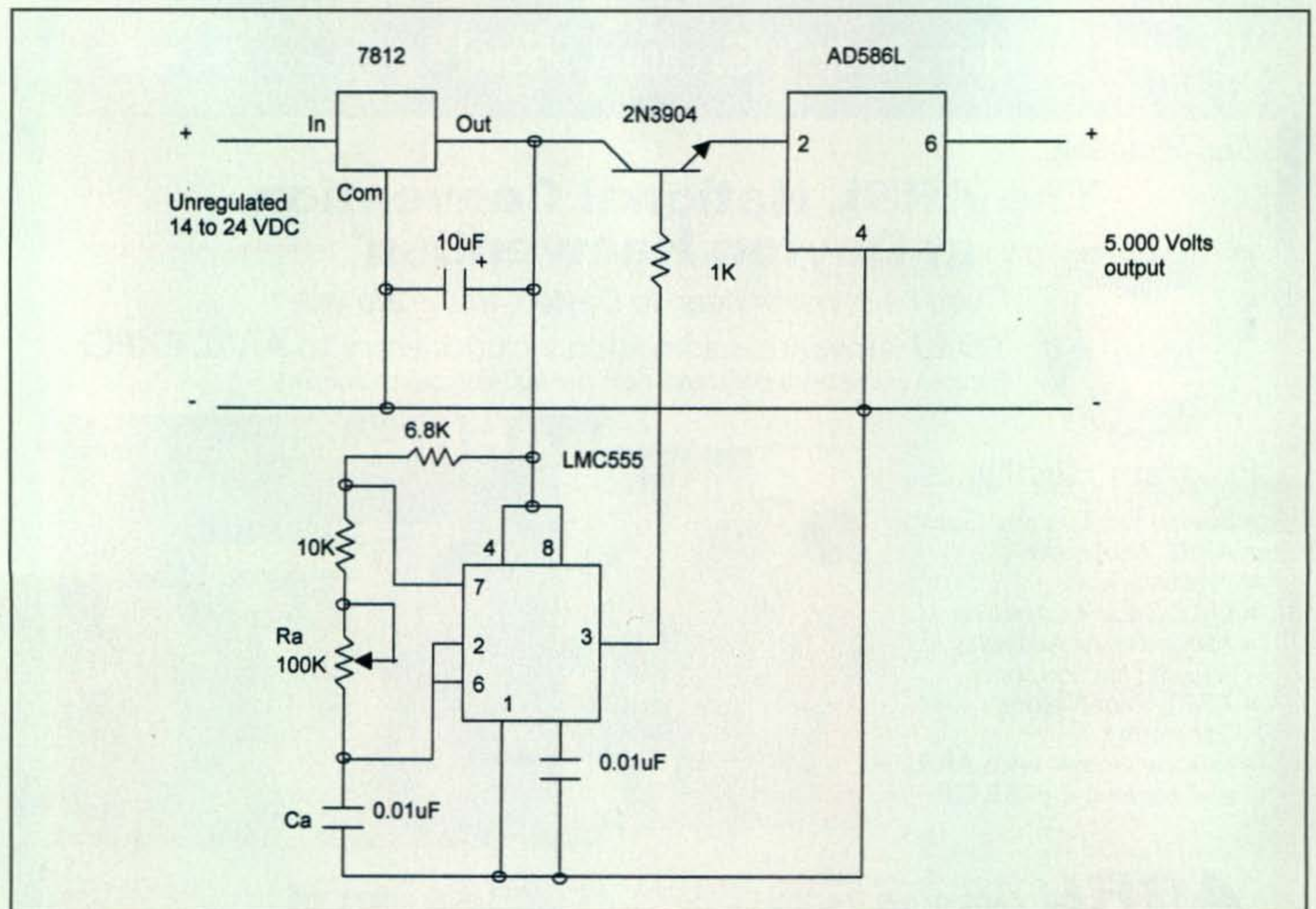


Fig. 3— Precision square-wave (amplitude) voltage reference.

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New class of *Near Legal Limit*™ amplifier gives you 1300 Watt PEP SSB power output for 60% of price of a full legal limit amp! 4 rugged 572B tubes. Instant 3-second warm-up, plugs into 120 VAC. Compact 14 1/2"Wx 8 1/2"Hx15 1/2"D inches fits on desktop. 160-15 Meters. 1000 Watt CW output. Tuned input, instantaneous RF Bias, dynamic ALC, parasitic killer, inrush protection, two lighted cross-needle meters, multi-voltage transformer.

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We've focused quite a bit lately on young hams (and will continue to do so), but we also wanted to highlight a new ham who's part of one of the faster-growing segments of amateur radio—those who enter the hobby for the first time when they're beyond retirement age.

Helen Schlarman

A Young-at-Heart New Ham at 88

BY DENNIS MC CARTHY,* AAØA

“I'm getting on the radio and that's the beginning of something,” said Helen Schlarman, WØAKI. The fact that she is 88 years old and has had multiple sclerosis for 45 years is not stopping her beginnings.

Helen got her Technician license last July, originally licensed as KDØEOM, and is working towards passing her General Class examination in the near future. Helen's age means nothing to her. The fact that she has multiple sclerosis means little.

“I'm re-inventing myself,” Helen said in a recent interview at her modest frame home in Hazelwood, Missouri, a suburb of St. Louis. To do that, she has to do a lot more than others might have to do. Her disease forces her to use a walker. Walking on her twisted right leg must be painful, but her face doesn't show it.

Helen has two rigs. One is in her shack, and the other is an HT that has an external antenna attached to a glider on the back deck of her well-kept home. Her shack is adorned with “wallpaper” accumulated by her late husband Kenneth, the original WØAKI, who died in November of 2007 and whose call she now holds through the vanity callsign program.

“Ham radio meant so much to Ken and now it is becoming a part of my life,” Helen said. “I remember he would always go to the ham shack at 7 PM so he could ragchew.”

Long-Delayed Interest

It was Ken who originally got Helen started getting her license. However,

*5022 Lansdowne Ave, St. Louis, MO 63109

e-mail: <mccartdj@charter.net>



Helen Schlarman, WØAKI, at her station in Hazelwood, Missouri.

her interest goes back some 70 years to her high school days at her home in Erie, Pennsylvania. “My chemistry teacher brought in a crystal set to class and talked about radio. I was fascinated, but in those days you didn't ask too many questions....”

Her husband rekindled her interest in radio. “I remember Ken's first home in the nearby town of Overland, Missouri. He had so many antennas on his roof. He called it his ‘aluminum antenna farm.’” Ken was a 79-year-old widower when they married in 1993.

“Code was a requirement then,” Helen said. “Ken tried to teach me the code, but with the multiple sclerosis, my hands trembled so badly I was unable to use a key. ... Then one day Ken told me the code requirement had been abolished and he became my first Elmer.”

She and Ken started working on her license again in 2006, but Ken's health was deteriorating and finally he could not help her any longer. Helen, who is a registered nurse, became his caregiver. After Ken's passing, his longtime friend Kenneth “Scotty” Scott, W9VHL, talked to Helen about continuing her ham radio studies.

“Scotty said, ‘You can do it,’ and he became my new Elmer,” Helen said.

She also has had help setting up her antennas from Steve Schmitz, WØSJS, and Mark Choate, AAØYY, who helps a number of physically challenged hams in the area. Her Elmers have created new vistas for Helen.

“I don't think of myself as disabled,” she said. “I intend to use my amateur radio to help the area in the event of emergencies.”



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SS-30	25	30	3 1/4 x 7 x 9 1/2	5.0



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WITH SEPARATE VOLT & AMP METERS

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

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

WITH SEPARATE VOLT & AMP METERS

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



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

CIRCLE 134 ON READER SERVICE CARD

Hamming from the Shadows - Part 7

Our prescription for happy hamming amidst today's barrage of CC&Rs continues this month with more tales of success, views of low-profile antennas, and items for avoiding detection through tell-tale RFI. Hopefully you will acquire at least two tricks or techniques to help you survive those increasingly harsh restrictions on outdoor antennas.

While writing those words, I found myself pondering why Home Owners Associations and condo committees seldom recognize the benefits of having an active and on-the-air radio amateur in the neighborhood, as it is akin to having a direct link to emergency services when cut off from the outside world by hurricanes, floods, tornadoes, and other natural (and otherwise) disasters. This is our intent, preparing and presenting easy-to-understand details of ham radio's good works while learning all we can about low-profile antennas and near-field RFI. The thought definitely holds merit, and perhaps our following views are good starting points for learning more...

Like Me, Like My Antennas

When several years ago our good friend Joey Jet, N4ZUW, moved to Florida and purchased a nice house in a friendly neighborhood, he was allowed to install a slim Cushcraft R-8 multiband vertical on the rear of his house. Foliage and a couple of fair-size trees blocked the view from nearby streets, so basically the antenna went unnoticed. A few years later, CC&Rs entered the picture and

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



Photo 1— This mild-mannered Cushcraft R-8 vertical at the home of Joey Jet, N4ZUW, is probably the most high-profile antenna one can hope to use in a CC&R-limited community. Make no mistake here, however; a $3/8$ - and/or $1/2$ -wave vertical is cost-effective, does not require an extensive radial system, and its performance is often comparable to a 2-element beam. Check <www.joeyjet.com> (shown on bumper of Smart Car) to see Joey flying stars and VIPs nationwide.



Photo 2— Rear-house view of N4ZUW's R-8 vertical illustrating how it is lightly and naturally cloaked by two large trees. Nice!

Joey's R8 became the focus of intense scrutiny. The new Home Owners Association sent him a letter that, in essence, grandfathered in his existing antenna, but stipulated it could not be

replaced if and when it fell or was destroyed (probably by a hurricane, in which Joey's makeshift replacement would prove amateur radio gets through when all else fails!). Will Joey maintain



Photo 3— You are looking at the CC&R-regulated home and multiband antenna system of Jeff, K8CQ. What and where is the antenna? It is a short vertical with a giant capacity hat, and it is disguised as a prim and proper white rain gutter routing around the house at the roof's edge. Yes it works well. Jeff has contacted over 200 DX entities with it.

Maintaining a Low Profile

As discussed last month, using an unnoticed or almost invisible antenna is only half the battle for successful undercover hamming. One must also utilize every asset imaginable to avoid tell-tale RF interference to home electronics such as stereos, surround-sound TV systems, telephones, touch lamps, etc. Nearly all cases of RFI occur when an affected device is within an antenna's induction field, which Bob Rumsey, KZ5R, researched and found to be roughly within 20 or 25 feet of an antenna for 100 watts, 200 feet for 400 watts, and 400 feet for 800 watts. In seeking solutions to RFI, Bob discovered the importance of eliminating signal radiation from an antenna's feedline (it may become a phantom antenna) and consequently developed several neat line-isolating baluns. Check out these items at <www.balundesigns.com>.

Continuing his investigations, Bob also noted an ideal way to eliminate RFI from reaching home electronics is by installing clamp-on toroids on all the external wires (AC power cords, speaker wires, etc.). Install toroids right where wires enter/exit each item's cabinet. This presently is a vague and uncharted area, as toroids of 31 mix are the most effective for HF, and 77 or 43 mix toroids are the next most effective. Toroids are not marked, however, and getting the right one can prove challenging. At the present, the only source I know of for real, honest-to-goodness 31 mix toroids—in small quantities—is <www.radioworks.com> (1-800-280-8327). Keep plenty on-



Quick-fix for RFI. Install two or three clamp-on toroids on the AC power line plus any other input/output lines of an affected device—right at the device proper—and there is a 95-percent possibility RFI will be eliminated. All toroids are not equal, however, and generics may prove useless. Seek out type 31 mix toroids for best results.

hand and use them liberally to non-evasively eliminate RFI. That is, if one toroid seems sufficient, install three to be sure. Large-size, large-center-hole, and/or "binocular type" 31 mix toroids are also (especially!) desirable. Wind as many turns of speaker or power leads through them as possible for maximum RFI reduction.



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the antenna in like-new condition for many years hence? Will he someday replace it with a low-profile vertical disguised as a tall outdoor light post, or will Joey opt for working 20 meters as he flies rich and famous people around the country in his Lear jet? Time will tell. It also shows us how times and situations are changing—everywhere, every day.

Radiating Roofers

Moving up the Atlantic coastline, our next real-life tale of survival and hamming from the shadows comes from Jeff Lackey, K8CQ, a recent retiree on antenna-restricted St. Simon's Island, Georgia. Jeff initially installed an off-center-fed dipole hung under the eaves of his house. Overall antenna length was 90 feet zigzagged around the sides and back of his house, close to ground and radiating with a high signal take-off angle. The antenna worked well for in-country QSOs, but left much to be desired for DXing. Several months later, Jeff envisioned his home's metal rain gutters as a short vertical with a big top-hat capacity (as I always say, go vertical when horizontal antennas cannot be installed up high). Ohmmeter checks



Photo 4— RF feedpoint of the K8CQ "Gutter Tenna." Transmission line from the indoor station connects to a SGC-237 tuner in a weatherproof plastic box. Output wire from tuner is attached to the base of the downspout with a sheet metal screw. Since the antenna is low and close to the living area, Jeff never uses over 100 watts of power. (Photo courtesy K8CQ)

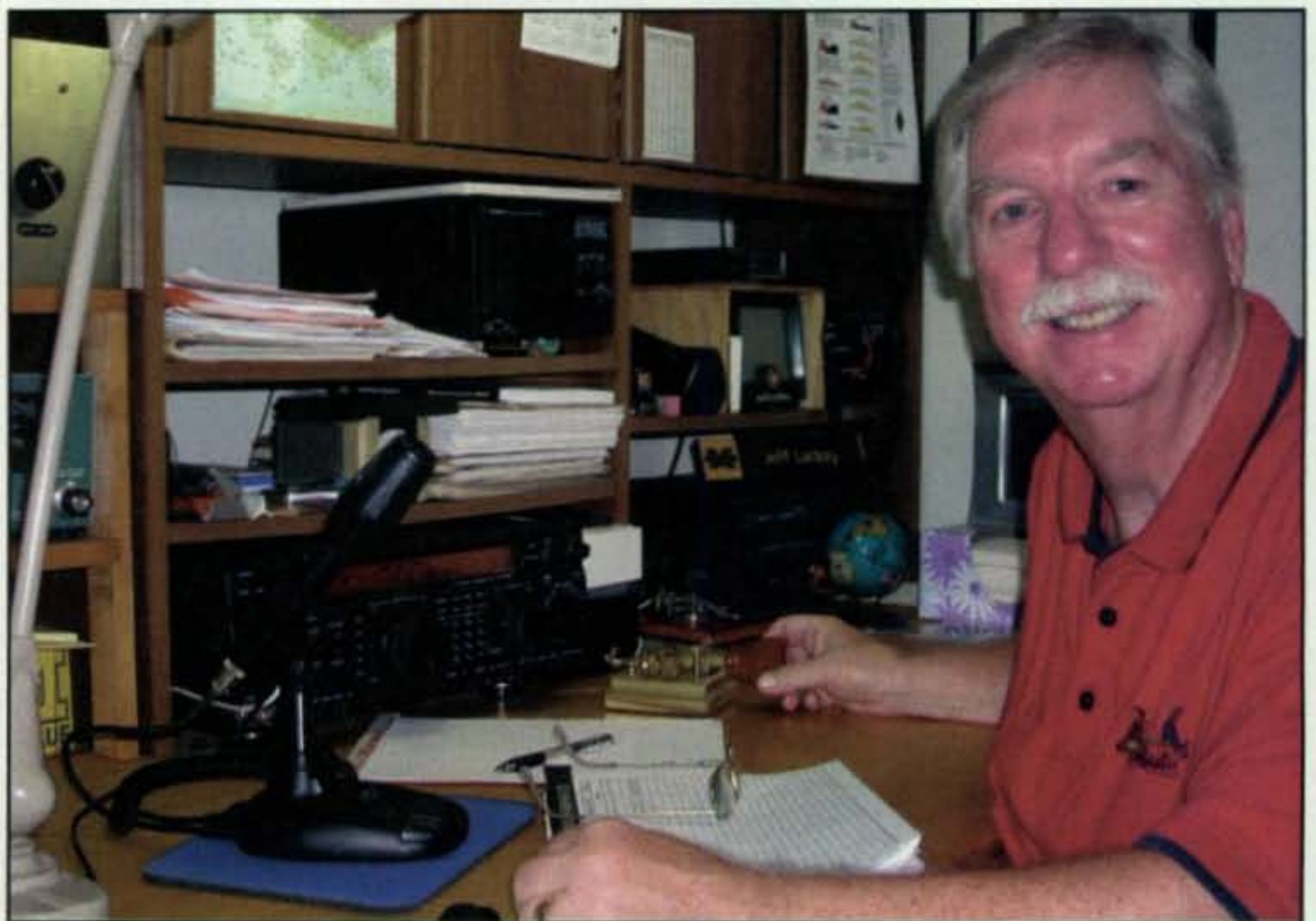


Photo 5— K8CQ at his indoor setup. The rig is so enjoyable to operate that Jeff often forgets he is using a low-to-ground makeshift antenna. Possibly that helps his outlook and improves his odds for success.

revealed all horizontal and vertical gutter sections were electrically connected, so Jeff selected a center downspout as a feedpoint. He installed an SGC-237 tuner at the base of the downspout, buried 16 radials between 15 and 40 feet long, and connected this setup to his indoor station via 50 feet of RG-8X coax. The tuner and gutter combo exhibited a low SWR on 160 through 10 meters, so Jeff proclaimed it ready for

action. He has now worked 220 DX entities and 37 world zones with the "Gutter Tenna" and a 100-watt output Yaesu FT-920—a true confirmation that low-profile hamming works. Our compliments to Jeff, K8CQ.

More Antenna Notes

A couple of years ago in this column, I highlighted a homebrew vertical anten-

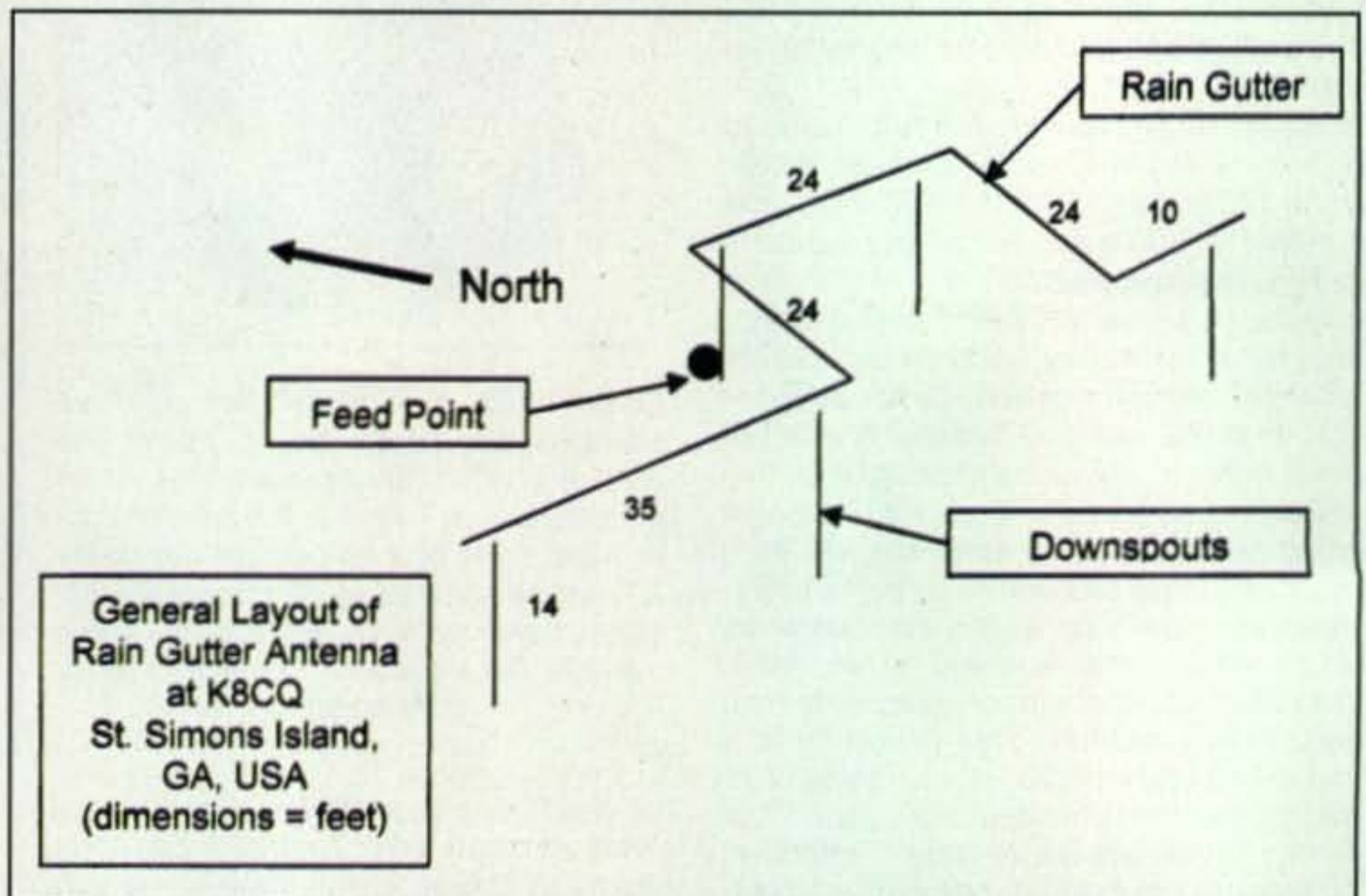


Fig. 1— Electrical outline of the "Gutter Tenna" at K8CQ reveals a zigzagged horizontal radiator approximately 117 feet long with five 14-foot high vertical radiators. The antenna is "worked against" a mating ground system of 16 radials varying in length from 40 to 15 feet.

na Dave Collins, AD7JT, sprayed with non-metallic Krylon™ paint for low visibility and attached near the side of his house. I have always advocated mounting verticals away from buildings, undetected utility lines, etc., but CC&Rs occasionally leave one no alternative. I recently checked back with AD7JT, and his success with the near-house vertical

Eliminating Telephone Interference



Many varieties of home telephones are quite prone to RFI, and attempting to eliminate such RF pickup, especially when the telephone is within your telephone induction field, can prove futile. Plug a KY filter into the telephone's rear socket, however, and in 95-percent of the cases, interference is eliminated. See <www.ky-filters.com> for more details and helpful hints on eliminating telephone interference.

Telephone lines are everywhere—throughout cities, neighborhoods, and subdivisions. Their unshielded lines are always prone to RF pickup. Also, outdoor connections at each home, plus consumer-installed wiring, can easily develop loose connections with age and produce RFI. Alternately or additionally, one might plug in an inexpensive telephone that lacks any form of RF filtering. How can you “fix” such a problem without entering a (possibly hostile) neighbor's home, dinking with wiring, or doing anything else that might be construed as “causing another problem”? Give the neighbor a KY telephone filter as shown in the accompanying photo and available from <www.ky-filters.com>. The neighbor simply unplugs the telephone line's modular plug from the telephone, right at the telephone itself, plugs in the KY filter and then plugs the telephone line into the KY filter. Bam! Interference is gone. The potential line problem still exists, but the interference is gone. Really! I proved this filter using a \$10 telephone 5 feet from my antenna. No filter, RFI big-time. With filter, no RFI . . . period. Every “undercover” amateur needs one or two of these filters for instantly eliminating telephone RFI.

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Photo 6— Is that a drain pipe for an attic-mounted water heater beside the house of AD7JT? No, it is a painted-to-match 20-meter vertical antenna. It could, however, be changed to a SteppIR vertical modified for gain-type $3/8$ -wave operation as discussed in the text. Add a plastic reflector and phony light to the top, and it could even pass as an emergency night light to foil prowlers.

(DXCC plus WAS with only 100 watts) inspired my creative thinking. If a near top support disappearing in an attic vent was to be implemented, the antenna could pass as a drain pipe for an attic-located water heater. If the pipe/antenna was changed to a SteppIR vertical, it could be remotely band-switched and tuned for lowest SWR right from the radio room. If the antenna height was at least 25 feet tall (or an extension/linear-loading wire 8 feet long switched in at the base of a 17-foot SteppIR and a broadband matching network as used with Hy-Gain's AV-640 vertical added), the antenna could be reset to function as a $3/8$ -wave vertical. Make no mistake here: a $3/8$ -wave vertical noticeably "outworks" a $1/4$ -wave vertical. Additionally, short spokes rather than long radials could then serve as an effective ground system. Then, too, the antenna's overall length could be reset for 23 feet to operate 30 meters as a regular $1/4$ -wave vertical (three or four equal-length radials are required). Finally, the "far end" of an inverted-L for 40 (or 80) placed on the roof could be anchored near the vertical's top using clear fishing line. Continue thinking about this idea and you, too, will agree that an antenna farm disguised as a drain pipe holds good merit.

If a disguised vertical antenna does not fill your needs, maybe a "now you see it, now you don't" balcony-friendly

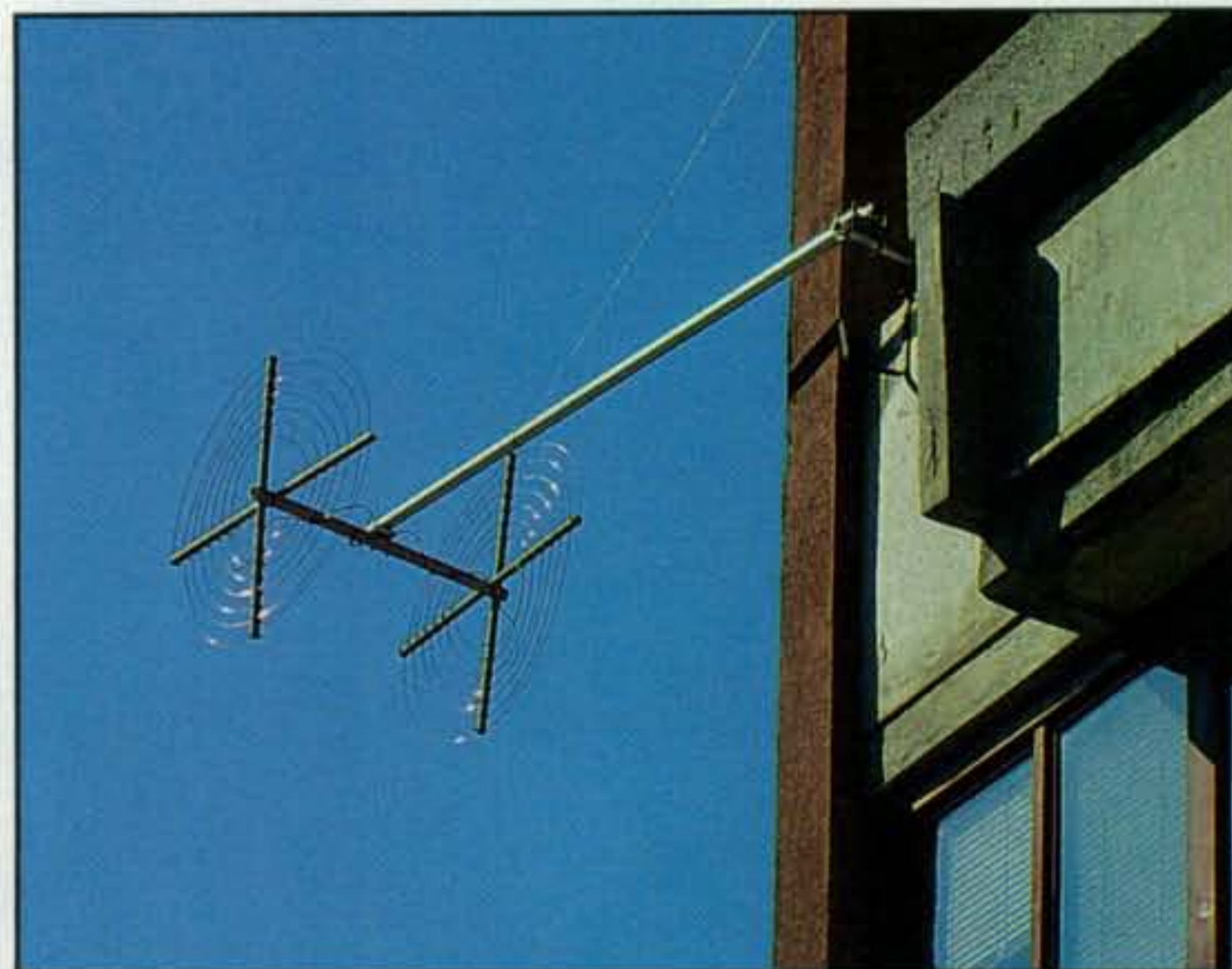


Photo 7— Apartment- or condo-living hampering your hamming? Take a closer look at the new TAK-Tenna (shown here at the QTH of S52CC in Slovenia). It measures 30 inches end-to-end, can be spiral-wound for operation on any single band between 40 and 10 meters, quickly attaches to a balcony rail, and is easily stored. Initial reports give the little antenna a good performance rating. More details at <www.tak-tenna.com>.

TAK-Tenna is the answer. This radiator boasts an interesting new design, and from what we hear it works well for its size. The TAK-Tenna is basically a dipole with most of its wire wound spiral pancake fashion on end-frames spaced 30 inches apart. The standard TAK-Tenna is wound for 40 meters, but you can wind it for 20 or 10 meters (and probably 30 meters) on the same end-forms. The antenna is reasonably priced, small enough to hide behind a rug or some hanging basket plants on a condo balcony, and stored in a closet when not in use. You might also spray it with non-metallic Krylon™ paint in a color to match its background so it will pass unnoticed when attached to a balcony rail three or four floors above ground. When discussing this antenna with designer/producer Steve Tetorka, WA2TAK, I learned that S52CC in Slovenia made 267 contacts with 80 DX entities after mounting his TAK-Tenna to an apartment's balcony rail. KE5MBW wound his TAK-Tenna for 20 meters and says it outworks his 20-meter inverted-Vee. KB3IEX reported it performs roughly on par with his Gap vertical. Steve, WA2TAK, also shared photos of TAK-Tennas mounted on boats and trailers. In reviewing comments from owners, I also note everyone complimented WA2TAK on his outstanding customer support. More details on the unique TAK-Tenna are available at <www.tak-tenna.com>.

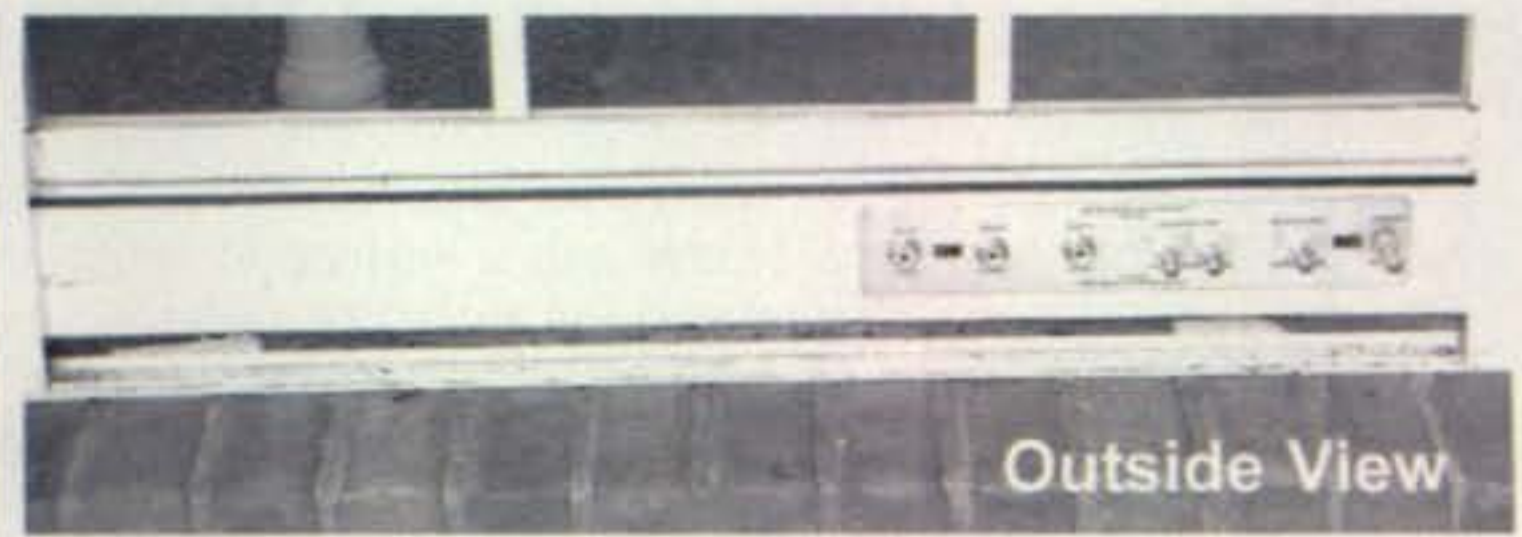
Conclusion

That wraps up our views for this time, friends, and I sincerely hope each and every radio amateur facing antenna and HF operating restrictions acquired at least two previously unrealized or overlooked ideas for staying on the air. Always remember that everyone plays an important role in amateur radio. Big guns, little pistols, and underdogs alike are all needed and appreciated. Remember, too, we want to hear your story and see pictures of how you are successfully "hamming from the shadows." We all learn and grow through such sharing of knowledge. E-mails and postal letters are welcome, and my addresses are listed on the first page of this column.

73, Dave, K4TWJ

MFJ Weather-Proof Window Feedthrough Panels

Weather-proof window feedthrough panels bring coax, balanced lines, HF/VHF/UHF antennas, random wire antennas, ground, rotator/antenna switch cables and DC/AC power into your hamshack without drilling through walls!



MFJ Weather-Proof Window Feedthrough Panels mount in your window sill. Lets you bring all your antenna connections into your hamshack *without* drilling holes through walls.

Simply place in window sill and close window. One cut customizes it for any

window up to 48 inches. Use horizontally or vertically. Connectors are mounted on inside/outside stainless steel plates and attached to a 4 foot long, 3 1/2 inch high, 3/4 inch thick *pressure-treated* wood panel. Has excellent insulating properties. Weather-sealed with a heavy coat of long-

lasting white outdoor enamel paint. Edges sealed by weather-stripping. Seals and insulates against all weather conditions. Includes window locking rod.

Inside/outside stainless steel plates ground all coax shields. Stainless steel ground post brings ground in.



MFJ-4603 Universal Window Feedthru Panel

Four 50 Ohm Teflon[®] SO-239 coax connectors lets you feed HF/VHF/UHF antennas at full legal power limit.

A 50 Ohm Teflon[®] coax N-connector lets you use any antenna up to 11 GHz, including 450 MHz, UHF, satellite, moon bounce and 2.4/5.8 GHz Wi-Fi antennas.

A 75 Ohm, 1 GHz F-connector makes it easy to bring in television, Satellite, HD, cable TV and FM radio signals.

A pair of high-voltage ceramic feedthru insulators lets you bring in 450/300 Ohm balanced lines directly to your antenna tuner.

Has random/longwire antenna ceramic feedthru insulator.

3 Coax, Balanced Line, Random Wire

Best Seller! 3 Teflon[®] coax connectors for HF/VHF/UHF antennas. Separate high voltage ceramic feed-thru insulators for balanced lines and longwire/random wire, Stainless steel ground post.

6 Coax

6 high quality Teflon[®] coax connectors for HF/VHF/UHF antennas. Stainless steel ground post. Full 1500 Watt legal limit.

4 Balanced Line, 2 Coax

4 pairs of high-voltage ceramic feed-thru insulators for balanced lines and 2 coax connectors.

5 Cables, any-size

5 Adaptive Cable Feedthrus[™]. Pass any cable with connector: 2 cables with large connectors up to 1 1/4 x 1 1/8 inches and 3 cables with UHF/N size coax connectors. Seals out weather.

5-way binding posts lets you supply 50 Volts/15 Amps DC/AC power to your outside antenna tuners/relays/switches.

Stainless ground post brings in ground connection, bonds inside/outside stainless steel panels together and drains away static charges.

MFJ's exclusive Adaptive Cable Feedthru[™] lets you bring in rotator/antenna switch cable, etc. without removing connectors (up to 1 1/4 x 1 1/8 in). Adapts to virtually any cable size. Seals out rain, snow, adverse weather.

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Gives you every possible cable connection you'll ever need through your window without drilling holes in wall -- including UHF, N and F coax connectors, balanced lines, random wire, ground, DC/AC power and cables of any size for rotators, antenna switches, etc.

Bring cables thru eave of your house



MFJ-4616 shown with standard full-size vent (not included) it replaces. For 6 Cables

\$26⁹⁵ New!

MFJ-4613 shown with standard half-size vent (not included) it replaces. For 3 Cables

\$14⁹⁵

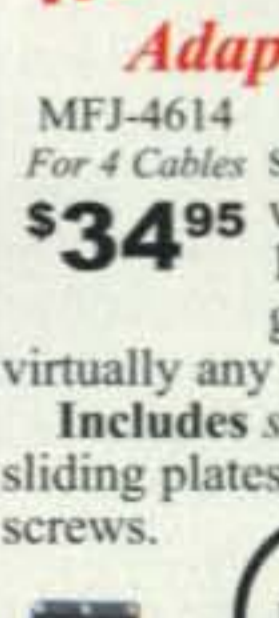
Replace your standard air vents on the eave/sofitt of your house with these MFJ AdaptiveCable[™] Air Vent Plates and... Bring in coax, rotator, antenna switch, power cables, etc. with connectors up to 1 1/4 x 1 5/8 inches!

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MFJ-4612 For 2 Cables

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MFJ-4611 For 1 Cable

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MFJ-4614 For 4 Cables Bring nearly any cable -- rotator, antenna switch, coax, DC/AC power, etc. -- through walls *without removing connectors* (up to 1 1/4 x 1 1/8 inches). Sliding plates and rubber grommets adjust hole size to weather-seal virtually any size cable.

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Getting into Amateur Radio

A Beginner's Guide to Becoming a Ham Radio Operator

Amateur radio, often called ham radio, is both a hobby and a service in which operators use various types of radio equipment to communicate with other radio amateurs. There are more than 650,000 FCC-licensed amateur radio operators in the United States and its possessions, some two million worldwide. There are thousands of amateur radio clubs in the U.S. that you can join. Besides talking on the radio ("ragchewing"), radio amateurs participate in all sorts of side hobbies. These include DXing (contacting faraway places), direction-finding activities, contesting and award chasing, passing messages for others, collecting QSL cards (radio contact confirmations), tinkering with antennas and radio gear, public-service communications, talking through repeaters (automated relay stations), and communicating through amateur radio satellites called OSCARs (Orbiting Satellites Carrying Amateur Radio).

Unlike all other spectrum users, radio amateurs are allowed to "homebrew" (build or modify) transmitting equipment. You can even fly remote-control model airplanes on ham-band frequencies. Best of all, amateur radio is really easy to get into.

Ham radio has been around for more than a century and exists in practically every country in the world. Marconi, who made the first long-distance two-way radio contact, considered himself an amateur. Since radio waves do not respect national borders, the hobby is governed by the same basic regulations in every country.

International Amateur Radio Law

This regulatory framework allows radio amateurs of one country to communicate with other hams on the same bands of radio frequencies, each of which offers different propagation characteristics. Some frequencies are good for local communications, and others allow direct radio contacts thousands of miles away by bouncing signals off the upper atmosphere.

The amateur service rules (Article 25 of the international Radio Regulations) are further streamlined by individual countries. National rules must be enacted within the Article 25 guidelines established by the International Telecommunication Union in Geneva, Switzerland. Nearly 150 years old, the ITU—a part of the United Nations—is the global governing body over telecommunications.

By current international definition, amateur radio is a public, two-way, non-professional radio service which exists to (1) further self-training in radio communications, (2) facilitate electronic experimentation, (3) provide communication capability between radio amateurs, and (4) meet communication needs during emergencies and disasters.

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

By non-professional, we mean you can't get paid to provide communications. The last update to the international amateur service regulations took place in July 2003 at the Geneva World Radio Conference attended by representatives from nearly 200 countries throughout the world.

In a nutshell, the international rules require individual countries to "...verify the operational and technical qualifications" of amateur applicants and to issue them a license if found qualified. These qualifications are suggested (but are not mandatory) in ITU Recommendation 1544.

This "Recommendation" is basically an outline of what a ham operator should know. The list includes knowledge of domestic and international Radio Regulations, methods of radio communication, radio system theory (transmitters, receivers, antennas, propagation, and measurements), RF safety, electromagnetic compatibility (the ability of electronic devices to work as intended), and radio frequency interference (RFI) handling. Knowledge of Morse code is no longer required.

Individual unique station call signs must be issued and used periodically for on-the-air identification. Transmitted power levels are left to individual countries to determine. Emergency communications is important and the international rules encourage individual countries "...to prepare for and meet communication needs in support of disaster relief."

U.S. Amateur Radio Law

Amateurs are required to pass an examination to demonstrate technical knowledge, operating competence, and awareness of legal and regulatory requirements in order to avoid interference to other amateurs and radio services.

Ham radio regulations applying to the United States and its possessions are determined by the Federal Communications Commission (FCC) and are found in Part 97 of Title 47 (Telecommunications) of the Code of Federal Regulations.

In the U.S. there is no ban whatsoever on personal communications via amateur radio, even some with a personal business component (the most often-used example is that you may use a ham radio "autopatch" to order a pizza, but the delivery person may not use it to call you and say he's on his way). You also may talk with any radio amateur anywhere; there are no banned countries.

The rules are set up to allow flexibility, since radio technology is in a constant state of change. Authorized transmissions, modes, and frequencies are spelled out in Part 97. Each ham must identify his/her station with its call sign every ten minutes and at the end of each communication.

Section 97.113 (Prohibited transmissions) bans business communications, playing music, communications that facilitate a criminal act, secret (encod-

ed) messages, obscene and indecent language, broadcasting to the general public and—with a couple of specific exceptions—retransmitting programming from another radio service.

Part 97, although divided into six subparts, is not very long. Subpart "A" covers Licensing; "B" Operating standards; "C" Special communications (such as repeater, satellite, beacon operation, etc.); "D" Technical standards (such as authorized frequencies, modes and power); "E" Emergency communications; and "F" Licence examination handling. Every radio amateur is required to be familiar with the contents of Part 97. You can easily find these rules on the web (internet) using a search engine.

Getting a License

Operation of an ham radio station in the U.S. or its possessions generally requires obtaining an amateur radio operator license granted by the FCC. An exception is that the licenses of certain other countries recognized by the FCC may authorize operation in the U.S.

Before receiving an FCC license, you must pass an examination administered by a local team of three Volunteer Examiners (VEs) to determine your operator class. VE teams are located in most communities throughout the U.S.

Volunteer Examiners are licensed radio operators who prepare and administer amateur radio operator license examinations to beginners and those wishing to upgrade their license to a higher class. Although anyone at any age may hold a ham license, you must be at least 18 years old to be a VE.

Examiners are accredited by Volunteer Examiner Coordinators (VECs) who serve as the administrative liaison between the VEs who administer the exam and the FCC which grants the license. The exam team may charge applicants a fee to cover expenses incurred in preparing, processing, administering, or coordinating your exam.

The Volunteer Examiners are responsible for the proper conduct and necessary supervision of the examination session and determining the correctness of each examinee's answers. The VE team will issue you a Certificate of Successful Completion of Examination (CSCE) if you score a passing grade (see Table I).

The License Classes

There are three license classes, each authorizing privileges corresponding to the qualifications required. The FCC licensing scheme rewards technical

and operational proficiency with additional frequency and operator privileges. The classes of license, from highest to lowest are: Amateur Extra Class, General Class, and Technician Class. The FCC stopped issuing new Novice, Tech Plus, and Advanced Class licenses several years ago, but still allows holders to renew them (Tech Plus licenses are renewed as Technician licenses, since the privileges of the two are now identical).

New amateur radio operators usually start at the beginning Technician

Class operator level. The privileges of a Technician Class operator license include operating an amateur station in any of 17 amateur frequency bands above 50 MHz (VHF range and higher) with up to 1500 watts of power.

Most newcomers begin on VHF-FM using battery-operated, hand-held transceivers set to transmit through repeaters. FM repeaters receive signals on one frequency and simultaneously retransmit them on another at higher power, which greatly increases the range of a small hand-held radio.

RIGblasters

With five models to choose from a RIGblaster is the original sound card interface for all ham sound card programs, any radio, any computer and all hams.

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NEW! Z-100Plus

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

Suggested Price \$159.99



NEW! Z-817

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



AT-200Pro

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

Suggested Price \$249



NEW! KT-100

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



See

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

AT-1000Pro

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

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

Now With 2 Year Transferable Warranty!



AT-100Pro

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

Suggested Price \$219



radio not included

AT-897 for the Yaesu FT-897

If you own a Yaesu FT-897 and want a broad range automatic antenna tuner, look no further! The AT-897 Autotuner mounts on the side of your FT-897 just like the original equipment. We even added the ability to mount the "feet" on the side of the tuner so when you're transporting your rig by the handle, you can safely set it down and not worry about scratching the case. The AT-897 takes power directly from the CAT port of the FT-897 and provides a second CAT port on the back of the tuner so hooking up another CAT device couldn't be easier. **Suggested Price \$199**



radio not included

FT Meter

LDG's new version of its popular FT-Meter presents a lush, highly readable 2.5" meter face with calibrated scales for signal strength and discriminator reading on receive, and power output, SWR, modulation, ALC action and supply voltage on transmit. Each function is selectable from the radio's menu. On/Off switch for the light. • LED back-illuminated in cool, high-visibility blue. • Calibration adjustment is on the back of the unit; makes it easy to calibrate. • Backlight brightness adjustment is also on the back of the unit; so you can set the backlight to your desired level brightness. The FT-Meter comes fully assembled and ready to go; just plug it into the radio and you're in the picture like never before. **Still Only \$49**



Z-11Pro

The original portable Z-11 was one of LDG's most popular tuners, accompanying adventurous hams to their backyards, or to the ends of the earth. Now meet the Z-11Pro, everything you always wanted in a small, portable tuner. Designed from the ground up for battery operation. Only 5" x 7.7" x 1.5", and weighing only 1.5 pounds, it handles 0.1 to 125 watts, making it ideal for both QRP and standard 100 watt transceivers from 160 - 6 meters.

"With 8,000 memories in LDG's exclusive "3-D Memory" array, the Z-11Pro uses LDG's state-of-the-art processor-controlled Switched-L tuning network. It will match dipoles, verticals, inverted-Vs or virtually any coax-fed antenna. With an optional LDG balun, it will also match longwires or antennas fed with ladder-line. All cables included.

Suggested Price \$179



NEW! IT-100

The Icom IC-7000 remains one of the most remarkable radios ever marketed. This small, do everything, go anywhere rig sent shock-waves through the ham community when it was introduced, and continues to be a best-seller. Always looking to make our products better and more useful, LDG's popular AT-7000 tuner made to compliment the IC-7000 (and other AH-3 and AH-4 compatible Icom radios) has been upgraded to the IT-100. Still matched in size to the IC-7000 and IC-706, the IT-100 now sports a front panel push-button for either manual or automatic tunes, and status LEDs so you'll know what's going on inside. You can control the IT-100 and its 2000 memories from either its own button or the Tune button on your IC-7000 or other Icom rigs. It's the perfect complement to your Icom radio that is AH3 or AH-4 compatible.

Suggested Price \$179.99

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License Class	Written Element	Questions in Pool*	Exam Questions	Passing Mark
Amateur Extra	Element 4	738	50	37
General	Element 3	484	35	26
Technician	Element 2	392	35	26

*Notes: The number of questions in each pool may be slightly less due to ongoing deletions caused by rule and technology changes. Qualifying for a higher class license requires that you have first passed the exam for any and all lower class licenses.

Table I—The current amateur radio operator examination elements.

Repeater operation is a great way for beginners to meet other hams in their local area.

Technician Class licensees also have limited privileges in four segments of the long-range HF (3–30 MHz) bands. These segments—in parts of the 80-, 40-, and 15-meter bands—authorize telegraphy (Morse code only) transmissions; telegraphy, voice, and digital modes are also authorized on portions of the 10-meter band.

Some people, however, start at the General Class level. A few even begin at the Amateur Extra Class. These higher class operators are authorized privileges in all 27 amateur service bands, which range in frequency from just above the AM broadcast band (1.8 MHz) to up in the microwave “gigahertz” region.

The Examination

There are three written examination ele-

ments: Elements 2, 3, and 4. The questions on each of these elements relate to the privileges of a specific license class. There is no longer an Element 1 (Morse code exam), since telegraphy testing was discontinued two years ago.

You must pass all three written exam elements (2, 3, and 4) to achieve the Extra Class level; for the General Class both Element 2 and 3 are required. Element 2 is the sole examination needed for the Technician Class. You must complete and submit an application (NCVEC Form 605) to the VE team to be examined for a ham ticket. There is generally a small fee for each examination taken.

All exam questions are taken from one of three common question pools which are developed and maintained by the VECs. These pools are revised and updated periodically to incorporate the latest rules, new technology, and interests of the Amateur Radio Service com-

munity. All questions are in a multiple-choice format, and the exact questions and multiple-choice answers are known and widely published.

Many people start their involvement in amateur radio by finding a local radio amateur or club. Ham radio clubs often provide information about licensing and welcome opportunities to assist newcomers. However, many beginners also study independently.

It is important that you prepare for your examination using material based on the question pools currently in use. A question pool normally remains valid for a four-year period. The current Element 2 (Technician) pool is valid for use between July 1, 2006 and June 30, 2010; the Element 3 (General) pool between July 1, 2007 and June 30, 2011; and the Element 4 (Extra Class) pool between July 1, 2008 and June 30, 2012.

Commercially available study material is available in the form of audio and video tapes or CDs, manuals, and books, or computer learning software. Many clubs, schools, and individuals also offer live instructional courses with the question pools serving as the basis of the training class.

A person can usually prepare for the Technician exam by studying over a weekend. You simply go over the questions and answers and pass the test. Each of the various pools contain questions that relate to the privileges accorded by the license class.

Universal Licensing System

Each of three-member VE team will each sign your NCVEC Form 605 application, certifying that you have passed your required license examination. All applications from the exam session are then forwarded to the team’s coordinating VEC. Once received, the VEC will screen your application and then electronically “batch file” the licensing information directly into the FCC’s Universal Licensing System (ULS) computer. This initial processing could take a week, depending on how long it takes the VE team to handle the exam session paperwork and mail it to the VEC office.

The FCC’s COMmission REGistration System (CORES) computer will automatically assign you a ten-digit FCC Registration Number (FRN) and a password. That’s if you are not already in the FCC’s database of applicants. Simply stated, the CORES registration is the process of identifying your Taxpayer Information Number (typically your Social Security Number), your name, address, and other information to the government and into the FCC ULS system.

Region Numeral	States and Other Areas
1	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont
2	New Jersey and New York
3	Delaware, District of Columbia, Maryland, and Pennsylvania
4	Alabama, Florida, Georgia, Kentucky, North Carolina, South Carolina, Tennessee, and Virginia
5	Arkansas, Louisiana, Mississippi, New Mexico, Oklahoma, and Texas
6	California
7	Arizona, Idaho, Montana, Nevada, Oregon, Utah, Washington, and Wyoming
8	Michigan, Ohio and West Virginia
9	Illinois, Indiana and Wisconsin
0	Colorado, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota
Special Call Sign Prefixes	
0–9	Alaska (reserved prefixes: AL, KL, NL, and WL)
1–5	Puerto Rico, US Virgin Islands & other Caribbean Island Possessions (reserved prefixes: KP, NP, and WP)
0–9	Hawaii & South Pacific Island Possessions (reserved prefixes: AH, KH, NH, and WH)

Every U.S. Amateur Service station callsign must have a one-letter (K, N, or W) or a two-letter prefix (AA–AL, KA–KZ, NA–NZ, WA–WZ) and a one-, two-, or three-letter suffix separated by a numeral (0–9) indicating a geographic region. Callsigns are available in five different formats: 1-by-2, 1-by-3, 2-by-1, 2-by-2, and 2-by-3s. The shorter callsign formats (i.e., 1-by-2, 2-by-1, and 2-by-2) are available to Amateur Extra Class licensees. Technician Class licensees hold 1-by-3 or 2-by-3 format callsigns. “Special Event” rules allow temporary use of 1-by-1 format callsigns.

Table II—Geographic region-based numerals in U.S. amateur station callsigns.



Come by and see us May 15-17 at Hamvention 2009 in Dayton, OH Booths 254-265

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SDC-102 \$130

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500 Watts P.E.P.
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3.5 Mhz - 54.0 Mhz
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HIGH POWER

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Model 75A	Model 300A	Model 400A
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Note: Mounts are not included.

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Nifty!
Reference Guides

Registering your Social Security Number with the FCC is not optional; it became mandatory on December 3, 2001. You cannot get an Amateur Service license without providing it. Enacted by Congress in 1996, the Debt Collection Improvement Act requires all federal agencies, not just the FCC, to collect Taxpayer Identification Numbers to aid in the collection of outstanding funds owed to the U.S. Government. As part of licensing, your SSN is routinely run against a "red light" database of individuals who have outstanding debts whenever you request a government benefit, including a ham ticket. The benefit is denied if money is owed until payment arrangements are made.

The FRN is also used to identify you in all future transactions with the FCC, such as the filing of address and callsign changes and license renewal applications. The combination of your FRN and password allows you to access ULS and electronically file these updates and applications using your personal computer.

Station Callsign

A unique callsign is assigned by the FCC to each amateur station during the initial licensing process. A radio amateur's first callsign is sequentially selected from an alphabetized regional-group list based on the licensee's operator class and mailing address. The mailing address must be one where the licensee can receive mail delivery by the United States Postal Service.

Assuming that you have passed the Element 2 (Technician Class) exam, your first callsign will be in a "two-by-three" format beginning with the letter "K." This callsign contains two prefix letters (KA through KZ) and three suffix letters (AAA

through ZZZ) separated by a numeral (0-9) indicating the geographic region of your mailing address (see Table II). Certain prefix/suffix combinations of letters are not used or are restricted to stations with mailing addresses outside of the continental (lower 48) United States.

Once received, you never have to change this callsign unless you want to. The station is automatically reassigned the same callsign upon renewal or when the licensee upgrades to a higher license class. You may, however, change to a different sequential callsign (the next one from the alphabetized list) at any time without cost. Once you get your initial callsign, you may also apply for a specific available "vanity" callsign appropriate for your license class, but there is a small government fee.

Authority to Operate

Your operating authority begins when your license grant information appears in the FCC's Amateur Radio Service licensing information. It can be found by searching the FCC's Universal Licensing System (ULS) located on the World Wide Web at <<http://wireless.fcc.gov/uls>>. These searches allow the viewing of both pending applications and granted license information.

You should receive a license document from the FCC about two weeks after passing the required examinations. However, there is no requirement that you have a "hard copy" license in your possession before you begin operating on the ham bands. You are fully licensed once you and your callsign appear in the FCC's online amateur service database. Amateur radio licenses carry a ten-year term and may be renewed without further examination.

73, Fred, W5YI

The CQ DX Marathon: A Beginner's Look

In a somewhat rare dose of free time, I read the December 2008 issue of *CQ* to see what my fellow columnists were doing. I came across the CQ DX Marathon announcement in the issue and thought, "How can a beginning ham, with a Technician or Novice license, participate in this interesting operating event?"

This is a year-long operating event intended to stimulate activity in "working DX," or making long-distance contacts. The goal is to successfully complete as many two-way contacts with as many CQ Zones and countries as possible within the calendar year. A nice map of the CQ Zones can be found on the internet (see the References and Resources box for the link).

There is still plenty of time to form a plan and join the fun. This will also be a great opportunity to establish a goal to operate on the HF bands below 30 MHz and contact foreign stations. Also, even if you do not have any station equipment at all, you may still be able to participate in this event.

The complete rules and details are posted on the CQ website and are in the December 2008 issue of *CQ*, so I will not repeat them here. Let's focus on some of the aspects of this event and form a plan to play in this contest.

Choose Your Battle

In Section 3, Categories, the rules state that this is a "single operator only" event, so this means that the CQ DX Marathon is a battle between indi-

*16428 Camino Canada Lane, Huntington Beach, CA 92649

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

viduals all over the world. Let's take a look at the two classes, "Formula" and "Unlimited," and decide which one to choose.

The Formula class includes two "sub-classes," so we actually have three categories of entrants. The first sub-class in the Formula category is for using 10 watts or less, and the second sub-class is for 100 watts or less. In addition, there are rules on the types of antennas used in the Formula class.

For the 10-watt Formula contestants, antennas are limited to installations on a single tower at a height of 65 feet maximum, and must be within 330 feet (or 100 meters) of the tower base. Wire antennas may also be used, but must follow the rules for the 100-watt category and may be supported at *only one point*.

The second option within the Formula class is the use of 100 watts or less. Antennas for the 100-watt stations must be either simple verticals or wire antennas lacking gain. Antennas must not have multiple elements for increased gain (an "array"), nor are long wires exceeding 130 feet in length allowed, except on 80 and 160 meters. Vertical antennas must not be more than 33 feet higher than the station floor at their base, while dipoles or other wire antennas must not be more than 60 feet above ground. Yagis, quads, or tower-mounted antennas (except wire antennas meeting the height limits above) may not be used in this category. If this sounds a bit confusing, take a look at fig. 1, which illustrates some simple antennas that are within the rules. You may also want to take a look at some of the antenna books found in the CQ Bookstore, or ask your ham friends for help choosing a suitable antenna.

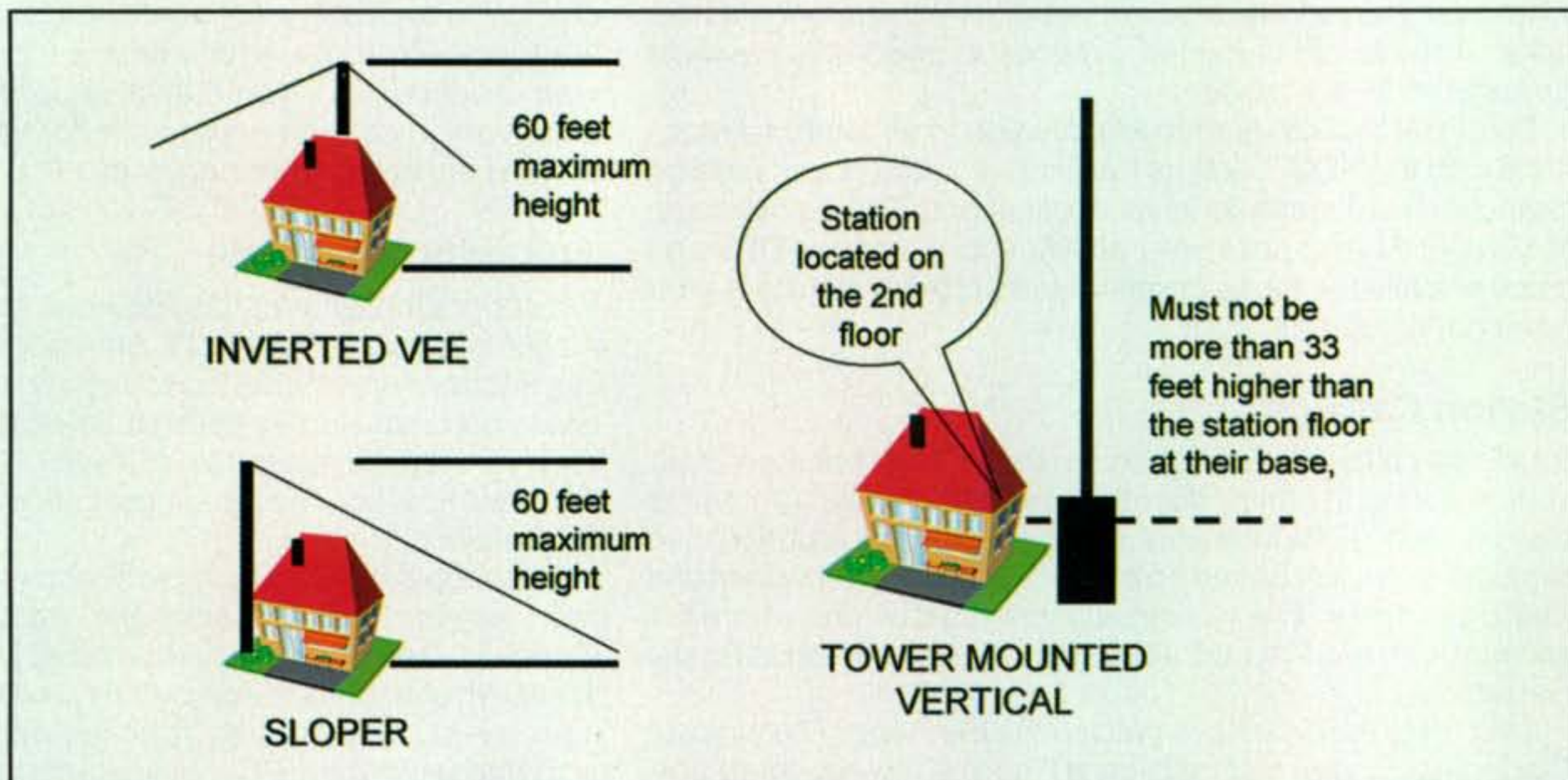


Fig. 1— Simple wire antennas can be used in the DX Marathon. Typical antenna types include the inverted-Vee, the dipole, the sloper, and the tower-mounted vertical.

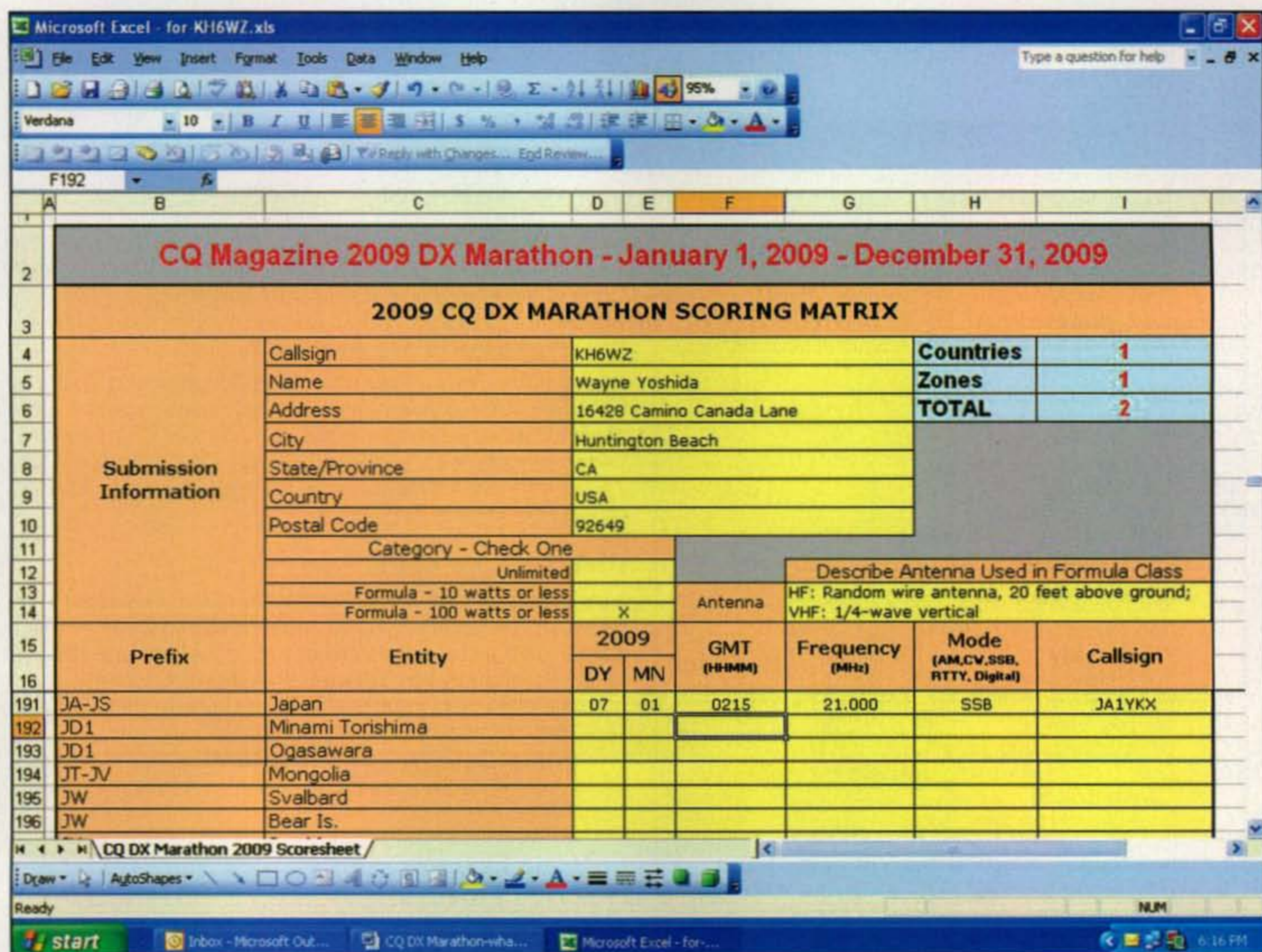


Fig. 2— A screen capture of the official DX Marathon entry form. This file can be downloaded and saved on your computer. It is a good idea to get this form as soon as you begin your DX Marathon operation.

In the Unlimited category, all the stops are pulled out and any antenna may be used, along with any power level for which the operator is licensed. This is what the ham radio world refers to as "Big Gun" stations with maximum legal power and monster-big antennas. Let's consider Big Gun participation as a goal to consider after more experience working DX.

My advice for beginners is to not take on the extra challenge of a low-power station at 10 watts or less. This is called "QRP operating." Although many long-distance contacts can be made with such low power, going to the 100-watt Formula class may increase your chances of successful, solid contacts and increase your enjoyment.

In addition, just about all commercially available HF radio sets, both new and old, are capable of running 100 watts. The simple antenna can be a dipole or a vertical, which can be either store-bought or homemade. Make sure your installation is within the height and length

limits, and this can be a great category in which to participate. The antenna limitations actually should be considered a positive and "equalizing" thing, since the rules accommodate antennas that will fit in many typical city lots.

What if You Don't Have HF Gear?

The DX Marathon is a low-bands contest. Thus, one must have—or have access to—an HF transceiver and antenna. If you want to play in the Marathon, but do not have an HF radio, you should check with your ham radio club to see if the club station can be used for DX Marathon participation. The station, of course, must comply with the Marathon rules regarding station category and antenna setups.

The rules are somewhat general when it mentions "club competition," so here is one suggestion on how your club or group can participate in the fray:

Configure the club station to accom-

modate the Formula and/or the Unlimited categories. In many cases, a club may possess several radios that are similar in capabilities, or may have several of the same model. It may be possible to re-configure the club station to create multiple, single stations for the DX Marathon.

Since the contest categories allow only a single operator to work the Marathon, the club may need to nominate operators to participate from the club station. Clubs who are considering this idea should include or emphasize participation by beginning operators.

Assistance

The Categories section mentions something about spotting nets, such as the DX Cluster. Spotting networks are like coaches: They provide hints on who, what, and where a good DX station can be found.

These coaching sources can take the form of internet websites, chat rooms,

QRA	What is the name of your station?
QRG	What's my exact frequency?
QRH	Does my frequency vary?
QRI	How is my tone? (1-3)
QRK	What is my signal intelligibility? (1-5)
QRL	Are you busy?
QRM	Is my transmission being interfered with?
QRN	Are you troubled by static?
QRO	Shall I increase transmitter power?
QRP	Shall I decrease transmitter power?
QRQ	Shall I send faster?
QRS	Shall I send slower?
QRT	Shall I stop sending?
QRU	Have you anything for me? (Answer in negative)
QRV	Are you ready?
QRW	Shall I tell _____ you're calling him?
QRX	When will you call again?
QRZ	Who is calling me?
QSA	What is my signal strength? (1-5)
QSB	Are my signals fading?
QSD	Is my keying defective?
QSG	Shall I send _____ messages at a time?
QSK	Can you work break-in?
QSL	Can you acknowledge receipt?
QSM	Shall I repeat the last message sent?
QSO	Can you communicate with _____ direct?
QSP	Will you relay to _____?
QSV	Shall I send a series of V's?
QSW	Will you transmit on _____?
QSX	Will you listen for _____ on _____?
QSY	Shall I change frequency?
QSZ	Shall I send each word/group more than once? (Answer, send twice or _____)
QTA	Shall I cancel number _____?
QTB	Do you agree with my word count? (Answer negative)
QTC	How many messages have you to send?
QTH	What is your location?
QTR	What is your time?
QTV	Shall I stand guard for you _____?
QTX	Will you keep your station open for further communication with me?
QUA	Have you news of _____?

Table 1—A list of the International Q Signals.

local repeater groups, or packet radio networks. These networks could not function without the dedicated DXers who gather together and talk about what stations are on the air and on what frequencies the DX stations are operating. In the past, these spotting reports may have been reports of what stations were on the air, but in these days of lightning-fast internet connections, real-time reports of what stations are on the air "right now" are commonplace.

If you want to use these DX helpers, you should check with your fellow club members for more accurate advice in your particular area. One more thing: DX spotting networks are somewhat controversial. There are individuals who consider such helpers as way to cheat, and an equal number of individuals who believe spotting networks are simply tools to use. I encourage you to do your own research on spotting networks and form your own opinion.

Contest Documentation

In any ham radio contest, documentation is needed in order for you to enter the contest. This usually takes the form of some sort of summary sheet, a list of the contacts, and perhaps a statement that says you obeyed all ham radio rules and procedures as well as the contest rules when you participated in the contest. In this case, an official entry takes

the form of a Microsoft Excel® spreadsheet. This simplifies your record-keeping and helps the contest judges process the scores efficiently.

The form can be downloaded and saved on your computer. It will be best to use this Excel sheet at the beginning of your operation, and you should fill in the data as you complete each contact. Fig. 2 is a screen-capture of what this spreadsheet looks like. Remember to name your entry form as indicated in the contest rules: In the example shown, the file name is "for-KH6WZ.xls" which means this is a Formula class entry, and the contest entrant is KH6WZ.

Winning Efforts are Awarded

After a whole year of operating and documenting contacts, someone somewhere in the world will have contacted more places than anyone else in the competition. The person in each category who contacted the greatest number of CQ Zones and DX entities (see list on website) wins. Winners receive certificates or plaques.

Draw Up Your Battle Plan

Now let's form a strategy. Band or frequency selection may be limited, especially if you do not know Morse Code, in which case the 10-meter band is where you must operate (28.300 MHz and 28.500 MHz, 200 watts maximum). Of course, there is absolutely nothing that prevents you from learning CW and venturing out and onto the other bands!

Let's assume 10 meters will be used exclusively, since there are voice privileges there, and the antenna system can be simple.

Antenna System

In the spirit of this contest, and being mindful of our bank balances, let's consider a simple dipole, or its sister antennas, the inverted-Vee and the sloper. There are many information sources on wire antenna building, including my tutorial on wire antennas that appeared in "Beginner's Corner" for April 2007. You might want to study that article as well as a few antenna books to figure out what you can install at your location. Mind the Marathon rules on antennas as you plan your system.

So, What Can You Expect?

There are thousands of stations similar to the requirements of the Formula class all over the world, and they make all kinds of contacts every day. However, because these stations are very basic and simple, you should know that it will not be possible to establish a successful contact each and every time. In many cases, you may be able to hear the distant station, but the other station may not hear you. Also, sometimes it seems that no one can hear your station at all! This is quite normal, and one of the most important skills to learn while chasing DX is patience.

On a more positive note, it is reasonable to talk to the strong stations, both near and far. Looking at your rig, this would mean that if a station deflects the rig's signal-strength meter (S-meter) way to the right (S5 or above, and maybe less), chances are very good that you will be able to make a successful contact with that station.

Just like in real estate, a big factor for DX success is location, location, location. For example, when I lived in the New England area, I was amazed at the number of European stations I could hear and actually contact with an indoor wire dipole thumb-tacked to the ceiling. On the other hand, stations on the West Coast may have trouble hearing and working stations in Europe, but distant stations in the Pacific

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Ocean area and Asia are fairly easy to work. Therefore, a listing of "typical Formula contacts" will be different from region to region.

By the way, I plugged "How to work DX" in the Google search engine just now. There are tons of information on this topic, so if you want to learn how to work DX, take a look at some of those resources. Perhaps the best way to learn how to work DX, though, is to turn your radio on and "just do it."

A Typical Contact on the DX Bands

Because we are seeking contacts with stations in as many foreign countries as possible, there may be some challenges with language. Most, but not all, hams use and understand English. However, in order to overcome the language barrier, hams are able to use universally understandable abbreviations called "Q signals." See Table I for a listing of the international Q Signals.

The Q signals are intended for use on Morse Code (CW), but they are very often used on the phone bands to break the language barrier. I think it is quite amazing that a ham radio conversation can be made regardless of language capability of either party. A Q signal fol-

References and Resources

- The complete rules for the 2009 event are posted on the CQ magazine website: <<http://www.cq-amateur-radio.com/DX%20Marathon%20Rules%20Dec08.pdf>>.
- John Sweeney, K9EL, maintains a dedicated site for the Marathon: <<http://www.dxmarathon.com>>
- Amateur Radio Maps, Online: A link to a nice CQ Zone Map appears on this page. If this link does not work, search for "CQ Zone Map": <http://www.dxzone.com/catalog/Operating_Aids/Maps/>.
- Locher, Bob W9KNI, *The Complete DXer*, published by Idiom Press, ISBN: 0-9617577-0-1. This book is in its third edition, and is one of the most inspiring ham radio books I have ever read. You can order direct from Idiom Press, <<http://www.idiompress.com/index.htm>>, or from the CQ Bookstore. <<http://unix8.sunserver.com/cq/Detail.bok?no=118>>.
- A handy ham bands frequency chart is available on the ARRL website: <<http://www.arrl.org/FandES/field/regulations/bands.html>>.
- The CQ HF Specialty Pak "Getting Started in DXing and Contesting" DVD is a great source of information and is available from the CQ Bookstore.

lowed by a question mark asks a question. A Q signal without the question mark is an answer to the question, unless otherwise indicated.

For example, on the phone bands, one can ask the question, "Who is calling me?" by using a three-letter Q signal. On the radio, it would simply be someone asking "QRZ?" Note that by tradition, the letter "Z" is pronounced "Zed," the European pronunciation.

A response might go something like, "QRZ JA1IST, in Tokyo, Japan."

Beginning DXers should consult with their fellow club members to learn proper etiquette and techniques. Many web-

sites are dedicated to the sport of DXing, and it would be a good idea to study these hints. A very fun and interesting book on DXing is Bob Locher's *The Complete DXer*. Bob is W9KNI, and the book is full of interesting stories about chasing DX.

I hope this article inspires you to venture into the world of DXing. Chasing DX is one of the original ham radio challenges, and it can become much more than a thing to do with your radio. It becomes a style of life and a lifetime passion. In the words of the late Hugh "Cass" Cassidy, WA6AUD, "DX Is!"

73, Wayne, KH6WZ

Young Amateurs' Guide 2009: Clubs for Kids

In this installment of "Kids' Korner" I thought I would start off the new year by highlighting three youth clubs with a lot of promise. Two of them, YACHT and the D.A.R. Radio Club, are related, and one feeds members to the other. The third, 68BSARC, which came to my attention most recently, is still in its "ham shack" stages, working out mission statements, club callsigns, and long-term goals. However, no matter how small or large they are all three of these clubs show great potential and the members have lots of fun!

D.A.R. Boys and Girls Club of America and Ham Radio

The D.A.R. Boys and Girls Club was founded 92 years ago to help keep young boys off the streets. D.A.R. stands for Daughters of American Revolution. It is an organization of people who can trace their families back to someone who fought (on the American side) in the Revolutionary War. The Boys and Girls Clubs of America is a youth organization with clubs across the country.

The D.A.R. Boys and Girls Club in Menominee, Michigan provides all kinds of activities, such as sports, arts and crafts, and board games for children and teens of all ages. It also has a ham radio facet called the D.A.R. Radio Club, founded by Ed Engleman, KG8CX. The main focus of the D.A.R. Radio Club is to pique kids' interest in amateur radio and to help them obtain their license. This serves as a beginning school, in that after the children obtain their license, they have the choice to move up to the YACHT club. Founders Ed Engleman and Jim Pearson, KS8O, elaborate below:

The D.A.R. Boys and Girls Club of Menominee began transmitting for the first time on January 30, 2006. At that time we were using the callsign of the Marinette & Menominee Amateur Radio Club, W8PIF. In February 2007 we obtained our own vanity callsign, K8DAR. Since the opening day of the D.A.R. station there have been over 500 youngsters who have been exposed to ham radio and have made their first contact. All 50 states plus 107 DX countries (entities) are in our logs, with many repeat contacts.

Nine youngsters have been licensed through the D.A.R. ham radio project. Their ages range from 9 to 16. Prospects look promising for more success in 2009.

In January of 2007 we operated a special event station (K8D) to commemorate our first year of operation. Many youngsters participated in this event, and WLUV-TV of Marquette, Michigan was on hand to tape the occasion for a special news feature, which was aired throughout the Upper Peninsula. Recently, the D.A.R. radio program was a front-page feature in our local newspaper.

To the best of our knowledge, this is the only Boys and Girls Club of America in the country with a ham radio

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



Activity at the K8DAR station. All three boys, ages 9, 10, and 11, are interested in getting a ham license. (Photos courtesy Ed Engleman, KG8CX)

program. Our objective is for youngsters to not only enjoy the "magic" of ham radio, but to develop proficiency in their communications techniques, as well as to expose them to technology as it relates to ham radio and give them an appreciation of the size and diversity of the world in which we live. A large world map is displayed where youngsters can place colored pins showing each DX country contacted. This gives them a much better appreciation of what they have accomplished. Many of the QSL cards received are displayed on our bulletin board for all to view. Youngsters also treasure receiving their personal cards from contacts made.

Much of our radio equipment has generously been donated to us by local hams. Several local charitable groups have donated funds to be used to expand our capabilities. We also hope to acquire the needed equipment for teaching the youngsters about the digital modes.

You will hear our young operators on one of two HF stations. Our access to Echolink has been a great asset to the youngsters' ham radio experience as well. We also have computers for logging and spotting, as well as for preparing club members for their FCC examinations.

The K8DAR page on QRZ.com now has over 10,500 hits. This primarily is due to the fact that K8DAR is on the air four days a week, making contacts all over the world. This very active group is made possible by the primary control operator and trustee of the club callsign, Edward Engleman, KG8CX. Ed spent his career as an educator in the public schools and is now retired. Without a person such as Ed who is committed to the program, the wonderful experience that these youth are having would not be possible.

Therefore, if you are scanning the HF bands one day and hear "CQ, CQ, CQ . . . This is Kilo 8 Delta Alpha Radio calling CQ from the Menominee D.A.R. Boys and Girls Club of Menominee, Michigan and standing by for a call," answer the call and you will be speaking with the future of ham radio.

For more information about this unique program for youth, via e-mail contact Ed Engleman at <kg8cx@new.rr.com> or Jim Pearson at <ks8o@arrl.net>. You

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can view the D.A.R. website by going to <http://www.thedar.org> and clicking on the K8DAR QSL card.

Young Amateur Contest Ham Team (YACHT)

The YACHT club, or the Young Amateur Contest Ham Team, is solely focused on helping young amateurs explore amateur radio and hone their operating skills to the best of their potential. As compared to the D.A.R. Radio Club, YACHT is like finishing school for the young amateur. Ed Engleman and Jim Pearson elaborate further:

As an outgrowth of the D.A.R. Boys and Girls Club ham radio project, the YACHT club was formed with five local licensed youngsters during the summer of 2007. The goal at that time, which continues to this day, was to expose young hams to the worldwide sport of contesting. Jim, KS8O, along with Ed, KG8CX, spearheaded the beginning and continuation of the YACHT program. Contesting is the major component of the YACHT group, but we also encourage our members to explore other areas of amateur radio. Having fun is the primary objective of the group. The club callsign K8KDZ now is being heard and recognized in many major contests. The CQ WW DX SSB Contest was a major event for a number of YACHT and several D.A.R. club members.

The club currently has a membership of 44 youth members and 11 team coaches. Eight states and one DX country are now represented within the club membership. Our newest members—one coach and two youth members—are from South Africa. One day we hope to increase our membership to include members from other countries around the world.

In order to keep in contact, discuss contesting and other ham radio activities, and enjoy the camaraderie, Brittany Decker, KB1OGL, of Hudson, New Hampshire, one of our charter members, came up with the idea of an Echolink youth net. It is now known as the Echolink International Youth Net and can be heard every Saturday at 1700Z on the K9KJM Sturgeon Bay repeater with a node number of 44407.

All youth and hams interested in the development of youth involvement in ham radio are encouraged and welcome to join in.

One of our future goals is to gather as a group at the annual Dayton Hamvention®. This would allow members to meet with one another and with hams from around the world.

In 2008, YACHT was highly visible at the AES Superfest in Milwaukee, Wisconsin, and many youths and adults showed interest in our program, including CQ Contributing Editor and CQ VHF Features Editor Gordon West, WB6NOA, and Bob Inderbitzen, NQ1R, from the ARRL. We signed up 12 new members at our table. This began a rapid growth in membership, which has continued to the present. Recently we have been invited to participate in the 2009 AES Superfest, at which time we may include a 45-minute youth



YACHTing during the CQ WW. Sown are Kody and Kyle Klumb (on the ends), with Hunter Mans, K8MBI (center), operating during the CQ World-Wide DX SSB Contest weekend.

forum. Membership is open up to age 20; currently our age range is from 6 to 18.

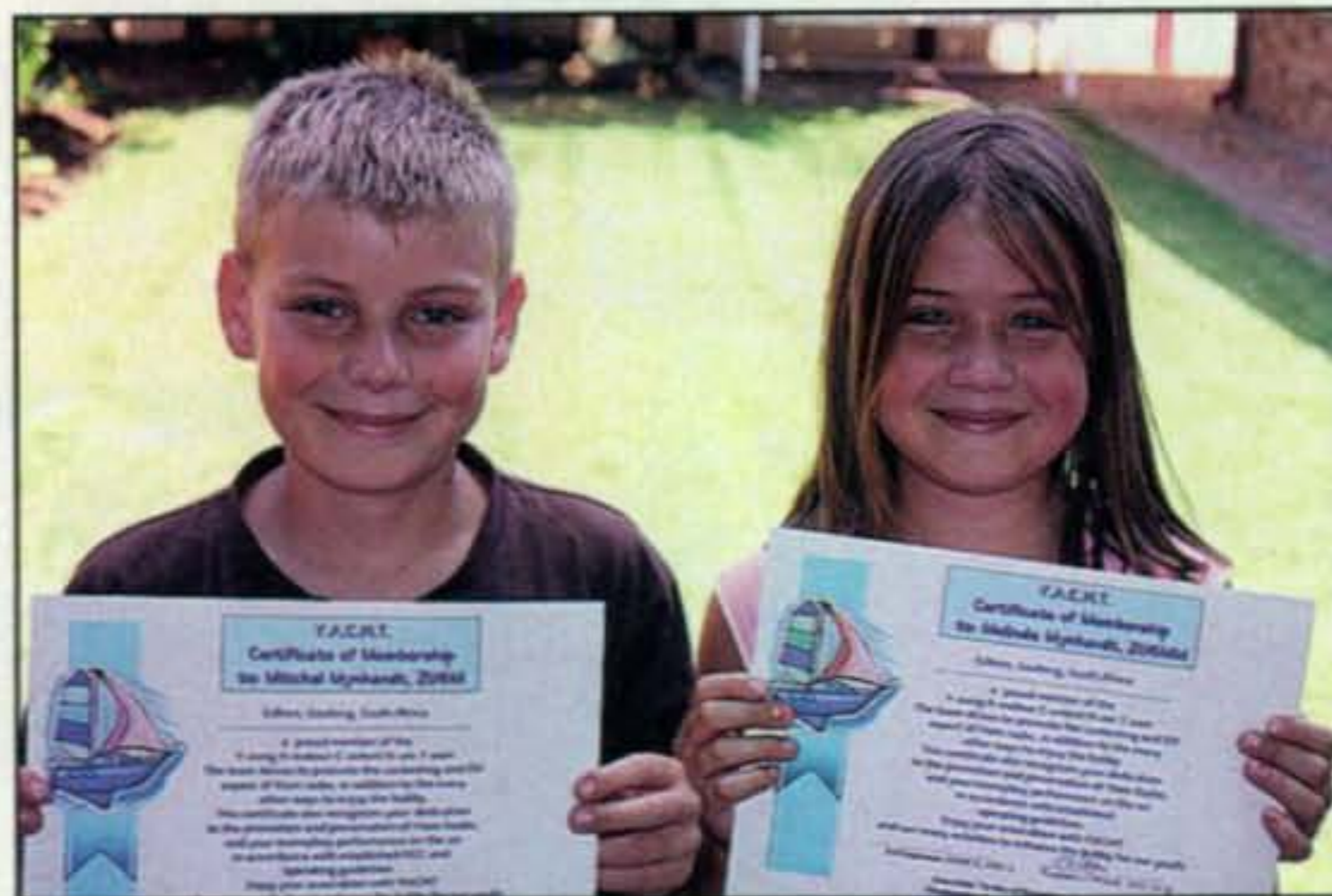
Anyone interested in becoming a member of YACHT can contact the following: Ed Engleman, KG8CX, at <kg8cx@new.rr.com>, or Jim Pearson, KS8O, at <ks8o@arrl.net>, or by accessing our official website <<http://www.wd8dx.com/yacht.html>> and filling out an application.

Having many members, YACHT is almost ready to become kid-powered. Already the members of YACHT are ready to provide help out anytime the club is needed. The Echolink Youth Nets are run by young operators, and check-ins also are reported by young operators. Even during the Echolink Youth Nets many ideas are shared for the growth and progress of young amateurs in amateur radio. One of the most active members, among the many, is 15-year-old Skylar Croy, W9USX. Skylar is present at almost every Echolink Youth Net and acts as net control when he is called upon. Although Skylar is also a part of regular clubs in his QTH of Wisconsin, he especially enjoys the YACHT club because he can relate to its younger members. Here is Skylar's perspective:

The Young Amateur Contest Ham Team (YACHT) is significant to me for several reasons. When I first became involved in ham radio I found it was interesting, but hard to relate to some of the "old timers," as many of them did not seem to understand young amateurs of today. As a recently licensed operator, I was a neophyte in amateur radio and didn't have an extensive understanding of what ham radio really was all about. By being involved in YACHT, I have gained a better sense of amateur radio. I have been able to meet hams my own age and share ideas, learn about contesting, be a net control, and make discoveries about the technical aspects of ham radio. I have enjoyed the various facets of YACHT such as the Echolink Youth Net (EYN), contesting, and sharing information and ideas.

An exciting part about YACHT is that when it comes to contesting, young hams have a better chance competing against other young amateurs rather than competing totally against older, more experienced hams. Many YACHT members don't have the resources to afford the high-tech equipment needed to be a "big gun" on the radio, as many older, more experienced hams have. Yet as a YACHT participant, younger hams compete on a level that is fair. YACHT has been meaningful in my life, as it has opened new horizons in amateur radio such as meeting people my age from around the United States and the world.

YACHT members likely will become lifelong hams with a continued interest in the various aspects of ham radio ranging from con-



YACHT's two newest members are from South Africa. Here are Mitchel, ZU6M, age 11, and his sister Melinda, ZU6MM, age 9, holding their newly issued YACHT membership certificates.

testing, nets, and DX to "rag chewing," which means just visiting with others via the radio. YACHT helps young amateurs maintain that frequently needed contact with others of their own age to nurture continued interest. Without the efforts of YACHT, and other clubs for young amateurs, many newly licensed amateurs might quickly lose interest in amateur radio and eventually let their licenses lapse. The Echolink net, for example, provides a way to maintain interest for those young amateurs who do not have the finances to obtain high-quality amateur radio equipment. Echolink allows amateurs to keep in touch via the computer. Amateurs who don't have a station or easy access to a station can stay connected through the computer with the YACHT net. Participants can share interests, ideas, and dreams while waiting for the money to become available to put a station on the air.

In short, YACHT participants are members of a community of individuals who share a common interest, amateur radio. YACHT assists its members in becoming more experienced and knowledgeable amateur radio operators through organized activities. The YACHT community is now becoming global as the Echolink Youth Net expands its horizons around the world. It is a place to learn and grow in operator techniques, knowledge, and relationships. When young hams can finally put their own stations on the air, they will have quality experiences to draw upon, reflect upon, and put to use—experiences that YACHT has provided along the way. Young hams are encouraged to become active members and take advantage of the opportunities available.

Boy Scout Troop 68 Amateur Radio Club

The Troop 68 Boy Scout Amateur Radio Club, or 68BSARC for short, is a club that is just starting out, with Louis Laverdure, N1MAY, as its founder. Lou has just started to organize this club and has big plans for its future. The club is a Boy Scout amateur radio club, so it will be open only to Scouts. As compared to YACHT and D.A.R., 68BSARC seems as if it is all documents and papers. Well, it is for now. To start one of these clubs, you have to write out your plans and goals for it, create a mission statement, and apply for a club callsign. All of this work mainly is done on paper and submitted. After the club is set up, then the recruiting can be done and the fun on the air can begin! Here is 68BSARC's story, courtesy of N1MAY:

Boy Scout Troop 68, sponsored by St. Joseph Parish in Laconia, New Hampshire, has formed an amateur radio club as adjunct to the troop. Other scouting units and youth groups in nearby communities have been invited to join Troop 68 club, which will be called the 68 Boy Scout Amateur Radio Club (68BSARC). High-frequency and VHF/UHF radios, a computer, and packet equipment have been donated to the club.

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The main objective of the club is to get young people involved in amateur radio. A member of the troop committee is an Amateur Extra and the Scoutmaster, who currently holds a Technician license and is expecting to obtain his General within a few months. All the adult and youth Scouts, members of 68BSARC, are being encouraged to attend a training course beginning in January to obtain their licenses.

An organizational meeting was held on December 13, 2008, when a constitution and by-laws were approved. A president and vice president each were elected to a one-year term of office. A secretary and treasurer will be appointed by the president. Regular meetings were set as the fourth Saturday of each month and a dues schedule was established. The Scoutmaster, Michael Fecteau, KB1QLU, was appointed trustee and authorized to apply for a club station license.

Future plans: At the outset the big item is to encourage the potential licensees to get into the training class beginning in January. In the near term we will be looking for guest speakers with subjects which will promote interest to young people. Long-term plans include training to provide to youth the know-how to function in emergency conditions.

Encompassing the goal of all of these outstanding clubs, there is one thing present that helps them succeed—teamwork. If we want to get youth into amateur radio, we first must get them together. When everyone is together, it's more fun, it's more efficient, and did I mention it's more fun? A lot of times it's much easier to study for a test with someone your own age than with your parents (sorry, Dad). And although kids can always count on their Elmers for the correct answers, it helps more if they think it out in groups. *(Another common element of these clubs is support in the background from more experienced hams in their communities as advisors and "coaches." This combination is another part of their formula for success.— ed.)*

To learn more about these great clubs, their information is listed below:

YACHT, Menominee, MI: <<http://www.wd8dx.com/yacht.html>>

The D.A.R. Radio Club, Menominee, MI: <<http://community-2.webtv.net/dx2100/16thAve/>>

68BSARC, Laconia, NH: Contact Lou Laverdure, N1MAY, at <n1may1@verizon.net>

Do you have a story that would go great in "Kids' Korner"? Let me know! E-mail me at <kb1ogl@cq-amateur-radio.com>. Look for the next issue of "Kids' Korner" in the June issue of CQ magazine. 73 and have a happy new year!
Brittany, KB1OGL

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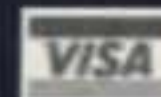
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Build a "RIB": a Radio In a Box

As a typical ham radio station grows, it seems to require a myriad of interconnects, wires, and cables among pieces of equipment. This is fine for a fixed station, but when one wants to operate portable, especially on a regular basis, it becomes a problem. I decided to build a "Radio-In-a-Box." What follows is not a how-to article, but rather a description of my solution. My intent is to inspire you to build your own.

For some years, a number of local hams and I have been getting together Saturday mornings at a local Park District building. We've brought show-'n-tell items and so on, along with "coffee and" to munch on. We often brought a VHF or HF radio, set up a temporary antenna, and operated for an hour or two.

Doing this required confronting the very problem I mentioned ... wires, interconnects, etc. The idea came to us that perhaps we should build a radio in a box designed specifically for quick and easy portability. Best of all, most wiring interconnects would be made permanently inside the box. This assembly could be used at home and would facilitate our Saturday morning sessions, but would also work nicely for Field Day and meet our needs for community service and emergency operations. This became our group project.

At least three of our members built them: Gary Drennon, KB9YQX, put one together with an IC-746. Tom Cooney, KE9LN, built one using his IC-7000, and Chuck Towner, W9KQJ, built one based on his Alinco. Each had either HF or VHF capabilities, or both, and each included an AC power supply built into the box. Each assembly was unique in several aspects. I loved seeing the creativity these builders displayed.

No doubt dozens of you have done similar projects. I've seen some very creative ideas on the internet depicting radios and support equipment mounted for transportability in boxes ranging from ammunition cases to milk cartons. Your creativity inspired me to start thinking about how I would build a unit to meet my needs.

As an aside, it might be a fun project for a club to see how many clever designs members can come up with in building their own boxes. Materials cost is very low, and each used equipment the builders already owned. Since I had an IC-706 Mk IIG, it was the obvious choice for me. My goal was to produce a box (photo A) that was self-contained except for the antenna and a source of power, and also was easily portable.

To provide for a variety of antennas one might use in a remote location, I included a Ten-Tec 228



Photo A— Front view of the box showing general construction. (Photos courtesy of the author)

tuner which has a relatively wide-range impedance-matching capability and a built-in SWR bridge.

As an avid CW operator, I sometimes like doing computerized CW using a palmtop PC (with battery life measured in days rather than hours). Thus, I included a small CW interface using a 567 tone decoder chip driven by a nice little piece of CW software written by Bob Anderson, K2BJG. If you are interested in this circuit and software, contact me for details.

The rear view (photo B) reveals a small aluminum box that houses a reed relay for keying a linear amplifier and a connection for ALC. The reed relay is driven by a single transistor circuit on a small piece of perf-board. A 13-pin DIN plug accesses the appropriate I/O pins on the IC-706. The pigtail wire with the Cinch Jones connector mates with the DC motor drive cable to the remote screw-driver antenna.



Photo B— Rear view of the box. You can see the connections as well as the interface box and the outboard antenna control switch.

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Photo C— In this view you can just make out the internal U-shaped frame and the LED lamps above with their light shield.

The case is constructed of $\frac{3}{8}$ -inch plywood, covered with black vinyl that I purchased at a dry-goods store. I used contact cement and wrapped the vinyl around the edges to cover up any rough cuts. Using the vinyl eliminates the need for painting, and it makes the wood box smooth and blemish free.

What isn't obvious from the pictures is the inside frame for supporting the weight. I reasoned that with the handle on top, eventually the $\frac{3}{8}$ -inch plywood would crack from the weight of the gear, so I built a U-channel from a $\frac{1}{8}$ -inch aluminum panel to which the 706, power supply, and tuner are screwed.

At the top, the screws that support the handle also go through the U-channel. The U-channel is dimensioned to fit snugly inside the case. The final product is useful, durable, and (I think) pleasing to the eye.

The IC-706 is powered by a Kenwood PS-40. I have never noticed any switching hash from the supply. The homebrew CW interface box is between the transceiver and the power supply (see photo C).

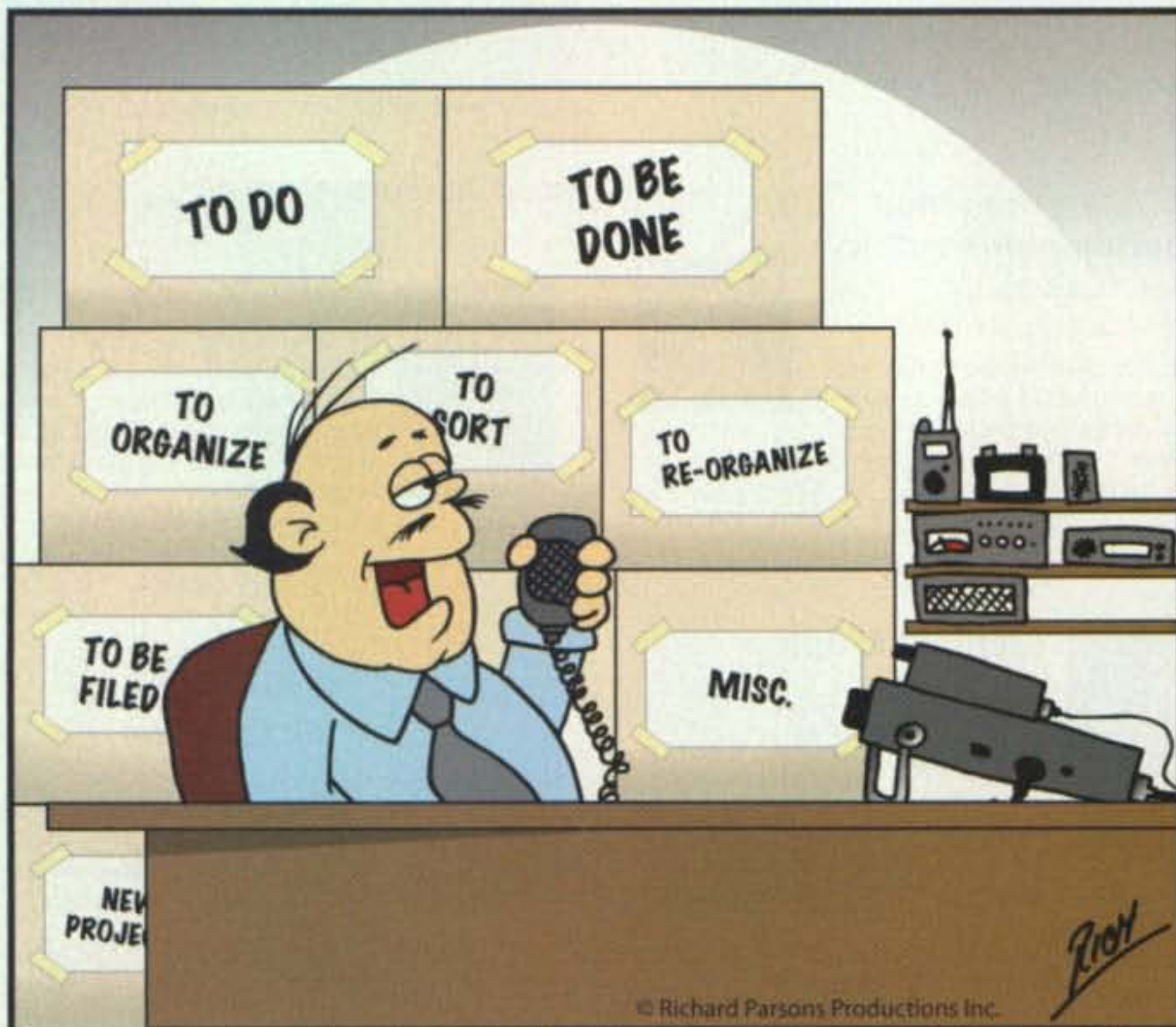
You may already have noticed a switch mounted in a small box on the outside rear of the case (photo D). This box is the up/down control for the antenna, an afterthought that turned out to be an excellent mod. On my van I use a High Sierra 1500 antenna on a quick-release mount. Using a few parts ordered from High Sierra, I built a tripod for use in fixed locations. Using 100 feet of High Sierra combination coax and DC power cable, I can set up the tripod outside and run the cable through a slightly open window and plug it into this switch box. That way I can power the antenna from inside a building and still have it up to 100 feet away. If I can park the van within 100 feet of the operating position, then I simply leave the antenna mounted on the vehicle and connect to it.

A tripod, of course, provides very little ground coupling. I found that three spare, unused extension cords attached to each leg of the tripod (one per leg) serve well as counterpoises and improve the performance significantly. I used three 50-foot extension cords randomly fanned out across the lawn. Also, on occasion I've extended the effective length of the whip by clipping a piece of hook-up wire to the top. This, too, improves the performance.

Back to the box. Figuring that I might be operating sometimes at night, I would need some lighting, so I perused the Mouser Catalog and discovered that the company sells high-intensity, 12-volt, ultra-white LEDs. These are direct replacements for the dome lamps in automobiles and have the current limiting resistor already mounted inside the housing. These lamps have a wedge base with the two little curlicue wire connections. To eliminate the need for sockets, I simply uncurled and soldered the wires of the LEDs to a scrap piece of etched circuit board and fixed that to the inside top of the box with Velcro[R] such that their light illuminates where my log or note pad might be on the operating table. Six of them give plenty of light and they pull only 30 ma each. A small shield of thin aluminum shields and directs the light. The Mouser

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I've always believed in prioritizing my projects in the HAM shack.

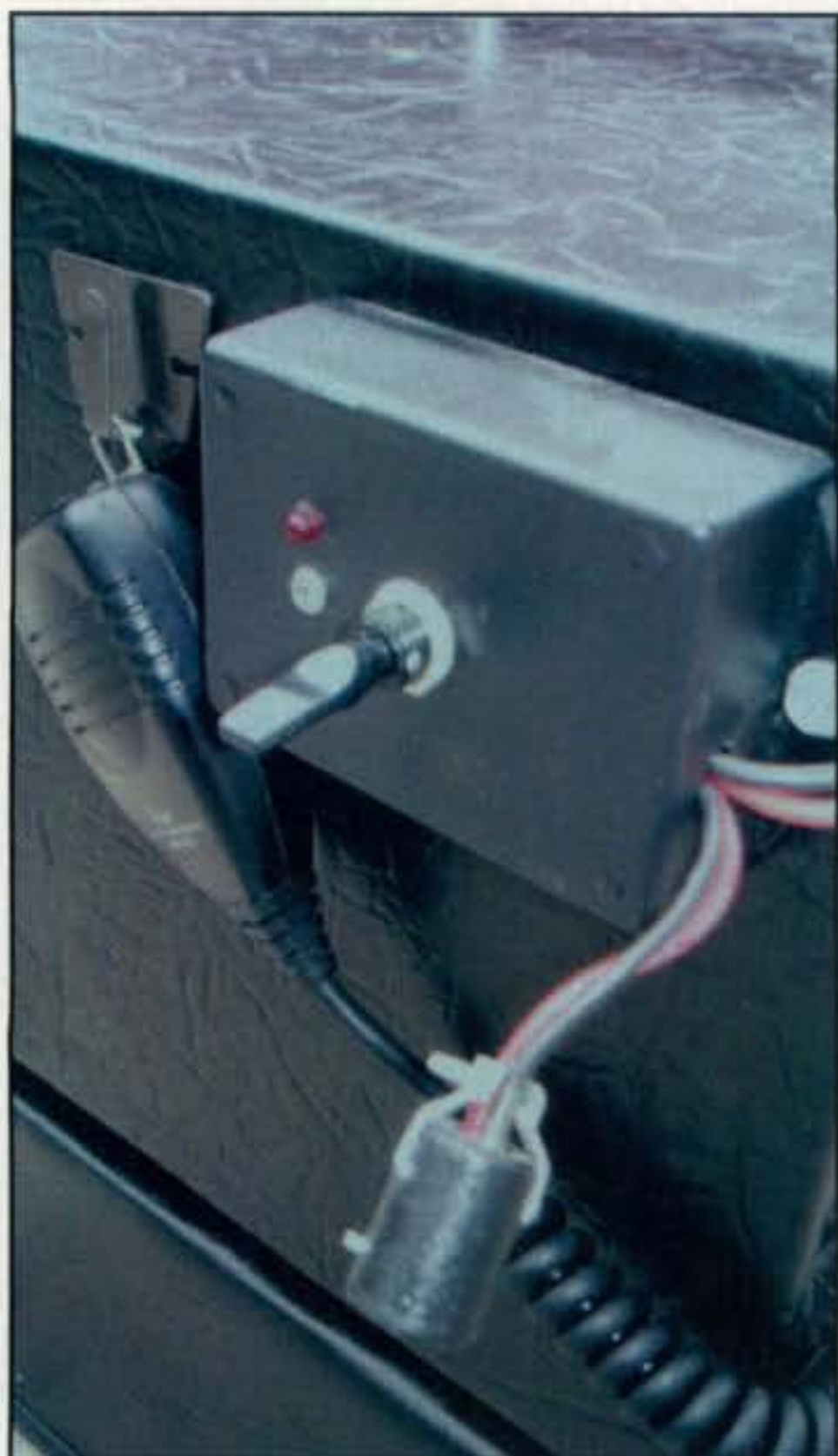


Photo D— This is the antenna switch box mounted on the side of the case. It is used to remotely raise or lower the antenna to achieve resonance at the operating frequency.

Catalog number for the LEDs is 697-01TWB9WB12 and the price was about \$1.60 at this writing. A lower current solution would have been to series-six, standard high-intensity LEDs, but I failed to find LEDs having the brightness and color that I wanted.

After looking at an "RIB" built by Tom Cooney, KE9LN, I noticed that he had mounted a convenient folding bail on the bottom to lift the front edge of his RIB to a more pleasing angle. Imitation is the sincerest form of flattery, so I simply imitated his idea and did the same using a slightly different design.

Having a rig that can be set up with practically no effort has encouraged me to use it portable, and I have used my radio go-box many times during the winter months at our Saturday morning coffee-fests as well as for Field Day and other contest operations. I've also used it for radio club picnics and for demonstrations in my classroom at school. It has proven to be convenient, very fast to set up, and lots of fun to build. Best of all, because it is so quick to set up, it prompts me to use it often. Try it. You may find, as I have, that it is handy and fun to use, and I predict that you'll find yourself operating away from your home QTH more often.

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There's a very long story (which I won't burden you with) about how I have ended up with a small lab at a factory that makes about 12,000 CB antennas a week. Yes, they are 27-MHz antennas, but a lot of good topics are coming to mind on antenna manufacturing, testing, and materials.

While this company's test stations were modern in 1980, and are still quite functional today, the years were weighing heavily on the equipment. More importantly, the ham who did the antenna design and set up the test stations was now in his mid-80s. Therefore, they needed someone who understood "vintage" test equipment and could repair the test stations. I have picked up a part-time job in a really neat place.

They do have one interesting technique I can talk about, shown in photo A. These days many CB rigs also include receivers for the 160-MHz weather band. Truckers like to know what's happening with the local weather, and this weather feature is quite popular. However, the radios use the same whip antenna for 160 MHz as they do for 27 MHz.

As you can see in photo B, a section of aluminum foil is attached to the fiberglass rod near the threaded base. Next the wire for the 27-MHz antenna is spiral wound right over the aluminum foil and the fiberglass. While the copper wire is insulated and is not exactly connected to the aluminum foil, there is a lot of capacitance between the wire and the foil. This gives the "stick" antenna 160-MHz resonance for the NOAA weather channels.

This is not quite as easy as it first appears. The aluminum-foil section is coupled to the spiral wire. It likes some inductance at the bottom, and it needs some inductance at the top to isolate the foil section from the upper sections of the antenna. Then

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Photo A— Dual-band "stick" antennas. (Photos and figures by the author)

the entire antenna gets a length of heat-shrink tubing to weatherproof it, and this layer of plastic is also capacitively loading the 160-MHz section. Therefore, it's not exactly $1/4$ wavelength of aluminum foil at the frequency of interest. However, with a few tries and a bit of trimming, you can get the foil section on frequency.

The foil also acts as a shorted turn for the 27-MHz antenna. Thus, a few more turns of wire have to be added to the top section to make up for the

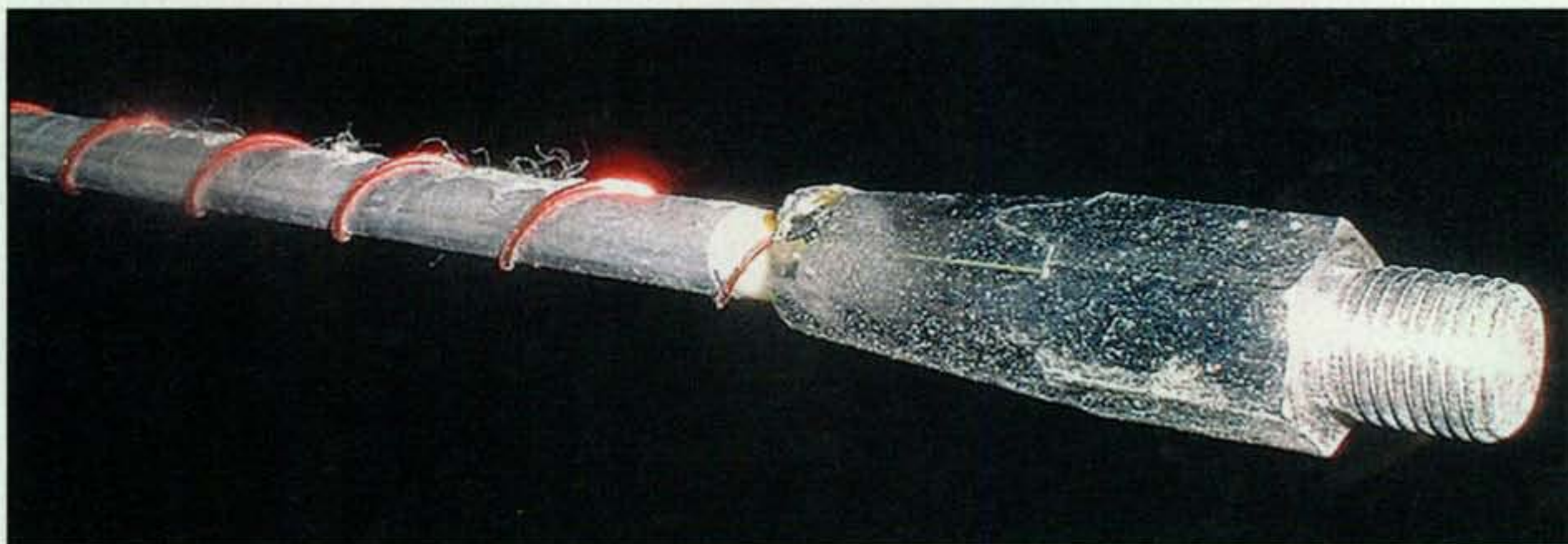


Photo B— Aluminum-foil layer.



Photo C— Conformal 2-meter antenna.

lower inductance of the shorted lower turns and to bring the 27-MHz antenna back on frequency. Again, though, a few tweaks here and there and the antenna is back on frequency.

This technique is not limited to only one additional frequency. The highest band needs to be at the bottom of the fiberglass rod, but by using the inductance of the spiral coil, lower frequencies can be added much like a trap HF vertical. Well ... a 222-MHz/146-MHz/50-MHz version should be possible. Certainly a 146-MHz/50-MHz/28-MHz is doable. I skipped over the 146-MHz/50-MHz model, as that would be too easy. If I can ever get my Dayton fleamarket tickets straightened out, I just might introduce some new antennas there.

The winding machines and manufacturing work are done to center the dozen different whip variations that are built at 26.9 MHz, the very bottom of the CB band. Different mounting methods, surrounding metal, etc., change the center

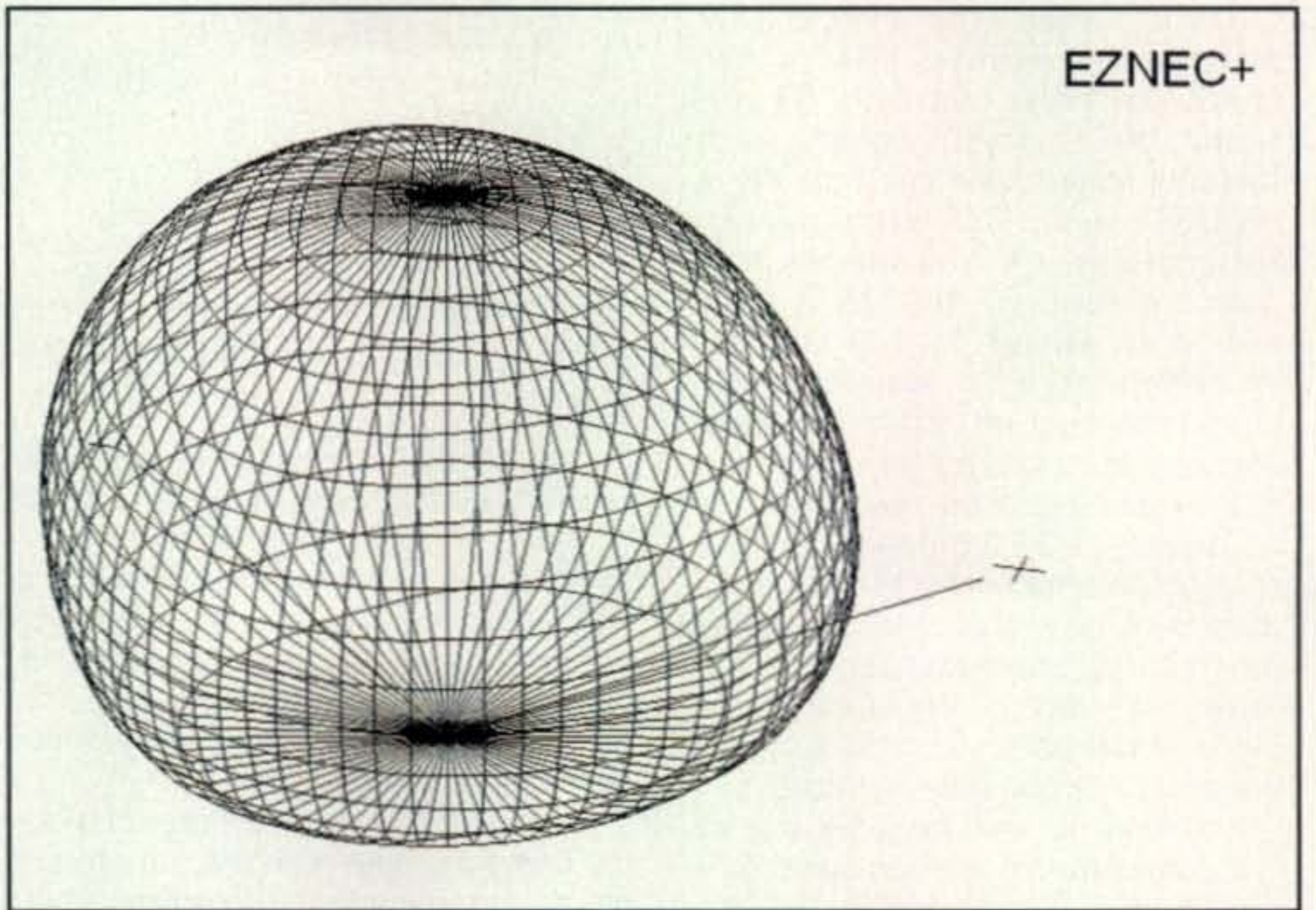


Fig. 1— Pattern of Bee's 160-meter inverted-Vee (see next page).

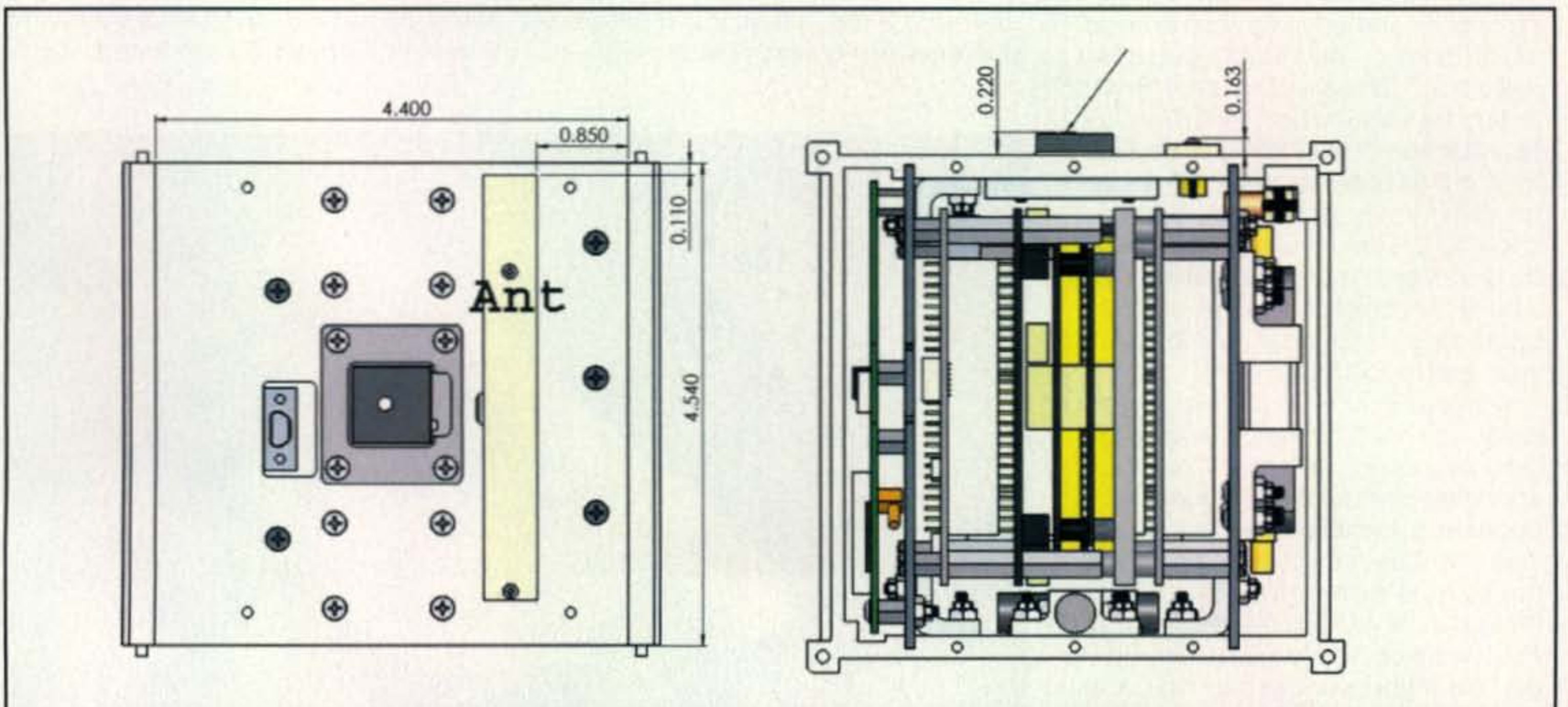


Photo D— University of Texas satellite and antenna placement.



On the Cover

You might see a microphone in our photo of Ken Franklin, KF1O's ham shack in West Warwick, Rhode Island, but he says it's pretty much there for show ... the vast majority of his QSOs are in CW, with some digital modes thrown in as well. His main radio is a Yaesu FT-1000 MkV, along with a Kenwood TS-940 and an Ameritron AL-811 amplifier. He keeps the dust off of his Vibroplex keyer paddles with a Plexiglas cover. At the other end of the coax, Ken has a Tennadyne T8 log-periodic atop a 65-foot tower for DXing on 10 through 20 meters, as well as a W9INN dipole for 40 and 80 meters attached to the tower. With the coming of spring, he plans to put up a sloper to add 160 meters to his operating portfolio.

Ken says his love for radio and for CW comes from five years spent as a radioman in the Coast Guard. He recalled that when he reported to boot camp, "You fill out this dream sheet—you know, what do you want to be when you grow up? I filled in five of the six spaces and was told I had to fill out all of them ... so I said, 'put down radioman.' Three weeks later, I had orders for radio school at Governor's Island in New York." While radio didn't start out as his first choice, Ken says he didn't know what to do without it once he left the service. That's when he discovered ham radio, starting out with a Technician license in 2000, upgrading to General the following year and to Extra in 2005.

According to Ken, he was bitten early, and hard, by the DX bug. "Right from day one," he says, "that very, very, first contact that I made when I became a General. My first contact was with Czechoslovakia, and it was the biggest rush of my life ... I said, 'thaaat's what I'm talking about.' From then on, that's what I wanted to do." So if you want to find Ken, look for him in the pile-ups!

(Cover photo by Larry Mulvehill, WB2ZPI)

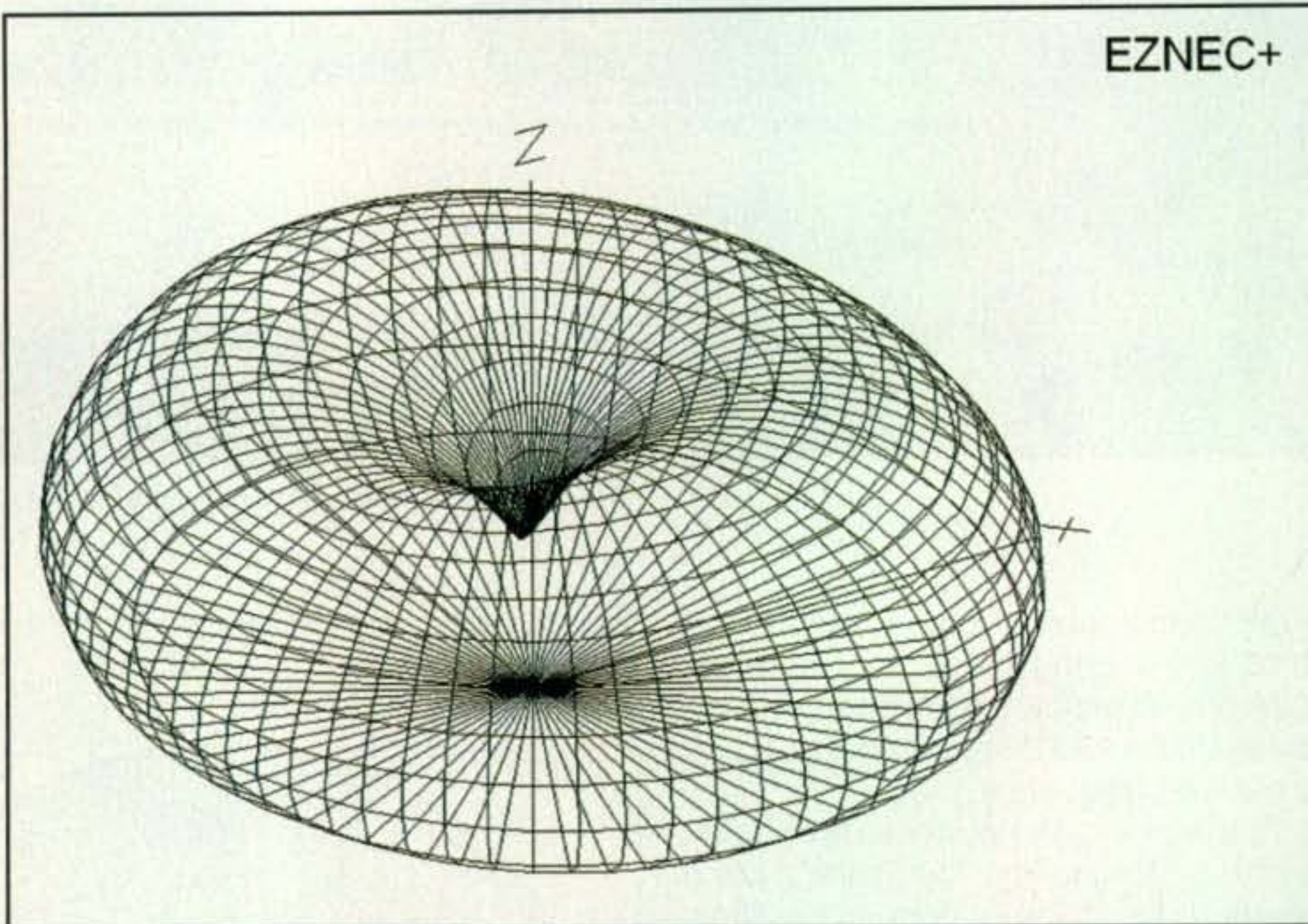


Fig. 2— Pattern of Bee's proposed 160-meter loop.

frequency of the whip antenna a bit. Since it is a lot easier to trim off a bit of wire and move the whip up in frequency than it is to add turns and move a whip down in frequency, the manufacturer shoots for the low side of the band. Now the tip can be slipped off and a turn or two removed as necessary while watching the SWR.

Next time I'll try to cover some of tricks the company uses with the "no ground plane" antennas for a fiberglass boat, fiberglass truck shell, or a Corvette.

Satellites

Last year I did a family of conformal antennas for a business jet project. One

of these antennas is only 4 inches long, 1/10 inch high, and is shown in photo C.

Take all those blade antennas off a business jet and speed increases about 10 mph at the same power setting. There is less drag, it is faster, and there is more range; pilots like that kind of stuff.

A few weeks ago, the University of Texas contacted me looking for a conformal antenna for its micro-sat. A drawing for the satellite is shown in photo D. It is going to be about a 5-inch cube, and there simply was no way they could use a VHF whip and still fit it into a shuttle "get away" container. I volunteered to tweak one of the old VOR antennas to 2 meters for them. By the time this col-



Photo E— Homebrew HDTV antenna.

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Lower Mast Length -- 16"

WHIP LENGTH - 32"

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Total Length of Antenna at Lowest Freq. - 54"

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umn comes out, the bird should be through vibration testing and off to the Cape for launch from the space shuttle. No, it doesn't work as well as a full-wave dipole, but it does work better than most rubber-duck antennas.

Question from a Reader

From Bee, K4JLD: I currently am using a full-size 160-meter inverted-Vee antenna. The apex is at 140 feet with the ends about 40 to 50 feet above the ground. I also have two self-supporting towers and could make about a 120 x 120 foot square loop. Would I gain anything over the inverted-Vee?

WA5VJB replies: As you can see in fig. 1, you have an excellent antenna there; the inverted-Vee has a nice omnidirectional pattern. The main advantage of the new loop would be its completely different pattern. In fig. 2 we have the pattern for your proposed 120-foot loop, showing a much lower angle of radiation with a flatter pattern and more signal at the horizon. You will have a different pattern at the horizon, and a different pattern at high angles. When the signals are coming at different angles from different directions, it's hard to predict which antenna will work best. Therefore, you just use the one that

works best. You will probably need a balun and an antenna tuner with that loop. EZNEC predicts about 180 ohms impedance and a -j200 reactance.

For many years I was net control for the Central States VHF Society 75-meter net. Most of the check-ins were VHFers with modest HF stations. I used three antennas: my 75-meter vertical—which I always used for transmit—and two loop antennas positioned X fashion. Then I switched among the three and just listened on the one that worked best.

HDTV

If you need a cheap—pardon me, inexpensive—antenna like the one in photo E for that new HDTV converter/TV, my HDTV Cheap Yagi construction project can be downloaded at <www.wa5vjb.com> from the Reference section.

As always, we welcome your questions and topic suggestions. Just drop a snail mail to my address shown on the first page of this column or an e-mail to <wa5vjb@cq-amateur-radio.com>.

For other antenna articles and projects you are welcome to visit <www.wa5vjb.com>. Go put up some antennas as the weather turns warmer!
73, Kent, WA5VJB

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Wide-Range Communications & Video Receivers, Mobile Whips, Heathkit Manuals . . .

This month we take a look at two new receivers. Next is a group of short mobile whip antennas and a center insulator for dipoles. Then there is something old and something new with vintage Heathkit manuals and state-of-the-art ICs. Finally, we visit The Amateur Radio Website of the Month.

Wide-Range Communications Receiver

AOR USA has announced a new addition to its line of receivers, the AR-Mini (photo A), a compact, hand-held radio capable of receiving signals ranging from 100 kHz to 1.3 GHz in the AM, FM, and wide FM modes (cellular frequencies blocked on USA consumer version).

Just 2.4 inches wide, 3.7 inches high, less than an inch deep, and weighing less than 8 ounces, the rugged receiver features a large display, 1000 computer-programmable memory channels, up to 22 hours of projected battery life, a rugged water-resistant case, two VFOs, and excellent sensitivity. AM- and FM-mode reception is through a triple-conversion front end; wide FM signals are processed through dual-conversion IF stages.

Included in the AR-Mini is a built-in ferrite bar antenna for AM reception between 100 kHz and 5 MHz. A standard SMA connector may be used with the provided "rubber duck" antenna or with an external antenna. Two provided Ni-MH rechargeable cells power the receiver, but standard AA alkaline cells may also be used.

Other features include a high-stability TCXO, CTCSS and DCS squelch operation, and a pre-programmed "bug" detector. AR-Mini receivers can "clone" their memories to one another, or they may be programmed from a PC. AOR provides free downloadable memory management software at its website, <www.aorja.com>.

In addition to the antenna port, there are also connections for the provided 6-VDC power supply, headphone/external speaker, and programming/cloning port. MSRP for the AR-Mini is \$299. For more information, visit <www.aorusa.com>.

AOR Video Receiver

The AOR AR-STV (photo B) is a video receiver capable of detecting and capturing images of analog wireless video surveillance cameras in the "L-band" (1.2 GHz) and "S-Band" (2.4 GHz). With video surveillance cameras being used for an expanding number of purposes, the AR-STV has



Photo A— AOR's AR-Mini, a compact hand-held radio capable of receiving signals ranging from 100 kHz to 1.3 GHz. (Photo courtesy of AOR)

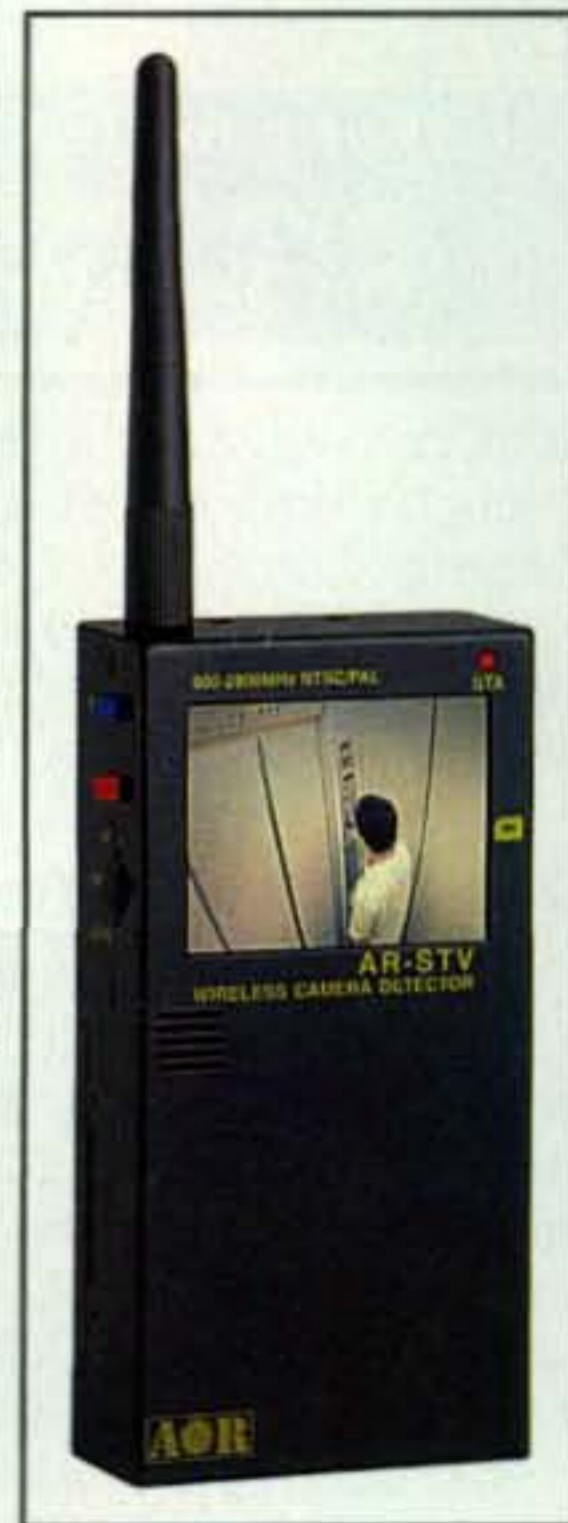


Photo B— AOR's AR-STV video receiver, capable of detecting images of analog wireless video surveillance cameras. (Photo courtesy of AOR)

several useful applications, from verification that video surveillance systems are operating properly, to "bug" detection or law-enforcement surveillance or counter-surveillance monitoring.

The receiver is 2.6 inches wide, 5.2 inches high, and 1.3 inches deep and weighs 15 ounces. It is powered by four AA-size alkaline or rechargeable Ni-MH cells or a 6-VDC external power source. The AR-STV features a large, 2.5-inch color LCD display. It is capable of receiving NTSC, PAL, CCIR, EIA, or scrambled (reverse polarity) video signals. A port for an optional SD memory card can store up to 2000 time-stamped still images, and a USB

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port allows images to easily be saved to a PC.

The AR-STV is provided with a "rubber duck" antenna that connects to a standard SMA port, but can also be operated with an external or mobile antenna. The receiver features 10 search banks and is easy to operate through a menu-driven set of parameters shown on the color display. MSRP for the AR-STV is \$925. For more information, visit <www.aorusa.com>.

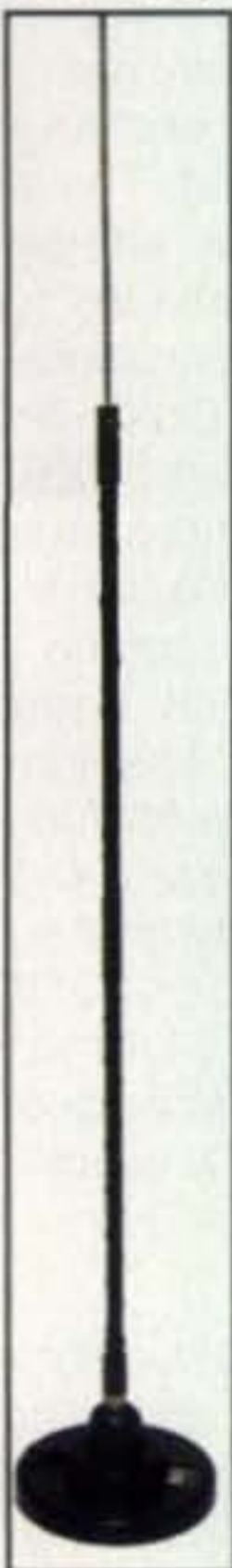
MFJ Short Mobile Whips

There is no need to drill holes on your car or stop to remove your antenna before entering your garage to get on HF! The MFJ "Short" HF Mobile Whip Antennas are designed to let you mount an HF antenna with just a 5-inch magnet mount. Attached to a magnet mount or trunk-lip mount, the super-low-profile of the antenna makes it easy to go in and out of your garage and be ready to work HF as soon as you hit the road.

The MFJ-23XX series (photo C) are constructed like the MFJ "HamTenna" series, but stand only 36 inches tall (and are collapsible to 25 inches for easy storage). They are thin, lightweight, have a very low wind resistance, use a 3/8-24 stud connector, and can handle 250 watts PEP. An adjustable stainless-steel whip allows for minimum SWR.

MFJ-23XX series models are available for 10 amateur bands from 75 to 6 meters (MFJ-2375T, MFJ-2360T, MFJ-2340T, MFJ-2330T, MFJ-2320T, MFJ-2317T, MFJ-2315T, MFJ-2312T, MFJ-2310T, and MFJ-2306T.) Price is \$22.95 each. For more information or to order call 1-800-647-1800, or visit <www.mfjenterprises.com>.

Photo C— MFJ23xx series "short" HF mobile whip antenna. (Photo courtesy of MFJ Enterprises) →



Jetstream Dipole Center Insulator

Jetstream has announced the JTNCE1G, a center insulator for dipoles with an N-type connector (photo D). Made of a very strong, gray, UV-resistant plastic, the JTNCE1G will easily handle 2000 watts of power. Price is

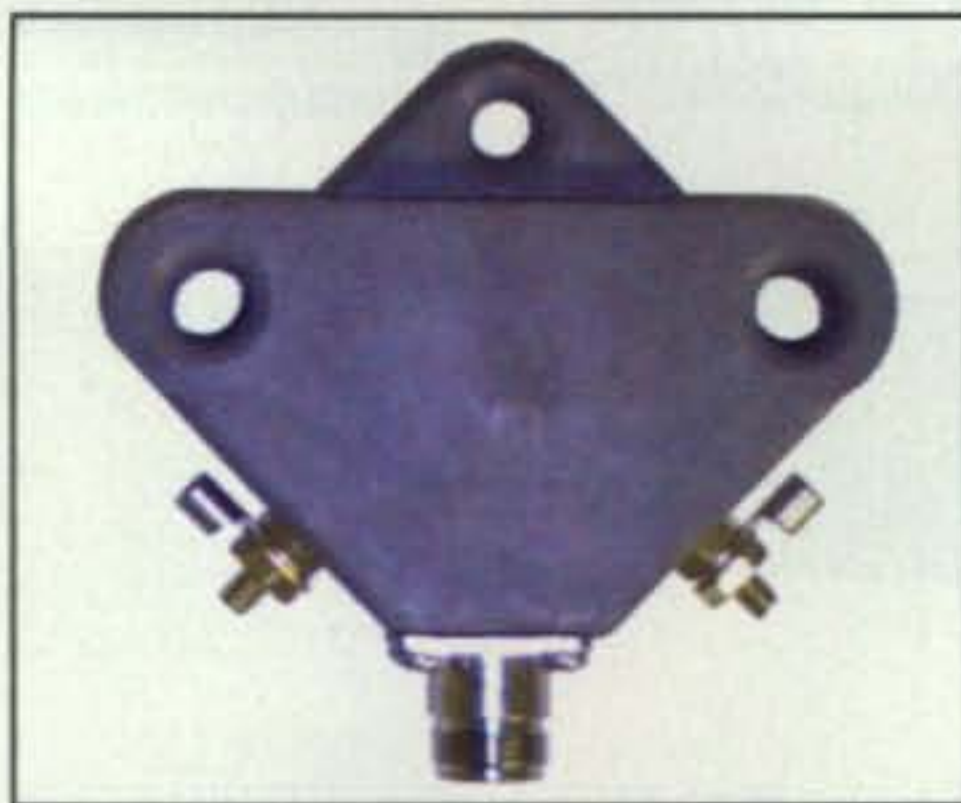


Photo D— Jetstream's JTNCE1G, a center insulator for dipoles with an N-type connector. (Photo courtesy of Jetstream)

\$15.95 (a model featuring an SO-239 type connector is also available for \$14.95). For more information and a wide selection of other accessories, phone 800-524-4889, or visit <www.jetstream-usa.com>.

Heathkit Manuals

Are you looking for a manual for a recent hamfest or e-Bay treasure "of the green persuasion" (a.k.a. Heathkit equipment)? Data Professionals of Pleasanton, California has purchased the copyrights and existing inventory of all legacy Heathkit product documentation from Heath Company of Benton Harbor, Michigan. The new company will make copies of the original manuals available to the marketplace via its website, <www.d8apro.com>.

Analog Devices ICs

Are you looking for state-of-the-art ICs to create your next project? Now online, Analog Devices's interactive Consumer ICs Solutions Bulletin "is jam-packed with application hints and handy tips for using some of the industry's best performing ICs dedicated to delivering the best consumer experience possible." Along with free samples of featured ICs, it is also giving away copies of its "quirky but popular Rarely Asked Questions book." To get started, visit <http://www.analog.com/en/content/cu_sb_library/fca.html>.

The Amateur Radio Website of the Month

This month's amateur radio website was in the news as I wrote this column (in January) with a major announcement: "CQ to Accept eQSL Confirmations for Award Credit." Hopefully, you have already read about this and may have even been one of the first

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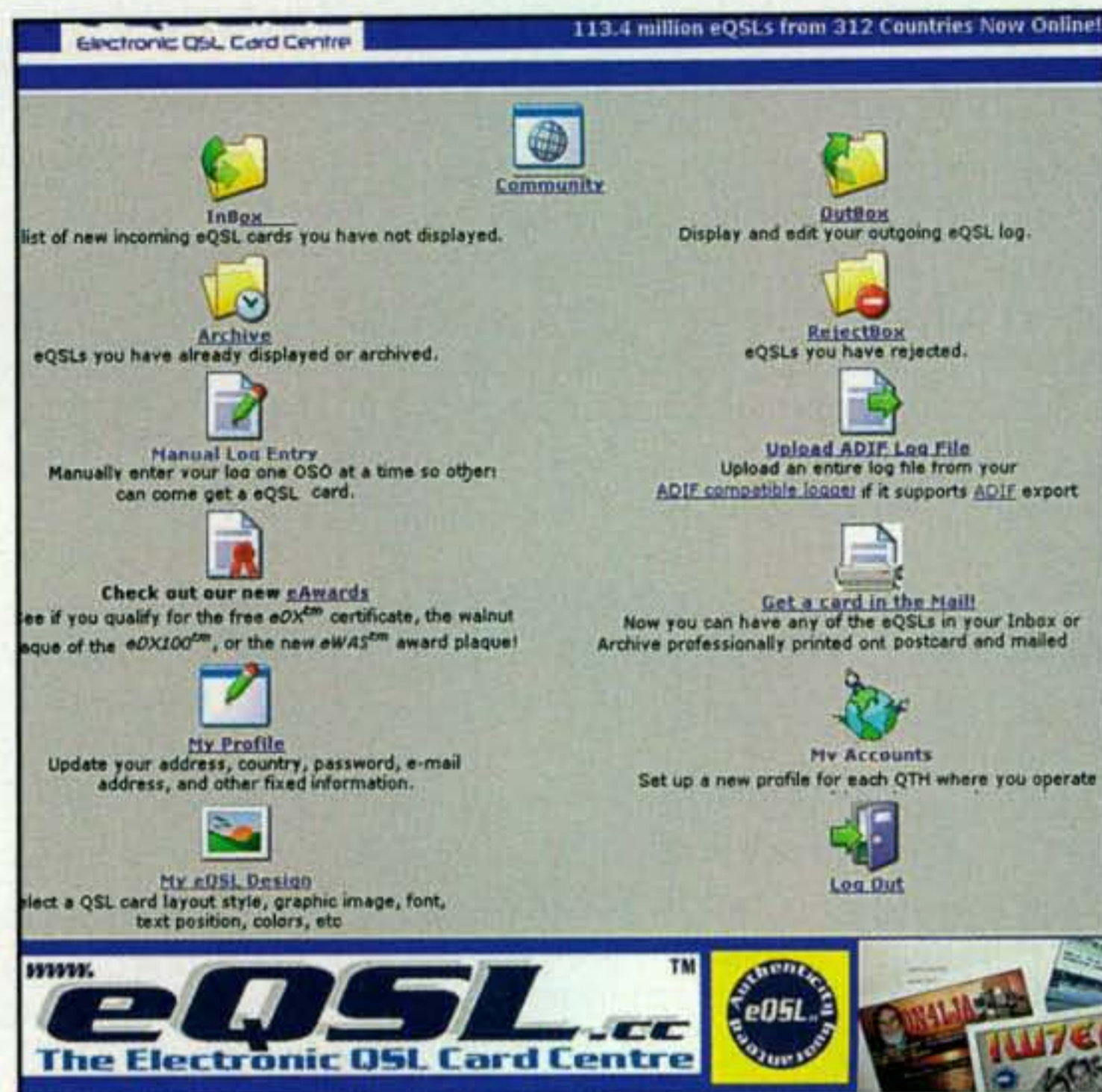


Fig. 1- Screen-shot of this month's Amateur Radio Website of the Month, <www.eqsl.cc>.

hams to take advantage of this process to earn one of CQ magazine's awards.

For almost 10 years, at <www.eQSL.cc> (fig. 1) Dave Morris and his team have provided a means for hams to quickly and inexpensively exchange online confirmation of contacts (electronic QSLs). The site is free to use for any amateur radio operator or shortwave listener, and also offers special "premium" services for those who choose to contribute at one of three monetary levels. The premium levels (Bronze, Silver, and Gold) provide users with the ability to use their own customized QSL card images, earn e-awards, and have access to a propagation forecaster and more.

e-QSL is easy and quick to use. Many popular log-book software programs provide automated submission and downloading of e-QSLs. Users can also choose to manually submit, view, and download e-QSLs. The site uses the standardized ADIF file format to upload or download e-QSL confirmations. Users can also view, edit, and store all of their e-QSL records directly on the website.

For more information on eQSL, visit <www.eQSL.cc>. For more information on CQ awards, visit the awards page on the CQ website at <www.cq-amateur-radio.com>. Also don't forget to QSL all QSOs via e-QSL.

Wrap-up

That's all for this month's column. Remember, I welcome your feedback, questions, and/or comments. If you are a producer of a new product for amateur radio, please feel free to e-mail me or use the address on the first page of this column. Until next month . . .

73, Anthony, K8ZT

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

More dBs, S-units, and You

Our previous "How It Works" column introduced the topics of power levels, dBs, and receiver S-meter readings, plus explained easy ways of visualizing or referencing each. It also compared gain figures of big beams, small beams, verticals, and wire antennas and overflowed available space before we could bring in the main points of interest. Realizing that fact, we continue this month with an overview of linear amplifiers, antennas, signal variations up/down due to propagation effects, and operator expertise, plus a look at the big-signal equalizer—a receiver's automatic gain control (AGC) system. I feel sure you will find the combination of our January column and this month's column's beneficial for many years hence, and I and encourage you to retain both for future reference. Let's begin with some comparisons of amplifiers and antennas.

Adding dBs: An Amp or a Beam?

Are you thinking about increasing the strength of your transmitted signal? Reflect back on our January column and you will note that there are two general ways of accomplishing that—with a linear amplifier and/or with a Yagi/beam antenna. Which route to take? That's really opening a can of worms. It depends on your needs, objectives, lifestyle, budget, neighborhood limitations, operating savvy, and probably one or two more variables I am overlooking. There is, however, an easy and logical route to the answer. First compare amplifiers and antennas in size, cost, weight (can you handle the beast alone?), neighborhood impact (some folks go wild when they see a tower and beam), and/or RFI (heaven forbid you should interfere with their touch lights or \$15 telephones!). Then weigh dBs gained to acquire S-units on a distant receiver. Let's take a closer look at those points, and then bring in signal variations due to propagation, influence of operator expertise, and the big equalizing factor of a receiver's AGC system.

As we discussed in our January column (see in fig. 1), each doubling of a previous power level is equal to a gain of approximately 3 dB. As also discussed (and explained regarding how to check with your transceiver), 3 dB generally is equivalent to one S-unit on a distant station's S-meter. Let's apply some simple math to those facts. Most modern transceivers produce a maximum RF power output of 100 watts. Doubling 100 watts to 200 watts equals 3 dB, or one S-unit (unless, as discussed in the January column, your S-meter is calibrated at 6 dB per S-unit. If so, I am sure you can do the math accordingly). Doubling 200 watts to 400 watts increases the signal to 6 dB, or two S-units. Increasing 400 watts to 800 watts raises the signal to 9 dB, or three S-units, and moving up from 800 to 1600 watts kicks the signal to 12 dB gain

and four S-units. Again reflect back on January's column. A good 2-element Yagi exhibits a forward gain of approximately 5.5 dB, which is also the approximate gain of a 3-element "triband beam" on 20 meters. Let's round that up to 6 dB gain just to ensure we do not shortchange anyone. A full-size, 3-element beam typically exhibits a gain of 8 to 8.5 dB. Let's round that up to 9 dB. Now let's weigh amps versus beams. A small linear amplifier that is easy to handle and power from a 120-volt AC outlet (rated up to 10 amps) can run cool and comfortable delivering between 400 and 600 watts output—a 6- or 7-dB increase. That increase is also equal to approximately two S-units, and the same approximate signal gain or effective radiated power as produced by a beam antenna.

A larger linear amplifier can boost the output power even more—to 800 watts/9 dB (or three S-units), or 1600 watts/12 dB (or four S-units). This is obviously moving into the "big gun" category, as few (affordable) beam antennas produce 10 or 12 dB gain. Also, many amateurs running higher power (above 600 or 700 watts) usually have a large beam antenna. They must also use a high-current, 240-volt line for the amplifier and stay prepared to remedy RFI within, say, 500 to 600 feet, with clamp-on toroids, telephone filters, etc. Tower, rotor, and antenna maintenance is another matter of consideration (you did not expect life at the top to be a cake walk, did you?).

Going one step further, I should parrot some well-known facts and figures here. The first 6-dB increase in your signal overall is the least expensive to acquire, the most "neighborhood friendly" boost, and it also makes the most noticeable increase in your signal at a distant transceiver. The next 6-dB increase requires some heavy-duty money and usually does not produce the highly noticeable improvement as the first 6 dB of gain—but it is a quite necessary expenditure if you are shooting for the top. The "informal tally" at this point stands as follows: We will use a 100-watt transceiver as reference and assume it produces an on-the-air signal level of S5 on a random-picked distant receiver. Adding a gain vertical or Extended Double Zepp antenna will raise the level to S6.

0 dB Reference	EX: 100 watts
3 dB = Power gain of 2	EX: 200 watts (approximately)
6 dB = Power gain of 4	EX: 400 watts (approximately)
9 dB = Power gain of 8	EX: 800 watts (approximately)
10 dB = Power gain of 10	EX: 1000 watts (exact)
12 dB = Power gain of 16	EX: 1600 watts (approximately)
15 dB = Power gain of 32	EX: 3200 watts (approximately)
20 dB = Power gain of 100	EX: 10000 watts (exact)

Fig. 1— Comparison of dBs, signal levels, and power gain as discussed in the text. The most significant increase is in the 6-dB and 9-dB range, which is also the most affordable and easiest to handle.

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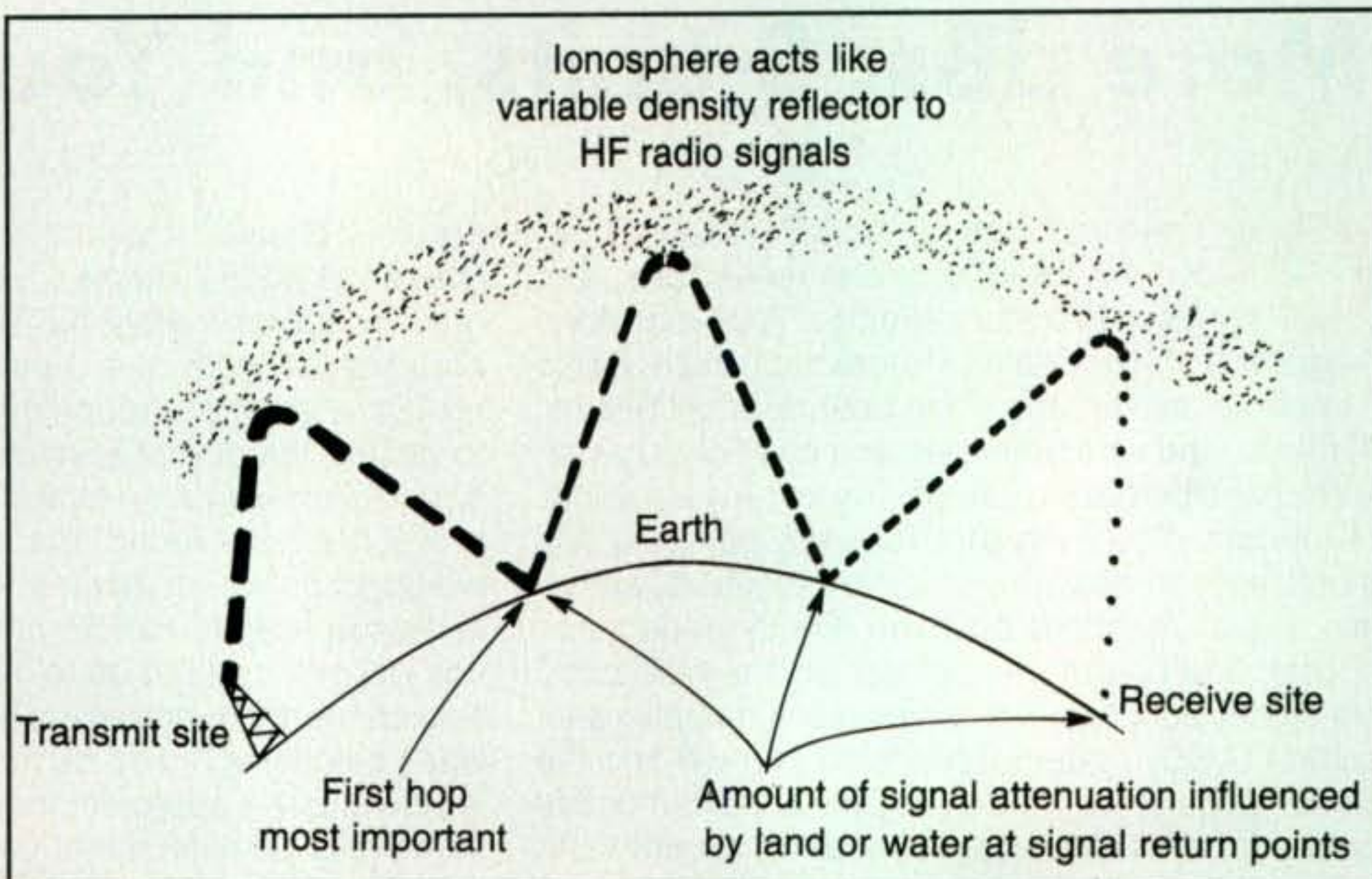


Fig. 2— HF signals being propagated or “skipping” long distances are subject to attenuation or loss due to poor reflectivity of the Earth’s ionosphere and whether land or water reflects the signals. Also, the first “hop” is the most important point.

Adding a 500- or 600-watt amplifier to that setup will raise the signal level 6 or 7 dB to a solid S8—possibly a tad higher. Changing to a 1500-watt amplifier will raise the signal level six more dB, or S9 plus 3 (or maybe 4) dB. If we now step back and compare an S5/basic setup with a 3- or 4-dB over S9/big-gun setup, it may seem that the little guy is a real underdog, but don't jump to conclusions. Signal propagation (band conditions), operating finesse, and receive AGC must still be considered. Chin up and read on!

Propagation Effects

As we know, long-distance HF communications rely on signals reflecting off the Earth's ionosphere, and the ionosphere's ability to reflect rather than absorb signals in turn depends on sunspot activity, band, season of the year, and time of day. This is where being on the right band/frequency at the right time plays a major role regardless of your setup's effective radiated power. Really long-distance contacts also require multiple “skips,” and resultant signal strengths essentially are unpredictable. However, studies have confirmed water (oceans and lakes) reflect signals better than land masses. Living within one- or maybe two-hundred miles of a coastline has its benefits. I should also point out that “skipped” signals can change polarity from horizontal (as produced by a dipole, beam, etc.) to vertical (as produced by a vertical antenna), or anything between, and differences in polarity can alter signal strengths up to 20 dB. Having both a vertical and a hor-

izontal antenna ready for instant use on an A/B switch is definitely an asset worth considering.

Riding the gray line—that vague, shadowy area encircling the Earth, separating day and night and changing position every half hour—is another (and possibly the best) way to reach out regardless of your setup's ERP. The full gray-line story is complex and lengthy, but the bottom line is that there are two optimum periods for big-time DXing in every day: the hour around your local sunrise and sunset. Get on the air at those times, check several bands simultaneously, listen closely for weak signals, and have a ball!



Photo A— Look closely at this picture of Earth and you can see the gray-line separating daylight and darkness between North and South America and Europe. Approximately 2 hours later (dusk) will be the ideal time for DXing from the East Coast of U.S. Discussion in text.

A Note of Encouragement

Once again this month's column lacks "glitz and glamour pictures" to capture your attention, but like last time it is packed with information I am sure you will find helpful for many years hence. Read both January's column and this column twice for best understandingK4TWJ

Operating Expertise

Many moons ago, our city closed off several blocks downtown and held sports car slalom races on Saturday afternoons. The smallest nimble sports car with the sharpest driver always won, while the big cars with fire-breathing engines (and drivers!) came in later dragging a bunch of pylons they rode over in the process. The whole scenario reminded me of DX pile-ups on 20 meters. Some operators sit in DX Cluster listed pile-ups screaming like stuck pigs—err . . . hams—but not changing their tactics, and it works well. High ERP bulldozes through almost anything. Others find their own (and often better) DX calling CQ and immediately call them (with their basic setup, no less) before the wolf pack can turn their beams and/or post the DX on the Cluster. Catching others with "their backs turned" can give you and your vertical antenna a 20- or 25-dB advantage, but make your first calls your best, most accurately timed and perfectly placed. The wolf pack will descend quickly and eat you for lunch.

Working CW gives you more advantages. Using full break-in rather than semi break-in to compete in pile-ups is comparable to gaining 10 dB in signal clout. Listening, analyzing, and shifting your transmit frequency ever so slightly so your signal falls dead center rather than to the side of the distant station's receive passband can give you another 10-dB boost. If other stations, even those running more power and "better" antennas do not embrace this strategy, you can be in and out of a pile-up with good success before the wolf pack becomes totally wild. That's 20 dB for the underdog and 4 or 5 dBs for the big guns.

AGC—and "Out"

Finally, let's recognize the unsung "dB equalizer"—a modern transceiver's AGC system. A hands-on example helps here. Tune in an S8 or S9 signal. Listen closely and then (and don't peek at your transceiver's S-meter) switch in/on your rig's 10- or 20-dB attenuator. Did the signal's volume drop significantly? Try that again with a 10 dB over S9 or an S7 sig-

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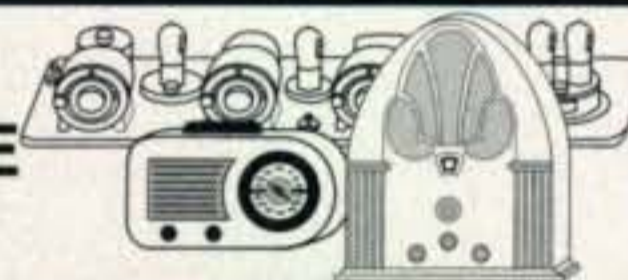
SHOW WILL BE HELD IN ANY WEATHER

nal (and listen to the volume; don't look at the S-meter). Surprised? Most operators are. Now imagine you are the DX station. The mob is calling and your rig's S-meter is reading high, but its AGC system is holding speaker or earphone volume fairly constant for low and loud signals alike. The S1 to S3 signals need a little help (6 or 7 dB, as we discussed in adding a small amplifier or a small beam) and then they too are pile-up competitors. Conversely, the S1 to S3 operators can have a ball doing their own thing on "quiet" bands and around gray-line time. In other words, knowing how to play the game like a pro makes the big difference.

Conclusion

This two-part series started out as a study and cross-reference of power levels, dBs, and S-units. As you have noticed, however, it grew into a full-blown explanation of, well, a number of variables that do not fall into exact categories and consequently seldom appear in a single article. I sincerely hope you found my "keep it simple" explanations helpful and your opinions are welcome at: <k4twj@cq-amateur-radio.com>. 73, Dave, K4TWJ

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Excellent EME Conditions Predicted This Month

For those of you who read *CQ VHF* magazine, you may have read Derwin King, W5LUU's Earth-Moon-Earth (EME) predictions for this year in last fall's issue. Those monthly predictions are excerpted and appear in the VHF Plus Calendar box each month in this column. Derwin centers his weekly prediction on Sundays, because it is the time of the most EME activity during the week.

Glancing at this month's VHF Plus Calendar box, you will see that on March 8 Derwin has predicted excellent EME conditions. He has also predicted these conditions for April 5 and December 6. Why are these conditions possible?

It has to do with the position of the Moon in the sky relative to background noise as well as how far away the Moon is from Earth. The closest the Moon comes to Earth is called perigee. The position in the sky where the moon can be found is declination. An important factor to being able to work EME is sky noise or sky temperature. Every heavenly object emits noise, which is measured in degrees Kelvin. The lower the degrees, the less sky noise, and vice versa. For 2 meters, the lowest temperature that can be attained is 175 degrees Kelvin, which is very rare. The highest temperature attainable is 3,000 degrees Kelvin.

The Moon rotates around the Earth in a nodal path that takes 18.6 years to complete. During these years the declination of the moon varies by plus or minus 5 degrees. During the maximum declination, the moon will reach a peak of 28.5 degrees declination. During the minimum declination, the moon will reach a peak of 18.5 degrees declination.

Generally speaking, the higher the declination the better the conditions. This phenomenon has to do with the higher declination, allowing longer inter-continental common windows for operating—such as between North America and Europe or North America and Japan. However, where the Moon is in the sky relative to where known sources of noise can be problematic for an EME QSO. For example, if the Moon is in an area of a noise source—such as galaxies, planets, or the sun—then the noise generated by that source can be sufficiently loud enough to drown out the return signal from the moon.

Sky noise is sort of like listening to power-line noise on your receiver. If you are trying to hear a station that is in the same general direction as your source of power-line noise, generally speaking, you will have trouble hearing that station. However, if the station you are trying to hear is in the direction where there is no power-line noise, then it is less likely that the distant station's signal will be covered by the noise.

For the prediction of excellent conditions to occur, it is necessary that these various factors of the Moon's declination being in a quieter part of the

e-mail: <n6cl@sbcglobal.net>

VHF Plus Calendar

March 1	Moderate EME conditions
March 4	Moon first quarter
March 7	Moon perigee
March 8	Excellent EME conditions
March 11	Full Moon
March 15	Poor EME conditions
March 18	Moon last quarter
March 19	Moon apogee
March 20	Spring equinox
March 22	Poor EME conditions
March 26	New Moon
March 29	Moderate EME conditions

—EME conditions courtesy W5LUU.

sky, and the Moon's distance from the Earth being relatively closest for the month happen to occur at the same time. For the purpose of predicting these events around the weekend, the dates of March 8, April 5, and December 6 of this year turn out to be excellent operating days. Other days during the week when conditions are going to be excellent include May 1 and November 9.

Now that you know how well the conditions will be for a particular time, you will be able to maximize your EME activities during that time. Good luck!

ARISS Participates in International Education Week

Due to the Amateur Radio on the International Space Station (ARISS, <<http://www.rac.ca/ariss/oindex.htm>>) program's worldwide positive reputation in the field of education, the U.S. Department of Education has become one of its major fans. Because of this admiration of ARISS, this past November the Department of Education invited the ARISS team to help celebrate the ninth annual International Education Week (IEW, <<http://www.iew.state.gov/>>) by coordinating three simultaneous contacts with the crew of the International Space Station (ISS) during IEW, November 17–21. The IEW is a joint initiative of the Department of Education and US Department of State.

This invitation came, according to ARRL ARISS Project Manager Rosalie White, K1STO, after the Department of Education had been tracking ARISS's activities for a long time. The joint venture, which also included NASA and the Department of State, was a resounding success. Among the outcomes were both international goodwill and encouraging scientific education among common school students.

Work began on the project last April when ED's JoAnne Livingston contacted NASA to ask for the team's support. In turn, NASA contacted the ARISS team to work out the logistics. In her position as ARISS Program Manager, Rosalie White became the team's leader for the project.

The theme of last year's IEW was International Education: Fostering Global Responsibility and Leadership. The challenge for the ARISS Team was how to tie together three schools from different locations over the globe into one 10-minute radio QSO.

The Department of Education selected the three schools to participate in the contact. These included Enloe Magnet High School in Raleigh, North Carolina; Poolesville High School in Poolesville, Maryland; and Academia Cotopaxi, an all-grade school in Quito, Ecuador. Academia Cotopaxi was recommended by the US Embassy in Ecuador because it uses a North American style curriculum. "Because of orbital mechanics," White said, "the radio contact was slated for Friday, November 14 at 15:02 UTC as the 'curtain opener' for IEW."

Using the League's affiliated club roster to locate local clubs that would be able to help the schools, White was able to get Raleigh Amateur Radio Society to help support the Enloe Magnet High School as well as the Goddard Amateur Radio Club, which has many ARISS volunteers, to assist the Poolesville High School. Using ARRL Membership and Volunteer Programs Manager Dave Patton, NN1N, White was able to locate Alfredo Caviedes, HC1HC, who helped out with the QSO, as well as Rick Dorsch, NE8Z, a Michigan ham who has been to Quito many times and is friends with Caviedes, who would provide translation assistance for Alfredo.

The ARISS QSO was handled by Nancy Rocheleau, WH6PN, who operates an ARISS telebridge station in Hawaii. The students interviewed astronaut Mike Fincke, KE5AIT, the ISS commander. As community leaders and school administrators observed the activities, the QSO took place without any problems. For all concerned, their memories of the event will not soon be forgotten.

In addition to educational organizations, three TV stations were at the Poolesville school to report on the ARISS/IEW story. Gary Pearce, KN4AQ, of Amateur Radio/Video News, has produced a video of the event. You can view it at <http://www.youtube.com/watch?v=6d3D66DbBEo>.

Commenting on the ARISS QSO, Kelly McCormick of the Johnson Space Center stated: "It was a thrill to listen to students in Maryland, North Carolina, and Ecuador connect with Mike Fincke on the International Space Station during the ARISS contact. Listening in, we could feel the excitement of the students as the ham radio operators



Chris, a student at Enloe Magnet High School in Raleigh, North Carolina, posed this question to Mike Fincke, KE5AIT, on board the ISS: "What are the differences between performing scientific experiments on Earth as opposed to doing them on the space station, and what effects will these experiments have on our daily life here on Earth?" Jeff Wittich, AC4ZO (right), assisted with the QSO in celebration of International Education Week. (George Richards, WA4EKJ, photo courtesy of the ARRL Letter)

around the world came together to facilitate the connection. A female operator in Hawaii made the call to the ISS and we heard the crackle and pop of the airwaves give way to Mike Fincke's voice. International Education Week was off to a fantastic start!"

Following the successful ARISS QSO, on November 18 students from all three schools were linked into a video conference activity held at the US Department of Education auditorium. The students were able to direct their questions to a panel of experts from around the world. The panel included astronaut Don Thomas, KC5FVF; ARISS Chairman Frank Bauer, KA3HDO; and other ARISS worldwide volunteers and science leaders. High-ranking staff from the Departments of Education and State, as well as representatives from educational associations such as the Sally Ride Science Club and the head of NASA Education observed the proceedings. The ARISS team members on the panel included the following:

- Steve McFarlane, VE3TBD, from Canada discussed ARISS schools in remote Canadian locations.
- Peter Kofler, IN3GHZ, from Italy, who teaches and has mentored numerous ARISS European schools.

- Dick Flagg, AH6NM, and Nancy Rocheleau, WH6PN, who have handled telebridge ground-station operations since 1990 and SAREX days, and helped develop Radio Jove, student-built radio kits to receive radio signals from Jupiter.

- Michael Chen, BD5RV/4, from China, who mentored the first ARISS school contact in China.

- Ciaran Morgan, M0XTD, from England, led an ARISS QSO with Richard Garriott, W5KWQ.

- Fernando Casanova, EC1AME, from Spain became an ARISS volunteer just prior to the Garriott mission. Please see the December 2008 and January 2009 editions of this column for more on Richard's activities.

In order to capitalize on the learning experiences of the ARISS QSO, each school scheduled follow-up activities. Mark Curran—head of Poolesville High School's Science, Math, and Computer Program—reported that his computer students are developing skills for programming a rover to investigate an imaginary planet (Planet Falconia, named for the school mascot). For example, the Research and Engineering Class designed and constructed the rover to successfully navigate hazards, sense

differences in surface temperature, and recognize boundaries. Additionally, the Earth Systems Science Class studied planetary geology and remote-sensing applications for Planet Falconia.

"Through ARISS," Curran said, "students gained insight into daily challenges faced by current astronauts and the importance of the communication efforts, including ham radio. Students realized the need to be able to communicate well in both written and spoken languages, addressing the English and foreign language aspects of the curriculum."

Samuel Wheeler, a teacher at Enloe Magnet High School, developed special curriculum for 11th and 12th grade students in his AP Physics, Honors Physics, and Physical Science classes. Enloe is ranked 73rd in the *Newsweek* list of the top 100 United States high schools. Previously, Enloe students exchanged communications with high schools in China, Germany, and Turkey through video conferencing.

Kathy Beahn at the Academia Cotopaxi in Quito, Ecuador, led the effort for pre-kindergarten through 12th grades. According to White, space-related and ARISS studies were integrated into the Conceptual Physics Course for 11th and 12th grade students. Students in grades 2, 7, and 8 also took part in the ARISS radio contact. Commenting on her preparation for the ARISS QSO, Beahn stated, "We began the year learning about waves in general, including basics about the electromagnetic spectrum. [The ARISS QSO] helped students understand ham radio technology. We studied planetary motion and astrophysics topics, including special relativity and black holes."

White said that the Department of Education was so impressed with ARISS and with what students learned before, during, and after the contacts that ARISS has been invited to participate in this year's International Education Week. IEW 2009 is scheduled for November 16–20.

Portions of this report were excerpted from the *ARRL Letter*. For more information on the project, see <<http://www.arrl.org/news/stories/2008/12/02/10489>>.

Silent Keys

I am saddened to report that the following weak-signal operators became silent keys in recent months: Russ Sakai, KH6FOO, and Rex Turner, W5RCI. From Jack Henry, N6XQ, is the following concerning Russ:

I am saddened to report that Russ Sakai, KH6FOO, passed away on November 20, 2008, after a long bout with throat cancer. Russ was 58. He was one of the pioneers on 2-meter EME and gave out

Hawaii to many. He also was a pioneer utilizing the Pacific VHF duct from Hawaii to the mainland in the 1970s and 1980s. He will be greatly missed.

Russ was my first Pacific VHF duct contact. I worked him in the summer of 1993 while I was visiting Jack in San Diego. I, too, will miss Russ.

Rex Turner, W5RCI, passed away on January 9, 2009. He was a longtime weak-signal operator, giving out Mississippi to many operators via meteor-scatter, tropo, and aurora modes. In Mark Morrison, WA2VVA's third installment of his "Basement Lab Group" series, which appears in the Winter 2009 issue of *CQ VHF* magazine, Morrison quotes an excerpt from a tape recording of his father, Walt, W2CXY, in which Walt mentions that Rex heard him and several other East Coast W2's during an aurora event on 2 meters in 1956. If you think about it, Rex witnessed a rather rare aurora event.

Current Contests

European Worldwide EME Contest 2009: Sponsored by DUBUS and REF, the EU WW EME contest is intended to encourage worldwide activity on moonbounce. Information for this contest is available at the following website: <<http://www.marsport.org.uk/dubus/EUEMEcontest2009.pdf>>.

Calls for Papers

Calls for papers are issued in advance of forthcoming conferences either for presenters to be speakers, or for papers to be published in the conferences' *Proceedings*, or both. For more information, questions about format, media, hardcopy, e-mail, etc., please contact the person listed with the respective announcement. The following organizations and/or conference organizers have announced calls for papers for their forthcoming conferences:

Southeastern VHF Society Conference: Technical papers are solicited for the 13th annual Southeastern VHF Society Conference to be held in Charlotte, North Carolina on April 24–25. Papers and presentations are solicited on both the technical and operational aspects of VHF, UHF, and microwave weak-signal amateur radio. In general, papers and presentations on non-weak-signal related topics such as FM repeaters and packet will not be accepted, but exceptions may be made if the topic is related to weak signal. For example, a paper or presentation on the use of APRS to track rovers during contests would be considered.

The deadline for the submission of papers and presentations is March 2, 2009. For further details, questions, comments, and submissions, contact Program Chair Steve Kostro, N2CEI, at <svhfs2009@downeastmicrowave.com>. For further information about the conference, please see the society's website: <<http://www.svhfs.org>>.

Central States VHF Society Conference: Technical papers are solicited for the 43rd annual Central States VHF Society Conference to be held in Chicago, Illinois on July 23–26. Papers, presentations, and posters on all aspects of weak-signal VHF and above amateur radio are requested. You do not need to attend the conference, nor present your paper, to have it published in the *Proceedings*. Non-weak signal topics, such as FM, repeaters, packet radio, etc., generally are not considered acceptable. However, there are always exceptions. Please contact the folks below if you have any questions about the suitability of a topic. Strong editorial preference will be given to those papers that are written and formatted specifically for publication, rather than as visual presentation aids.



The 1956 QSL card of Silent Key Rex Turner, W5RCI, sent to Walt Morrison, W2CXY. (See text for details)

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Meteor Showers

The γ -Normids shower is expected to peak on March 13. For more information on this meteor shower prediction, visit the International Meteor Organization's website: <http://www.imo.net>.

And Finally . . .

Concerning the IEW ARISS QSO mentioned in this column, it is my wish that such programs continue and be expanded. Additionally, it is my wish to see more federal funding be directed toward NASA's education programs, such as NASA's Space Grant Consortium and NASA's Explorer School program. Regular readers of this magazine have already read articles about various amateur radio-related projects that are

being run under the auspices of various colleges and universities across the country. These programs have proven to be sources for producing new amateur radio operators. Regarding these programs, it is my wish that NASA assign an employee full time to publicize projects that are being carried out at various state space grant consortia around the country.

Concerning NASA and education, a paltry few of its programs are reaching down to the common school level, the Explorer School program being one of them. I would like to see more programs developed that reach the elementary and middle school levels. Any education administrator will tell you that if you have not captured the students' imagination by the early middle school years, you run a high risk of losing that student's lifetime positive creativity. Therefore, it is my wish that Congress and the President approve and authorize increased funding to NASA for education-related projects.

What are your ideas, thoughts, or projects? Please let me hear from you via my e-mail address: <n6cl@sbcglobal.net>. I will be happy to give them space here in this column, or via an article in a future issue of *CQ VHF* magazine.

Until next month . . . 73 de Joe, N6CL

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Awards from Poland (SP AC) plus CQ to Accept eQSLs for Award Credit

Award hunting is a very popular activity in Europe, Japan, and somewhat so in the United States. People who have a common interest often band together and form organizations that promote that interest. For award hunting Germans have their Diploma Interest Group (DIG); Russians, the Russian Robinson Group; Japan, the Japan Award Hunters Group; and in Poland it's the the Polski Award Club (SP AC). A common feature of all of these groups is, not surprisingly, the sponsorship of a series of awards that complements or supplements the awards issued by their local national society.

This month we'll look at some of the awards sponsored by the Polski Award Club. It sponsors about 40 awards, although some of these are separate certificates for different levels of essentially the same award. It is not too hard to accumulate a nice collection of Polish QSL cards, since the annual SP DX Contest attracts large numbers of Polish operators, all intent on working as many cstations as possible on both CW and SSB.

The SP AC Awards

General Requirements: Contacts count after January 1, 1970. SWL okay. All bands and modes okay. GCR accepted. Fee for each award is \$US7, 10 IRC, or 5 Euros. Cost of endorsement stickers is 2 IRCs or \$US2. Apply to: Arkadiusz Szczyglewski, P.O. Box 6, 59-920 Bogatynia, Poland. Internet: <<http://spac.com/pl>>.

W-100-SP. This first award should be fairly easy to earn. I call it a "bulk" award. Several countries with large, active amateur populations offer this kind of award, which is given for working and confirming sheer numbers of the target, which in this case is anything with an SO, SP, SQ, or 3Z prefix. Just for fun, while writing this column I did a quick count of my cards from Poland and came

up with a little over 800 of them. I have the W-100-SP award knocked!

Work or hear 100 different Polish stations. Endorsement stickers are available for each additional group of 100, up to 3000.

Worked Polish Cities Award. Contact cities of Poland with over 50,000 population. Number of contacts required for each class:

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for DX	10	15	25
for EU	15	25	35

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November 28, 2008

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USA-CA All Counties #1175,
December 6, 2008

Sherwin "Chuck" Tames, W4QNW
USA-CA All Counties #1176
December 12, 2008

Greg Potter, NM2L
USA-CA All Counties #1177
December 16, 2008

Judy E. Bultman, KB9MGI
USA-CA All Counties #1178
December 16, 2008

USA-CA Honor Roll

500	1500	2500
N3HOO.....3447	N3HOO.....1480	N3HOO.....1289
W4QNW...3448	AA9ZZ.....1481	AA9ZZ.....1290
T18II.....3449	W4QNW...1482	W4QNW...1291
NM2L.....3450	T18II.....1483	NM2L.....1292
KB9MGI...3451	NM2L.....1484	KB9MGI...1293
NU4C.....3452	KB9MGI...1485	
	NU4C.....1486	
		3000
		N3HOO.....1199
		AA9ZZ.....1200
		W4QNW...1201
		NM2L.....1202
		KB9MGI...1203
		WQ1H.....1204
1000	2000	
N3HOO.....1764	K9AAA.....1371	
AA9ZZ.....1765	N3HOO.....1372	
W4QNW...1766	AA9ZZ.....1373	
T18II.....1767	W4QNW...1374	
NM2L.....1768	NM2L.....1375	
KB9MGI...1769	KB9MGI...1376	
NU4C.....1770		

The total number of counties for credit for the United States of America Counties Award is 3077. The basic award fee for subscribers is \$6.00. For nonsubscribers it is \$12.00. To qualify for the special subscriber rate, please send a recent CQ mailing label with your application. Initial application may be submitted in the USA-CA Record Book, which may be obtained from CQ Magazine, 25 Newbridge Road, Hicksville, NY 11801 USA for \$2.50, or by a PC-printed computer listing which is in alphabetical order by state and county within the state. To be eligible for the USA-CA Award, applicants must comply with the rules of the program as set forth in the revised USA-CA Rules and Program dated June 1, 2000. A complete copy of the rules may be obtained by sending an SASE to Ted Mellnosky, K1BV, 12 Wells Woods Road, Columbia, CT 06237 USA. DX stations must include extra postage for airmail reply.

*12 Wells Woods Rd., Columbia, CT 06237
e-mail: <k1bv@cq-amateur-radio.com>



To earn the W-100-SP Award, Work or hear 100 different Polish stations.

Edwin K. Fisher, N3HOO
USA-CA All Counties #1174, November 28, 2008

I enlisted in the Army in February 1957, was sent to Fort Jackson, SC for basic training, Fort Gordon, GA for radioteletype school (including Morse Code), and then to Fort Devens, MA for Morse Intercept School. I was then sent to Germany and over the next 31-plus years I spent a total of 16-plus years there or in some other European country. The other 15 years were split among Africa, South America, and Asia, with some time spent in the U.S. for whatever schooling the Army decided I needed as a Corps of Engineer officer. I retired on September 30, 1988.

I was first licensed as a Novice, WN3ACI, in 1963 in Maryland and operated a crystal-controlled Globe Scout 680A transmitter and a Gonset GR-212 general-coverage receiver. I really enjoyed CW ragchewing. I've held the calls WN3ACI, WD4NCJ, N0DDY, N3HOO, and DA2EK.

I started putting out counties in the late 1980s during my travels from Pennsylvania to Missouri and Louisiana, but spent most of my time on the 3905 Century Club nets. I got more interested in putting out counties in the '90s. I wasn't interested in award/certificate chasing but really did enjoy being on the receiving end of the mini pile-ups. All that changed in 2002, when Carla's (my non-retired XYL) company transferred her from Williamsport, PA to Seattle, WA and promoted her to a position that caused her to be away from home a lot.

We found the perfect spot for us at a house on the beach, on the Seattle side of Bainbridge Island that had a lighthouse-type structure attached to the house. The owner, and builder, was a United States pilot and amateur radio operator, WA7DE. His shack was at the top of the lighthouse overlooking Puget Sound. Carla was sold on the house and its location. I was sold on the ham shack and antennas over salt water.

Carla was away from home a lot, the island is 8 miles by 2 miles, and eventually I had seen it all and done it all. I started spending more time in the shack "playing radio." I put the island out on the IOTA (Islands On The Air) net, worked the 3905 Century Club nets, played around on the NTS nets, and finally landed on 14.336. I decided to "work 'em all" and on May 13, 2002 worked the first one with Silver, KC0JG/m, in Montgomery County, IL.

My first trip after getting serious about county hunting began in November 2002, and I got back home in January 2003. I traveled back then in a 22-foot Winnebago Rialta mini-motorhome. The rig was a Yaesu FT-100D and ATAS-100 antenna. I made a lot of "extended trips" away from the island during Carla's absences and traveled to the East Coast to visit kids, grandkids, and friends. Sometimes the trip would be 7500 miles from the island to the East Coast because someone needed a county that caused a "small" detour from the original plan. My first trips were SSB only, but eventually someone asked for CW, so I started doing that "on the fly."

I finally convinced Carla to join me in retirement in 2005. We upgraded to a 40-foot

Class A motorhome, sold the house on Bainbridge Island, put our belongings into storage in Washington, and started touring the country. County hunting was put on hold, as I didn't have a rig with me, so I apologize to all the county hunters for the counties I didn't put out.

On the way through Pennsylvania in 2006, my old ticker decided it was tired and needed some repairs. Carla somehow saved me. After a couple of months with the doctors in Reading, PA, Carla located a house in Chambersburg, PA five minutes from a hospital, on 4 acres, no antenna restrictions, nice neighbors, and close to two of the kids and five of the grandkids. So, in June 2006 we had the furniture delivered from Seattle, settled into the new house, and put the motorhome in storage. For the next year-plus, most of my time was spent with doctors, or recuperating from the effects of their decisions about the sad shape of my organs, and county hunting was still on hold.

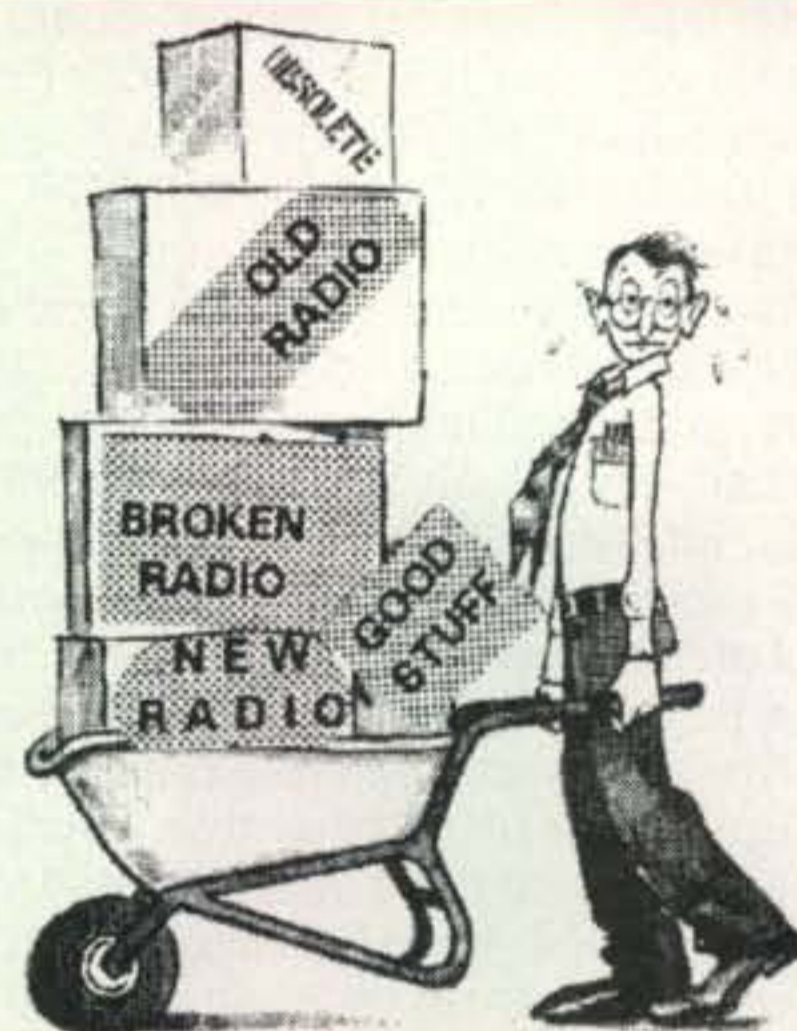
During the first few months of 2007 while I was convalescing from another cardiac surgery and subsequent cancer surgery, some of the county hunters I had met on my travels—Rufus, KD4HXM; Hollis, KC3X; Percy, KA1JPR; Jerry, K1SO; and some others still unknown to me—decided I was remiss in not getting those I needed to finish USA-CA. So, during February and March of 2007 I worked (in my pajamas and then back to bed) the few counties I needed to finish USA-CA. The culmination came on March 12, 2007 when I worked WQ7B (no, unfortunately, not Terry, WQ7A) in Chouteau, MT for the "whole ball of wax" during a sked set up and monitored by Rufus, KD4HXM.

During February and March 2007, the contacts were set up by someone and I would then receive a telephone call or an e-mail message telling me who, what, where, and when. What a special bunch of hams we have involved in county hunting! Quite a few of them, especially Rufus, KD4HXM, spent a lot of time and effort setting up those counties and getting nothing in return, except my eternal gratitude. I hope all those efforts got transcribed into "The Book" that is waiting for us wherever we go after we're finished with these old bodies. I hope I get the chance to testify on their behalf just in case they are scheduled for some unpleasant place, instead of where I'm scheduled to go—hi.

I owe a very large debt of gratitude to all the mobiles out there putting out counties, without whom I could not have received this award. I thank the net controls and reflector administrators who spend their time helping the rest of us work counties; the officers and volunteer staff of MARAC who spend their time improving and administering awards for the rest of us; Ted Melinosky, K1BV, for administering this award; and CQ magazine for making this and many other awards available to all of us.

I hope to be back "on the road again" sometime next year putting out counties to help the rest of the folks who need them. Hope to cu out there. —73, N3HOO

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CQ to Accept eQSLs for Award Credit

CQ magazine will accept contact confirmations made on the eQSL.cc electronic confirmation system for its operating awards effective immediately. CQ Editor Rich Moseon, W2VU, and eQSL Founder and Webmaster Dave Morris, N5UP, announced in January.

There will be certain limitations and procedural differences for different awards, at least to start. Only confirmations from "Authenticity Guaranteed" members of eQSL will be accepted, and in accordance with existing eQSL policy, a membership level of bronze or higher is required in order to participate in award programs via eQSL.

"This is the first time that CQ has formally accepted anything other than traditional paper QSL cards for its awards," said Moseon. "We have been working with Dave Morris and his team for several months to assure that the integrity of our awards programs will be protected and to create mechanisms to make it easy for both award applicants and award managers to use eQSL credits toward our awards. All of our award managers have been involved in this process and support this action."

"We want to express our great appreciation to Dave and his team for their willingness to do whatever was necessary to make this agreement possible," Moseon added. "It has been a pleasure working with them and we look forward to a long-lasting relationship."

"We are pleased to be adding CQ to the top of our list of amateur organizations that accept electronic QSLs," said Morris. "CQ has some of the most highly sought-after awards, and we have been working behind the scenes for years to create credit submission mechanisms that would ensure the integrity of their programs without introducing any additional labor for the award managers. We believe the electronic QSL can drastically reduce costs, and the award application mechanisms we have developed will provide for more efficient processing at reduced cost for both the applicant and the award manager."

Specific Requirements and Procedures

Applicants for the CQ DX and CQ DX Field Awards must print out their eQSLs and submit them along with their traditional QSLs to a CQ checkpoint or to CQ DX Awards Manager Billy Williams, N4UF. eQSL has an automated process in place for applicants for CQ's Worked All Zones, WPX, and USA-Counties awards. N5UP explains how that will work for the applicant:

"The applicant goes to the My Awards screen. He clicks on the particular award he wants to apply for. This brings up a list of the credits our system 'thinks' he is entitled to. There are checkboxes that allow him to check which ones he wants to use, and we

automatically pre-fill one credit per category so he doesn't have to do anything if he wants to take the defaults. At the bottom of the screen are two buttons: 'Submit to CQ' and 'Print Paper Application'."

The "submit" button will place all the selected QSOs into a file for the award manager to access, while the "print" button will generate a printed list to be submitted along with the traditional application. PLEASE NOTE that ALL applicants must send the award fee payment to the CQ Award Manager, regardless of how the application is submitted. Some CQ award managers are now accepting PayPal; see individual award web pages for details. All awards will continue to accept traditional QSLs as well as eQSLs. For the USA-Counties Award (USA-CA), applicants must note on their record books (or printouts) whether each county has been confirmed traditionally (with an "X" to the right of the entry) or electronically (with an "E" next to the entry).

For more information on eQSL, visit <<http://www.eQSL.cc>>.

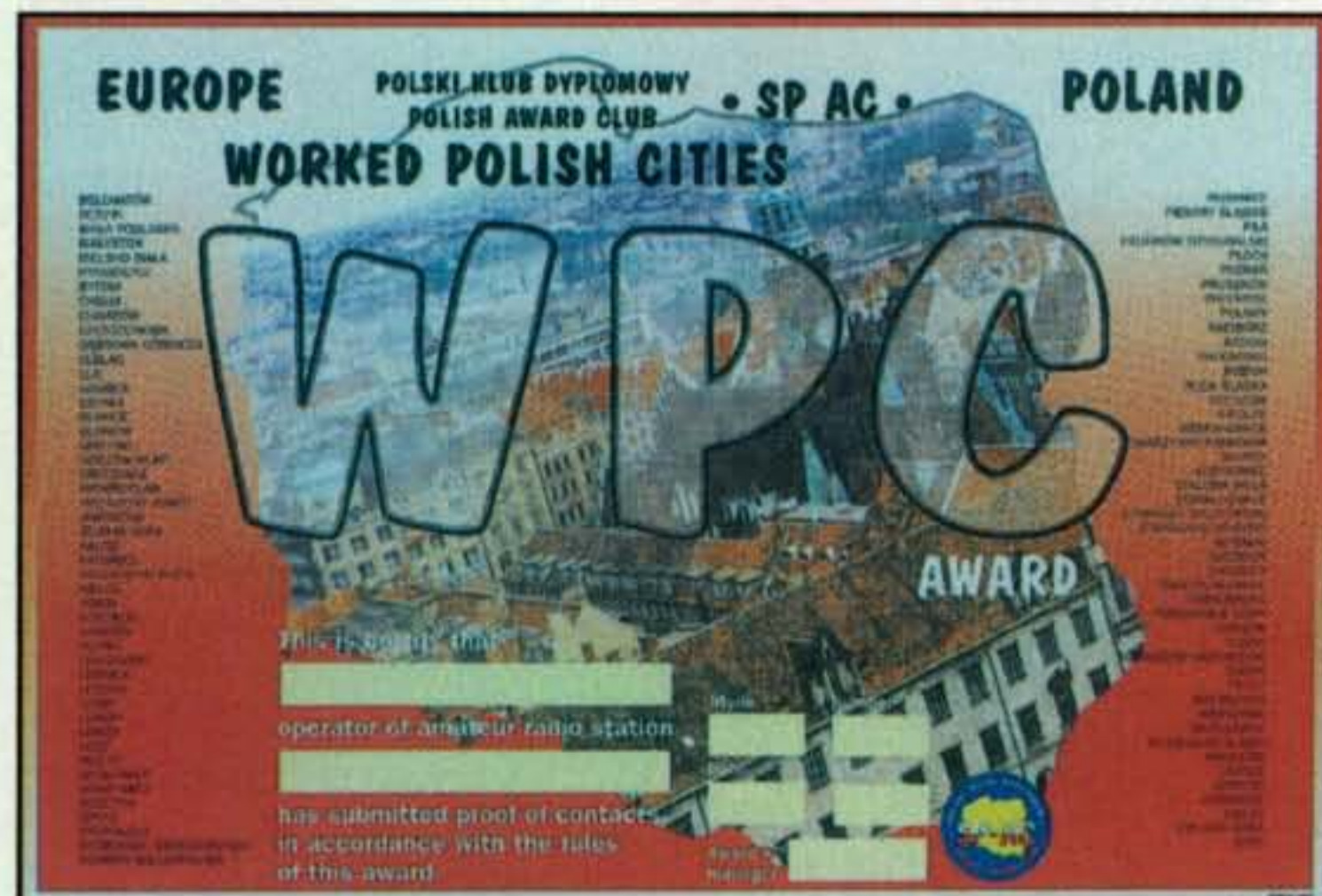
For more information on CQ awards, visit the awards page on the CQ website at <<http://www.cq-amateur-radio.com>>. Please note that as of press time, the award rules posted on the CQ website had not yet been updated to reflect the acceptance of eQSLs. This will be done as soon as possible, but the policy takes effect immediately.

Inowroclaw, Jastrzebie Zdrój, Jaworzno, Jelenia Góra, Kalisz, Katowice, Kedzierzyn Kozle, Kielce, Konin, Koszalin, Kraków, Kutno, Legnica, Leszno, Lubin, Lublin, Lomza, Łódz, Mielec, Myslowice, Nowy Sacz, Olsztyn, Opole, Ostroleka, Ostrowiec Swietokrzyski, Ostrów Wielkopolski, Pabianice, Piekary Slaskie, Pila, Piotrków Trybunalski, Plock, Poznan, Pruszków, Przemysl, Pulawy, Racibórz, Radom, Radomsko, Rybnik, Ruda Slaska, Rzeszów, Siedlce, Siemianowice, Skarzysko Kamienna, Slupsk, Sosnowiec, Stalowa Wola, Starachowice, Stargard Szczecinski, Starogard Gdanski, Suwalki, Szczecin, Swidnica, Swietochlowice, Tarnobrzeg, Tarnowskie Góry, Tarnów, Tczew, Tomaszów Mazowiecki,

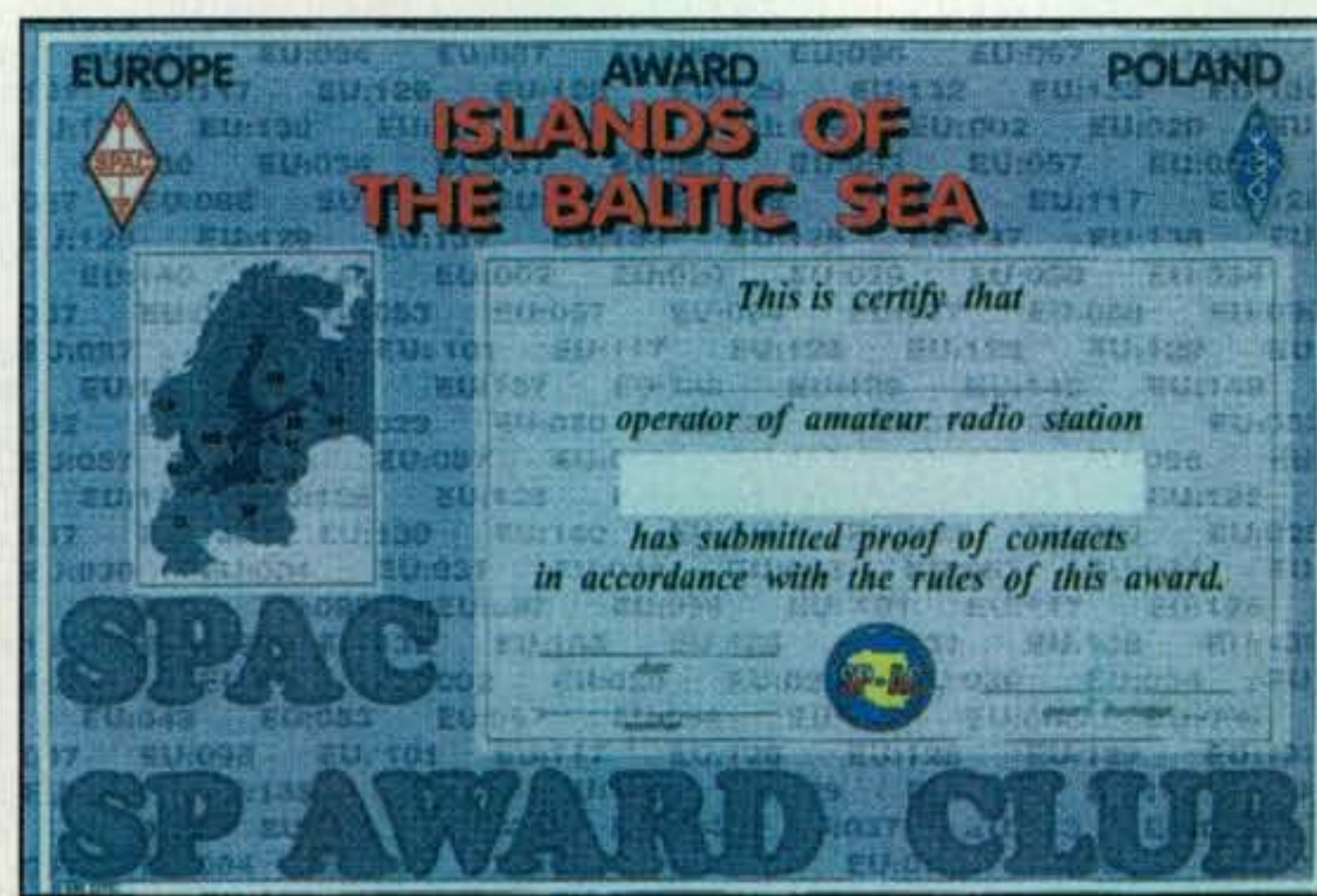
Torun, Tychy, Walbrzych, Warszawa, Wloclawek, Wodzislaw Slaski, Wroclaw, Zabrze, Zamosc, Zawiercie, Zgierz, Zielona Góra, and Zory.

Poland, being one of the Slavic countries, tends to use a minimum number of vowels, with quite heavily accented characters. *Translation:* Don't ask me for a proper pronunciation of these cities and towns. Just follow the spelling, and even that may vary a little on your QSL cards.

Islands of the Baltic Sea Award. Europeans need 21 QSOs with different islands as shown in Table I. DX stations need 15 QSOs with these islands. Summertime seems to be the best time to look for the IOTA numbers mentioned. Many



For the Worked Polish Cities Award contact cities in Poland of over 50,000 population.



The Islands of the Baltic Sea Award can be earned by working islands as shown in Table I.

EU-002 OH0 – Aland
 EU-020 SM1 – Gotland
 EU-029 OZ – Sjaelland
 EU-030 OZ – Bornholm
 EU-034 ES – Saaremaa
 EU-037 SM7 – Kalmar/Oland
 U-043 SM6 – Goteborg
 EU-053 OJ0 – Market Reef
 EU-057 F – Lerins
 EU-084 SM5/0 – Stockholm
 EU-087 SM3 – Vasternorr
 EU-088 OZ – Kattegat

EU-096 OH1 – Turku-Pori
 EU-097 OH2 – Uusimaa
 EU-098 DL – Poel
 EU-101 OH6 – Vasaa
 EU-117 4J1 – Malyj vysots
 EU-126 OH8/9 – Oulu/Lappi
 EU-128 DL – Fehmarn
 EU-129 SP1 – Usedom
 EU-132 SP1 – Wolin
 EU-133 UA1A – Kotlin
 EU-135 SM2 – Vasterbotten
 EU-137 SM7 – Kristianstad

EU-138 SM7 – Blekinge
 EU-139 SM2 – Norrbotten
 EU-140 OH5 – Kymi
 EU-149 ES – Aegna/Prangli
 EU-172 OZ – Jylland East and Fyn
 EU-173 OH1 – Lansi-Suomi (Pori)
 EU-176 SM3 – Gavleborg
 EU-177 SM5 – Sodermanland/Ostergotland
 EU-178 ES8 – Parnumaa/Saaremaa Group
 EU-184 OH8 – Oulu Prov. Group

Table I – The islands of the Baltic Sea.

of these islands are activated as part of European's beach vacations.

CQ Z15 Award. Zones 14 and 15 comprise most of the European countries, and will be among the most common zones received along with your 59/599 in the CQ WW DX Contest. Zone 14 generally is western Europe, and 15 is principally eastern Europe. There is no shortage of these contacts, so this

award is likely to be only a mild challenge for the active DXer/contester.

Contact each of the countries in CQ Zone 15 on different bands. For example, a contact with SP on one band equals one point times 9 possible bands = 9. The following bands count: 160, 80, 40, 30, 20, 17, 15, 12, and 10 meters. There are three levels of the award: III = 75 points, II = 100, I = 150.

Work Polish Call Areas. Nine separate awards are available for contacting different Polish stations located in their call areas 1 through 9. SWL okay.

A Basic Award is available for contacting the following number of different stations in each call area: SP's need 20, other EU stations need 10, and all others need 5. An endorsement is available for contacting an additional number of different stations in each call area.

We're always interested in hearing from clubs, special interest groups, or individuals who sponsor awards. Please contact me at the e-mail address shown on the first page of this column.
 73, Ted, K1BV



Contact each of the countries in CQ Zone 15 for the CQ Z15 Award.



For the Work Polish Call Areas there are nine awards available for contacting different Polish stations located in their call areas 1 through 9.

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9913/PIN	N Male Pin for 9913, 9086, 8214	
	Fits UG-21 D/U & UG-21 B/U's	1.50
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DX Action

How did it get to be March already? The holidays and moving toward mid-January as I write this and I'm still shaking my head trying to come to grips with it all. Why, it will be time for the Dayton Hamvention® before you know it and I'll still be looking at Valentine's Day cards! OK, let's get down to business ... DX business that is.

DX Activities

Palestine. The timing for the E44M operation from Palestine couldn't have been more troubling, and it ended the weekend of January 10–11. With the intense military action in Gaza going on just a short distance from the West Bank where the team had setup their operation, I'm sure they had some concerns. In any event, the team proceeded to do a very credible job in spite of some outright scandalous intentional interference. I've complained about this stuff before, but during this operation it was totally uncalled for. I have no idea who did it or why, although I have some private thoughts about it. I highly commend the team members for their dedication to the operation they had planned. Propagation certainly was a factor in many not being able to hear them very well, and with the QRM on top of that, the fact they did so well is a tribute to that dedication. We owe them a big *thank you!*

Desecheo. By the time you read this, the operation from Desecheo, KP5, will have concluded. The team planned an outstanding program to work as many stations as humanly possible from February 12–26. Great radios with amplifiers, a super field of antennas, and then the thing that makes it all work ... a great team of operators at the key, microphone, or keyboard to make those contacts. I'll be able to report more on this operation next month when they have had time to get home and put pen to paper.

Tunisia. TS7C from Tunisia should have been another outstanding operation in January. With a team of 26 operators from several countries and

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

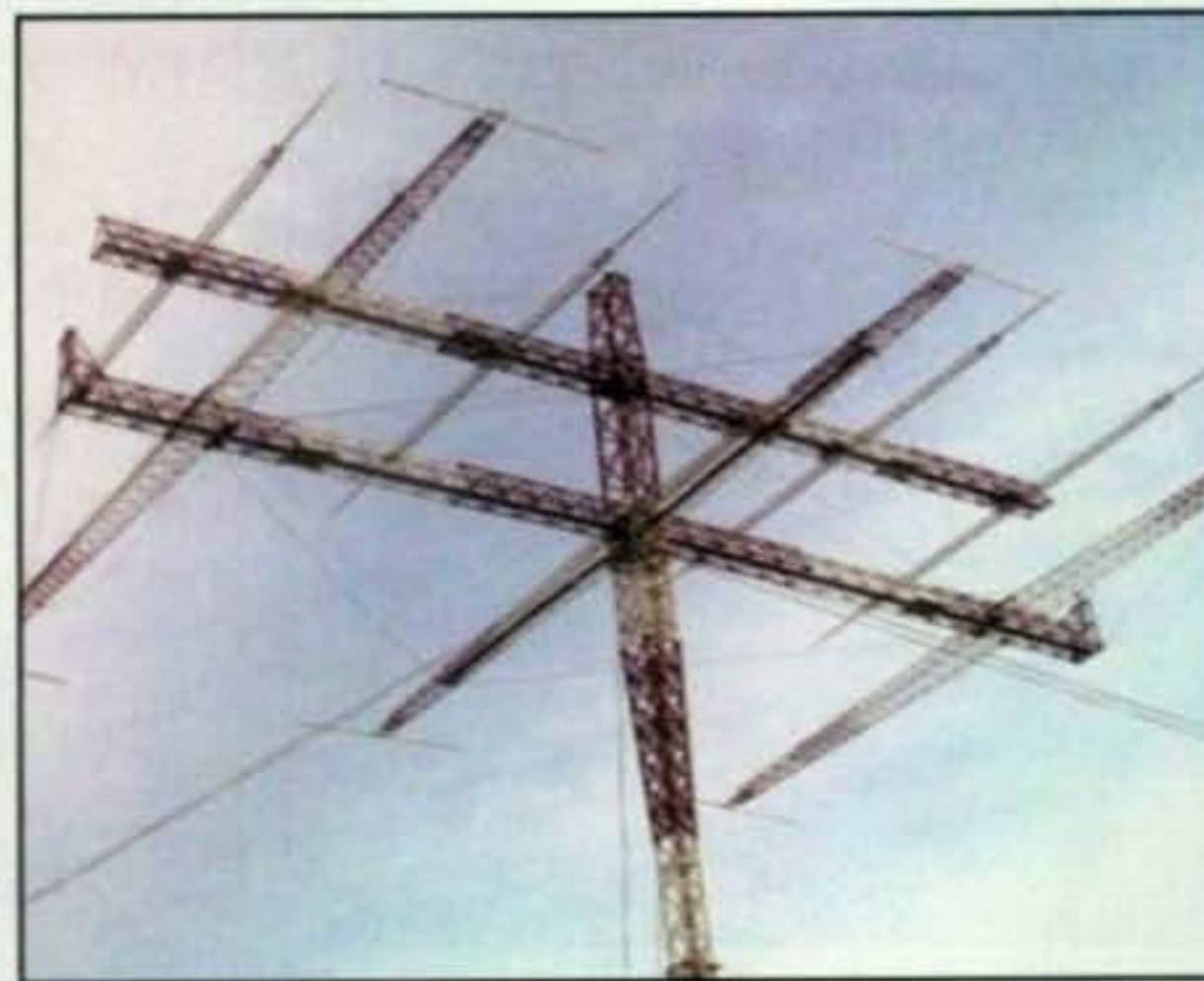


Sample of the German "Internet Stamp." (Photo courtesy of Klaus, DL2QB)

enough equipment to sink a fair-size ship, they had everything going for them ... until they reached a customs office and all of the radios were seized and taken away for inspection when they arrived in the country. A few days passed and three of them were released, which allowed some operation to begin. The remaining radios were held for several more days, and I won't know until after this column was already submitted whether or not they were released or when. I hope the customs folks will not do any damage or cause further delay to what should have been a very good DXpedition.



OH8X 300-foot tower with four 6-element 20-meter stack and 2 over 2 for 80. (Photo from the OH8X website)



OH8X 300-foot rotating tower with a 3-element Yagi for 160 meters and 5-element Yagi for 80. (Photo from the OH8X website)

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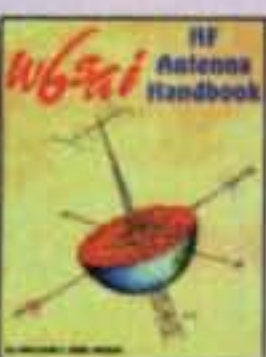
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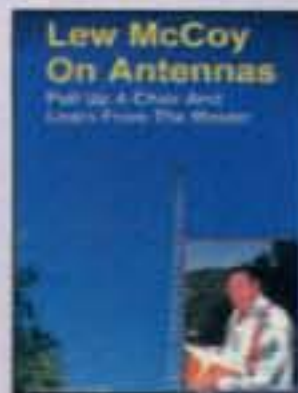
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Africa: WA2VQV
North America: KC8SZU

Award of Excellence Holders: N4MM, W4CRW, K5UR, K2VV, VE3XN, DL1MDD, DJ7CX, DL3RK, WB4SIJ, DL7AA, ON4QX, 9A2AA, OK3EA, OK1MP, N4NO, ZL3GO, W4BQY, I8JX, WA1JMP, K8JN, W4VQ, KF2O, WB8CNL, W1JR, F9RM, W5UR, CT1FL, WA4QMQ, W8ILC, VE7DP, K9BG, W1CU, G4BUE, N3ED, LU3YL/W4, NN4Q, KA3A, VE7WJ, VE7IG, N2AC, W9NUF, N4NX, SM8DJZ, DK5AD, WD9HC, W3ARK, LA7JO, VK4SS, I8YRK, SM8AJU, N5TV, W6OUL, WB8ZRL, WA8YTM, SM6DHU, N4KE, I2UIY, I4EAT, VK9NS, DE8DXM, DK4SY, UR2QD, AB9O, FM5WD, I2DMK, SM6CST, VE1NG, I1JQJ, PY2DBU, H8LC, KA5W, K3UA, HA8UB, HA8XX, K7LJ, SM3EVR, K2SHZ, UP1BZZ, EA7OH, K2POA, N6JV, W2HG, ONL-4003, W5AWT, KB0G, HB9CSA, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YB0TK, K9QFR, 9A2NA, W4UW, NX0I, WB4RUA, I6DQE, I1EEW, I8RFD, I3CRW, VE3MS, NE4F, KC8PG, F1HWP, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, KC7EM, YU1AB, IK2ILH, DE8DAQ, I1WXY, LU1DOW, N1IR, IK4GME, VE9RJ, WX3N, HB9AUT, KC6X, N6IBF, W5ODD, I8RIZ, I2MQP, F6HMJ, HB9DDZ, W8ULU,

K9XR, JA8SU, 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, UA8FZ, DJ3JSW, OE6CLE, HB9BIN, N1KC, SM5DAC, RW9SG, WA3GNW, S51U, W4MS, I2EAY, RA8FU, 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, K7C, UA9CGL, AE5B, K0DEQ, DK0PM, SV1EOS, UA8FAI, N4GG, UA4RZ, 7K3QPL, EW1CQ, UA4LY, RZ3DX, UA3AIO, UA4RC, N8BJQ, UA3BS, UA9FGR, UT3UY, WA5VGI, UT9FJ, UT4EK.

160 Meter Endorsements: N4MM, W4CRW, K5UR, VE3XN, DL3RK, OK1MP, N4NO, W4BQY, W4VQ, KF2O, WB8CNL, W1JR, W5UR, W8ILC, K9BG, W1CU, G4BUE, LU3YL/W4, NN4Q, VE7WJ, VE7IG, W9NUF, N4NX, SM8DJZ, DK5AD, W3ARK, LA7JO, SM8AJU, N5TV, W6OUL, N4KE, I2UIY, I4EAT, VK9NS, DE8DXM, UR2QD, AB9O, FM5WD, SM6CST, I1JQJ, PY2DBU, H8LC, KA5W, K3UA, K7LJ, SM3EVR, UP1BZZ, K2POF, IT9TQH, N6JV, ONL-4003, W5AWT, KB0G, F6BVB, YU7SF, DF1SD, K7CU, I1POR, K9LJN, YB0TK, K9QFR, W4UW, NX0I, WB4RUA, I1EEW, ZP5JCY, KA5RNH, IV3PVD, CT1YH, ZS6EZ, YU1AB, IK4GME, WX3N, W5ODD, I8RIZ, I2MQP, F6HMJ, HB9DDZ, K9XR, JA8SU, I5ZJK, I2EOW, KS4S, KA1CLV, K0IFL, WT3W, IN3NJB, S50A, IK1GPG, AA6WJ, W3AP, S53EO, S57J, DL1EY, DJ1YH, KU0A, VR2UW, UA8FZ, DJ3JSW, OE6CLD, HB9BIN, N1KC, SM5DAC, S51U, RA8FU, 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, K2VV.

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

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

CQ DX Awards Program

SSB

2519W4ABW 2520IZ8EZP

CW

1091HA2ESM

SSB Endorsements

330N5ZM/339 300K7SAM/305
330W4ABW/339 275WD9DZV/292
330K9HQM/338 200IZ8EZP/195
330K4IQJ/338

CW Endorsements

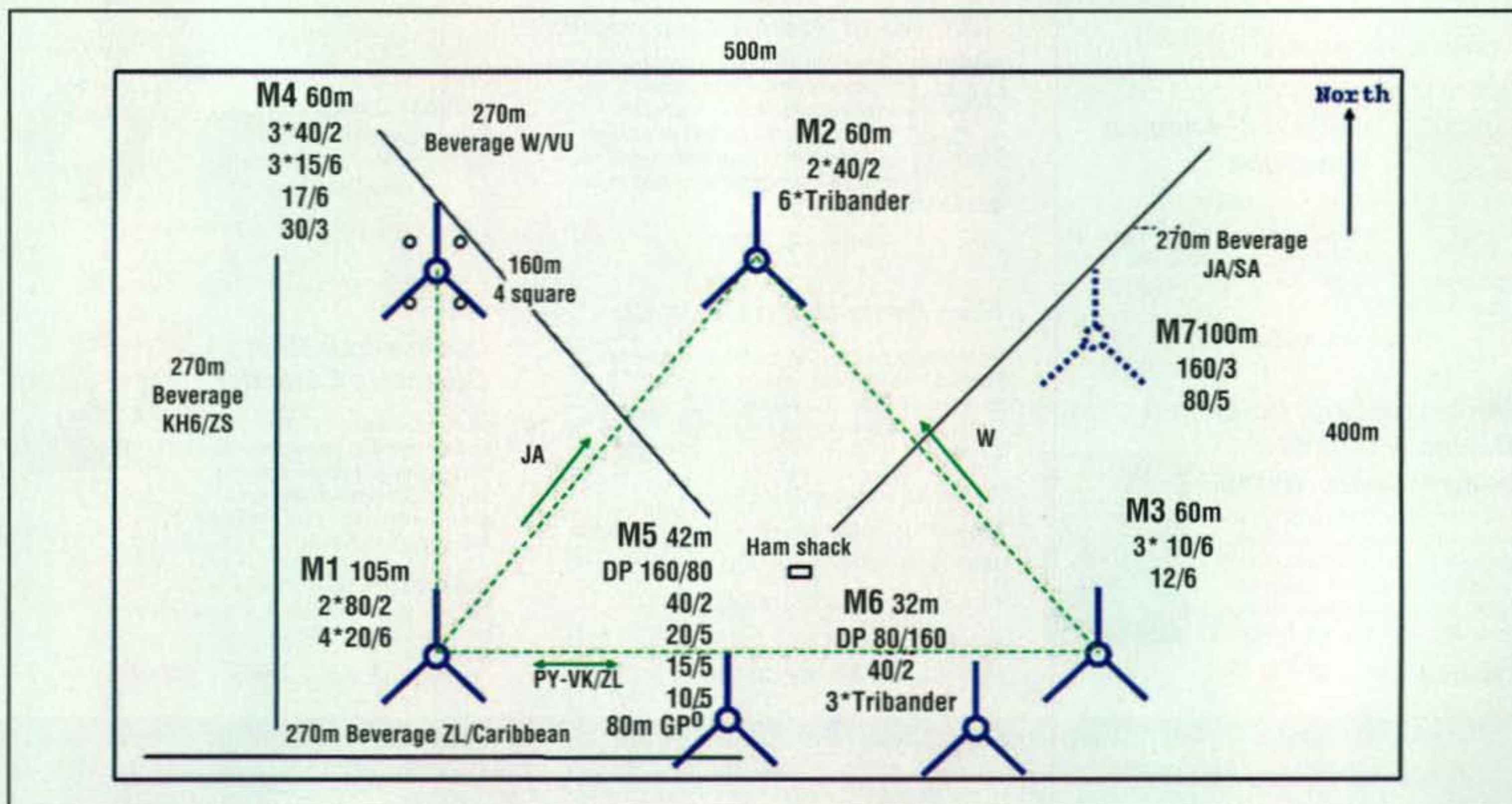
330N5ZM/337 300WD9DZV/304
330N4AH/337 300K0KG/300
330KA7T/336

The basic award fee for subscribers to CQ is \$6. For non-subscribers, it is \$12. In order to qualify for the reduced subscriber rate, please enclose your latest CQ mailing label with your application. Endorsement stickers are \$1.00 each plus SASE. Updates not involving the issuance of a sticker are free. All updates and correspondence must include an SASE. Rules and application forms for the CQ DX Awards may be found on the <www.cq-amateur-radio.com> website, or may be obtained by sending a business-size, self-addressed, stamped envelope to CQ DX Awards Manager, Billy Williams, N4UF, Box 9673, Jacksonville, FL 32208 U.S.A. Currently we recognize 338 active countries. Please make all checks payable to the award manager.

Sable Island. The CY0 Sable Island DXpedition 2009 has been postponed. Duane, WV2B, said, "Reluctantly, due to the current U.S. economic situation, the DXpedition team has decided to postpone the CY0 DXpedition planned

for 2009. While we are hopeful to reorganize the DXpedition (possibly for 2010), we have decided that rather than tie up the funds so graciously made available by our sponsors, we will return donations received so the sponsorship

may be available to other DXpeditions for this year. Any sponsoring organization may feel free to contact me with any questions regarding the matter. We are hopeful that our kind sponsors will be willing to renew their sponsorship when



The tower layout of OH8X in northern Finland. (Photo from the OH8X website)



Silent Key Joseph Villardo, K4EQC, of Daytona Beach, Florida. (Photo courtesy of Dennis, ZS1AU)

5 Band WAZ

As of January 1, 2009, 762 stations have attained the 200 zone level and 1619 stations have attained the 150 zone level.

New recipients of 5 Band WAZ with all 200 zones confirmed:
EA5GPO

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

S51U, 199 (27)	K0GM, 199 (17)
N4WW, 199 (26)	S58Q, 199 (31)
W4LI, 199 (26)	WB9EEE, 199 (17)
K7UR, 199 (34)	KQ0B, 199 (2 on 10)
W2YY, 199 (26)	K9OW, 199 (34 on 10)
IK8BOE, 199 (31)	EA5BCX, 198 (27, 39)
JA2IVK, 199 (34 on 40m)	G3KDB, 198 (1, 12)
IK1AOD, 199 (1)	JA1DM, 198 (2, 40)
W0CP, 199 (18)	9A5I, 198 (1, 16)
GM3YOR, 199 (31)	K4CN, 198 (23, 26)
VO1FB, 199 (19)	G3KMQ, 198 (1, 27)
KZ4V, 199 (26)	N2QT, 198 (23, 24)
W6DN, 199 (17)	OK1DWC, 198 (6, 31)
W3NO, 199 (26)	W4UM, 198 (18, 23)
RU3FM, 199 (1)	US7MM, 198 (2, 6)
N3UN, 199 (18)	K2TK, 198 (23, 24)
W1JZ, 199 (24)	K3JGJ, 198 (24, 26)
W1FZ, 199 (26)	W4DC, 198 (24, 26)
SM7BIP, 199 (31)	F5NBU, 198 (19, 31)
N4NX, 199 (26)	OE2LCM, 198 (1, 31)
N4MM, 199 (26)	HA1RW, 198 (1, 31)
EA7GF, 199 (1)	WK3N, 198 (23, 24)
N6HR/7, 199 (37)	W9XY, 198 (22, 26)
JA5IU, 199 (2)	KZ2I, 198 (24, 26)
RU3DX, 199 (6)	W7VJ, 198 (34, 37)
N4XR, 199 (27)	K9MIE, 198 (18, 21)
HA5AGS, 199 (1)	W9RN, 198 (26, 19 on 40)
VE3XN, 199 (26)	W5CWQ, 198 (17, 18)
YU7GMN, 199 (10)	I5KKW, 198 (31&23 on 20)
K7LJ, 199 (37)	JT1BV, 198 (4, 11)
RA6AX, 199 (6 on 10m)	IV3MUC, 198 (1&31 on 40)
RX4HZ, 199 (13)	

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

None

5 Band WAZ updates:

K9OW (199 zones) HB9DDZ (200 zones)
OH2VZ (200 zones)

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

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and \$1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, 17 Green Hollow Rd., Wiggins, MS 39577. The processing fee for the 5BWAZ award is \$10.00 for subscribers (please include your most recent CQ mailing label or a copy) and \$15.00 for nonsubscribers. An endorsement fee of \$2.00 for subscribers and \$5.00 for nonsubscribers is charged for each additional 10 zones confirmed. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a CQ checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

the DXpedition is able to be reorganized in the future. The <sabledx.com> web-site will remain functional for the time being."

German Postage

There has been a lot of "conversation" about the high cost of postage from Germany. Klaus, DL2QB offers some insight, from the German side, into the postage situation.

Postage for airmail letters to destinations outside Europe from Germany is quite high and unfortunately exceeds 2US\$ (about 2.20\$ right now). This means that an American would have to send 3 green stamps in order to cover the postage costs for an SAE.

One way to avoid this costly procedure is to buy German stamps from somebody offering that service in the U.S. or another country, but this comes with additional postage cost and fees for the service.

Most recently the German Post is offering a so-called "Internet Stamp" that anybody in the world can print out him/herself. Payment (among other alternatives more suitable for the domestic market) can be done via PayPal. You can print out the stamp(s) on a plain sheet of paper and then glue it onto the SAE or use self-sticking labels.

Unfortunately, the internet pages by the German Post (<http://www.internetmarke.de>) are only in German and it will probably be too difficult for somebody not knowing the language to navigate through the pages. Nevertheless, I just wanted to mention this interesting alternative for creating your own German stamps; minimum order of stamps to be printed out would be 10 Euros (13US\$).

The WAZ Program

20 Meter SSB

1178VO1CRM

160 Meters

288DF4PL (37 zones) 290JA1GV (39 zones)
289SP5DRH (40 zones)

All Band WAZ

Mixed

SSB

5090WA5UA

CW

553K9AU

RTTY

193DL1ZBO

Rules and applications for the WAZ program may be obtained by sending a large SAE with two units of postage or an address label and \$1.00 to: WAZ Award Manager, Floyd Gerald, N5FG, 17 Green Hollow Rd., Wiggins, MS 39577. The processing fee for all CQ awards is \$6.00 for subscribers (please include your most recent CQ mailing label or a copy) and \$12.00 for nonsubscribers. Please make all checks payable to Floyd Gerald. Applicants sending QSL cards to a CQ checkpoint or the Award Manager must include return postage. N5FG may also be reached via e-mail: <n5fg@cq-amateur-radio.com>.

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THE WPX HONOR ROLL

The WPX Honor Roll is based on the current confirmed prefixes which are submitted by separate application in strict conformance with the CQ Master Prefix list. Scores are based on the current prefix total, regardless of an operator's all-time count. Honor Roll must be updated annually by addition to, or confirmation of, present total. If no up-date, files will be made inactive.

MIXED

5829.....9A2AA	4305.....YU1AB	3821.....KF2O	3406.....W9OP	2873.....W2ME	2397.....VE6BF	1891.....VE9FX	1651.....KC9ARR	976.....KM6HB
5405.....K2VV	4135.....VE3XN	3807.....S53EO	3325.....SM6DHU	2704.....K2XF	2358.....I2EAY	1858.....W7CB	1643.....N1KC	964.....K8ZEE
5189.....W1CU	4134.....I2PJA	3624.....WB2YQH	3227.....K9BG	2673.....JN3SAC	2353.....W2OO	1847.....W2FKF	1446.....DF3JO	815.....KL7FAP
5006.....W2FXA	4088.....N6JV	3610.....WA5VGI	3091.....9A4W	2600.....N8BJQ	2162.....W3LL	1820.....KX1A	1330.....K6UXO	726.....K5IC
4657.....EA2IA	3947.....I2MQP	3522.....ON4CAS	3061.....W9IL	2503.....K1BV	2116.....AE5B	1741.....AB5C	1322.....AA4FU	682.....A18P
4580.....9A2NA	3916.....N9AF	3485.....IK2ILH	3007.....W2WC	2475.....W6OUL	2192.....N2SS	1705.....W2EZ	1269.....K5WAF	644.....KW0H
4477.....N4NO	3866.....K0DEQ	3483.....YU7BCD	2965.....OZ1ACB	2410.....K5UR	1951.....K0KG	1662.....SV1DPI	1016.....RA1AOB	636.....ZS2DL

SSB

4941.....I0ZV	3607.....EA2IA	2726.....IN3QCI	2326.....CX6BZ	2076.....K2XF	1879.....K3IXD	1611.....W2ME	1377.....EA3NP	951.....KU4BP
4396.....VE1YX	3438.....N4NO	2711.....LU8ESU	2300.....SM6DHU	2071.....N6FX	1877.....DL8AAV	1606.....N8BJQ	1258.....N1KC	924.....VE6BF
4198.....K2VV	3198.....CT1AHU	2709.....KF7RU	2250.....I3ZSX	2051.....SV3AQR	1821.....W2FKF	1591.....JN3SAC	1232.....AG4W	875.....K7SAM
4103.....I2PJA	3133.....OE2EGL	2595.....EA1JG	2221.....W9IL	2046.....K5UR	1765.....KQ8D	1480.....AB5C	1145.....EA3EQT	637.....K5WAF
3965.....OZ5EV	3133.....KF2O	2552.....YU7BCD	2209.....IK2QPR	1946.....W3LL	1756.....K17AO	1464.....VE7SMP	1083.....KX1A	
3900.....F6DZU	3108.....I4CSP	2451.....EA3GHZ	2178.....NQ3A	1935.....SV1EOS	1729.....W6OUL	1463.....I2EAY	1042.....I20BNR	
3706.....I2MQP	2871.....K0DEQ	2431.....G4UOL	2094.....I8LEL	1927.....AE5B	1714.....IK2DZN	1386.....IK4HPU	1031.....IK8OZP	
3661.....9A2NA	2857.....4X6DK	2418.....WA5VGI	2093.....W2WC	1915.....W2OO	1623.....VE9FX	1385.....AE9DX	978.....EA7HY	

CW

5088.....WA2HZR	3665.....LZ1XL	2730.....I7PXV	2415.....W2WC	2227.....I0NNY	1927.....W6OUL	1395.....W9HR	1220.....AA4FU	824.....VE9FX
5069.....K9QVB	3595.....EA2IA	2723.....EA7AZA	2324.....OZ5UR	2223.....VE6BF	1848.....I2EAY	1364.....WO3Z	1086.....VE1YX	749.....AE5B
4838.....K2VV	3217.....9A2NA	2632.....W2ME	2309.....JN3SAC	2089.....K2XF	1804.....EA7AAW	1334.....RU0LL	1053.....K5WAF	740.....F5PBL
4088.....N6JV	3172.....K0DEQ	2623.....SM6DHU	2308.....N6FX	2064.....N8BJQ	1643.....W2OO	1310.....K6UXO	1030.....AA5JG	608.....IK2SGV
4036.....N4NO	3124.....WA5VGI	2606.....YU7BCD	2307.....W9IL	2040.....I2MQP	1497.....AC5K	1299.....WA2VQV	915.....N1KC	
3681.....VE7DP	2842.....KF2O	2587.....KA7T	2244.....IK3GER	1945.....K5UR	1445.....EA2CIN	1223.....KX1A	842.....WD9DZV	

DIGITAL

1107.....W3LL 1009.....GU0SUP 815.....N8BJQ 607.....K0DEQ

I am adding a sample picture (*see photo—ed.*) of how these internet stamps from Germany look. Maybe the German Post will add an English language version of this new service if there is demand for it.

QSL Tracking Service in Chile

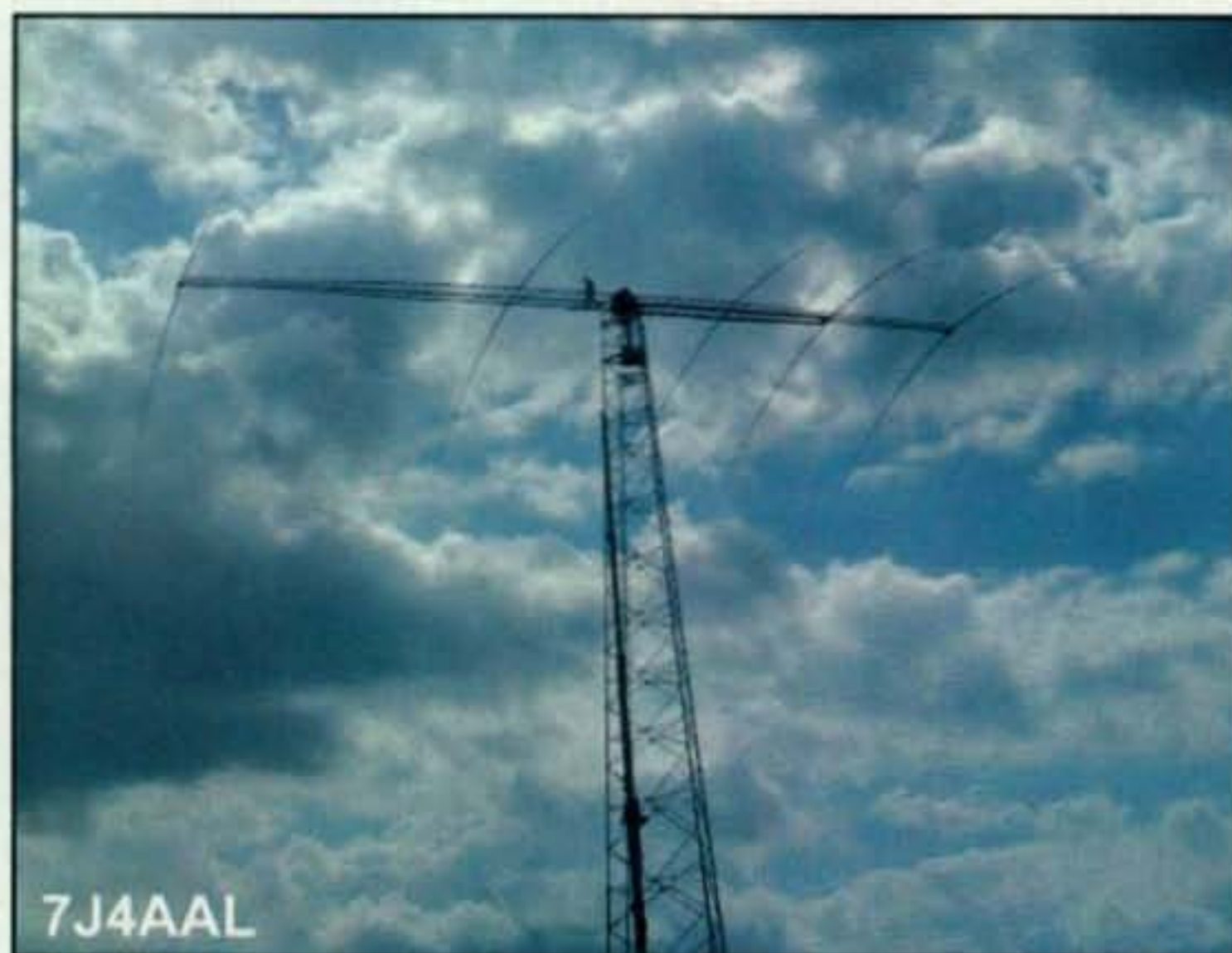
While I'm on the subject of postage, etc., I got an interesting bit of info I want to pass along.

David, CE2WZ/GW4VHO, tells us about a new QSL tracking service in Chile. He says: "Have you sent a QSL to Chile but had no reply? Perhaps you had a contact with XQ, CE, CA, CD, XR, 3G, CC which has not been confirmed. A group of Chilean amateurs is offering to try to help to obtain a miss-

ing card or cards by carrying out searches and making enquiries in Chile. This service is offered as a goodwill gesture by some Chilean amateurs and is completely free. To use the service you need to contact José Luis Jiménez, e-mail: <ce1kr.joseluis@gmail.com>. You can write to him in Spanish or English. Full details are available on the website <<http://hunting-qls.blogspot.com/>>."

Rotating Yagis and Towers

With the "lull" in sunspots the last few years, some folks have



The 5-element Yagi for 80 meters on a 42-meter boom at 7J4AAL. The tower is 60 meters tall. (Photo courtesy of A61TX and W4JS)

QSL Information

TU2XZ via N3SL	VK6AUU via RA3AUU
TV1LER via 3A2LF	VK9GLX via JA1XGI
UA0JQ via IK2DUW	VP1FB via JA1ELY
UA0KAH via RW3GW/3	VP2EDS via KJ9I
UA0LQJ via IK2DUW	VP2ERV via NF9V
UA1Z/RA1WQ via RW3GW/3	VP2MBZ via KC2PZ
UA9F/NN7A via NN7A	VP2MPZ via KC2PZ
UE0LBI via IK2DUW	VP5/JR4VDV via JA1ELY
UE0LPI via IK2DUW	VP5/W8XGI via JA1XGI
UJ8JMM via K1BV	VP5VEP via JA1ELY
UK8AME via IK2DUW	VP5VEQ via JA1ELY
UW9I via UR9IDX	VP6TD via ZL2HGR
UZ4E via UR4EYN	VP8CBG via KJ9I
V26HS via WB4WXE	VQ97JC via ND9M
V26MH via HB9OCR	VQ9LA via N0QM
V31AB via JA1ELY	VS6XMT via VR2XMT
V31JZ via NN7A	VS96XMT via VR2XMT
V31JZ/P via NN7A	VS97XMT via VR2XMT
V31WR via NF7E	VY0ICE via VE2AWR
V63RQ via RA3AUU	VY1JA via N3SL
V73CS via N3SL	
V8WTD via V85SS	
VK0MQI via JA1ELY	
VK3FBM via NN7A	
VK4UC via N3SL	

(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/>>.)

been doing a lot of engineering and spending lots of money to get the last ounce of RF where they want it to go. I'm referring to some folks in Finland and some others in Japan putting up unbelievable rotating full-size (or very nearly full-size) Yagi antennas for 80 and now 160 meters!

I'm not kidding, folks. The OH8X station is situated on 40 acres of land approximately 25 miles east of the city of Oulu in northern Finland. At present there are seven towers. Take a look at the photos of OH8X presented here. The 160/80 is on a 300-foot rotating tower. There are 3 elements for 160 and 5 elements for 80. Not to be outdone, at 7J4AAL there is a 5-element 80 on a 42-meter boom, and it is on a 60-meter tall tower. If you want to see the other towers and antennas, go to the OH8X web site, <<http://www.radioarkala.com/>>, but I warn you: Be careful when your mouth falls open! There well may well other station setups around the world that are as impressive as these, but I have not heard or seen anything about them.

Where is the Upswing?

We're still awaiting an upswing in solar Cycle 24. I haven't seen a solar flux index (SFI) report higher than around 71 for months now. Propagation specialist Lee, KH6BZF, noted recently that there were 272 "spotless" days out of the 366 available during the year 2008. That amounts to 74.37% of the days with *none*. August was the worst, with no spots at all during the 31 days of that month. For details each month on the progress of Cycle 24, see the "Propagation" column by Tomas Hood, NW7US, in *CQ*.

Interest in 60 Meters

Although the ARRL still doesn't recognize 60 meters for any awards, a lot of DXers are using that band to keep up their interest during the bottom of the sunspot cycle. There is a 60-meter Atlantic Sessions DX Activity Night the third Saturday of each month, and they recently held a 60-meter Worked All States (WAS night). Joe, W8GEX, provides updates on activity on 60 meters on a regular basis. There is a website at <<http://60meters.net/>> which is maintained by Tom, K4MM. There is also a chat page at: <<http://dxworld.com/60mlog.html>>. You can post whom you are hearing,

or just post yourself on which channel you are calling CQ.

K4EQC SK

I received the following from Dennis, ZS1AU: "My old friend Joe, K4EQC, who lived in Daytona Beach, Florida, passed away just short of his 100th birthday. Joe and his wife Josephine visited Cape Town over 30 years ago and maintained QSOs with us on 20 meters for all those years afterward. Both Joe and his wife were retired school teachers. She passed away in 2005. Joe was a true friend, gentleman, and great conversationalist. He will be sadly missed. RIP Joe"—Dennis, ZS1AU, and Harold, ZS1VW.

There are plenty of things to do, even if there isn't a P5 or a BS7 to chase. You can update your shack or antennas, participate in a contest of some kind (and there are plenty of those to choose from), or any of a dozen other activities to keep you occupied until 10-meter signals from southeast Asia start breaking your S-meter again.

Until next time, enjoy the chase, but above all Have Fun!

73, Carl, N4AA

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73s, Gene

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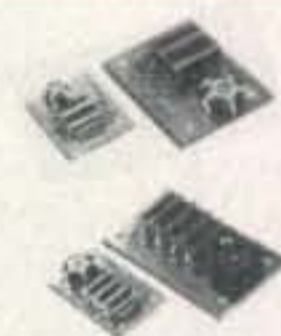
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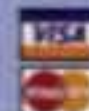
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Contesting and QSLs: Challenge or Opportunity?

March's Contest Tip

Go on vacation. Sure, it sounds like an odd contest tip, but I can assure you that nothing rejuvenates the contest spirit like taking a break from the boredom of doing the same thing over and over again and heading to a DX spot and running 'em like mad. If your budget can't handle a trip to the Caribbean, consider trying a new category, mode, or station. The old adage of "variety is the spice of life" absolutely applies to contesting and is a great way to keep your interest level high as we battle the challenges of a sleepy sun. Give it a try!

Even if you have a small station, the reality of contest operating is that by entering this part of the hobby you will work more stations on a relative basis than most other hams. A simple math exercise can prove my point. For example, operating 20 contests (mostly as a casual participant) on various modes over the course of a year, averaging 200 contacts per event, rapidly will yield 4000 QSOs (substitute your own metrics). For those of you who use or still remember the concept of paper logging, that's the equivalent of filling up four ARRL paper log books per year. Over the course of 25 years you will have amassed an amazing 100,000 contacts!

Of course, along with the fun of working so many stations comes the inevitable challenge of managing the requests for QSLs . . . or is it really an *opportunity*? This is the subject we are going to focus on this month.

The practice of QSLing between hams is as old as the hobby itself. It's one of our long-standing traditions. For some hams, QSLs are an exciting aspect of the hobby. It can be fun to receive a card from someone who lives far away or in a rare country. Believe it or not, I'm in that camp. Although I have been hamming for nearly 40 years, I still enjoy getting a shipment of QSL cards from the bureau and looking at them one by one to see who sent me a card and where they are from. Although there are many contesters/DXers who far outpace my collection, I am proud of the fact that I have nearly 75,000 cards. Perhaps what is more amazing is that each and every one of them has been answered over the course of the years. Also, while I'm still a few thousand behind, I do my best to keep up with the never-ending load of bureau shipments.

In recent weeks, I joined the ARRL's LoTW (Logbook of The World) program (for more information, check out: <<http://www.arrl.org/lotw>>). For years I avoided this outstanding option for QSLing out of fear that my bureau shipments would dry up and I would never see a printed QSL or bureau shipment ever again. And while that dynamic may

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e-mail: <K1AR@contesting.com>

Calendar of Events

All year	CQ DX Marathon
Feb. 21-22	ARRL CW DX Contest
Feb. 27-Mar. 1	CQ WW 160M SSB Contest
Feb. 28-Mar. 1	North American RTTY QSO Party
Feb. 28-Mar. 1	UBA CW DX Contest
Feb. 28-Mar. 1	REF SSB Contest
Mar. 7-8	ARRL SSB DX Contest
Mar. 7-8	RSGB Commonwealth CW Contest
Mar. 7-8	Ukraine RTTY Championship
Mar. 14-15	Idaho QSO Party
Mar. 14-16	Virginia QSO Party
Mar. 15-16	Wisconsin QSO Party
Mar. 15	North American RTTY Sprint
Mar. 21-22	BARTG HF RTTY Contest
Mar. 21-22	Russian DX Contest
Mar. 28-29	CQ WW WPX SSB Contest
Apr. 4-5	QCWA QSO Party
Apr. 4-5	SP DX Contest
Apr. 4-5	EA RTTY Contest
Apr. 4-5	ARCI QSO Party
May 30-31	CQ WW WPX CW Contest

eventually happen to a certain degree, it's a worthy trade-off for the instant gratification that comes from immediately verifying a QSO (at virtually no cost). When you consider it now costs over \$3 (USD) to obtain a direct DX QSL in today's economy, LoTW is a great option. Thus, indeed, I have jumped in with both feet and now have over 250,000 QSOs uploaded into the LoTW system.

Of course, there are other QSL systems available as well, including the popular eQSL website. (CQ has just announced it will accept eQSL credits for its awards.) The choice of any of these QSLing techniques is ultimately a function of your goals, desire for awards, available time, and other factors.

Regardless of how you respond to the demands of QSLing, you may be wondering how any of it can be viewed as an opportunity. After all, QSLing is nothing but drudgery, right? With that thought in mind, let me give you a few examples that may not change your mind about QSL chores, but at least may make you think about it a bit more.

Marketing

Answering QSLs (or even sending them outbound in bulk fashion) is a great way to create goodwill with the hams you work in contests. While another QSL from Japan may not be a meaningful accomplishment for you, the contact you made with that station may be his/her first USA QSO! Put another way, many hams take the business of QSLing very seriously. Ignoring their request for a card can only hurt your reputation and may eventually cost you QSOs in the future. Nobody wants to be known as a poor QSLer. Most of the large contest station owners figured this out years ago and have since stepped up to the challenge of

QSLs. Rather than viewing it as a chore, they now see it as an opportunity to "market" their callsign around the world.

Measuring Log Accuracy

As good as log-checking techniques of leading contest sponsors have become, there is no better way to measure your true logging accuracy than to compare your inbound QSLs to your log. While many of us don't have the time to do this on a regular basis, spot checks of inbound QSLs can be a great way to test your accuracy and ensure you're meeting the grade with your peers. It also can be a very sobering exercise if the errors exceed your personal goals for contest error rates.

You Can Get Help!

If you have an unusually heavy QSL load, you often can get help from other local hams. Taking on the task of QSLing large numbers of contest QSOs can be daunting when trying to do it all by yourself. Creative parents can turn the task into a great chore for the kids to earn a little extra money (no comment on slave labor laws!). Your need for resources is only limited by your creativity.

QSLs Foster Memories

When feeling nostalgic about my early contest days, there is nothing I'd rather do than take a look at some of my old QSL cards. Not only is it fun to remember a particular contest or trip, it also makes those callsigns real as I think about the relationships that have been established over the years with so many of the holders of those calls in my QSL shoebox. If you're like me, you actually can remember a few of the QSOs represented by those cards—almost as if they happened the other day. You'll be amazed at how many stations you worked 20 or 30 years ago are still going at it today and were just worked again in a recent contest.

It's Your Fastest Way to Awards

Not everyone is enamored with awards chasing. Chasing awards can mirror the process of QSLing itself. For many, it's just another administrative burden in ham radio that we would rather just avoid. However, if you like the business of awards, contest operating and the subsequent flow of QSLs is for you! As we've been saying, nothing generates QSLs like contest operating. Also, with QSLs come the ability to go after awards, in some cases electronically, such as with the ARRL program. Thus,

answering those cards may be tedious, but they are undoubtedly the best path to putting more paper on your wall!

Final Comments

One of my life's goals is to alphabetize my QSL collection. I doubt I'll ever get to it, but we all dream, can't we? Fortunately, today's technology has really come to the rescue with this business of QSLing. Logging programs, on-line services, electronic awards all are part of a mix of support that didn't exist just a few years ago. Put another

way, don't give up. There's hope for even the most administratively challenged tester!

Well, that's it for this time. Believe it or not, spring is almost here (well, at least in this part of the world). Let's hope that our plans to take advantage of all the time before the fall contest season will result in antennas going up this summer and not the weekend before the contest. Oh, you have that problem, too? See you in the next contest!

73, John, K1AR

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Gray-Line Propagation

A Quick Look at Current Solar Cycle Conditions

(Data rounded to nearest whole number)

Sunspots

Observed Monthly, December 2008: 1
Twelve-month smoothed, June 2008: 3

10.7 cm Flux

Observed Monthly, December 2008: 69
Twelve-month smoothed, June 2008: 69

Ap Index

Observed Monthly, December 2008: 2
Twelve-month smoothed, June 2008: 7

March is one of the optimal DX months. As the Spring Equinox approaches, the gray-line begins to run straight north and south. With the return of sunlight to the polar north, north to south openings on the higher shortwave frequencies (20 through 10 meters) are improving. However, since we are at the very bottom of the solar cycle, openings on east/west paths on higher frequencies continue to be short and weak, if they occur at all. The good news is that this year we are seeing a slight increase in the 10.7-cm flux levels, which strengthens these openings, affording an opportunity to catch some longer range DX.

During the daylight hours, the energy from the Sun ionizes our upper atmosphere, causing distinct layers of ionized gas to form. These layers form what we call "the ionosphere." The layer closest to the Earth is called the "D-layer," or "D region." This layer of ionized gases generally absorbs some of the energy of an HF (high frequency; those frequencies below 30 MHz) radio wave, and hence the D-layer is often called the "absorption layer."

As a radio signal travels through the D-layer, it gets attenuated. How much a radio wave is attenuated depends on how energized the D-layer has become, the frequency of the radio wave, and the angle at which the radio wave enters the D-layer.

Besides the energy created by direct sunlight, other space weather events can also increase the ionization of the D region. For instance, during solar flares, the intense burst of a flare's X-ray radiation increases the D-layer ionization. The more intense the X-ray radiation, the more dense the layer becomes, resulting in possibly a complete blockage of any shortwave frequency—a radio blackout.

The rest of the time, without the increased X-ray radiation from a solar flare, the daytime D-layer will only block the lowest shortwave frequencies, while higher frequencies only lose some energy. If the radio signal makes it through the D-layer, it then reaches the higher regions of the ionosphere, to be refracted back toward Earth, creating the "skip" that is essential for long-range HF communications.

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e-mail: <nw7us@arrl.net>

LAST-MINUTE FORECAST

Day-to-Day Conditions Expected for March 2009

Propagation Index.....	Expected Signal Quality			
	(4)	(3)	(2)	(1)
Above Normal: 2-4, 7-13, 17-22, 25, 29-31	A	A	B	C
High Normal: 1, 5-6, 14, 16, 24, 27-28	A	B	C	C-D
Low Normal: 15, 26	B	C-B	C-D	D-E
Below Normal: 23	C	C-D	D-E	E
Disturbed: N/A	C-D	D	E	E

Where expected signal quality is:

- A—Excellent opening, exceptionally strong, steady signals greater than S9.
- B—Good opening, moderately strong signals varying between S6 and S9, with little fading or noise.
- C—Fair opening, signals between moderately strong and weak, varying between S3 and S6, with some fading and noise.
- D—Poor opening, with weak signals varying between S1 and S3, with considerable fading and noise.
- E—No opening expected.

HOW TO USE THIS FORECAST

1. Find the *propagation index* associated with the particular path opening from the Propagation Charts appearing in *The New Shortwave Propagation Handbook* by George Jacobs, W3ASK; Theodore J. Cohen, N4XX; and Robert B. Rose, K6GKU.

2. With the *propagation index*, use the above table to find the expected signal quality associated with the path opening for any given day of the month. For example, an opening shown in the Propagation Charts with a *propagation index* of 2 will be fair (C) on March 1st, good (B) on the 2nd through the 4th, 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.

If these higher ionospheric layers (the E- and F-layers) are highly ionized and the frequencies are within the range that will refract off the ionospheric layers, the radio signals will be refracted back to the Earth much like a light beam from a flashlight is refracted by a mirror. Lower HF signals tend to be refracted by the E-layer, especially at night. During the day, the D-layer generally blocks these lower HF signals, while higher frequencies punch through both the D- and E-layers to reach the F-layers. There, if the radio wave is at or below the maximum usable frequency (MUF), it is refracted back to the Earth. Because the F-layers are so high, this reflected wave can "skip" to great distances away from the transmitting antenna. Since solar radiation has to travel the farthest to get the D-layer, absorption during quiet solar days (days without flares and other outbursts of solar energy) is usually minimal.

When the end of daylight occurs at our radio shacks, and sunset ends the direct exposure of the ionosphere above us to sunlight, solar radiation no longer strikes the ionosphere, and ionization stops. Without this solar radiation, the layers of ionization decrease in density by a process called "recombination." This causes the MUF to become lower as well, which is why by total darkness the highest HF bands close down. Those frequencies do not get refracted, but continue on out into space.

The D-layer is the first layer where ionization stops. Since it is closest to the ground, sunlight no longer reaches it, while higher levels of the atmosphere remain in sunlight. Think about how you can see a passing satellite by the sunlight reflected on its surface while you are standing in darkness; it's dark on the ground, but the satellite is still being illuminated. As the D-layer goes into recombination, the electron density goes down and the absorption goes down.

During the twilight hours the D-layer rapidly loses its ionization and does not absorb radio signals passing through it, while the E- and F-layers are still being ionized by sunlight. This makes for 45 to 60 minutes of stronger signal propagation on a wide range of HF frequencies. As the ionization decreases, lower and lower frequencies start to punch through the D-layer with almost no signal attenuation. Yet the MUF is still high, allowing long-distance skip propagation. Then, when the Sun is blocked from illuminating the E- and F-layers, the MUF can drop dramatically and very quickly (within minutes). This twilight zone, where the Sun is exactly 12 degrees below the horizon, is called the "grayline," or in astronomical terms, the "terminator." The same principles apply at sunrise: The upper ionosphere begins to become ionized, while the D-layer is still dark and low in density, offering free passage of very low HF signals, even microwave (μ W) signals.

Signals that are aimed along a path that stays within the gray line often experience significant improvements in propagation. This is what we refer to as "gray-line propagation" and is a very exciting way to hear exotic DX signals. These signals may be coming in from the long path as well as the short path, but always along this gray line.

There is an excellent article regarding gray-line propagation at Steve Nichols, G0KYA's internet web page: <<http://www.qsl.net/g0kya/radcom.html>>. Steve, a member of the Radio Society of Great Britain's Propagation Studies Committee, believes that propagation around sunrise and sunset is not fully understood. His article outlines the mechanisms behind gray line and other twilight propagation modes, and also explains a research project designed to better understand these modes.

As we are right at the start solar Cycle 24, gray-line propagation will bring exciting DX. Tune around the lower amateur radio HF bands about an hour before sunrise, and again right before sunset, and look for these long-distance signals. Of course, gray-line DX will



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occur on most of the HF spectrum, but is quite noticeable on these lower short-wave bands, since DX signals on these bands are rare.

March Propagation

At this time the ionosphere is not being energized enough to support much propagation on the highest HF bands. This is because the solar energy is not yet at a consistently high enough level to ionize the F-layers sufficiently for refracting these higher frequencies.

With the reduced energy level of the ionosphere, even 20-meter propagation suffers with short openings and limited distances. Overall, signals are generally weaker over many radio circuits during this part of the solar cycle.


Ten meters will be spotty, with the most reliable propagation along north/south paths, and mostly over shorter distances. I've been following the revealing reports from the PropNET propagation research group: <<http://www.propnet.org/>>. They conduct daily propagation tests on 10 meters. The reports

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confirm that even during the lowest phase of the solar cycle, 10 meters does have life. You won't know it, though, if you are not on the band trying.

Fifteen meters will be somewhat more usable than 10. We will find 15 opening up to more areas, and for somewhat longer periods, into the evenings. Those daytime paths that do open up (certainly much less often than during the peak solar cycle years) will not degrade much until mid-summer. You will see these openings mostly from regions close to the equator, as the current solar activity is not supporting the propagation of these higher frequencies via the F-layer of the ionosphere.

Seventeen and 20 meters will remain in good shape. Both short- and long-path circuits are reliable and solid. All nighttime paths are wide open during March. Primetime evening hours in the United States are sunrise hours across Russia, Africa, and both the Near and Far East. Expect a lot of short- and long-path DX into these areas of the world. The daytime band of choice will be 20 meters, as has been proven in contests during past solar cycle minimums.

Between sunset and midnight, expect DX openings on all bands between 20 and 160 meters, with occasional openings on 15 and 17 when conditions are High or Above Normal. Conditions on 30, 40, 60, 80, and 160 meters should favor openings to the east and south. These bands should peak for openings to Europe and Africa near midnight.

From midnight to sunrise, expect optimum DX conditions on 30, 40, 60, 80, and occasionally 160 meters. Conditions should favor openings toward the west and south. Some rather good 20-meter openings should also be possible toward the south and west during this time.

The seasonal drop of daytime maximum usable frequencies continues, and the geomagnetic activity as reported by the planetary A-index (A_p) is on its seasonal rise. Take advantage of the current excellent conditions and work the world before the summer conditions create greater challenges.

VHF Conditions

The possibilities for ionospheric openings on the VHF bands usually improve during March and the spring months as more aurora occurs close to the equinoctial period. There is a slight but fair chance for an increase in widespread auroral activity during March, but definitely by April, since we will continue to experience coronal-hole activity and possible solar flares during this

new solar cycle. These auroras could be accompanied by auroral-scatter-type openings on 6 and 2 meters. Check the Last-Minute Forecast at the beginning of this column for those days in March expected to be Below Normal or Disturbed. These are days on which auroral activity is most likely to occur. Conditions should be optimal during March for trans-equatorial scatter propagation between the southern tier states and countries deep in South America. The best time for TE openings should be between 8 and 11 PM local time. Don't forget to check out *CQ VHF* magazine for more details on VHF propagation and conditions.

Current Solar Cycle Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 69.2 for December 2008, continuing a slow but steady monthly rise since July. The 12-month smoothed 10.7-cm flux centered on June 2008 is 69.2. The predicted smoothed 10.7-cm solar flux for March 2009 is about 77, give or take about 7 points.

The Royal Observatory of Belgium reports that the mean monthly observed sunspot number for December 2008 is 0.8, a real dip from November, but not as low as July and August (0.5 each). The lowest daily sunspot value during December 2008 was zero, occurring on December 1-9 and 13-31. The highest daily sunspot count for December was 9 on both 10th and the 12th. The 12-month running smoothed sunspot number centered on June 2008 is 3.2. A smoothed sunspot count of 20 is expected for March 2009, give or take about 5 points.

The observed monthly mean planetary A-index (A_p) for December 2008 is 2. The 12-month smoothed A_p index centered on June 2008 is 6.8. Expect the overall geomagnetic activity to be quiet to unsettled during most days in March, but with possible periods of moderate geomagnetic storms. Refer to the Last-Minute Forecast for the outlook on what days that this might occur.

I welcome your thoughts, questions, and experiences regarding this fascinating science of propagation. You may e-mail me, write me a letter, or catch me on the HF amateur bands. Please come and participate in my online propagation discussion forum at <http://hfradio.org/forums/>. See you on the air!

73, Tomas, NW7US

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Back On Board

Editor, CQ:

A funny thing happened to me the other day as I was trawling up and down the HF bands searching for someone to talk to. I have to unfortunately report, though, that it was a Saturday, so as my preferred HF band appeared depleted of anyone wishing to share a long or short discourse with G4OWY on any subject of their choice, I was forced to commit my hobby time with a few eager-beaver contesters here and there. You probably know the sort of "QSO" I mean, very short and very snappy—straight to the point kind of contact. Nothing wrong with that, of course, each to his own. And besides, there is a positive side to this type of activity which, I must confess, I've never been really enthusiastic about, and it is this: It's an ideal time to put that new rig/antenna through its paces! A fabulous window of opportunity to find out whether that home-brew dipole that you've painstakingly spent the whole day putting together (occasionally in my case, a long length of appropriate wire I bought somewhere for pennies) actually "gets out" to some foreign clime and then, joy of joys, be given a 5 by 9 signal report. Hallelujah!

But my main thrust in writing was just to inform you how much I've missed CQ magazine popping through my letter-box each month. So, to avoid any further disappointment to myself, I've recently rushed a subscription renewal to you. In the meantime and until my first issue of CQ pops through my letter-box, I will continue to purchase it at my local branch of "Borders."

One more thing before I go: It was heartwarming to see Richard Garriott following in his father's footsteps. Same type of beards, too. This story brought back a nostalgic moment as I vividly remember trying—unsuccessfully, as it turned out—to contact Owen, W5LFL, as he whizzed by overhead in STS-9/SAREX. In recompense, however, I did receive an SWL card. Not what I really wanted, but as we say over here in these parts, half a loaf is better than no bread at all!

Ray J. Howes, G4OWY/G6AUW
Weymouth, Dorset, UK

The Power of a Crystal Set

Editor, CQ:

I have just received the January 09 issue of *WorldRadio* and see that CQ has bought *WorldRadio*. Besides *WorldRadio*, I am a longtime subscriber to *QST* and *QEX* and, of course, *CQ*. Having been interested in amateur radio for a very long time, each of these publications has things of interest to me. I am 85 years old and my interest started in 1929 when I built a crystal set and heard a ham a few blocks away on 160

meters. But the Big Depression happened so my family had no job and no money. I sold magazines on the street and Cokes at the ball park. In short, at seven years old, my working career started. My money went into my family, not into radio parts. But I could borrow books on electricity and radio from the library. The *ARRL Handbook* sold for 50 cents.

At 12 years old, I got a job in a radio shop working on car radios because it was mostly a manual job. So I learned to be a radio repairman. From 1940–1942, I worked my way toward an EE degree at Texas A&M, an all-ROTC school federally supported as a Land Grant college. World War II started and I volunteered in the Army Signal Corps as a GI, did Basic and field radio repair school, applied for Signal Corps OCS, graduated April 1944, and was sent to the Signal Security Agency in Washington, DC. There, I was a test "engineer" in R&D, working on very sophisticated voice security systems with Bell Laboratories engineers. I married a girl there. After my discharge in October, 1946, I went to George Washington University night school in Washington, DC under the GI Bill, toward my EE degree and finished in May 1954.

During this time, I was Chief Engineer of a company, did 17 months in the Army Security Agency during the Korean War, and worked for the National Security Agency as a GS12 Supervising Electronic Scientist. I left NSA in November 1955 to work as a Systems Engineer at General Electric, then Texas Instruments, Collins Radio, GE again, MITRE, U.S. House of Representatives (and) Mitretek, then retired in Ormond Beach, Florida.

I've been all over the world. Now, finally, I have time to play around with ham radio. But equipment has become so sophisticated that the only things most hams build is antennas. And I am an engineer. I like to build things. I like to design systems. I'm a good teacher and like to teach people (particularly kids about radio). I am a longtime activist in solar energy and distance learning. My wife is retired from the Nuclear Regulatory Commission. We are up-to-date in international affairs.

My interest in ham radio here in Florida is emergency communications. And I like designing broadband antennas and their feed systems, including remote tuners. I've done R&D on propagation for radio intercept, so am interested in this.

I would like to see an expansion of "Kids' Korner" to building simple receivers and transmitters for school science projects. Also how the ionosphere, ducting, etc., work.

Jim Hiemenz, KF3AN
Ormond Beach, FL

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