

WorldRadio

ONLINE

Year 40, Issue 2

AUGUST 2010

Talk Radio

An HT With a Voice Readout, Page 16

CW: The 'Key'
to Its Ongoing
Popularity, Page 20

American Morse
Equipment's Mini-B
Sideswiper, Page 22



NEWS • FCC • DX • QCWA • CONTESTS • HAMFESTS • YL • AMSAT • CW



Dayton Hamvention® Attendance Trends Upward

The official attendance for the 2010 Dayton Hamvention® was 19,750, continuing an upward trend over 2009 when 18,877 were counted through the gates of Hara Arena, according to Public Relations Director Henry Ruminski, W8HJR.

"While this is a good, positive direction, it's also still a long way from the 10-year record headcount of 28,804 set back in 2000," according to reports.

A record 10-year-low was noted in 2008 when attendance dipped to 17,253. An all-time high 33,669 attendees visited in 1993. (*Hamvention Remailer*, W8HJR)

Radio Amateur Arrested After False Incident Report

A Connecticut radio amateur has been charged on multiple counts – including falsely reporting an incident – after he used a portable ham radio to play a prank, saying there was a gunman at a local Walmart, authorities allege.

Keith J. Mutch, 35, of Norwich, was arrested on suspicion of second-degree breach of peace, first-degree reckless endangerment and first-degree falsely reporting an incident.

"Initial investigation by police revealed that store security personnel had heard (a) report of (a) man with (a) shotgun over their two-way radio system," according to an item on Amateur Radio Newline, citing a Norwich Bulletin news story. "However, none of the personnel had made the transmission." When police arrived, no gunman was found. "A police investigation concluded that Mutch had used a portable ham radio set to make the transmission." Mutch has denied involvement.

According to the FCC database, Mutch holds the call sign KB1RBI. (*ARN, Norwich Bulletin*)

AMSAT Symposium Set for October in Chicago

The AMSAT 2010 Space Symposium and annual meeting will be held Oct. 8-10 in Chicago, officials said.

Events will take place at the Chicago-area Elk Grove Holiday Inn near O'Hare Airport. It is the same hotel that hosted the recent Central States VHF Conference and W9DXCC events.

"AMSAT has also put out a call for papers to be presented at the symposium," published reports said. "These can be on any topic of interest to the amateur satellite community. A final copy must be submitted by Sept. 1, 2010 for inclusion in the printed proceedings."

Abstracts and papers should be sent via e-mail to K9JKM@amsat.org. (*ANS*)

Burglary Prompts Suspension of Tonga DX Operation

David Lee, W6ZL, of Newport Beach, California, cancelled a DX operation from Tonga after his guest house room was burglarized.

Lee ceased operation of A35KL and returned to the United States in early June. "He may be back in Tonga for the CQWW contest later this year," published reports said. (*ARN, OPDX*)

BSA Brings Back 'Signaling' Merit Badge for Centennial

In its 100th anniversary year, the Boy Scouts of America has announced the limited return of four previously retired merit badges – including Signaling.

The program's goal is for a majority of registered Boy Scouts to earn one or more of the merit badges during BSA's centennial year – 2010. "The badges offered have a history that can be traced back to the origins of the BSA," the organization's Web site noted.

Badges for Carpentry, Tracking and Pathfinding are also part of the limited return. Requirements must be met no later than Dec. 31, 2010. Original requirements are being used for each badge.

The Signaling badge requisites, dating to 1911, include: Making an electric buzzer outfit, wireless, blinker or other signaling device; sending and receiving International Morse Code; sending Morse by wig-wag and by blinker or other light device; sending and receiving Semaphore; to "know the proper application of the International Morse and Semaphore Codes: when, where, and how they can be used to best advantage;" and to "discuss briefly various other codes and methods of signaling which are in common use."

"The Signaling merit badge is a great way to encourage hams who are already involved in Scouting to mentor this limited-time badge in their troop and perhaps in other ways, such as camps," said ARRL Rocky Mountain Division Director Brian Milesosky, N5ZGT. He added that radio amateurs who want to help but are not involved in Scouting – "especially clubs that have more resources and volunteers" – should contact their local BSA Council to inquire about Scoutmasters in their area to contact. (*ARRL*)

International EME Conference Coming to Dallas This Month

The North Texas Microwave Society is hosting the 14th International EME Conference in Dallas, Texas, August 12-14.

The lunchtime speaker Friday will be Gerald Youngblood, K5SDR, president and Chief Executive Officer of FlexRadio.

On Saturday, Nobel laureate Joe Taylor, K1JT, will speak about the 432 MHz EME event at Arecibo (*Ed. – For Arecibo details, see WRO's Amateur Satellites elsewhere in this edition*).

Presentations will include a noise figure workshop hosted by Al Ward, W5LUA, Tommy Henderson, WD5AGO, and Tony Emmanuel, WA8RJF.

This is the first time the conference is to be held in the United States since 2004, authorities said. (*SARL*)

UK: World War II Documents to Be Put Online

Millions of documents stored at Bletchley Park – the United Kingdom's World War II code-breaking center – will soon be made available online, according to the British Broadcasting Corporation.

The announcement came after Hewlett-Packard donated "a number of scanners to the center in Milton Keynes so volunteers can begin the task – which is expected to take over three years." (*BBC*)

ICOM DIGITAL TECHNOLOGY LEADS THE WAY

IC-7800 HF+6M

- 200 Watt Output (50W AM)
- RX: 0.030–60.000MHz*
- Four 32 Bit IF-DSPs + 24 Bit AD/DA Converters
- 2 Completely Independent Receivers
- +40 dBm 3rd Order Intercept Point
- 3 Roofing Filters
- Selectable, "Build Your Own" IF Filter Shapes



IC-7000 HF/6M/2M/70CM

- 100W (40W AM), 2M at 50W (20W AM), 70CM at 35W (14W AM)
- RX: 30–199.999, 400–470MHz*
- Digital IF Filters
- Digital Voice Recorder



IC-718 HF

- 100 Watt, Full Duty Cycle
- RX: 0.030–29.999MHz*
- One-touch Band Switching
- RF Gain Control
- Built-in CW Keyer/VOX
- Built-in AFDSP



IC-7200 HF+6M

- 100 Watt, Full Duty Cycle
- RX: 0.030–60.000MHz*
- 32 Bit IF-DSP + 24 Bit AD/DA Converter
- Digital Twin Passband Tuning
- IF-DSP and Digital Functions Built-in
- Flexible Selectable Filter Width and Shape

IC-7600 HF+6M

- 100 Watt Output (30W AM)
- RX: 0.030–60.000MHz*
- 2 Independent DSP Units
- Dual Receive
- +30 dBm 3rd Order Intercept Point
- 3 Roofing Filters
- Selectable, "Build Your Own" IF Filter Shapes

IC-7700 HF+6M

- 200 Watt Output (50W AM)
- RX: 0.030–60.000MHz*
- 32 Bit IF-DSPs + 24 Bit AD/DA Converters
- Single Receive
- +40 dBm 3rd Order Intercept Point
- 3 Roofing Filters
- Selectable, "Build Your Own" IF Filter Shapes

*Frequency coverage may vary. Refer to owner's manual for exact specifications.
©2010 Icom America Inc. The Icom logo is a registered trademark of Icom Inc.
All specifications are subject to change without notice or obligation. 50219

WorldRadio ONLINE

TABLE OF CONTENTS

Year 40 Issue 02

AUGUST 2010

FEATURES

The Passing of A Giant

Former *WorldRadio* Propagation Columnist Bob Brown, NM7M

By Carl Luetzelshwab, K9LA8

COLUMNS

EDITOR'S LOG6

HAMS WITH CLASS: Bright Look to the Future:

The Dayton Youth Forum - Part 112

WITH THE HANDIHAMS: What's New for the Operator With Disabilities16

FISTS CW CLUB: A Primer About Why CW is So Great20

TRAIL-FRIENDLY RADIO:

Sideswiping Your Way Along the Trail.....22

PROPAGATION: In Review: N6BV Propagation Predictions24

AMATEUR SATELLITES:

Dishing Signals to That Big Satellite We Call 'Oscar Zero'28

MARS: Attn. ARRL: It's Your Anniversary Too,

And a Notable Date in Ham History32

RULES & REGS: No Message Privacy37

DX WORLD: Stand and Be Proud: DXers Are Different.....40

PROMOTION AND RECRUITMENT: The Power of Demonstration:

Our Top Recruiting Tool42

AERIALS: Miracles *Do* Happen - Just Don't Buy Into the Literature48

DEPARTMENTS

WorldRadio Online Newsfront2

Hamfests & Special Events31

Visit Your Local Radio Club35

Contest Calendar.....44

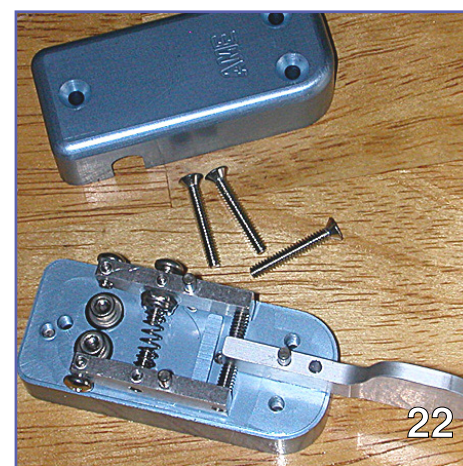
DX Predictions - August45

VE Exams46

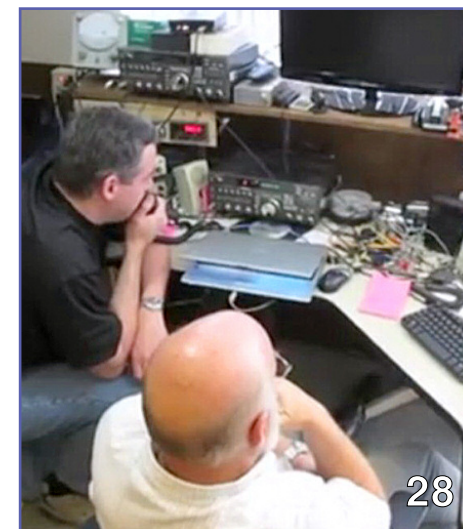
WorldRadio Online Mart47



8



22



28

ON THE COVER: Volunteer instructor Larry Huggins, KAØLSG, shows off the new Wouxun HT that speaks the frequency display in English. He had just demonstrated the talking handheld radio to a group of blind operators at Handiham Radio Camp. "They were really interested," he said. (Courtesy of KAØLSG)

12 STORE BUYING POWER



ANAHEIM, CA
(Near Disneyland)
933 N. Euclid St., 92801
(714) 533-7373
(800) 854-6046
Janet, KL7MF, Mgr.
anaheim@hamradio.com

BURBANK, CA
1525 W. Magnolia Blvd., 91506
(818) 842-1786
(877) 892-1748
Eric, K6EJC, Mgr.
Magnolia between
S. Victory & Buena Vista
burbank@hamradio.com

OAKLAND, CA
2210 Livingston St., 94606
(510) 534-5757
(877) 892-1745
Mark, W17YN, Mgr.
I-880 at 23rd Ave. ramp
oakland@hamradio.com

SAN DIEGO, CA
5375 Kearny Villa Rd., 92123
(858) 560-4900
(877) 520-9623
Jose, XE2SJB, Mgr.
Hwy. 163 & Claremont Mesa
sandiego@hamradio.com

SUNNYVALE, CA
510 Lawrence Exp. #102, 94085
(408) 736-9496
(877) 892-1749
Jon, K6WV, Mgr.
So. from Hwy. 101
sunnyvale@hamradio.com

NEW CASTLE, DE
(Near Philadelphia)
1509 N. Dupont Hwy., 19720
(302) 322-7092
(800) 644-4476
Chuck, N1UC, Mgr.
RT.13 1/4 mi., So. I-295
newcastle@hamradio.com

PORTLAND, OR
11705 S.W. Pacific Hwy.
97223
(503) 598-0555
(800) 765-4267
Leon, W7AD, Mgr.
Tigard-99W exit
from Hwy. 5 & 217
portland@hamradio.com

DENVER, CO
8400 E. Iliff Ave. #9, 80231
(303) 745-7373
(800) 444-9476
John, W0IG, Mgr.
denver@hamradio.com

NEW LOCATION!

PHOENIX, AZ
10613 N. 43rd Ave, 85029
(602) 242-3515
(800) 559-7388
Gary, N7GJ, Mgr.
Corner of 43rd Ave & Peoria
phoenix@hamradio.com

ATLANTA, GA
6071 Buford Hwy., 30340
(770) 263-0700
(800) 444-7927
Mark, KJ4VO, Mgr.
Doraville, 1 mi. no. of I-285
atlanta@hamradio.com

WOODBRIIDGE, VA
(Near Washington D.C.)
14803 Build America Dr. 22191
(703) 643-1063
(800) 444-4799
Steve, W4SHG, Mgr.
Exit 161, I-95, So. to US 1
woodbridge@hamradio.com

SALEM, NH
(Near Boston)
224 N. Broadway, 03079
(603) 898-3750
(800) 444-0047
Peter, K11M, Mgr.
sales@hamradio.com
Exit 1, I-93;
28 mi. No. of Boston
salem@hamradio.com

Summer Specials From Yaesu

Coupons shown expire 8/31/10



FT-897D VHF/UHF/HF Transceiver

- HF/6M/2M/70CM • DSP Built-in
- HF 100W (20W battery)
- Optional P.S. + Tuner • TCXO Built-in

Call Now For Our Low Pricing!



FT-950 HF + 6M TCVR

- 100W HF/6M
- Auto Tuner built-in
- 3 roofing filters built-in
- DMU-2000 Compatible

Call Now For Low Pricing!



FT-8800R 2M/440 Mobile

- V+U/V-/V+U operation
- V+U full duplex • Cross Band repeater function
- 50W 2M 35W UHF
- 1000+ Memory channels
- WIRES ready

Call Now For Low Pricing!



FTM-350R 2m/440 Dualband

- 50W 2m/440+ - 1 watt 220MHz
- TNC built-in, Bluetooth capable
- Band scope built-in
- 500 Memories



FTDX5000MP 200w HF + 6M Transceiver

- Station Monitor SM-5000 Included
- 0.05ppm OCXO included
- 300 Hz Roofing filter included
- 600 Hz Roofing filter included
- 3 kHz Roofing filter included



VX-7R/VX-7R Black

- 50/2M/220/440 HT
- Wideband RX - 900 Memories
- 5W TX (300mw 220Mhz)
- Li-Ion Battery
- Fully Submersible to 3 ft.
- Built-in CTCSS/DCS
- Internet WIRES compatible

Now available in Black!



VX-6R

- 2M/220/440HT
- wideband RX - 900 memories
- 5W 2/440, 1.5W 220 Mhz TX
- Li-Ion Battery - EAI system
- Fully submersible to 3 ft.
- CW trainer built-in

NEW Low Price!



VX-8DR/VX-8GR

- 50/144/220/440 (VX-8DR) 2m/440 w/ Built-in GPS (VX-8GR)
- 5w (1w 222 Mhz VX-8R/DR only)
- Bluetooth optional (VX-8DR only)
- waterproof/submersible 3 ft 30 mins
- GPS/APRS operation optional
- Li-ion Hi-capacity battery
- wide band Rx



FT-857D

Ultra compact HF, VHF, UHF

- 100w HF/6M, 50w 2M, 20w UHF
- DSP included • 32 color display
- 200 mems • Detachable front panel (YSK-857 required)

Call for Low Price!



FT-7900R 2M/440 Mobile

- 50w 2m, 45w on 440mhz
- Weather Alert
- 1000+ Mems
- WIRES Capability
- Wideband Receiver (Cell Blocked)

Call Now For Your Low Price!



FT-2000/FT2000D HF + 6M tcvr

- 100 W w/ auto tuner • built-in Power supply
- DSP filters / Voice memory recorder
- 200W (FT-2000D)
- 3 Band Parametric Mic EQ • 3 IF roofing filters

Call For Low Pricing!



FT-450AT HF + 6M TCVR

- 100W HF/6M • Auto Tuner built-in • DSP Built-in
- 500 Memories • DNR, IF Notch, IF Shift

Call Now For Special Pricing

AZ, CA, CO, GA,
VA residents add
sales tax. Prices,
specifications,
descriptions,
subject to change
without notice.

Look for the
HRO Home Page
on the
World Wide Web
<http://www.hamradio.com>

**#1
in Customer
Service**

**COAST TO COAST
FREE SHIPPING**
UPS - Most Items Over \$100
Rapid Deliveries From
The Store Nearest To You!





Dayton: Busy, Crazy and So Much Fun – Thanks!

Forgive me for just now getting around to saluting the many loyal **WorldRadio Online** readers who took time to stop by the CQ Communications booth at the 2010 Dayton Hamvention®. Because of **WRO**'s advanced production schedule, this is my first opportunity to do so.

It was great to put faces with the names and call signs of so many readers. I was struck by how many of you are truly invested in this magazine and how painstakingly you offered suggestions for making it better and more useful – pointing out the wrinkles and all. I listened very carefully and took good notes.

We were honored to be shoulder-to-shoulder on the floor of Hara Arena with *CQ Amateur Radio*, *CQ VHF*, and *Popular Communications* magazines and the *CQ Communications Book Store*. It was busy and crazy and so much fun.

This was my first Dayton experience. After reading about it all these years, I was still blown away by the sheer magnitude of it all. Words and photographs just can't capture its enormity. In a word: *Amazing*.

Elsewhere in this month's **WRO**, *Hams With Class* columnist **Carole Perry, WB2MGP**, gives us a nice slice-of-life from the Hamvention® weekend: The three-hour-long Dayton Youth Forum. Wow.

Meantime, to those **WRO** readers and columnists who introduced themselves at the booth, my sincere appreciation. It was great to meet you.

Reflections On the June 6 WRO Gab Session

There were 123 people onboard for our live monthly **WorldRadio Online** online chat June 6. What a blast.

The session lasted about an hour-and-15-minutes, with the free-wheeling conversation touching on experiences at the Hamvention® and the appearance of our amateur radio stations to ARRL Field Day, 6-meter DXing, strategies for promotion and recruitment into the ham ranks, and lots more.

WRO readers from across North America took part. Portugal, Hawaii and Australia were represented, as well.

We were extremely honored to have renowned author **M. Walter Maxwell, W2DU**, log-in to say hello. His 424-page *Reflections III: Transmission Lines and Antennas* made its much-anticipated debut at Dayton in May. What a thrill it was to have him on the chat. Walt's book is available in the *Antennas* section of the *CQ Communications On-Line Store*: <http://store.cq-amateur-radio.com/StoreFront.bok>.

Bill McCain, KE5VZT, of Rogers, Arkansas, was curious to know how many people on the chat had used a Near Vertical Incidence Skywave – NVIS – antenna. Also known as "cloud warmers," these low-to-the-ground wires are often put up out of necessity when the operator doesn't have tall trees or towers as supports. We asked: *Have you ever used an NVIS antenna for short-haul contacts?* Of those responding, 32 percent said they had; 68 percent had not.

"The NVIS poll results are intriguing," wrote **Nate Bargmann, N0NB**, from Marysville, Kansas. "I would have expected its use to be almost universal. Maybe many hams believe the old saw about always building your antenna for DX."

We also asked the group: *How frequently do you participate in Field Day?* About a third (34 percent) said Every year; 24 percent, Most years; 21 percent, Occasionally; 11 percent, Rarely; and another 11 percent, Never.

And while we were on the subject, we wanted to know: *Have you ever worked through an amateur radio satellite on Field Day?* Thirty percent of respondents had; 70 percent had not.

How would you describe the appearance of your station's operating position? For 15 percent it's A complete mess; 45 percent, Cluttered but comfortable; 18 percent, Fairly tidy; 18 percent, Very neat; and 3 percent, Showcase quality.

Some **WRO** columnists took part in the June 6 session, including **Bill Sexton, N1IN**, (MARS); **Bill Pasternak, WA6ITF**, (VHF-Repeaters); and **Carl Luetzelschwab, K9LA**, (Propagation). **Joe Eisenberg, K0NEB**, Kit-Building columnist for *CQ Amateur Radio*, was on board as well.

The next live chat will be Sunday, September 12, beginning at 8 p.m. Eastern time (0000 UTC, Monday).

We expect another wide-ranging discussion as well as more instant reader polls. Hope you'll take part. To access the session, visit the **WorldRadio Online blog**: <http://www.WorldRadioOnline.blogspot.com>. You can register there to receive an e-mail reminder for September 12, as well as see replays of our previous chats..

- **Richard Fisher, KI6SN**

WorldRadio Online

EDITORIAL STAFF

Richard Fisher, KI6SN, Editor

(E-mail: worldradioonline@gmail.com)

Richard S. Moseson, W2VU, Editorial Director

(E-mail: w2vu@cq-amateur-radio.com)

CONTRIBUTING EDITORS

Terry Douds, N8KI, Amateur Satellites

(E-mail: n8ki@amsat.org)

Richard Fisher, KI6SN, Trail-Friendly Radio

(E-mail: ki6sn@aol.com)

Gerry Gross, WA6POZ, 10-10

(E-mail: wa6poz@arrl.net)

Dave Hayes, VE3JX, QCWA

(E-mail: ve3jx@bell.net)

John B. Johnston, W3BE, Rules & Regs

(E-mail: john@johnston.net)

Kelly Jones, N0VD, DX World

(E-mail: n0vd@dxcentral.com)

Dee Logan, W1HEO, Promotion/Recruitment

(E-mail: delogan@ameritech.net)

Carl Luetzelschwab, K9LA, Propagation

(E-mail: k9la@arrl.net)

Cheryl Muhr, N0WBV, YLs

(E-mail: n0wbv@earthlink.net)

Anthony Luscre, K8ZT, New Products

(E-mail: productnews@cq-amateur-radio.com)

Randall Noon, KC0CCR, FISTS CW Club

(E-mail: rknoon@nppd.com)

Bill Pasternak, WA6ITF, VHF, FM & Repeaters

(E-mail: wa6itf@arnewsline.org)

Carole Perry, WB2MGP, Hams With Class

(E-mail: wb2mgp@ix.netcom.com)

Bill Sexton, N1IN/AAA9PC, MARS

(E-mail: sextonw@juno.com)

Kurt N. Sterba, Aerials

(E-mail via: nancy@tir.com)

Patrick Tice, WA0TDA, With the Handi-Hams

(E-mail: wa0tda@comcast.net)

Jerry Wellman, W7SAR, Emergency Comms

(E-mail: jw@desnews.com)

BUSINESS STAFF

Richard A. Ross, K2MGA, Publisher

Jon Kummer, WA2QJK, Associate Publisher

(E-mail: jkummer@cq-amateur-radio.com)

Emily Leary, Sales Coordinator

Sal Del Grosso, Accounting Manager

Doris Watts, Accounting Department

CIRCULATION STAFF

Melissa Gilligan, Operations Manager

Cheryl DiLorenzo, Customer Service Manager

Ann Marie Auer, Customer Service

PRODUCTION STAFF

Elizabeth Ryan, Art Director

Barbara McGowan, Associate Art Director

Dorothy Kehrrieder, Production Director

Emily Leary, Production Manager

Rod Somera, Production/Webmaster

A publication of

CQ Communications, Inc.

25 Newbridge Road
Hicksville, NY 11801-2953 USA

WorldRadio Online, Year 40, Issue 2, published monthly by CQ Communications, Inc., 25 Newbridge Rd., Hicksville, NY 11801. Telephone 516-681-2922. FAX 516-681-2926. Web Site: <http://www.cq-amateur-radio.com> Entire contents copyrighted © 2010 by CQ Communications, Inc. *WorldRadio Online* & CQ Communications, Inc. assume no responsibility for information, actions or products on/from external links/sites.

THE NEW DB 11...

If it fits here, it will fit anywhere!

Truly small size with truly big performance.

SteppIR™

INTRODUCING THE NEW DREAM BEAM 11

INTRODUCTORY PRICE - \$2195.00

WEIGHT - 63 lbs (28.57kg)

WIND LOAD - 5.9 sqft (0.54sqm)

TURNING RADIUS - 10.5ft (3.20m)

FREQUENCY COVERAGE - 13.9Mhz - 54 Mhz

BOOM LENGTH - 11 ft (3.35m)

LONGEST ELEMENT - 19 ft (5.79m)

POWER RATING - 3KW continuous

BAND ACTIVE ELEMENTS

20m 2

17m 3

15m 3

12m 3

10m 3

6m 3

Refer to our website for more technical specs and gain figures as they are released. The DB 11 will be available in the Fall of 2010. Get your name on the order list now.

BS7H

W6RGG on Scarborough
reef DXpedition.

**Former WorldRadio Propagation Columnist
Bob Brown, NM7M, SK**

By Carl Luetzelschwab, K9LA



Carl Luetzelshwab, K9LA, left, and Vicky Luetzelshwab, AE9YL, with Bob Brown, NM7M, in 2008 in Anacortes, Washington. (Courtesy of K9LA)

Anyone who has been reading **WorldRadio** for a long time will likely recognize the name Bob Brown and his call-sign NM7M. He wrote the *Propagation* column from April 1989 through December 1996, developing a legion of fans and a goldmine of data and analysis along the way.

On Sunday, May 23, he passed away in Anacortes, Washington. It is a great loss to the amateur community.

I first met Bob in the early 1990s when I was spending lots of time north of Los Angeles working with an RF power amplifier vendor. I had stopped by a radio store in the Thousand Oaks area and saw a magazine titled **WorldRadio** sitting on the rack. I was pleasantly surprised to find a *Propagation* column in it, written by Bob.

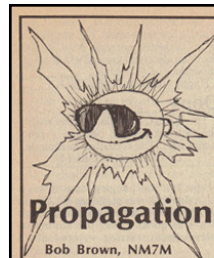
After an exchange of letters, I visited Bob in Anacortes on one of my West Coast trips. Our mutual interest in propagation resulted in a long friendship.

Bob's understanding of propagation and ionospheric physics was a natural, as he was a retired professor of physics from the University of California at Berkeley. He was originally licensed in 1937 as W6PDN, but was inactive for quite a while. His interest in amateur radio was rekindled in 1981 when he became KA6PTT and then N7DGGZ when he retired to Washington.

Being retired, Bob turned to writing – specifically to educate the masses in propagation issues. He felt there was not only a lack of propagation information out there, but that some of it was incorrect with no science to back it up.

As I write this – thinking about what Bob did for amateur radio with respect to propagation – I am amazed at how prolific he was. It is one thing to understand propagation, but it is another thing to put it on paper.

In addition to his **WorldRadio Propagation** column, he wrote columns for the *The Canadian Amateur* magazine (the title of that column was *Over The Horizon*) and *ORP Quarterly* (its



It's hard to believe that two years have passed since the last hand-wringing in public about my "sins of omission and commission." But the calendar doesn't lie so I'd better face up to the constituents and "eat some humble pie."

tumble like
 is, in the way of omission, I must
 confess that I've failed to be the
 "weatherman" that some people
 might have expected from a columnist
 on propagation. Unlike the folks on
 TV, I do not cut a handsome figure
 and, moreover, cannot keep a cool
 head. I am a nervous wreck. Besides,
 there are plenty of others working
 that side of the street, from Amateur
 Radio magazines, weekly DX newslet-
 ters and even propagation bulletins on
 WIAW. With publication of my
 column, I have been out of the game
 months after I've put on paper, my
 crystal ball is just not up to that task.

Without saying it in so many words,
 however, I have alerted you to the fact
 that the solar cycle is advancing, even
 declining now. And the good news
 is that DXers are you know, your
 heart of hearts just how the bands
 shape up, month in and month out.

And in the short term, I didn't try to tie the daily values of the 10.7cm solar flux to actual sunspot numbers. That's just impossible, the variations in one variable against the other being quite remarkable. But on that subject, the real omission on my part is not bringing that data to your direct attention. Maybe I'll sit down, punch

THE STATION SURVIVAL: BACK BY POPULAR DEMAND

SOLAR PANEL \$99.95

Power your HF Station up to 30 hrs/month. You can charge batteries, power repeaters, handhelds, and other equipment. The high-quality panel is factory built for severe environments, strong aluminum frame for easy mounting, portable, and 90 day warranty. Add \$10 S&H. Quantities limited. No Dealers please.

Jeff's Electronics 1106 South Street, Ocean, UT 84058

SAVES (801) 224-4388 Visa, M.C., Am. Exp. \$ Info **SAVES**

some representative numbers into my computer and show you the result. In some ways, that figure would look like what you'd expect from a chimpanzee dripping paint on a canvas. Stay tuned.

Given the wild pace of computing and falling prices, I have not nagged you about upgrading your old CPU and associated hardware. That was an omission requiring great self-restraint but nobody is mad at me for it. After all, it's your money and you don't need my help in spending it.

Nor have I nagged you about software, especially for propagation predictions. I did intrude on the national scene to the extent that QST tried, at my suggestion, a different prediction format for an ARRL DX contest. That's the way to go, based on ideas that are over 50 years old, but judging by a few reactions, not everybody is ready for rapid progress. Maybe listening to dead bands that are predicted to be open 24 hours a day, even during solar minimum, will get folks moving incrementally in the right direction.

And I didn't hound you about upgrading your antenna system so as to take advantage of the great propagation that was in hand earlier. As you know, antennas are on Kurt Sterba's turf and I stay out of there lest he sink his fangs into my hide. For those who insist in hiding antennas inside their attics or the foliage surrounding their dwellings, all I can do is quote an old curmudgeon I met earlier, "Think what you could do with a real antenna!" In saying that now, I've made up for my omission.

I've continued to ignore the astrological theory of HF propagation. So much for the planets and their conjunctions. But you'll soon see an article of mine that's about the moon, our

**BLACK DACRON® POLYESTER
ANTENNA ROPE**

- UV-PROTECTED
- HIGH ABRASION RESISTANCE
- REQUIRES NO EXPENSIVE POTTING HEADS
- EASY TO TIE & UNTIE KNOTS
- EASY TO CUT WITH OUR HOT KNIFE
- SIZES: 3/32" 3/16" 5/16"
- SATISFIED CUSTOMERS DECLARE EXCELLENCE THROUGHOUT U.S.A.

LET US INTRODUCE OUR DACRON® ROPE TO YOU • SEND YOUR NAME AND ADDRESS AND WE'LL SEND YOU FREE SAMPLES OF EACH SIZE AND COMPLETE ORDERING INFORMATION

MANUFACTURED BY **synthetic**
textiles, inc. 2472 Eastman Ave. Bld. 1
Ventura, CA 93003
(805) 658-7903

satellite, which I think you'll find interesting. So the goddess Diana is getting some attention, but the rest of the astrological signs and symbols are still out in the cold as far as I'm concerned.

Turning to my sins of commission, I have to say that my review of previous columns brings some to mind at once. Take long hair: DXing, my obsession with that stands out like a sore thumb. Maybe you're tired of hearing about it but it still fascinates me. I went so far as to devote a whole year to LP, nothing else, and writing a booklet about it. You'd think that would get it out of my system. Not so; I'm still on the bands every morning, listening hard for LP and making more notes in my log. But you'll be spared, having suffered enough already.

I've tried to sprinkle my columns with doses of radio history, especially on propagation, thinking that you'd enjoy learning where it all came from. These additions have been largely on the technical side; I failed to treat the more human side that's so well covered in the fabulous book, *200 Meters and Down*, by the late Clinton B. DeSoto. It's an ARRL book and worth every penny you pay for it. And there's no software license that goes

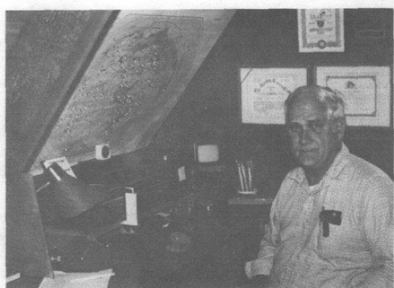
[illegible]

The print edition of *WorldRadio* magazine featured NM7M's *Propagation* column from 1989 to 1996.

Propagation & DX

conducted by Bob Brown, NM7M
504 Channel View Dr., Anacortes, WA 98221

Elected to the QRP ARCI Board of Directors in the October 1985 elections, Bob Brown, NM7M, shares the ham shack with Mary Lou, NM7N, and writes a monthly newsletter to members of the QRP WGV. Bob uses physics at Berkeley before moving to his Anacortes Island QTH. A quad, two phased verticals and a trapped dipole pump his QRP signals at the ionosphere.



One way of starting a discussion of propagation is to paraphrase Mark Twain, "Everyone talks about propagation, but nobody does anything about it." Even though your signals may be out of your control as soon as the key is pressed, I hope to convince you that the situation is not hopeless, because by understanding the factors which influence propagation you can use them to aid your QRP work.

Having gotten this far in ham radio, you know that solar X-rays and ultraviolet radiation interact with atoms and molecules in the upper atmosphere to produce a region we call the ionosphere, whose level of ionization varies in proportion to solar activity and follows an eleven-year cycle. Long distance propagation of high frequency radio signals changes in step with the strength of the ionosphere's F-layer, being better at times of high sunspot count and very poor at times like the present when low solar activity produces weak ionization.

But there is more to the story: Disturbances of the earth's magnetic field reduce free electron density in the ionosphere, weakening signals and causing signal fading. When ionization is already weak due to low sunspot activity as at present, geomagnetic disturbances have a determining effect on high frequency band conditions.

Knowing this, can we anticipate the quality of propagation on the hf bands? The answer is yes. Of course, future band conditions, like rolling dice, are predictable only within a certain range, but it is neither difficult nor impossible to improve our DX results beyond what ignorance and luck can do. All that is required is to make proper use of readily available solar and magnetic data. So where do we find the data and how can we use them to improve our QRPing?

Starting at 1818 UTC daily and continuing every hour thereafter, WWV broadcasts current measures of solar flux (radio frequency radiation) at 10.7 cm wavelength as well as the K- and A-indices of geomagnetic disturbance. Solar radiation at 10.7 cm, though not causing ionization in the F-region, is highly correlated with the sunspot number and much more easily measured.

QRP Quarterly

January 1986

So with the usual cautions about statistical variation, the 10.7 cm solar flux measure permits us to monitor the extent of ionization in the F-region. Times of high solar flux correspond to better band conditions, times of low solar flux like at present correspond with marginal band conditions.

The geomagnetic K- and A-indices are more complicated to understand, but can be used just as easily for prediction purposes. The WWV K-index, a logarithmic measure of variations in the earth's magnetic field determined every three hours at Boulder, Colorado, gives a coarse measure of short term disturbances. The non logarithmic A-index gives a smoother measure of geomagnetic disturbance averaged over a 24-hour period. Low values of these indices, especially the A-index, mean a quiet ionosphere with little fading thus assuring well for band conditions.

So there we have the main ideas: the best band conditions exist when solar flux is high and the A-index is low, the worst when flux is low and the A-index is high. If we take into account just one more little twist, you will have all you need to get started on your own program for predicting band conditions.

That last twist is solar rotation. The sun rotates about its axis with a period of 27 to 28 earth days. Because of that rotation, active regions on the sun's surface return to face toward the earth every 27 to 28 days, producing recurring patterns of propagation, both good and bad. This becomes our key to anticipating future band conditions.

How do we do it? First we make a running plot of daily solar flux and A-index values, checking them against our experience of band conditions at those times. A scale from zero to 400 will accommodate both measures over their ranges during a complete solar cycle. When you have a little history, you'll see recurring patterns. Then you'll be ready to predict when to 'go for it' and when to 'hunker down' and let the rig have a rest.

There's one more thing you should do with the data you accumulate, namely make a scatter-plot with solar flux plotted vertically and the A-index horizontally. You'll find that points in the upper-left corner of the scatter plot correspond to good hf band conditions while points to the lower right represent poor conditions. Based on my experience at this QTH, I have faired in a set of curves which divide my scatter-plot into five regions representing different observed band conditions, which I have labeled from 42 (good) to 2 (poor). Either by listening to WWV on a given day or predicting by reference to my running plot of measurements taken 27 and 28 days ago, I can convert the solar flux and A-index values into an estimate of band conditions for any given day.

Right at the moment, when flux is running at its cyclical minimum (measuring from 70 to 85), magnetic activity controls what we can hear on the bands. As the A-index rises from 2 to 15 or greater, band conditions drop from normal (0) to poor (-2). This is

In recent years, NM7M's groundbreaking research has demonstrated the important role played by high-energy galactic cosmic rays in propagation on 160 meters. Now he looks into an additional factor—rapid variations in GCR intensity known as "Forbush Decreases."

On Forbush Decreases and 160-meter Propagation

BY ROBERT R. BROWN, NM7M

Recently, it was shown that 160-meter propagation can be ducked (Brown and Luetzelshwab, 2008), with signals going forward without lossy ground reflections. This can happen if signals enter the electron density valley that forms above the E-region at night and occurs on the occasions when E-region ionization falls below its normal value.

Galactic cosmic rays (GCR) are a flux of protons with energies in tens-of-billion electron volts (BeV), and the weak ionization their numerous secondary nucleons generate in the atmosphere may affect propagation. The flux of sec-

ondary particles is recorded by neutron monitors, located at sites such as Calgary, Alberta, Canada; Kiel, Germany; and Moscow, Russia. The records of these monitors show slow intensity variations, with maxima and minima like those found in the solar cycle, but lagging behind by a few months. These variations stem from modulation of the secondary particle flux by scattering from magnetic irregularities (Parker, 1958) created by the solar wind.

More rapid-intensity variations also occur. These are known as Forbush Decreases, and were first found in high-energy GCR variations in 1937 and associated with solar-flare activity. The early interpretation was that flare out-

bursts create shock waves in the inter-planetary medium which literally blast GCR away from the vicinity of the Sun and Earth. The sudden loss of CR in the vicinity of the Earth is then followed by a slow recovery in which CR returns by diffusion in the inter-planetary magnetic field (IMF).

The beneficial effect of signal ducting on 160-meter propagation was found in the DX logs of VK6VZ for the period 2003-2005. For that time, large values of GCRd (GCR decrease) corresponded with VK6VZ's most distant contacts, more than 15,000 km. By that token, large, rapid drops in GCR with a Forbush Decrease, as in Fig. 1, should be accompanied by a great, rapid improvement in 160-meter propagation conditions. Well,

*1105 27th St., Anacortes, WA 98221
e-mail: rrnm7m@aol.com

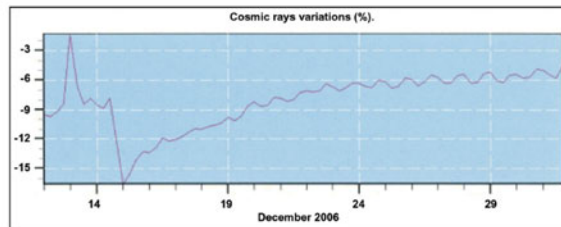


Fig. 1—GCR variations during the Forbush Decrease in December 2006.

28 • CQ • June 2010

Visit Our Web Site

For years, NM7M was a regular propagation columnist in *QRP Quarterly*, a journal targeting low-power enthusiasts around the world.

title was *Propagation and DX*). If you subscribe to any of the other amateur radio publications (*CQ Amateur Radio*, *The DX Magazine*, *The Low Band Monitor*, *QST*, *NCJ*, *Communications Quarterly*, *QEX*, etc.), you'll recognize Bob's call as the author of a variety of propagation articles.

Bob was also a regular contributor to the topband reflector. His interest in 160-meter propagation resulted in many postings, along with many more related articles in the aforementioned publications.

He even wrote a book specifically for 160-meter enthusiasts titled *The Big Gun's Guide to Low-Band Propagation*. Bob's most recent interest was studying the impact of galactic cosmic rays on top-band propagation. He wrote several articles on this subject that were published in *CQ*.

His most notable other books — he wrote a total of 5 — were *Long-Path Propagation* (which involved a yearlong study of long path on the 20 meter band) and *The Little Pistol's Guide to HF Propagation* (a general work covering the ionosphere and ionospheric HF propagation).

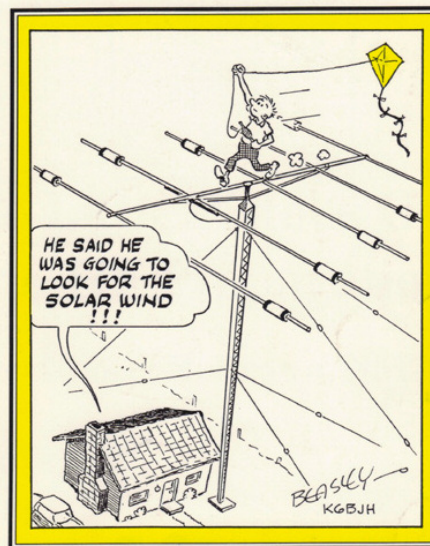
It was my pleasure to have known Bob. He was a great teacher, helping me better understand MF and HF propagation. Just as propagation is worldwide, Bob's influence was also worldwide.

Bob was preceded in death by his wife Mary Lou, NM7N, who was the ARRL Northwestern Division Director when she died unexpectedly in 1998.

Carl Luetzelshwab, K9LA, is *Propagation* columnist for *WorldRadio Online* magazine.

Bob Brown, NM7M, wrote articles for many publications, including *CQ Amateur Radio*, which carried his piece on *Forbush Decreases and 160-meter Propagation* in the June 2010 edition.

The Little Pistol's Guide to HF Propagation



by Robert R. Brown, NM7M

Among NM7M's many works was *The Little Pistol's Guide to HF Propagation*, published in 1996 by WorldRadio Books.

A TECHNOLOGY BREAKTHROUGH

New Advanced VX-8 Series GPS/APRS® Handheld Transceivers Choose the Yaesu that meets your APRS® operating preferences in the field

50/144/(222)*430 MHz
FM 5 W/AM 1W (50 MHz) Triple Band Handheld
VX-8DR * 222 MHz/1.5 W (USA version)
(7.4V 1,100 mAh Lithium Ion battery/FNB-101LI and
battery charger/NC-86A included)



Actual Size

144/430 MHz
FM 5 W Dual Band Handheld
VX-8GR
(7.4V 1,100 mAh Lithium Ion battery/FNB-101LI and
battery charger/NC-86A included)



Actual Size

VX-8DR NEW

All-in-one Prestigious Tri-band Transceiver
Bluetooth® for hands-free Operation with optional accessories
Waterproof/Submersible IPX 7 rated - 3 ft for 30 minutes



Optional GPS and antenna unit for GPS/APRS® operation



The optional GPS Antenna Unit FGPS-2 attached to the optional speaker Microphone MH-74A7A



Attached to the radio (microphone input) using the optional GPS Antenna Adapter CT-136

VX-8GR NEW

144/430 MHz Dual Band Transceiver with GPS unit included
Built-in GPS Antenna - Waterproof
Wide Band Receive for 108-999 MHz (Cellular blocked - US Version)



Supports APRS® communication by the Built-in Worldwide Standard AX.25 Data TNC

The VX-8 series radios are compatible with the world wide standard APRS® (Automatic Packet reporting System) using the GPS system to locate and exchange position information.

- SmartBeaconing™ Function
- Memories to list 50 stations
- Memories to store 30 APRS® messages
- DIGI-PATH routing indication function
- 8 DIGI-PATH routing settings

- GPS Compass Display - "Heading Up" or "North Up"
- APRS® Symbol Icon pre-set function
- Clearly displayed APRS® Beacon Messages
- Selective Message Received indicated by Flashing LED

APRS® is a registered trademark of Bob Bruninga WB4APR. SmartBeaconing™ from HamHUD Nichetronix

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

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

YAESU
Choice of the World's top DX'ersSM

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

Introducing the Yaesu FT-950 transceiver for DX enthusiasts

Superb receiver performance

Direct lineage from the legendary FT DX 9000 and FT-2000



HF/50 MHz 100 W Transceiver
FT-950

- Triple-conversion super-heterodyne receiver architecture, using 69.450 MHz 1st IF
- Eight narrow, band-pass filters in the RF stage eliminate out of band interference and protect the powerful 1st IF
- 1st IF 3 kHz Roofing filter included
- High-speed Direct Digital Synthesizer (DDS) and high-spec Digital PLL for outstanding Local Oscillator performance
- Original YAESU IF DSP advanced design, provides comfortable and effective reception. IF SHIFT / IF WIDTH / CONTOUR / NOTCH / DNR
- DSP enhancement of Transmit SSB/AM signal quality with Parametric Microphone Equalizer and Speech Processor
- Built-in high stability TCXO (± 0.5 ppm after 1 minute @ 77°F)

- Built-in automatic antenna tuner ATU, with 100 memories
- Powerful CW operating capabilities for CW enthusiasts
- Five Voice Message memories, with the optional DVS-6 unit
- Large Multi-color VFD (Vacuum Fluorescent Display)
- Optional Data Management Unit (DMU-2000) permits display of various operating conditions, transceiver status and station logging.
- Optional RF μ -Tune Units for 160 m, 80/40 m and 30/20 m Bands

"The Best of the Best Just Got Better"

Introducing the new FT-950 Series with PEP-950 (Performance Enhancement Program)

COMPACT HF/50 MHz TRANSCEIVER WITH IF DSP

A superb, compact HF/50 MHz radio with state-of-the-art IF DSP technology configured to provide YAESU World-Class Performance in an easy to operate package.

New licensees, casual operators, DX chasers, contesters, portable/field enthusiasts, and emergency service providers - **YAESU FT-450... This Radio is for YOU!**

HF/50 MHz 100 W All Mode Transceiver

FT-450 Automatic Antenna Tuner ATU-450 optional

FT-450AT With Built-in ATU-450 Automatic Antenna Tuner

Compact size : 9" X 3.3" x 8.5" and Light weight : 7.9 lb



HF/VHF/UHF Portable Operation
Just Got a Lot More Powerful!

FT-897D **TCXO** **DSP** **60 m Band**

HF/50/144/430 MHz

100 W All Mode Transceiver (144 MHz 50 W/430 MHz 20 W)



Automatic Matching for
FT-897/857 Series Transceivers

FC-40

Automatic-Matching 200-Memory
Antenna Tuner (160 m ~ 6 m Band)

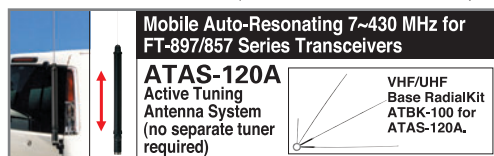
WATERPROOF

HF/VHF/UHF Multimode Mobile Transceiver,
now Including Built-in DSP

FT-857D **DSP** **60 m Band**

HF/50/144/430 MHz

100 W All Mode Transceiver (144 MHz 50 W/430 MHz 20 W)



Mobile Auto-Resonating 7~430 MHz for
FT-897/857 Series Transceivers

ATAS-120A

Active Tuning
Antenna System
(no separate tuner
required)

VHF/UHF
Base RadialKit
ATBK-100 for
ATAS-120A.



Real Performance,
Really Portable

FT-817ND

HF/50/144/430 MHz

5 W All Mode

Transceiver

(AM 1.5 W)

60 m Band



ATAS MICRO

ATAS-25

Manually-Tuned
Portable Antenna

YAESU
Choice of the World's top DX'ersSM

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

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

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



Bright Look to the Future: The Dayton Youth Forum – Part I

By Carole Perry WB2MGP

“The kids were awesome . . . the kids’ topics were amazing.” The buzz was palpable as a packed room emptied after the three-hour Youth Forum at the Dayton Hamvention® in May.

It was the 23rd year of the forum – but we’d never been given that much time for presentations. I had nine of the most terrific youngsters it has ever been my pleasure to work with. They ranged in age from 10 to 16 and came from several regions of the country.

As the audience filed out – picking up their souvenir T-shirts, comic books, and other ICOM items – the reaction to the young speakers seemed universal: *Wow*.

I always tell the kids they needn’t ever be nervous, because the folks who show up for this forum are the “love audience.” They traditionally are as attentive and responsive with their support of the young speakers as anyone could wish for in an audience. To show appreciation for the years of support, ICOM donated an IC7200 HF rig as a door prize to be won by an adult.

The first speaker was Nate Anderson KDØJAV, 14, from BARC Jr. in Boulder, Colorado. His topic was *Hams Save Lives with Skywarn*. Nate was wearing a raincoat and boots during part of his dramatic and informative presentation. This General class youngster told us that before Skywarn, which uses ham radio spotters, 2,300 people had died from weather related incidents. Since Skywarn the number dropped to 800 deaths in 10 years. For more information go to <http://www.weather.gov>.

Up next was Brady Gordon KDØBJS, 10, also from BARC Jr., who spoke on *Digital Modes – QSOs Below the Noise Level*. Brady uses these modes when voice doesn’t work. He spoke of the five most popular modes: PSK-31 (phase shift keying at 31 baud), RTTY (radio teletype), Olivia (teletype protocol), SSTV (slow scan TV) and CW (the original digital mode: Morse code). Brady used a telegraph key to get our attention, and then to sign off. What an impressive 10-year-old speaker.



During the Youth Forum at the 2010 Dayton Hamvention®, 14-year-old Nate Anderson, KDØJAV, of Boulder, Colorado makes a presentation explaining how “Hams Save Lives With Skywarn.”



Speaking on “Digital Modes – QSOs Below The Noise Level” was Brady Gordon, KDØBJS, 10, from Boulder, Colorado.



Joey Freeland, KDØHFZ, 15, of Central City, Iowa, talks about his hobbies within the hobby during the Dayton Hamvention® Youth Forum.



Andrew Koenig, KE5GDB, 16, from Houston, addresses forum attendees on "Youth and Amateur Radio Satellites."

Joey Freeland KDØHFZ, 15, from Central City, Iowa, was introduced by his dad, Joe Freeland, KDØHGA, who spoke of the fun of the bonding that took place between them as they studied and pursued their favorite aspects of the hobby together.

Joey's topic was *My First Year: Exploring Hobbies within the Hobby*. He was the ARRL Amateur Youth Operator of the Year for the State of Iowa in 2009 and spoke about volunteering; how he contributes to the local weather net, and his weather spotting training. He's also enjoyed using Morse code for DX contacts. Joey spoke about contesting, designing and building antennas, kit building, and using WSPR maps (Weak Signal Propagation Reporter network). Obviously, Joey has enjoyed many hobbies within the hobby and stresses the importance of always having fun.

My fourth speaker was Andrew Koenig, KE5GDB, 16, from Houston, who spoke about *Youth and Amateur Radio Satellites*. Named the 2009 *Amateur Radio Newsline* Young Ham of the Year, he has been featured twice in *CQ Amateur Radio* magazine for his inventiveness and technical expertise.

Andrew is active with the Boy Scouts and also has fun contacting the International Space Station. He stressed the importance of always checking the batteries in your radio before an attempt at a big contact. He encouraged everyone to check out the AMSAT booth and to go to <http://www.AMSAT.org> for more information. Andrew announced what time he would be doing a pass in

action at the flea market that afternoon. He is a good example of a youngster experimenting with different aspects of the hobby.

Randy Mitchell KJ6BXV, 11, from Ojai, California spoke about *Starting a Youth Net*. At the invitation of a local ham, he and his sister attended an ARRL Field Day and became interested in the log book contacts and the idea of talking across the state and around the world. This motivated him to visit a local club in search of more youth. He and his sister got licensed and are working hard to recruit more young people to join them. They got permission from the repeater owner to run a youth net. The very supportive club behind all this is OVARC, Ojai Valley Amateur Radio Club.

Randy has worked the ARES net from the police department and had six regular check ins. He and his sister Jackie visited the Sea Scouts to recruit more members for the net. They now have eight check ins on the Youth Net. Randy's goal is to get at least one student operator in every school in the country. Wouldn't that be great?

A long time contributor to the Dayton Youth Forum is good friend, Al Eckman WW8WW, who is the teacher in charge of the Lowell High School ARGYL (Amateur Radio Group of Youth in Lowell) in Michigan. This year, Al not only brought four young people to do presentations, he also brought along AV club members, so they could record the entire forum.

The first two speakers from ARGYL were 16-year-olds Jeff Onan, KD8KUR, and Bob Schreur, KD8IJI, who spoke about *Building a Good Club* and their fundraising efforts: They get paid for helping to set up the Lowell Community Expo Center, they run a yearly hamfest, and they have a battle of the bands.

They also do a great deal of volunteering in their community and recently helped clean up a major stretch of highway.

Another good tip in building a good club is to have fun activities, they said. Their club has bowling, sledding, beach activities, laser tag, pizza parties, fox hunts, and a model aircraft group. The kids host nets and are participants in HF and VHF contests.

They participated in a lighthouse activation on Lake Michigan and ran the special event station at the Gerald Ford Museum. In preparation for their appearance at last year's Dayton Forum, they

TOROID CORES®



Ferrite and iron powder cores. Beads. Our RFI kit gets RFI out of TV's, telephones, stereos, computers, etc. 12 beads, 12 cores, full instructions. Model RFI-4.....\$35.00

VISA +\$8 S&H (for total order) Tax in Calif. MASTERCARD

PALOMAR®

BOX 462222, ESCONDIDO, CA 92046
TEL: 760-747-3343 FAX: 760-747-3346
email: info@Palomar-Engineers.com
www.Palomar-Engineers.com

ELECTRIC RADIO MAGAZINE



In circulation over 20 years, ER is a monthly publication celebrating classic equipment that was the pride of our shacks just a few years ago. Send \$1 for a sample:

ER, PO Box 242
Bailey, CO 80421-0242
720-924-0171

NOW OFFERING VINTAGE EQUIPMENT REPAIRS
WWW.ERMAG.COM

VIS

invites you to visit us on the web
See all the places we have been
and the great products we stock.

CALL - 1-800-655-4267

VIS AMATEUR SUPPLY

P.O. Box 284
Coffeetown, AL 36524

<http://www.visradio.com>

Batteries, Antennas, Coax & more!

2700 MAH AA cells

\$2.95

Free catalog upon request

DC ACE, INC.
1-877-803-5550

P.O. Box 364, Lincolnshire, IL 60069
www.dcace.com sales@dcace.com

WWW.WBØW.COM

Visit our website for our Hamfest Schedule

Tarheel Antennas



Nifty!
Reference Guides

Ground Radial Kit



\$59.00

Stainless Steel construction with 20 lugs for connections and comes with 10 radials for Normal 10-80 operation.



Headsets, Microphones, Cables, and Accessories

WBØW, INC.

800-626-0834

816-364-2692 • Fax 816-364-2619

P.O. Box 8547, St. Joseph, MO 64508

WBØW@WBØW.COM

All Prices Subject to Change without Notice

HIGH POWER

Model 40A-HP	Model 100A-HP	Model 200A-HP
10-40 Mtrs.	10-80 Mtrs.	10-80 Mtrs.
1.5 Kw P.E.P.	1.5 Kw P.E.P.	1.5 Kw P.E.P.
\$389	\$389	\$409



Tarheel Antennas available in Black, Red, White, and Silver



EXTENDED COVERAGE

Model 75A	Model 300A	Model 400A
10-80 Mtrs.	10-160 Mtrs.	10-160 Mtrs.
250 watts P.E.P.	250 watts P.E.P.	250 Watts P.E.P.
\$389	\$389	\$409

Note: Mounts are not included.

Little Tarheel-HP

500 Watts P.E.P.
7.0 Mhz - 54.0 Mhz
\$379



Little Tarheel II Shown Mounted on Diamond K400-3/8C
Note: Mount not included

Little Tarheel II
200 Watts P.E.P.
3.5 Mhz - 54.0 Mhz
\$379

Programmable,
Screw Driver Controller
turns counter w/10 memories



SDC-102 \$130



Jeff Onan, KD8KUR, left, and Bob Schreur, KD8IJI, both 16, of Lowell (Michigan) High School's ARGYL – Amateur Radio Group of Youth in Lowell.

went up in a hot air balloon, rode on an old locomotive, and rode in a plane to test the radio signals on all three modes of transportation. They own VHF and UHF repeaters, and have their own shack, tower and antenna.

The ARGYL youngsters have recruiting efforts for middle school students by holding orientation for 8th graders. They offer equipment scholarships to other students, and are working on plans to expand to a technology club.

Ben Veltman, KD8GBY, 16, and Caleb Pratt, KD8CPK, 15, from ARGYL, spoke on the topic of *Build It Yourself*. Martin Jue and Richard Stubbs of MFJ donated kits for the group to build for their Youth Forum presentation. They shared their check list in preparation for working with kits, with the audience. They showed slides of the different stages of progress in building their transceivers. They gave us excellent tips about soldering techniques and coil winding. What

an impressive group of young adults having fun and learning at the same time in their radio club. For more information about this group, visit them at <http://www.wlhrsradio.org>. The boys presented me with an ARGYL T-shirt which I will be so proud to wear.

Next, all nine of the speakers were presented with ICOM HTs, MFJ antennas, Radio Club of America stipend checks of \$100 each, along with the RCA Young Achiever's Award certificate and an envelope of amateur radio stamps, space covers, and a certificate from the L'Anse Creuse ARC.

In addition to the excellent presentations by the nine speakers, there were other interesting people who spoke at the forum about events coming up for young people in ham radio.

Several manufacturer-co-sponsors of the Youth Forum stopped by to wish the kids well and give them words of encouragement. In Part II, I'll give more details of the exciting adventures coming up.

If you know of any youngster who would like to be interviewed for a chance to give a presentation at the Youth Forum next year, please have them get in touch with me in September or October. Bravo to this year's young speakers!

KENWOOD

Listen to the Future

AIRWAVE SUPERIORITY

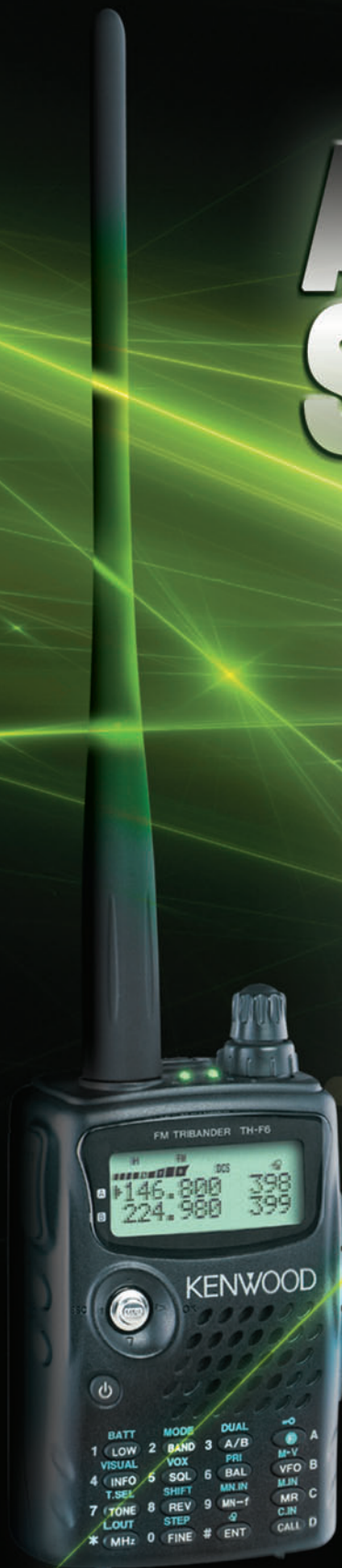
Never before has a compact HT offered as many features, and such high powered performance as the TH-F6A. Arm yourself with one today and gain your own airwave superiority.

- Triband 144/220/440 MHz all at 5W
- 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 2000mAh 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



www.kenwoodusa.com



KENWOOD U.S.A. CORPORATION
Communications Sector Headquarters

3970 Johns Creek Court, Suite 100, Suwanee, GA 30024

Customer Support/Distribution

P.O. Box 22745, 2201 East Dominguez St., Long Beach, CA 90801-5745

Customer Support: (310) 639-4200 Fax: (310) 537-8235

ADS#25309



What's New for the Operator With Disabilities

By Patrick Tice, WAØTDA

Regular readers know that from time to time I devote a column to what's new in amateur radio equipment and software that is accessible to people with disabilities. Most of the questions I get have to do with what is blind-accessible, both for radio hardware and computing. Our largest single accessible technology user group is amateur radio operators who have some kind of reading disability, usually blindness or some degree of vision loss.

I think this is probably a long-term trend as more baby boomers encounter age-related deterioration of their eyesight. Macular degeneration is relatively common in older folks and because of its onset late in life can catch them off guard and leave them wondering if they can still use a computer or even get on the air effectively anymore.

Loss of vision is never good news, but if there is anything at all to cheer about it is that the technology to help blind and low-vision amateur radio operators to continue to get on the air and to use their equipment effectively has never been better. The problem is that when vision loss happens later in life, it can be both discouraging and overwhelming.

A person just doesn't know where to turn for information, and that's why we provide this update in a publication that has a wide circulation worldwide. Perhaps you know someone who can benefit, and if so, please share this information with them.

Radios That Talk

Transceivers with speech chips that provide blind users with readout of the main dial frequency have been around for a long time, but there have been some notable developments.

Kenwood has made a quantum leap with the latest generation speech module, the VGS-1. A dual-purpose option costing about \$65, the VGS-1 may be added without soldering to the TS-480SAT, our top-recommended HF transceiver for blind users.

It also fits the Kenwood TM-V71A 2m/70cm FM mobile transceiver. We suggest that blind users have the dealer install these circuit boards unless a sighted assistant with technical expertise is available.

These Kenwood radios top our list because the user can access not only the frequency readout with the VGS-1 speech module, but also the menu options and settings. The TS-480 series covers 160 through 6 meters and is available in a 100-watt SAT version with automatic antenna tuner or an HX version that runs 200 watts but has no internal antenna tuner. The blind or low vision user will find the SAT version the more useful of the two. Single-button antenna tuning sure beats trying to fiddle around with a manual antenna tuner.

Since the radio is completely blind-accessible with the menu options being read out by the speech module, you will feel that you are really in charge of your station and equipment if you are a blind user. Since FM repeater operation is important to most of us, the TM-V71A equipped with the VGS-1 will offer similar capabilities and round out your station quite nicely.



Kenneth Silberman, KB3LLA, of Greenbelt, Maryland, with the Wouxun KG-UVD1P Chinese dual-band talking handheld radio. (Courtesy of KB3LLA)

Another Kenwood radio that has earned its stripes in the blind-ham community is the TS-2000 equipped with the optional VS-3 speech module, a \$40 accessory. Although the speech technology in the VS-3 is not as versatile as that in the newer generation VGS-1, blind users who are willing to make a serious effort to learn the more complicated interface of the TS-2000 will still find it to be mostly accessible. This radio covers more frequencies and modes and is useful for multimode operation on bands such as 2 meters, as well as the usual complement of HF bands and frequencies. It is also equipped for satellite operation. Although it has "more stuff in one box," the downside is that the learning curve is pretty steep. This is not a radio for a blind user who has trouble remembering a rather complicated front panel layout and the basic menu items.

Since all TS-2000 radios come equipped with built-in antenna tuners, that useful feature is a plus. These three Kenwood models are the most popular among blind users overall.

ICOM HF radios offer more limited frequency readout but provide voice output of the frequency display, mode, and S-meter reading.

The most notable new ICOM model is the IC-7200, which comes with built-in speech access standard – not as an optional add-on. It is a rugged, compact radio that covers 160 through 6 meters and offers good performance for around \$1,100.

Since the speech is built-in, there is no additional expense to purchase or install a module. The water-resistant front panel is

Study with the best!

Gordon West, WB6NOA
and The W5YI Group



NEW! Technician Class



Technician Class for the 2010-14 entry-level exam!

Gordo has reorganized the questions into logical topic groups for easier learning! Key words are highlighted in the explanations to help you understand the material for test success. Web

addresses for more than 125 helpful, educational sites. **GWTM \$20.95**

Tech Book & Software Package

Package includes Gordo's book and Windows program that allows you to study at your computer and take practice exams. Gordo's explanations from the book are now on the software! Free Part 97 Rule Book. **NCS \$39.95**

Tech Audio Course on CD

Technician Theory Course recorded by Gordo walks you through what you need to know for the Element 2 exam. Great study companion to his *Technician Class* book, and an excellent study aid if you spend a lot of time in your car or truck! 4 audio CDs. **GWTW \$27.95**

General Class



General Class book Upgrade to the HF bands with Gordo & W5YI!

Gordo's manual for 2007-11 reorganizes all the questions into logical topic groups for easier learning. His explanations include highlighted key words to help you

remember the material for test success. Audio CD is full of great operating tips! **GWGM \$20.95**

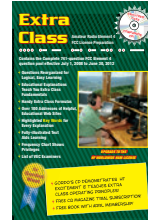
General Book & Software Package

Study at your computer and take practice exams. Software includes explanations from Gordo's book, scores your results and highlights areas that need further study. Free Part 97 Book. **GUS \$44.95**

General Audio Course on CD

General Theory Course recorded by Gordo is full of the sounds that bring ham radio to life! He talks you through the Element 3 theory to help you understand the material for your upcoming exam. 4 audio CDs. **GWGW \$29.95**

Extra Class



Extra Class book

Go to the top with Gordo! 2008-2012 book includes all Element 4 questions and answers, along with Gordo's fun, educational explanations. Full of Gordo's great memory tricks for those tough math and

electronic theory questions (wait 'til you meet "Eli the Ice Man")! **GWEM \$24.95**

Extra Book & Software Package

Study at your computer and take practice exams as the W5YI software scores your results and highlights areas that need further study. Software includes explanations from Gordo's book. Package includes Gordo's *Extra Class* book and free Part 97 Book. **ECS \$49.95**

Extra Audio Course on CD

Extra Class Theory Course recorded by Gordo talks you through the difficult Element 4 theory to help you understand the material and get you ready for your upgrade to the top. On 6 CDs. **GWEW \$39.95**

Order today from W5YI: 800-669-9594 or on-line: www.w5yi.org

The W5YI Group P.O. Box 565101 Dallas, TX 75356

Mention this ad for a free gift.

WR

a plus if you operate portable, and a built-in USB interface allows you to connect directly to a Windows computer without the expense of an extra rig-to-computer interface.

Ham Radio Deluxe supports the IC-7200, and ops who prefer computer control will find it a snap to hook up. If you have low vision and use a computer screen magnification program, you may appreciate controlling the IC-7200 via computer rather than directly by the front panel. However, the front panel of the IC-7200 is well-planned and very easy to navigate and memorize. The front-firing speaker is also a plus. One thing the radio does not have is a built-in antenna tuner. Kudos to ICOM for including accessible speech right out of the box!

Yaesu also deserves a shout-out for including voice announcement of frequency, mode and S-meter reading built-in to the FT-450, which covers 160 through 6 meters. It is available for under \$800 without the optional ATU-450 antenna tuner or for under \$900 with the tuner. The frequency readout features exceptionally big numerals and has excellent contrast for low-vision users.

Handheld radios are a special category. We are often asked if there is an HT that can speak the frequency on the display as the larger radios already discussed can do. Until recently, the answer was no, but Handiham volunteers Larry Huggins, KAØLSG, and Ken Silberman, KB3LLA, both found the new Wouxun 2m/70cm KG-UVD1P HT at Dayton last month, and Larry actually had his radio along to demonstrate to us at Handiham Radio Camp.

This radio is now available in the USA and offers good quality, a very reasonable price, and English frequency announcements. It has received good reviews on eHam.

The tried-and-true Kenwood TH-F6A triband HT is also blind-friendly, as we have reported in the past. This excellent radio does not have speech frequency readout like the Wouxun, but it does cover the 220 MHz band in addition to the usual 2m/70cm bands and has wideband receive as well. Its keypad and menu system are well-designed, and unique beeps help the blind user do just about anything with this rig without having to ask for help – once you take the time to really learn the radio.

Accessories

Automatic antenna tuners have now become popular as stand-alone accessories, and the ones we have tested are the LDG AT-100 Pro and AT-200 Pro. Both tuners sense RF and tune automatically without any other user intervention. Other manufacturers such as MFJ and SGC make tuners with similar or additional features, so you may want to shop around.

We use the AT-100 Pro in our Handiham remote base station, and it has performed flawlessly for our blind and sighted users. Since tuning does not require any special meter reading or knob twisting, it is great for users with disabilities of any kind, including operators who have difficulty using their hands.

Talking watt meters and multimeters are always in demand, but the problem is that there is never quite enough demand given the size of the potential market. The result is that meters with speech output appear on the market, don't do particularly well in sales numbers, and then disappear. However, you may still be able to find some of these useful blind-friendly accessories on the used market.

Radio Setup Guides

**Simple Step-by-step Instructions for:
Elecraft, Icom, Kenwood, Ten-Tec,
Yaesu Radios and other Amateur Gear**

The fast and easy way
to program and operate
modern radios.



New PSK Book!

Complete Guide to implementing PSK
Homebrew & Commercial Interfaces
Software & Hardware Installation & more.

Nifty! Ham Accessories

1601 Donalor Drive • Escondido, CA 92027
(760) 781-5522 • www.niftyaccessories.com



Laminated for Durability

HamTestOnline™

**Web-based training for the
ham radio written exams**

- ▶ Quick, easy way to learn.
- ▶ 100% guaranteed — you pass the exam or get your money back.
- ▶ Better than random practice tests.
- ▶ Provides additional information.
- ▶ Presents concepts in logical order.
- ▶ Tracks progress on each question.
- ▶ Focuses on your weak areas with "intelligent repetition".
- ▶ Better than books — question drill keeps you engaged.
- ▶ Try our free trial.

www.hamtestonline.com

Of particular interest to most blind hams will be the two LDG talking watt meters — the TW-1 and TW-2. They cover HF and VHF respectively and provide speech output readings in a clear voice.

Another used market item is the Nexxtech Talking Multimeter, which sold new for under \$40 most places. Right now we are in a dry spell, accessory-wise, because no one is offering current models of talking meters for the amateur radio market. Check eBay, hamfests, and your local dealer's used gear shelf.

Remote operation

Amateur radio operators with disabilities sometimes have to live in situations where putting up HF antennas is out of the question. One solution is to operate a remote base station, controlling it via the Internet. We offer our members this option: A Kenwood TS-480 SAT equipped for blind use with the voice output, feeding an LDG AT-100 Pro automatic antenna tuner.

Of course, the user must have access to an Internet computer and be able to operate it. Computers these days are much more capable of access by people with

disabilities and are considered essential assistive technology tools.

Blind users will need a screen reading software program but will be able to do nearly everything any other user could do with a computer — and that includes operating a ham radio station by remote control.

We don't have space to go into accessible computing in this short column, but if you have questions you can always drop me an e-mail.

Another kind of remote operation involves the use of an Internet-connected repeater system. Several methods of connecting are available, including WIRES, IRLP, and Echolink.

You can use a VHF or UHF FM radio to connect to the Handiham net at noon Eastern Time, 9 a.m. Pacific. Join our worldwide net every day but Sunday. All licensed operators are welcome.

The net is controlled but informal, and there is no need to be a Handiham member to participate. Sometimes the net control station will throw out a discussion topic to liven things up!

Listen in a few times if you are shy, and then take the plunge and throw out your callsign. We are on the air Monday through Saturday, and Sunday if anyone wants to take an informal session. There is also a Wednesday evening EchoLink net at 19:30 Central time, which translates to +5 hours, or 00:30 GMT Thursday morning during North American Daylight Time. In the winter, the GMT schedule is +6 hours.

- EchoLink: HANDIHAM conference server Node 494492 (Our preferred high-capacity node.)
- IRLP node 9008 (Vancouver BC reflector)
- WIRES system number 1427

I know we are barely scratching the surface of ways to get on the air. We haven't even touched on the fun to be had on PSK-31 by operators with hearing impairments. It's 2010, and technology is your friend and helper in the ham shack, no matter what your disability.

For more information about the Handiham System, please contact us:

Courage Handiham System
3915 Golden Valley Rd.
Golden Valley, MN 55422
763-520-0512
hamradio@couragecenter.org
www.handiham.org

James Pole Antennas
www.jamespole.com
James & Joyce Pike
760.780.6484
kb6wht1@juno.com ~ kb6bld@juno.com

YOUR COMPLETE BATTERY SOURCE

2-way Radio • Cellular • Digital • Camcorder

Laptop • Chargers • Analyzers • Cells

HIGHER CAPACITY • HUGE SAVINGS!

Custom Assembly & Battery Rebuilding for:

- Handheld Radios • Laptop • Camcorder • Test Equipment



MOTOROLA
Authorized Dealer
OEM Battery Packs
sales@nicdlady.com

NiCd Lady Company

20585 Camino Del Sol Unit B, Riverside, CA 92508



5000+ Batteries Online

WWW.NICDLADY.COM

Toll Free

800/906-6423

20M SSB

TX

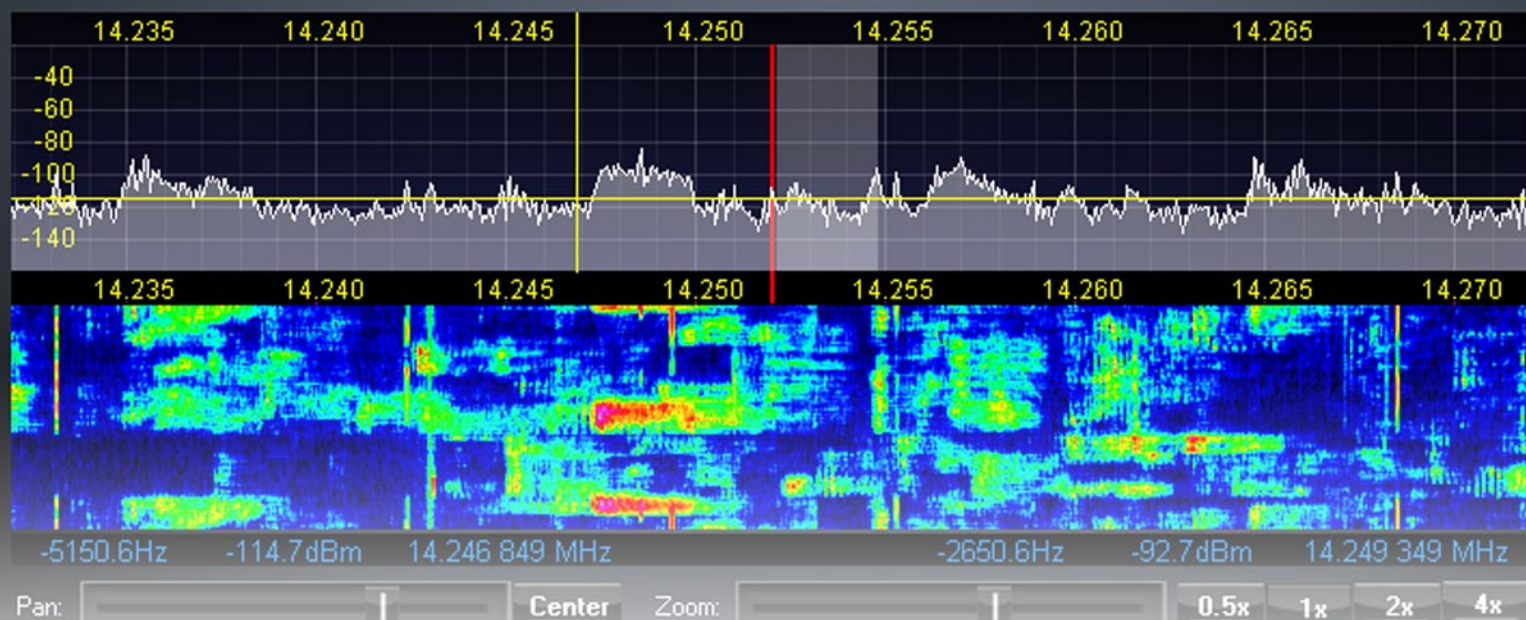
7.000000

Save

Restore

TX

20M Ext/Adv SSB



FLEX-5000A

HF-6m Transceiver
+2M&70CM



FLEX-3000

HF-6m Transceiver

See it, Click it, Work it!

- Point and click instant tuning
- Visually tunable filters
- See the weak ones before you hear them
- Find that clear frequency during split-operation

Tune in Excitement.™

Order Now!

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

©2010. All rights reserved. FlexRadio Systems is a registered trademark and Tune in Excitement is a trademark of FlexRadio Systems. All prices and specifications are subject to change without notice. Personal computer and monitor required but not included. *Some modes may require second receiver.

FlexRadio Systems®
 Software Defined Radios



A Primer About Why CW is So Great

By Randall Noon, KC0CCR

Amazingly, the version of Morse Code being pounded by radio amateurs today has been in continuous use for more than 160 years. This is longer than any other electronic encoding system, including the original Morse-Vail version of Morse Code, sometimes called Railroad Morse.

It's clear Morse Code has some remarkable attributes to have achieved this longevity.

The International Morse Code – or CW, for short – used world-wide by amateur radio operators was originally developed for landline telegraphy in Germany in 1848 by Friederich Gerk. After a few developmental changes it was adopted as the standard landline telegraphy code in Europe at the International Telegraphy Congress in Paris in 1865.

With the establishment of regular telegraphy communications between North America and Europe by transatlantic cable in 1866, for various technical reasons the International Morse Code was favored over the American version of Morse Code.

When wireless communication began in the 1880s, the use of the International Morse Code easily crossed over to radio. In the earliest days, code was the only practical method for transmitting messages.

Today, even after the invention of many different modes of radio communication, CW is still significant and preferred by many operators. Because it has remained unchanged after all these years, if a CW operator today were to somehow intercept a CW message transmitted a century ago, today's operator would have no trouble carrying on a QSO with yesterday's operator.

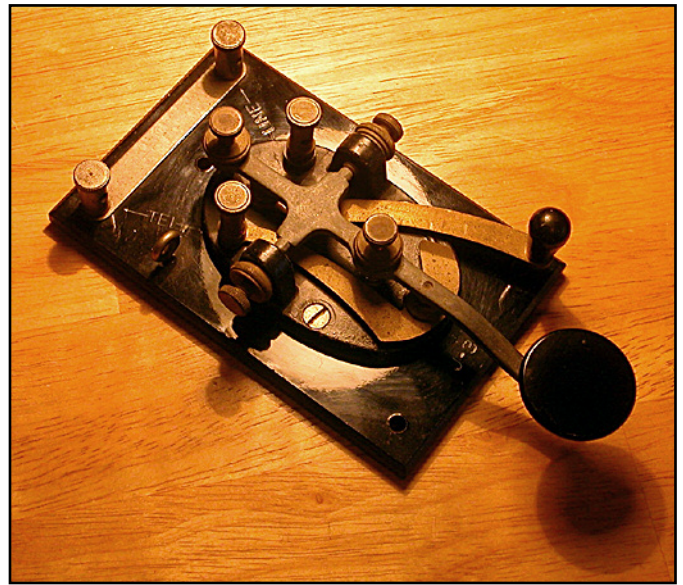
Unlike any other mode of radio communication – such as voice by AM, NFM, SSB or digital or the many variants of radioteletype – a licensed operator can use Morse Code on any clear frequency in any amateur band with only one exception, the 60 meter band. This is a remarkable privilege granted by both the FCC and the ITU. Here are some reasons why CW merits this status.

CW is simple

On the radio, CW is simply a single transmitted tone that is alternately turned on and off. While electronic keyers or straight keys are usually preferred, CW can be sent using almost any kind of simple switch, including just touching and separating two bare wires.

CW is the only digital mode that can be directly de-coded by three of the five human senses: sight, sound and touch. A person can send messages with a flashlight (also Aldis Lamp); with a mirror by reflecting sunlight (also heliograph); by tapping an automobile horn; by blowing a whistle; and even by blowing puffs of air through a tube.

There are cases where people immobilized by stroke have been able to communicate by blinking in Morse Code. In 1966



'Because (Morse) has remained unchanged after all these years, if a CW operator today were to somehow intercept a CW message transmitted a century ago, today's operator would have no trouble carrying on a QSO with yesterday's operator.'

during a North Vietnam propaganda television interview, Navy Commander Jeremiah Denton was able to blink the word "torture" to American viewers right under the noses of his North Vietnamese captors.

Operators who cannot hear a CW tone can see CW displayed on a computer screen, see coded flashes of light, or can feel CW through a vibrating buzzer.

Generally speaking, learning CW is easier than learning to use a keyboard. A telegraph key is much simpler than the 101 separate buttons on a basic computer keyboard. Most students learn to keyboard with modest speed and skill – otherwise known as typing for pre-computer era graduates – in one high school semester of about 14 weeks. This is about 70 classroom hours.

Alternately, a person can achieve an equivalent level of competence with CW in less than 20 practice hours.

CW waveforms are less subject to distortion

When band conditions are poor have you ever heard an operator yell into a microphone something like, "No, not pig, I said BIG, BIG, B-I-G, BIG!?" (Perhaps by yelling louder, the operator believes signal readability will improve.) Radio signals carrying voice are complex waveforms.

When a complex waveform composed of the many tones that make up nuanced speech is refracted (not reflected) by a rapidly changing ionosphere, some tones are attenuated, some are shifted in phase, and some may even be flipped. When a voice signal that has been distorted by poor band conditions is demodulated, the signal may sound like the sender is growling, gargling, or talking through a cellophane wrapper being crinkled.

Since CW is a simple waveform, it is less subject to distortion. If the tone of a dit or dah is distorted or phase shifted, the relative duration of whatever sounds and spacings are heard still provide the needed information.

In other words, dits still sound like dits and dahs still sound like dahs even when the original tone is distorted.

CW uses little bandwidth

The bandwidth of a CW signal can be estimated by taking the CW speed in words-per-minute times 4. For example, a 13 wpm code rate (a middle of the road speed for straight key operators) has a bandwidth of 52 Hz. Similarly, a more seasoned CW operator sending 25 wpm with a keyer has a signal bandwidth of about 100 Hz.

Compare this with RTTY, which has a bandwidth of about 250 Hz; SSB which has a bandwidth of about 2,600 Hz; narrow band FM voice which has a bandwidth of about 6,000 Hz; AM voice which has a bandwidth of about 7,000 Hz; or amateur television that can have a whopping bandwidth of 6,000,000 Hz or more.

The 30-meter band – 10.100 to 10.150 MHz – can fit into its narrow HF band perhaps 250 tightly spaced CW QSOs. The same 30-meter band can accommodate perhaps only 125 RTTY QSOs, 13 SSB QSOs, 6 NBFM QSOs, 5 AM QSOs, and not even one amateur television QSO.

Besides being able to carry more QSOs in a given band, the small bandwidth of CW is significant with respect to interference, which is most severe when the interference bandwidth can fit within the bandwidth of the signal-carrying information.

Conversely, interference is less a problem when the signal has a significantly smaller bandwidth than the interference. Interference that can render an SSB signal unintelligible may not even be noticed in a CW QSO.

Small bandwidth also improves signal brightness or "punch." One-hundred watts of power concentrated into a 2,600 Hz wide SSB signal, for example, comes

to about 0.038 watts per Hz. To have the same signal punch or brightness, a CW signal has to be only 3.85 watts. This interesting characteristic is the reason why many low-power QRPers prefer CW to voice. While it can take 100 watts to work the world using SSB, with CW it takes only 5 watts. At the same wattage, a CW signal is about 11 db brighter than an SSB signal.

The one mode that challenges CW to the title "Lowest Bandwidth King" is BPSK-31. It has a nominal bandwidth of 32 Hz and a person can send up to 50 wpm by typing on a computer keyboard.

BPSK-31 utilizes phase shifting effects to send a Morse-like code. This mode's signal tone, which can be heard by ear, cannot be decoded by ear. Consequently, reception requires a programmed computer or a special modem with a display to decode the signal. Like FM, BPSK-31 operates with a continuous signal when transmitting.

While PSK31 works well in propagation paths that do not disrupt phase, it is adversely affected by propagation paths where signal phase continuity is interrupted by rapidly changing conditions in the ionosphere, such as occurs in trans-polar paths. In head-to-head tests with other digital modes and CW, BPSK-31 is a close second to CW (visit: <http://www.w1hjk.com/FLdigiHelp-3.12/Modes/Compare.htm>).

This is why, next to CW, BPSK-31 is a favorite of QRPers who like to use computer-assisted digital modes.

Having used both BPSK-31 and CW, I can vouch that under conditions in which BPSK-31 sends jumbled letters, a CW signal with the same power output on the same band still gets through.

When band conditions are poor, as they sometimes were on 80 meters last winter and spring, brass pounders can slow their sending speed to improve readability. What they are doing in effect is: 1) reducing the bandwidth of the signal to reduce the effects of interference; and 2) increasing the relative brightness of the signal as compared to the noise.

Reducing the sending speed from 25 wpm to 7 wpm, for example, changes the bandwidth from 100 Hz to a mere 28 Hz and increases the brightness by 3.57 times or 5.5 db.

It is remarkable that a CW operator can vary both bandwidth and signal brightness right at the key. While a person may argue that 7 wpm is a slow speed, when conditions are poor the alternative may be no message at all.

There are even more reasons why CW is such a great mode, but I have about run out of space. So, let me sum up by simply saying this: *It is no myth that CW can still get through when other modes fail.*

Reminder for September 10

Mark your calendar for the 2010 Get Your Feet Wet CW event which begins 0000 UTC on Friday, September 10 and goes to 0000 UTC September 13. The event is sponsored by FISTS, but any licensed operator can enter.

Operators new to CW – even if you have had a license a long time – and experienced brass pounders are all encouraged to participate.

No programmable keyers, code readers, or computer assistance in sending and receiving code are allowed – just human-powered CW from straight keys, cooties, iambics and human powered keyers.

For more detailed rules and even downloadable log sheets, go to: <http://www.FISTS.org> on the Web and check under the activities heading *Get Your Feet Wet Weekend* (<http://www.fists.org/getfeetwet.html>).

Certificates will be awarded to the top three scorers in each category. *This is a fun event.*

The BEST in Mobile Mounts

www.w9iix.com



4421 West 87th St.
Hometown, IL 60456
Phone: 708-423-0605
Cell: 708-337-8172
Fax: 708-423-1691

ILX EQUIPMENT LTD.



Ten-Ten International Net, Inc.

PROMOTING THE USE OF
TEN METERS SINCE 1962

Awards-QSO Parties-Special Events-PaperChasing

Nets Daily (except Sunday) on 28.380 and 28.800 at 1800z

CHECK US OUT ON THE WEB

www.ten-ten.org / www.10-10.org

643 N 98th Street - #142
Omaha, NE 68114-2342



**** **THE WIREMAN, INC™** ****

***** **800-727-WIRE (9473)** *****

Still, after 28 years, the "Keywords" for "Certified Quality" Wire, Cable, Connectors, Accessories, and Service. See it all at www.thewireman.com Tech help 864-895-4195

SOUTHWEST US? Call (866)745-WIRE (9473) for TOP WM dlr **CLEAR SIGNAL PRODUCTS**

www.coaxman.com or wire@coaxman.com



Sideswiping Your Way Along the Trail

By Richard Fisher, KI6SN

In the April and May 2009 editions of *CQ Amateur Radio* magazine, the late, great Dave Ingram, K4TWJ, focused 10 pages of his *World of Ideas* column on a vanishing Morse accessory known variously as the Sideswiper, Cootie, Double-action or Slap key.

"A Sideswiper . . . looks similar to a single-lever paddle, but its left and right contacts are connected together rather than routed to separate (dot and dash) posts," Ingram explained.

There were more than two dozen versions of this key pictured in the two-part article. The layout not only featured many of the Sideswiper's classic and contemporary designs, but traced its history to the 1880s "probably as an aid to minimizing carpal-tunnel syndrome, and they were also the first form of 'speed key,'" he wrote.

Where weight, durability and efficiency play such an important role in assembling a trail-friendly amateur radio station, the Sideswiper has the potential to provide some pretty attractive elements to the outdoors operator. It can be manufactured in a very small package. And where every ounce counts, having just one keying lever – as opposed to the popular two-lever Iambic paddle – helps keep weight to a minimum.

The Sideswiper's T-FR attraction became crystal clear at the 2010 Dayton Hamvention® when we ran into Doug Hauff, W6AME – owner, designer and master craftsman behind San Luis Obispo, California-based American Morse Equipment. For a lot of years AME has been building a reputation for producing high-quality Morse keys, paddles and enclosures. We learned at the Hamvention that the newest addition to its product line is the Mini-B, a little cousin of AME's Bushwhacker Sideswiper / single-lever Morse paddle.



The American Morse Equipment Mini-B Single Lever Paddle / Sideswiper is a small, rugged and versatile CW accessory that's in a package just right for the trail-friendly radio operator.

It's not often we get our hands on a product that's so new its instruction and operation manual hasn't even been completed. But that's just the case with the Mini-B. No doubt it's posted on the company's Web site by now. At this writing, though, Hauff was still working on it. Check: <http://www.americanmorse.com/>.

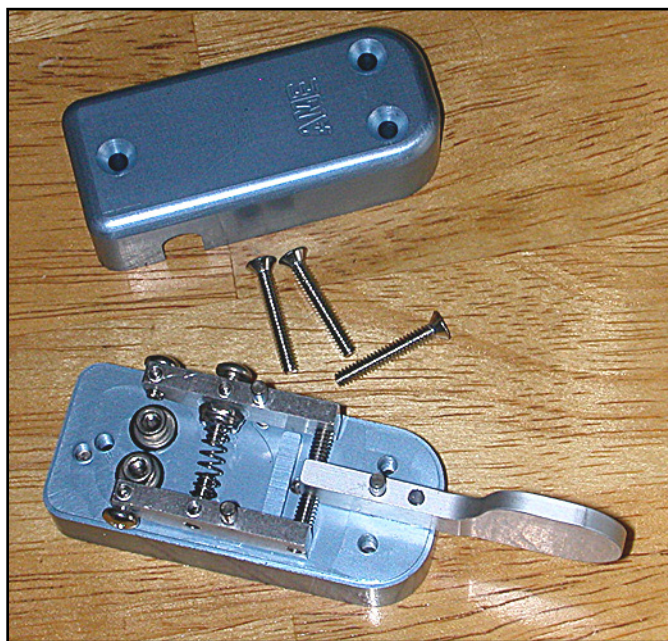
This little Sideswiper measures 3.25-inches from the end of the Mini-B base to the tip of its paddle lever. It's just 15/16th-inch wide by 1-inch tall and weighs only 2.3 oz.

There are no sharp edges, which is great news for the backpacker who is concerned about things cutting the fabric of his or her knapsack as they jostle enroute.

A Morse instrument that small runs the risk of being dubbed a "novelty," but that's far from the case with the Mini-B. Small and rugged, we were eager to try it out. Arriving in Southern California post-Dayton, we made a beeline – Mini-B in hand – to our NorCal 40A transceiver with the built-in KC1 keyer.

After making the proper keyline connections to the solder lugs protectively indented in the Mini-B's base, we were ready to produce some Sideswiper CW. It had been decades since we've used a single-lever paddle, so we didn't quite know what to expect.

To our delight, near-flawless CW was produced in a matter of minutes. The learning curve was practically *zilch*.



With its top cover removed, the inner workings of the Mini-B are revealed, exposing the location of tiny Allen screws for setting the single-lever paddle's "feel."



In a 2009 two-part series, Dave Ingram, K4TWJ (SK), gave readers a broad view of the classic Sideswiper key in the pages of *CQ Amateur Radio* magazine.

At first we used the Mini-B as a single-lever electronic keyer paddle – producing CW just as anyone would with an Iambic paddle, only without the *squeeze*. It was more like operating a bug (*a la* Vibroplex), only without having to generate the *dahs* manually.

But using a Sideswiper with an electronic keyer is only half the fun.

There's a very interesting video on YouTube demonstrating how to use a Sideswiper *authentically*. In a two-and-a-half-minute mini-tutorial, Carlo Consoli, IKØYGI, of Rome, Italy, shows how higher speed CW can be produced by making dits and dahs from both sides of the Sideswiper key. You can watch it at: <http://www.youtube.com/watch?v=ZfLrgYHlpio>.

Inspired, I decided to give it a try keying a Kenwood TS-140S with the Mini-B – sans keyer.

The NorCal140A Transceiver Kit

Sure, there are a few 40 meter cw kits out there to choose from. But the NorCal 40A stands apart from the rest with a unique combination of custom features and big-rig performance.

Open up most QRP rigs and you'll find a rat's nest of wires. Open up a '40A-a snap with our quick-release latches-and you'll find clean, no-wires construction that's worth showing off! Performance is equally impressive: of several popular QRP rigs, the '40A posted the best receiver sensitivity (-137dBm; see June '96 *QST*). With its fast QSK, 2W output, RIT, crystal filter and ultra-stable VFO, the '40A is a joy to operate.



Wilderness Radio

P.O. Box 3422, Joplin, MO 64803-3422 (417) 782-1397
<http://www.fix.net/~jparker/wild.html>



Add your own accessories, or outfit your NorCal 40A as pictured above with the legendary **KCI Keyer and Morseoutput Frequency Counter**. The KCI is so small it'll fit into any rig, but it's a perfect match for the '40A. The KCI's message memory and Iambic A and B modes provide operating flexibility. Running from batteries? The '40A and KCI together draw only 20mA on receive! Please call or write for more details.

NorCal40A	\$145
KCI	\$ 45
(shipping additional)	

In true Sideswiper mode, you connect the Mini-B's ground lug to the ground side of the rig's key line. The solder lugs going to each side of the Mini-B key lever are connected to the plus side of the rig's key line. *Simple*. Now, though, it's like operating a standard straight key, only your wrist motion is from side-to-side instead of up and down.

After assuring the Mini-B was correctly configured, we started by sending the letter V (*didididah*). After many years with an electronic keyer, that's not quite as easy as it might sound.

With the Sideswiper, a V is made by making three *dits* quickly in a *right-left-right* motion, followed by holding a left motion for the duration of a *dah*.

It took a little getting used to, but we were amazed by how quickly it's possible to become a relatively competent Sideswiper CW operator. With a bit of practice will come even more nicely-formed Morse and higher speed.

The Mini-B's tension and spacing are adjustable. There are Phillips head screws easily accessible on the right and left side of the Sideswiper's enclosure. Two tiny Allen wrenches come with the single-lever paddle for adjusting set-screws reached by removing the Mini-B's top cover. You need a Phillips head screwdriver to pop the cover.

A long and a short Phillips head screw are included with the paddle – presumably for affixing the Mini-B to a base. It would not be difficult to fashion a knee-mount and a strap to add to the

Sideswiper's versatility in the field. Equal amounts of ingenuity and elbow grease are all that would be needed.

The fact that the Mini-B's keying contacts are shielded from dust, dirt and nature's critters by its top cover is a real plus, as well.

So, if you've already got a two-lever paddle for Iambic electronic keying, what's the allure of a Sideswiper? Well, with an ever-growing *back to our roots* movement among many CW operators, straight keys, Sideswipers, Cooties, Double-action and Slap keys are gaining in popularity. And there are more and more on air events supporting their use. Just check the Morse oriented Web sites – FISTS International Morse Preservation Society (<http://www.FISTS.org>) and Straight Key Century Club (<http://www.skccgroup.com/>).

Wouldn't it be nice to join in these events from a trail-friendly location? We think so. And wouldn't it be nice to have a Sideswiper that meets all the requisites for a trail-friendly radio layout? We think so, as well.

American Morse Equipment's Mini-B looked good when we saw it displayed at Dayton. It looks even better in a trail setting. And telling the operator on the other end that you're pounding a Sideswiper opens a whole new thread of conversation.

For the latest on pricing, ordering and manufacture of the Mini-B and all of AME's products, visit: <http://www.americanmorse.com/>.



In Review: N6BV Propagation Predictions

By Carl Luetzelschwab, K9LA

In 1993 Dean Straw, N6BV, (now retired from the ARRL) assembled a massive three-ring binder titled *All the Right Angles*. In this work Dean studied optimum elevation angles for HF propagation throughout the world using IONCAP (Ionospheric Communications Analysis and Prediction Program).

The data presented showed the range of elevation angles to expect on the five HF contest bands (80, 40, 20, 15, and 10 meters) from various locations in the world. Although Dean's work was slanted toward contesting, it also offered valuable insight into proper antenna system design for DXing.

Recently N6BV assembled another piece of work with massive amounts of information. This time it's on a CD – and is titled *N6BV Propagation Predictions*.

While working for the ARRL, Dean ran predictions for more than 100 worldwide locations on 160 through 10 meters, excluding the WARC bands. These predictions were in the *ARRL Antenna Book* CD, and I've mentioned them several times in this column. Dean's latest effort adds many more locations and the WARC bands (30, 17, and 12 meters). This month's column is a review of N6BV's CD.

After installing the CD onto your hard drive, I highly recommend reading the 11 pages of instructions. They start by listing the 244 worldwide locations covered with these predictions. For the record, there are 42 USA locations, 28 other locations

in North America, 33 locations in Europe, 16 locations in South America, 40 locations in Asia, 41 locations in Oceania, and 44 locations in Africa. The locations are shown in Figure 1

The different pin colors in Figure 1 delineate the major areas of the world (roughly the continents) covered by these predictions. If you can't find your specific location, there's a good chance you'll find something close enough.

The predictions are presented in two data sets. The first is a single page Summary Table of propagation from the chosen location for 80, 40, 20, 15, and 10 meters to seven areas of the world: Europe, Far East, South America, Africa, Asia, Oceania, and North America.

The header for a Summary Table gives the month, location for which the predictions are done, the solar activity level (there are six ranging from Very Low to Ultra High as explained on page 7 of the instructions), and the predicted signal strength in S-units (see page 10 of the instructions for more details). Figure 2 is a sample Summary Table for Boston in October at a High solar activity level.

What should be obvious from Figure 2 is that the Summary Table is a great "big picture" for contest efforts on the five HF contest bands. You'll also see some asterisks in the data – that indicates possible long path openings.

The second data set is a band-by-band listing (one page each for 160, 80, 40, 30, 20, 17, 15, 12, and 10 meters) of propaga-

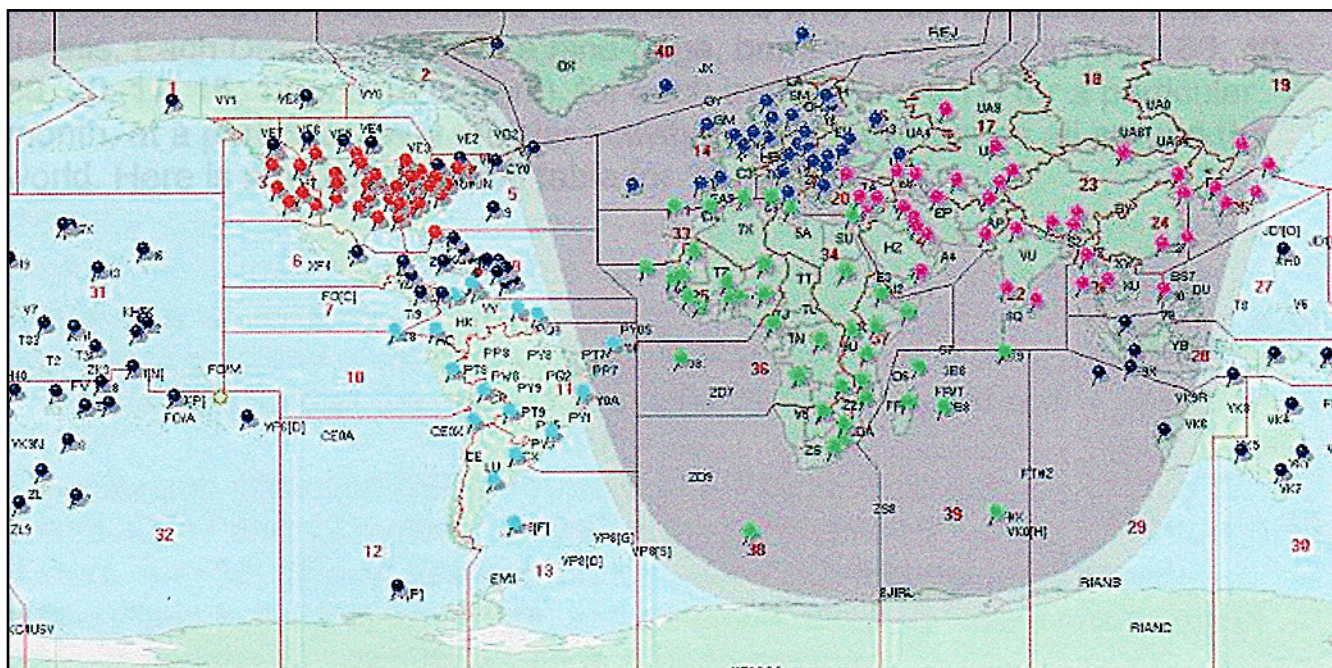


Figure 1 – Coverage Map for the N6BV Propagation Predictions

Oct., MA (Boston), for SSN = High, Sigs in S-Units. (c) 2010 Dean Straw, N6BV

80 Meters								40 Meters								20 Meters								15 Meters								10 Meters														
UTC	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	UTC			
0	7	-	9+	9	5	-	9+	9	-	9+	9	6	-	9+	6	7	9+	9+	9	7*	9+	1*	7	9+	2*	7	8	9	-	4*	9	4*	3*	5	9	-	-	-	-	-	-	-	-	0		
1	8	-	9+	9	5	-	9+	9	-	9+	9+	7	1	9+	6	8	9+	9	9	8	9+	-	5*	9+	2*	4*	8	9+	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	1		
2	8	-	9+	9	4	-	9+	9	-	9+	9+	7	3	9+	7	7	9+	9	9	9	9+	1*	1*	8	2	1*	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2		
3	9	-	9+	9	2	1	9+	9	-	9+	9+	5	5	9+	6	7	9+	9+	9	8	9+	-	1	7	4	1	2*	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3		
4	9	-	9+	9+	-	2	9+	9	-	9+	9+	4	7	9+	1*	7	9+	9+	8	9	9+	-	-	8	8	-	5*	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4		
5	9+	-	9+	9+	-	6	9+	9+	-	9+	9+	2	7	9+	-	7	9+	9+	6	9	9+	-	-	8	4	-	4*	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5		
6	9+	-	9+	9	-	8	9+	9+	1	9+	9+	1	9	9+	-	7	9+	9	5	9	9+	-	1*	8	-	-	4*	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6		
7	8	-	9+	8	-	8	9+	9	2	9+	9	1	9	9+	-	4	9+	6	1	9	9+	-	-	3	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7		
8	6	-	9+	6	-	8	9+	9	4	9+	9	2	9	9+	-	2*	9+	6	-	9	9+	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8		
9	3	2	9+	2	-	8	9+	8	7	9+	8	2	9	9+	6	1*	9	9	2	8	9+	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9		
10	-	2	9+	-	-	8	9+	6	5	9+	5	4	8	9+	9	5*	9+	9+	5	5*	9	-	1*	7	9	-	5*	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	10		
11	-	1	8	-	-	6	9+	3	7	9+	1	2	8	9+	9	8	9+	9	8	5*	9+	9	6*	9+	9+	7	7*	1	-	2*	1	8	-	5*	1	-	-	-	-	-	-	-	-	11		
12	-	-	5	-	-	4	9+	1	4	9	-	2	7	9+	9	8	9+	8	8	9	9+	9+	7*	9+	9+	8	5*	9	8	6*	9+	9	7	5*	1	-	-	-	-	-	-	-	-	12		
13	-	-	-	-	-	-	9+	-	2	5	-	1	5	9+	9	8	9+	8	8	9	9+	9+	8	9+	9	9	9	9	9	9	6*	9+	9	8	5*	9	-	-	-	-	-	-	-	-	13	
14	-	-	-	-	-	-	9	-	-	1	-	1	2	9+	9	6	9+	6	7	8	9+	9	8	9+	9	8	8	9+	9	5*	9+	9	8	5*	3	-	-	-	-	-	-	-	-	-	14	
15	-	-	-	-	-	-	8	-	-	-	-	-	-	9+	8	5	9	7	6	7	9+	9	7	9+	9+	7	8	9+	9	4	9+	9	8	4*	7	-	-	-	-	-	-	-	-	-	15	
16	-	-	-	-	-	-	6	-	-	-	-	-	-	9+	9	4	9	8	6	7	9+	9	6	9+	9+	7	8	9+	9	6	9+	9	6	4*	9	-	-	-	-	-	-	-	-	-	16	
17	-	-	-	-	-	-	5	1	-	-	-	-	-	9+	9	5	9	9	6	5	9+	9+	7	9+	9+	8	9	9+	8	6	9+	9	3*	7	9	-	-	-	-	-	-	-	-	-	17	
18	-	-	-	-	-	-	7	2	-	-	1	-	-	9+	9	6	9+	9	8	5	9+	9+	7	9+	9+	8	8	9+	4	7	9+	9	4*	8	9	-	-	-	-	-	-	-	-	-	18	
19	-	-	-	-	-	-	9	5	-	4	4	1	-	9+	9+	7	9+	9+	8	6	9+	9	7	9+	9+	5	9	9+	-	7	9+	9	4*	8	9	-	-	-	-	-	-	-	-	-	19	
20	1	-	-	1	-	-	9+	6	-	8	7	3	-	9+	9+	8	9+	9+	8	7	9+	5	8	9+	9+	2	8	9+	-	1*	9+	9	3*	8	9	-	-	-	-	-	-	-	-	-	-	20
21	2	-	4	3	-	-	9+	8	-	9	8	5	-	9+	9	7	9+	9+	9	6	9+	1*	8	9+	9+	3	8	9+	-	2	9+	8	2*	8	9	-	-	-	-	-	-	-	-	-	-	21
22	5	-	8	7	2	-	9+	8	1	9+	9	6	-	9+	9	8	9+	9+	9	7*	9+	1*	8	9+	9	4	8	9+	-	5*	9+	5*	3*	8	6	-	-	-	-	-	-	-	-	-	22	
23	6	-	9+	9	4	-	9+	9	1	9+	9	6	-	9+	7	8	9+	9+	9	8*	9+	1*	8	9+	7	5	8	9+	-	5*	9	5*	-	7	1*	-	-	-	-	-	-	-	-	-	23	
	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA	EU	FE	SA	AF	AS	OC	NA				

Figure 2 – Sample Summary Table

Good News for the VHF/UHF Enthusiast

The all-time favorite magazine for the VHF/UHF enthusiast, *CQ VHF* is better than ever and here to serve you!

By taking advantage of our subscription specials you'll save money and have *CQ VHF* delivered right to your mailbox. Only \$26 for four information-packed quarterly issues. Or better yet, enter a two or three year subscription at these special prices.

1 Year-\$26.00 2 Years-\$52.00 3 Years-\$78.00

VE/XE: 1 Year 36.00, 2 Years 72.00, 3 Years 108.00, Foreign Air Post: 1 Year 39.00, 2 Years 78.00, 3 Years 117.00. Please allow 6-8 weeks for delivery of first issue



CQ VHF • 25 Newbridge Rd • Hicksville, NY 11801
www.cq-vhf.com • Call : 516-681-2922 • FAX : 516 681-2926

The NEW Shortwave Propagation Handbook

- Principles of ionospheric propagation
- Solar cycle predictions
- Stunning photography
- Ionospheric forecasting
- Specific predictions for Cycle 23
- Analysis of HF propagation prediction software
- Unusual HF and VHF ionospheric propagation
- Expansive references and data sources
- How to access NOAA's geophysical databases
- "Do-it-yourself" propagation predictions/charts
- Scores of charts, tables, and summary information
- Overview of WWV and WWVH propagation services



\$19.95
plus \$7 s.h.

Order Today!!!!



CQ Communications, Inc.

25 Newbridge Rd, Hicksville, NY 11801 • Phone 516-681-2922 • FAX 516-681-2926

Build a Better Antenna with DX Engineering!

High Quality, Economical Wire Antenna Kits & Accessories!

- DXE-UWA: Center-T and End Insulators
- DXE-ANTW: Pre-Cut or Bulk Antenna Wire
- Coaxial Cable and Ladder Line



Secure Online Ordering: www.DXEngineering.com
 Order by Fax: 1-330-572-3279 24 hrs./7 days
 Order by Phone: 1-800-777-0703 Mon.-Fri. 8:30 am-4:30 pm EST
 Product Support Line: 1-330-572-3200 Mon.-Fri. 8:30 am-4:30 pm EST

IIX EQUIPMENT LTD. The Finest in Tower Accessories

Ginpole Kits, Antenna Mounts, Standoff Brackets, Quadpods, Mast Adapters, Climbing Steps, Rotor Mounts, Mast Plates, Strap Brackets, Hot Dip Galvanizing, Custom Fabrication

Download a Catalog at www.w9iix.com

Order Online! IIX Equipment Ltd.
iix@w9iix.com 4421 West 87th St.
 708-423-0605 Hometown, IL 60456
 Cell: 708-337-8172
 Fax: 708-423-1691

Doug, W9IIX

Personalized Skywave Propagation Programs

- **SKYCOM 2.0 — \$35.00** (includes P/H)
- all WINDOWS OS
- Hourly HF Predicts & Beam Headings from your QTH to over 400 worldwide prefix areas
- Path Loss calculation identifies optimum path openings
- Comprehensive Technical Manual

ENGINEERING SYSTEMS INC.
 P.O. Box 1934 • Middleburg, VA 20118
 E-mail: w4het@aol.com

tion from the chosen location to all 40 CQ Zones. Figure 3 shows predictions for Boston in October on 15 meters at a High solar activity level.

The Detailed Table appears to be most suitable for DXpedition planning, as it provides predictions to 40 worldwide locations on all the eight HF bands plus the MF (medium frequency) band of 160 meters.

You may remember that our predictions usually don't cover 160 meters. The predictions for 160 on this CD are derived from the 80 meter predictions by subtracting three S-units. This comes from K1KI's experience on 160.

Note that the assumed RF power level and antennas are annotated at the bottom of each page of a Detailed Table. The 14 dBi antenna in the example of Figure 3 translates to a 4-element monoband Yagi at 60 feet. If you don't run 1,500 watts and don't have the antennas assumed for the predictions, you can reduce the predicted signal levels to your conditions by using the rules of thumb given on page 10 of the instructions.

Three caveats are in order when using these predictions:

First, the signal strength should be treated as a monthly median centered on the chosen month. Thus on any given day the signal strength could be somewhat higher or somewhat lower. This comes from the fact that the ionosphere varies sig-

nificantly on a day-to-day basis, and we don't have a good handle on this yet – thus we have monthly statistical predictions, not daily predictions.

Second, no MUF (maximum useable frequency) information is provided. This shouldn't be an issue on the lower bands (160 through 40 meters), as the MUF is usually high enough and making the QSO or not depends pretty much only on signal strength. It may be an issue on the higher bands in that a decent signal strength prediction does not necessarily guarantee that the band will be open.

Third, these predictions are best used for propagation planning, not propagation analysis. For true analysis, you'll have to go to the prediction software itself with all the details on assumed hops, ionospheric region heights, etc.

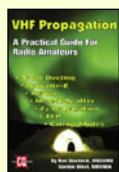
Regardless of these minor caveats, these predictions will let you determine possible openings for just about all your needs. You can buy your own copy of the *N6BV Propagation Predictions* CD from Radioware and Radio Bookstore for \$30.

You can visit their web site at <http://www.radiobooks.com>, or you can contact them via e-mail at radware@radio-ware.com or via telephone at 800-457-7373 (U.S.) or 603-899-6957 (international).

15 Meters: Oct., MA (Boston), for SSN = High, Sigs in S-Units. (c) 2010 Dean Straw, N6BV																									
		UTC -->																							
Zone		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
KL7 = 01		6	-	-	-	1*	1*	1*	-	-	-	-	-	-	-	-	-	-	3	8	9	9	9	9	9
VO2 = 02		-	-	-	-	-	-	-	-	-	-	-	-	4*	6	9	9+	9+	9+	9	8	5	-	-	-
W6 = 03		9	1	-	-	-	-	-	-	-	-	-	-	-	-	8	9	9	9+	9+	9	9+	9+	9+	9+
W9 = 04		9	3	-	-	-	-	-	-	-	-	-	-	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+
W3 = 05		1	2	2	2	2	2	2	2	2	2	2	1	1	1*	-	-	-	-	1	1	1	1*	2*	1
XE1 = 06		7	9+	8	1	1	1	1	2	1	-	1*	-	9	5	9+	9+	9	9	9+	9+	9	9+	9+	9+
TI = 07		8	9+	8	5	5	5	5	3	-	-	-	8	3	9+	9+	9+	9	9	9+	9+	9+	9+	9+	9+
VP2 = 08		9	6	2	1	4	5	4	-	-	-	-	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+
P4 = 09		9+	9	6	5	7	8	7	3	-	-	-	9+	9	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+	9+
HC = 10		9	2	-	-	-	-	-	-	-	-	-	-	9+	9+	9+	9	9	9	9	9	9+	9+	9+	9+
PY1 = 11		9	7	6	7	8	8	8	3	-	-	7	9	9	8	6	5	6	8	8	9	9	9	9	9
CE = 12		9	7	2	5	1	2	2	-	-	-	-	7	9	9	8	7	6	6	8	8	8	9	9	9
LU = 13		9	6	1	1	2	5	5	-	-	-	-	9	9	8	7	5	5	6	8	8	9	9	9+	9
G = 14		-	-	-	-	-	-	-	-	-	-	-	7	9+	9+	9	9	9	9+	9	5	-	-	-	-
I = 15		1*	-	-	-	-	-	-	-	-	-	-	9	9	9	9	9	9	9	9	9	4	1*	1*	1*
UA3 = 16		-	-	1*	-	-	-	-	-	-	-	-	5	8	8	8	7	8	9	8	4	2	-	-	-
UN = 17		1*	4*	1*	-	-	-	-	-	-	-	-	1	8	9	8	7	5	2	3	2	2	1	-	-
UA9 = 18		5*	2*	-	-	-	-	-	-	-	-	-	3*	4	4	1	1*	-	-	-	-	1	1	2*	
UA0 = 19		6	2	-	-	-	-	-	-	-	-	-	5*	4*	3*	1*	1*	-	1*	1*	1*	1*	2	8	8
4X = 20		2*	-	-	-	-	-	-	-	-	-	-	8	8	9	9	8	9	9	9	7	1	1*	1*	2
HZ = 21		1*	1*	1*	1	-	-	-	-	-	-	-	7	7	8	8	7	7	8	8	5	1	2*	4	4
VU = 22		3*	3*	1*	1	-	-	-	-	-	-	-	4	8	8	6	7	4	4	2	2	2	3	2	1
JT = 23		7	2*	-	1	-	-	-	-	-	-	-	4*	5*	4	1	1*	1*	1*	1*	-	-	2	5	
VR2 = 24		4*	3*	-	-	-	-	-	-	-	-	-	6*	5*	7	5	3	2	1	1	2*	2*	1*	4	7
JA1 = 25		7	3	-	1	-	-	1*	-	-	-	1*	4*	2*	1*	1*	-	-	1*	2*	1*	2	8	8	8
HS = 26		5*	4*	1*	-	-	-	-	-	-	-	-	4*	6*	7	7	7	6	5	5	4	3*	3*	5*	
DU = 27		5*	1*	-	-	-	-	-	-	-	-	-	6*	5*	4	8	7	5	4	3	4*	4*	4*	8	7
YB = 28		7*	5*	1*	-	-	-	-	-	-	-	-	6*	7*	8	8	6	6	7	7	7	8	1	2*	8
VK6 = 29		6	5*	4*	2*	5*	4*	4*	-	-	-	5*	7*	3*	1	8	8	8	8	8	5	1	6	8	7
VK3 = 30		4	4	2	-	-	-	-	-	-	-	3*	2*	1*	8	8	6	-	-	5	4	2	4*	4*	4*
KH6 = 31		8	8	2	-	1*	-	-	-	-	-	1*	2*	2*	2*	1*	-	8	9	8	9	8	8	8	8
KH8 = 32		5	7	6	1	-	-	-	-	-	-	1*	3*	3*	9	4	1*	1*	6	6	5	5	6	5	5
CN = 33		-	2*	1*	-	-	-	-	-	-	-	3	9+	9+	9	9	9+	9+	9+	9+	9+	9+	6	2*	1*
SU = 34		1*	-	-	-	-	-	-	-	-	-	2	8	8	8	9	9	9	9	9	8	5	2*	1*	2
6W = 35		2*	-	-	-	-	-	-	-	-	-	9	9+	9	9	8	8	9	9	9+	9+	9+	9+	9	1
D2 = 36		-	-	-	4	8	4	-	-	-	-	8	8	7	7	6	6	8	9	9	9	9	9	9	7
5Z = 37		-	-	1*	-	2	-	-	-	-	-	6	6	6	5	6	8	8	8	9	9	8	9	9	5
ZS6 = 38		-	-	2	4	2	3	-	-	-	-	5	4	2	5	3	5	6	8	8	9	9	9	9	7
FR = 39		-	-	1*	1	1	-	-	-	-	-	4	5	5	5	5	6	8	8	8	9	9	9	9	5
FJL = 40		1	-	1*	-	-	-	-	-	-	-	-	2*	2*	4	6	6	5	5	6	6	5	2	2	1
Zone		00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
		UTC -->																							
		* = Longpath																							
Expected signal levels using 1500 W and 14 dBi isotropic antennas.																									

Figure 3 – Sample Detailed Table

CQ Books & CDs



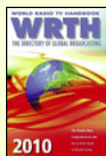
VHF Propagation

by Neubeck, WB2AMU & West WB6NOA

A comprehensive source-book on VHF propagation by two great authors. Includes: Tropo ducting, Aurora, Meteor Scatter, TEP, Sporadic-E, Combo Modes and more!

Order VHF PROP **\$15.95**

2010 World Radio TV Handbook



Up-to-date info on medium-wave, shortwave, and FM broadcasts and broadcasters. Includes articles of interest to both listeners and DXers, reviews of the latest equipment, maps with SW transmitter sites and much more!

Order WRTH **\$35.00**

The NEW Shortwave Propagation Handbook

by W3ASK, N4XX & K6GKU

This authoritative book on shortwave propagation is your source for easy-to-understand information on sunspot activity, propagation predictions, unusual propagation effects and do-it-yourself forecasting tips.



Order SWP **\$19.95**

cds Ham Radio Magazine on CD

Enjoy quick and easy access to every issue of this popular magazine, broken down by years!

ON SALE - only \$54.95 ea.

Three sets, each containing 4 CDs

1968-1976 Order HRCD1 **\$59.95**

1977-1983 Order HRCD2 **\$59.95**

1984-1990 Order HRCD3 **\$59.95**

Buy All 3 Sets and Save \$49.90!

Order HRCD Set

\$129.95 (Reg. \$149.95)



SPECIAL!
Save \$5
on each
CD set

McCoy on Antennas

by Lew McCoy, W1ICP

Unlike many technical publications, Lew presents his invaluable antenna information in a casual, non-intimidating way for anyone!

Order MCCOY **\$19.95**



33 Simple Weekend Projects

by Dave Ingram, K4TWJ

Do-it-yourself electronics projects from the most basic to the fairly sophisticated. You'll find:

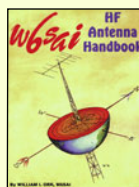
station accessories for VHF FMing, working OSCAR satellites, fun on HF, trying CW, building simple antennas, even a complete working HF station you can build for \$100.

Order 33PROJ **\$17.95**

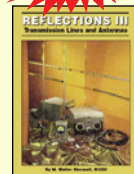
W6SAI HF Antenna Handbook

by Bill Orr, W6SAI

One of ham radio's most respected authors, W6SAI was known for his easy-to-understand, down-to-Earth, writing style. In keeping with this tradition, this book is a thoroughly readable text for any antenna enthusiast, jam-packed with dozens of inexpensive, practical antenna projects that work!



Order HFANT **\$19.95**



Reflections III

by Walter Maxwell, W2DU

Fully revised and updated, this 424-page, third edition is a must have!

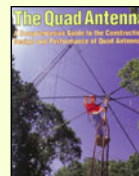
Here's a sampling of what you'll find inside:
Too Low an SWR Can Kill You
The View Into the Conjugate Mirror
Using the Smith Chart
The Line Match Problem
Computer Programs for Impedance Matching
and much, much more!

Order REFLEC **\$39.95**

The Quad Antenna

by Bob Haviland, W4MB

A comprehensive guide to the construction, design and performance of Quad Antennas.



Order QUAD **\$19.95**

Sloper Antennas

By Weigl, OE5CWL

Single- and Multi-Element Directive Antennas for the Low Bands

With calculations and practical experience, this book shows which basic concepts have to be considered for sloper antennas for the low bands. You'll find all the information needed for successful home building of the antennas.



Order SLOPER **\$24.95**

The Short Vertical Antenna and Ground Radial

by Sevick, W2FMI

Small but solid guide walks you through the design and installation of inexpensive, yet effective short HF vertical antennas. With antenna restrictions becoming a problem, it could keep you on the air!



Order SVERT **\$10.00**

Understanding, Building & Using Baluns & Ununs

by Sevick, W2FMI

Successor to the popular and authoritative Baluns and Ununs. Great deal of new tutorial material, and designs not in previous book, with crystal clear explanations of how and why they work.



\$19.95

Shipping & Handling: U.S. & Possessions-add \$7 for the first item, \$3.50 for the second and \$2 for each additional item. **FREE** shipping on orders over \$100 to one U.S. address. **Foreign-**calculated by order weight and destination and added to your credit card.



Dishing Signals to That Big Satellite We Call 'Oscar Zero'

Terry Douds, N8KI

In mid-April, the Arecibo Amateur Radio Club in Puerto Rico did an EME (Earth-Moon-Earth) Test—more commonly known as “moon-bounce”—utilizing the Arecibo Observatory Radio Telescope. At 305 meters (1,000 feet) across, it is one *really big dish*, and puts out a big signal on 432 MHz! Many satellite operators participated in this, and had a great time.

Dr. Joe Taylor, K1JT, wrote about the operation, describing the “wall” of stations calling KP4AO as simply incredible. “A rough estimate suggests that we may have worked something like 20 percent of the callers potentially workable on SSB; 10 percent of those workable on CW, and a few of those workable on JT65 (a digital mode). I guess we’ll have to do it again in due course.”

The KP4AO log contained nearly 240 completed QSOs with some 57 DXCC entities in a total of eight operating hours. The window periods that they had to utilize “Oscar Zero” (as the moon is often called) were small that weekend. Since the telescope cannot be “aimed” per se, signals need to be straight on with the moon to make this happen, so they’re limited on when they can get reasonable bounces from the moon’s surface.

There are many videos available on YouTube showing various reception instances and contacts. One on SSB was well done by N4IP, and can be seen at <http://www.youtube.com/watch?v=SUr1z5XeOE0&NR=1>.

67 Hz PL Applied to AO-51

Just after I submitted my June column, a change was made to AO-51. In early April the controllers applied a 67 Hz PL tone requirement to bring up the downlink with an unsquelched uplink. The transmitter will stay up for a few minutes without hearing another transmission with 67 Hz PL. Consequently, it may seem to be working, then shut down for a few moments. To be safe, if you use AO-51, put 67 Hz PL on your uplink.

AO-51 Into the Shadows

While I’m on the topic of AO-51, over the last couple of months we entered eclipse season, which for the newbies is when the satellite spends a great deal of time in the shadows rather than in direct sunlight, which reduces or stops the battery charging systems.

Eventually the current draw from the satellite brings the bat-



The Arecibo Observatory Radio Telescope – at 1,000 feet across – can put out a big signal on 432 MHz, as demonstrated in mid-April during an EME test that attracted a “wall” of stations, according to Dr. Joe Taylor, K1JT (Courtesy of NASA)

teries to critical levels and operation must be curtailed or stopped unless the bird is in full sun illumination. The eclipse periods were predicted to reach almost 20 minutes in length in July.

AMSAT-NA Vice President of Operations Drew Glasbrenner, KO4MA, enabled the power management software on AO-51. The 435.300 repeater with the new PL mode was programmed to run at 1.01 watt while in sunlight and 290 milliwatts while in eclipse. The low power mode was set to continue after exiting the eclipse until the solar cells recharged the batteries to approximately 7.9 volts.

For this summer eclipse season, the eclipsed periods were while AO-51 was over mostly unoccupied Antarctica and surrounding areas. This means when the batteries alone were supporting the transmitter there were not likely to be any users. The power management software combined with the PL were implemented to protect the batteries from over-discharge while still providing the strongest possible downlink.

If eclipse periods get too long too fast, the repeater might shut off due to a low battery voltage watchdog. Operation observations should be directed to Drew at ko4ma@amsat.org.

Great Videos of AMSAT Activities @ Dayton

The annual bash at Dayton has passed, and AMSAT was there to help satellite operators gain more information about using the birds. Some wonderful videos have been produced show-



This screen shot from a You Tube video shows operators at the station of Pieter Ibelings, N4IP, in Atlanta, Georgia, making moonbounce contact with KP4AO at the Arecibo Observatory Radio Telescope in Puerto Rico in mid-April. (From You Tube video)

ing the weekend's activities.

Here is a link to a video made by David Larsen, KK4WW, at the AMSAT Booth showing the CubeSat mockup and some description of its contents and operation by AMSAT-NA Treasurer Keith Baker, KB1SF: <http://www.youtube.com/watch?v=XZDpyEhw-vI>.

Here is another video from the booth featuring Gould Smith, WA4SXM, showing mockups of ARISSat-1 and discussing the satellite in detail: <http://www.youtube.com/watch?v=VEDfSCw6VcU>.

Watch Keith Pugh, W5IU, and Alan Biddle, WA4SCA, demonstrate satellite operation on the Chinese satellite HO-68 in the parking lot at Dayton. These YouTube videos can be viewed on the SouthGate ARC site at: <http://tinyurl.com/39zhje8>.

AMSAT Fundraising and CubeSat Update

At the show, the Dayton Amateur Radio Association announced a one-for-one match for donations to AMSAT between the time of the show and September 1 – up to a maximum of \$5,000 – but the goal was met by early June. AMSAT is raising funds for another satellite that is known as Project “Fox” – a CubeSat that will be in Low Earth Orbit and provide a 2 meter – 70 cm FM transponder that should match the performance of AO-51, which

is very popular.

CubeSats are ruling the day at the present time, as their design has become somewhat standardized, and their construction costs are low. This type of satellite, at roughly 6 to 12 inches per side, used to be able to be launched as ballast on commercial launches, where they still need some weight to balance a large commercial payload.

Unfortunately, this type of “piggy-back” launching is becoming less and less available, since these satellites are beginning to see commercial applications themselves. Consequently, “paying” customers are getting the priority on launches.

Additionally, Molinya orbit satellites (“high orbit” birds used for DX) need to be launched into much higher orbits than do the LEOs, and need larger launch vehicles like the European Space Agency’s Ariane. To get those launches, we amateurs must pay – upwards of \$3 million these days – so our opportunities to get DX satellites like P3E into orbit are much less likely than are those for CubeSats.

Vietnamese CubeSat Under Development

In mid-May, Vu Trong Thu, XV9AA, in Hanoi announced that a Vietnamese 2U CubeSat is under development. Thu wrote, “We hope to complete the F-1 satellite by the end of 2010 and launch it into Low Earth Orbit. At the moment we

**DIAMOND
ANTENNA**

*The Standard By Which
All Others Are Judged*

**MAXIMUM PERFORMANCE
WITHOUT COMPROMISE**

X500HNA

Diamond Antenna's best base/repeater antenna. Designed for strength and performance, the X500HNA is pretuned to achieve maximum gain in both the 2m and 70cm amateur bands.

X50NA

The X50NA is an excellent choice where ruggedness is required in a medium-gain, dual-band, base/repeater application.

SG7900A & SG7900ANMO

One of Diamond Antenna's® Supergainer® “top of the line” mobile antennas.



For detailed specifications on Diamond's Base & Mobile Antennas, please go to www.diamondantenna.net

Available through selected quality dealers.

770-614-7443



Diamond Antenna
Division

HamRadio Anthologies

Enjoy collections of the best material published in HamRadio magazine, conveniently arranged by subject and original publication date.



Homebrewing Techniques -

Useful and practical advice and techniques for the person who wants to build anything from small solid state projects to beam antennas.

Order AHOM ~~\$19.95~~ **SALE \$18.00**



Test Equipment & Repair Techniques -

Carefully selected to meet today's needs. Techniques and devices that work and are easily duplicated, and gives today's Hams a much-needed helping hand at solving equipment problems.

Order ATEST ~~\$19.95~~ **SALE \$18.00**



Antennas 1965 - 1972

Order ANTS1 ~~\$19.95~~ **SALE \$18.00**

Antennas - 1973 - 1975

Order ANTS2 ~~\$19.95~~ **SALE \$18.00**

Our two Antenna Anthologies cover all types of antenna designs and theory from 160 meters through microwaves.

Shipping & Handling

USA - add \$7 for first book, \$3.50 for 2nd and \$2 for each additional. Foreign- calculated by weight & destination and added to your total.

SPECIAL! SAVE \$27

Buy all 4 for \$15 each and get free shipping! Order 4 ANTS...\$60.00

CQ Communications, Inc.

25 Newbridge Road, Hicksville, NY11801

Call: 516-681-2922 visit: www.cq-amateur-radio.com

Listening is only half the fun...

POPULAR COMMUNICATIONS

is the other half!

The World's most authoritative monthly magazine for Shortwave Listening and Scanner Monitoring. Read by more active listeners world-wide.



You'll find features on scanner monitoring of police, fire, utility, and aircraft communications; international shortwave listening; CB radio; amateur radio; FRS; GMRS; monitoring radio digital communications including CW, RTTY, SITOR, etc; AM/FM commercial broadcasting; weather and communications satellites; telephone equipment and accessories; radio nostalgia; alternative radio; clandestine radio; and military radio.

USA		Canada/Mexico		Foreign	
1 Yr	<input type="checkbox"/> 32.95	1 Yr	<input type="checkbox"/> 42.95	1 Yr	<input type="checkbox"/> 52.95
2 Yrs	<input type="checkbox"/> 58.95	2 Yrs	<input type="checkbox"/> 78.95	2 Yrs	<input type="checkbox"/> 98.95
3 Yrs	<input type="checkbox"/> 85.95	3 Yrs	<input type="checkbox"/> 115.95	3 Yrs	<input type="checkbox"/> 145.95

Popular Communications

25 Newbridge Road, Hicksville, NY11801

Phone: 516-681-2922; Fax 516-681-2926

Visit our web site: www.popular-communications.com

are negotiating with several launch providers to find a way into orbit, but the high launch cost is really an issue. If we can solve the budget issue, we'll be ready to launch our CubeSat in 2011."

The satellite carries several low-resolution cameras to take photos of the Earth along with temperature and magnetic sensors to study space environment. Some of the project goals for the F-1 satellite include:

- + Students' education about aerospace engineering.

- + Demonstrating ways to reduce cost and time developing a small satellite.

- + Surviving in a space environment for at least a year.

The satellite will use amateur VHF and UHF frequencies. The IARU has coordinated a downlink frequency of 437.485 MHz to support a 1200 baud AX.25 telemetry link.

The F-1 satellite will also transmit a beacon using a modulated Morse code audio signal on an FM carrier when it is not in range of the earth station in Hanoi. In case of emergency, DTMF tones can be used to control the satellite.

The F-1 team leader Thu can be reached at: thuvt@fpt.com.vn. The Web page is: <http://fspace.fsoft.com.vn/>.

'One small chat for man, a giant leap for ARISS!'

Of course, I cannot do a column without a mention of ARISS – Amateur Radio on the International Space Station. I usually try to mention where contacts occurred over the past two months, to keep people aware of the fact that this is a worldwide effort – not just a U.S. one.

School contacts were made recently with Texas, Italy, Belgium, Japan, Australia and Canada. However, a new one occurred on April 29, when in-orbit astronaut Soichi Noguchi, KD5TVP, used the ARISS radio equipment to contact Yuusuke Otani and Sakae Kudouh at Showa Base in Antarctica.

This was the first contact ever made between the ISS and Showa Base, 8J1RL. Noguchi remarked on the event, "One small chat for man, a giant leap for ARISS!"

That's a Wrap ...

Well, I'm out of space once again – there is so much happening right now, so if you're thinking about joining the ranks of the satellite operators, this would be a great time! I hope to hear you soon on the birds!



HAMFESTS & SPECIAL EVENTS

AUGUST

MARYLAND – Special event station W1H, operated by the Antietam Radio Association (W3CWC) on Aug. 14-15 in commemoration of Hiram Percy Maxim, W1AW, who married the daughter of the governor of the State of Maryland and is buried in Hagerstown, MD's Rose Hill Cemetery. Frequencies: 14.290, 7.178, 3.902 MHz +/- QRM. Also on W3CWC's two repeaters. Special QSL card for an SASE and contact information sent to WA3EOP (address available at QRZ.com) or to: W3CWC, Antietam Radio Association, P.O. Box 52, Hagerstown, MD 21741.

OHIO – Special event station K8FBN, from the 29th Annual Sweet Corn Festival, Fairborn, Ohio, Aug. 21 and 22. Operations on 75, 40 and 20 meter SSB and PSK-31. QSL to K8FBN, 36 E. Routzong Dr., Fairborn, OH 45324.

COLORADO – Denver Radio Club Hamfest, Aug. 22. Doors open at 8:30 a.m. at the Jefferson County Fairgrounds, 15200 W. 6th Ave, Golden, CO. Technical sessions, amateur license testing (10 a.m.). Talk-in 145.490 or 448.625 (both 100 Hz). Contact Bryan Steinberg, KBØA: drcfest@w0tx.org.

LOUISIANA – Special event station K5R. The Southeast Louisiana Amateur Radio Club (SELARC) will be sponsoring the 5th annual special event station, K5R, to commemorate the anniversaries of Hurricanes Katrina and Rita. Operations Saturday and Sunday, Aug. 28 and 29 from 1400-2000 UTC each day. Club members will be operating on 7.250 and 14.250 mHz (+/- QRM), and also in other areas of the general portions of the HF bands. Please send an SASE for a QSL to: SELARC/K5R, P.O. Box 1324, Hammond, LA 70404. More information: <http://www.selarc.org> or on the Yahoo group site: <http://groups.yahoo.com/group/K5R>.

KANSAS – The Kansas QSO Party, Aug. 28-29: CQ KsQP. Information: <http://www.ksqsoparty.org/>.

SEPTEMBER

NEW YORK – Special event station KC2RA on the air during this year's Kings County Repeater Association's annual 9/11 Memorial Event takes place a short walk from Ground Zero on Friday, Sept. 10 – 1300z-2300z. Operations on 14.295 USB, 14.070 PSK31, 7.250 LSB, D-Star REF020B, Echolink 64300. RF participants send card with SASE for commemorative QSL. KC2RA, POB 280288, Brooklyn, NY 11228. For more information: <http://www.kc2ra.org>.

FLORIDA – Special event station K4MIA, commemorating National POW / MIA Recognition Day. On the air from Sept. 15 -19, 0000Z - 2359Z. Frequencies: 3.885, 7.185, 14.265, 21.300 SSB, 14.070 PSK. The third Friday in September is a day of remembrance for American Prisoners of War and those still Missing in Action. Please take a moment to remember these heroic soldiers. For K4MIA Special Event POW/MIA QSL, send your QSL and SASE to: Michael Bald 6758 Hall Blvd, Loxahatchee, FL, 33470. For information: <http://www.qrz.com/db/K4MIA>.

OCTOBER


NEW YORK CITY - Hall of Science Amateur Radio Club Hamfest, New York Hall of Science parking lot, Flushing Meadow Corona Park, 47-01 111th St., Queens, on Oct. 3. Doors open for vendors at 7:30 a.m.; buyers admitted at 9 a.m. Free parking. Door prizes, Drop and Shop, QSL card checking, food and refreshments. Free admission to museum from 10-11 a.m., or \$6 after that with hamfest ticket. VE exams at 10 a.m. Admission by donation: buyers \$5, sellers \$10 per space. Talk-in: 444.200 MHz repeater (PL 136.5); 145.270 MHz, -600 kHz (PL 136.5). Information: <http://www.hosarc.org>.

NOVEMBER

FLORIDA – South Florida Ham Fest, Nov. 6 from 7 a.m. to 1 p.m. by the Boca Raton Amateur Radio Association at South County Civic Center, 16700 Jog Rd., Delray Beach, FL 33446. Sixty indoor vendor tables, FCC testing, technology forums, EmComm demonstrations, door prizes and more. Talk-in: 145.29 (PL 110.9) and 442.875 (PL 110.9). Admission \$2 at the door, kids 12 and under free. \$10 vendor tables. Contact: Walt Dreyfus, 954-481-5327 or email shhf@brara.org. More information: <http://www.southfloridahamfest.org>.



Have your hamfest or special event listed . . . click here!

from
MILLIWATTS to KILOWATTS
More Watts per Dollar



**Quality
Transmitting
& Audio Tubes**



- COMMUNICATIONS
- BROADCAST
- INDUSTRY
- AMATEUR

Immediate Shipment from Stock

3CPX800A7	3CX15000A7	4CX5000A	813
3CPX5000A7	3CX20000A7	4CX7500A	833A
3CW20000A7	4CX250B	4CX10000A	833C
3CX100A5	4CX250BC	4CX15000A	845
3CX400A7	4CX250BT	4X150A	866-SS
3CX400U7	4CX250FG	YC-130	872A-SS
3CX800A7	4CX250R	YU-106	5867A
3CX1200A7	4CX350A	YU-108	5868
3CX1200D7	4CX350F	YU-148	6146B
3CX1200Z7	4CX400A	YU-157	7092
3CX1500A7	4CX800A	572B	3-500ZG
3CX2500A3	4CX1000A	805	4-400A
3CX2500F3	4CX1500A	807	M328/TH328
3CX3000A7	4CX1500B	810	M338/TH338
3CX6000A7	4CX3000A	811A	M347/TH347
3CX10000A7	4CX3500A	812A	M382

– TOO MANY TO LIST ALL –

ORDERS ONLY:
800-RF-PARTS • 800-737-2787



Se Habla Español • We Export

TECH HELP & DELIVERY INFO: 760-744-0700

FAX: 760-744-1943 or 888-744-1943

An Address to Remember:
www.rfparts.com

E-mail:
rfp@rfparts.com

**RF PARTSTM
COMPANY**



Attn. ARRL: It's Your Anniversary Too, And a Notable Date in Ham History

By Bill Sexton, N1IN/AAM1RD/AAR1FP

Just in case somebody needs an excuse for a party, there's a blockbuster birthday coming up for the amateur radio community in general and the ARRL in particular on Aug. 7. That's the day 85 years ago when the U.S. Army Signal Corps formally recognized the League as spokesman for this country's hams.

"The American Radio Relay League is, in the opinion of this office, fitted to serve as the representative of the transmitting radio amateurs of this country," wrote Maj. Gen. C. McK. Saltzman, the Chief Signal Officer. He invited the League to partner with the Army in forming what's now known as MARS, the Military Auxiliary Radio System.

The ARRL, which had some competition in the early days from another organization trying to recruit amateurs, jumped at the opportunity. It really was a turning point in radio history, not just validating the ARRL's stature but more importantly asserting the national security commitment that justifies the Amateur Service's frequency allocations to this day.

What a grand rationale this anniversary offers the two parents of MARS to sit down once again, as they did in 1925, and re-examine our overall role in the light of 21st Century needs.

Even though nine years have passed since 9/11 there's still no clear definition of who does what, much less who's to coordinate our haphazardly splintered and indifferently utilized capabilities. We wait and yearn for leadership, a lot of us hams, anyway.

If that seems a harsh judgment, go ahead and rough out your own chart showing all the ham entities involved in emergency communications. Then try to figure out how they could ever mount a coherent response to national catastrophe. Don't forget to add REACT, CERT, American Red Cross, Salvation Army and the Coast Guard Auxiliary to RACES, ARES, and the three independent MARS branches. (No doubt there are others.) Who coordinates frequencies? Who sorts and relays situation reports? Talk about a potential for confusion, jammed frequencies, vanishing pieces of information!

Meanwhile, competition for spectrum mounts explosively and agencies increasingly turn to hired hands for services that we hams gladly offer for free but have neglected to package effectively.

More Than One Good Reason for a Get-Together

You don't have to look far for the example of a birthday shrewdly put to work boosting an organization's self-esteem while proclaiming what good work its participants perform.

'A Stumble in Time of War'

"From 1925 to 1941, the Army Amateur Radio System successfully fulfilled the role of providing emergency communications in support of civil authorities' disaster relief efforts. However, the AARS and its parent organization, the Signal Corps, stumbled in time of war . . . The Signal Corps envisioned the AARS constituting a reservoir of radio operators trained in Army radio procedure . . . The organization never grew its membership in large numbers that could provide a difference in fulfilling the manpower gap during wartime mobilization. Finally, there was no mechanism in place to bring the members of AARS on active duty when a crisis [Pearl Harbor] arrived."

– Maj. Scott Hedberg: *The Army Amateur Radio System, 1925-1941*

Visit <http://signal150.army.mil> and share the Army Signal Corps' pride on the occasion of its 150th anniversary back in June. One would think this hullabaloo just down the hall would have rung a bell at Army MARS HQ at Ft Huachuca, AZ, (home of the 9th Signal Command) if not at the Newington, CT head office of the ARRL.

Actually, the bunch of new people who ought to know each other better is reason enough for a party. By coincidence, the League has acquired a new emergency preparedness manager just about the time a freshly-minted Assistant Secretary of Defense who oversees the three MARS branches has launched a study of our operations. Plus two of the MARS chiefs, Army's and USAF's, are new to the job. Great timing for fresh insight and new beginnings.

A Past to be Proud of

Like the Signal Corps at age 150, MARS at 85 has an impressive story to tell. By another coincidence – the birthday wasn't involved in the timing – the whole concept of amateur/military collaboration has just come under expert review.

Maj. Scott Hedberg, AD7MI/ex-AEN5AC, chose the subject for his Master's degree research project at the Army School of Advanced Military Studies, Ft Leavenworth, Kansas. The result, (apart from a second M.A.) is the 78-page first installment of what could yet become the official history of MARS. Hedberg's lucid thesis covers the first quarter-century of MARS' predecessor organization and should be available this

summer for reading on the Web at <http://www.cgsc.edu/carl/contentdm/mmars.htm>.

Let's hope the Army gives career officer Hedberg time to polish and publish the rest of his masterful research, that is, from World War II to now.

In the present document he examines the role of amateurs in U.S. military communications from the beginnings of World War I to the years immediately following World War II, reminding in the process the oft-forgotten fact that all three MARS branches – Army, Air Force, Navy-Marine Corps – had their common origin on Aug. 7, 1925. The original name, Army Amateur Radio System, lasted until Pearl Harbor, when all ham on-air activity ceased.

Wonderful anecdotes abound in his chronicle of the early days.

Brilliant Beginnings on the Home Front

The Army Amateur Radio System wasn't even a year old when a bandit stole "a large sum of money" (the monthly payroll?) from the 122nd Infantry Regiment, Georgia National Guard. The troops were on summer maneuvers on Tybee Island near Savannah with three hams in support plus a fourth manning Guard HQ in Atlanta. How embarrassing! But thanks to

the amateurs' skill with Morse code, police were waiting at the Atlanta rail station 310 miles away when the thief arrived by train. The cash was retrieved.

The next year – 1927 – flooding from a tropical storm ravaged Vermont, with landline communication and rail as well as highway access virtually wiped out. Not disrupted. Destroyed.

The AARS and other amateur responders had a field day in every sense of the word holding the region together, and won great praise. However, the military's insistence on no-holds-barred "After Action" reporting turned up a dozen areas for improvement. As one result, the AARS switched in 1929 to the strict hierarchical structure (districts, states, regions, national) with a clear chain of command that prevails today in contrast to the much more loose-jointed ARES model.

What might be the first instance of what we now call interoperability occurred after a 1932 class at the U.S. Military Academy on use of carrier pigeons. Cadets wrote messages home that were air-lifted by Signal Corps pigeons from West Point to Ft. Monmouth, New Jersey, which at that time was the AARS HQ, for relay the rest of the way by HF radio. (I won't give away the major's account of the first head-to-head race between pigeons and AARS operators the very next year.)

Capturing History Alive

You could say that Maj. Scott Hedberg, whose research on ham history is described in August's MARS column, was born into amateur radio and married into MARS. That is, his father Larry is a longtime ham, KD6EUG, and it was keeping in touch with his wife Christa that initially drew him to MARS just before shipping out to Iraq. (She's a ham too, KI4ODI). That was in 2007. It was his second southwest Asia tour.

After Iraq he got stateside duty at the Training and Doctrine Command, then a promising assignment to graduate education at the Army School of Advanced Military Studies. He chose as his research project the role of amateur radio in support of military communications. His thesis successfully completed, he received the master's degree in Military Arts and Science this summer.

In addition to digging through military archives and ARRL publications going back 95 years he tracked down surviving participants in the pre-World War II version of MARS: Jettie Hill, W6RFF, in Roseville, California; and George Hart, W1NJM, of Hartford, Connecticut, both members of the Army Amateur Radio System; and Sol Sterman, W2JWX, of Brooklyn, New York, former Signal Corps radio operator, and Anthony Isch, N2TS, of Seminole, Florida, former Army Air Corps radio operator.

He also located the creator of the MARS acronym, whose pivotal role is described in the sidebar *How MARS Got Its Name*.

Finding these veterans was "the best part of this whole project," Hedberg said. "They made the history come alive and it was an honor to talk to them."

He also visited the original MARS HQ station at Ft. Monmouth, New Jersey, scouring the archives, taking in the antique radio equipment preserved in the Signal Corps museum, and meeting a group of current MARS members led by Region 2 MARS Director Bill Fitzsimmons, N2LMU/AAA2RD.



Scott Hedberg, the author of a new history of MARS, made some history on his own during his second tour in Iraq. He established a MARS station and helped activate the Baghdad Amateur Radio Club. In this 2007 photo, he put aside his helmet (on top of the AEN5AC rig) and donned Santa's hat to promote free MARSgrams for the troops and their families. Thanks to the coming of cell phones and e-mail, traffic was nowhere near the thousands of messages and phone patches handled during the first Gulf War, but Hedberg single-handedly kept the line open. (MARS photo)

Hedberg's 78-page thesis, *The Army Amateur Radio System: 1925-1941*, will be published on the school's Web site. "I really enjoyed the research process and the journey has sparked many more historical questions about MARS and the Army," he said. "I hope to continue the research, but at a more leisurely pace."

For now, however, he was headed back to the front lines, this time with the 2nd Infantry Division in volatile Korea.

As Hedberg tells it, when the Great Depression plunged the country into despair, the AARS' HF nets were immediately thrust into a frontline role. They provided operational communications for the 2,600 camps of the Civilian Conservation Corps (CCC), many of which were located miles from telephone lines. The CCC coincidentally produced hundreds of new operators. Then, as World War II approached, there was even an overseas mission.

After the Japanese invaded Shanghai in 1937, the AARS leadership found an

American there with a British amateur license – he worked for a car dealer in the multinational city – and recruited him to handle health and welfare traffic for the many entrapped Americans. In the first several months he originated some 2,000 messages for relay back to the States via the AARS.

And Then Pearl Harbor

Disaster response became second nature, culminating during the September 1941 Gulf hurricane when the AARS restored communications along the Texas

coast from Galveston to Corpus Christi. The working relationship that developed then between the Texas National Guard and Texas hams still prospers today, arguably the strongest and most-tested in MARS – in my opinion.

Twelve weeks after that great relief operation, Japanese bombs put an end to ham activity. The AARS went into limbo. How and why it happened is best left for Major Hedberg to tell. See the sidebar *Capturing History Alive*.

I can testify from personal experience, having so often failed at the task, what a spectacular job Hedberg accomplished in mining the resources of military archives, amateur radio publications, various libraries and collections and even tracking down AARS survivors for their stories.

The Army knew what it was doing when it slotted Scott Hedberg for the Military Intelligence Corps, and promoted him from enlisted jammer to commissioned officer.

With 1925-1941 era now taken care of, it's my guess the major is hoarding his remaining treasure of MARS lore for a future book. With that likelihood in mind let me point out a couple of misunderstandings in his thesis.

"In alignment with the 2009 Department of Defense guidance," he writes in the brief introduction to his paper, "the newly renamed Military Auxiliary Radio Service added to its traditional role of providing health and welfare communications to the U.S. military. MARS was refocused to use its membership to provide emergency communications to local, state and federal authorities." (He meant "System" here, not "Service." It's a slip a lot of us make occasionally.)

Demise of the MARSgram

Actually, that refocusing began around 1993 when former Chief Army MARS Bob Sutton met with representatives of the Pentagon's Director of Military Support at Ft. Sam Houston, Texas. Out of this developed a new reporting format called "Essential Elements of Information" that got its first application only weeks later during the disastrous Northridge, California Earthquake of January 1994.

Events confirmed Sutton's foresight; cell phones and e-mail pretty much marginalized the MARSgram and phone patch activity well before the Second Gulf War (2003). Very few of today's members have handled a MARSgram in years, if at all.

BALUN KITS



1:1 Current Balun Kits. Beads slip over the cable, shrink tubing holds them in place. Full legal power. 3.5-1000 MHz. Use two for 160M.

BA-8 fits 1/2" coax.....\$17.50
BA-58 fits 1/4" coax.....\$9.50

+\$8 S&H (for total order) Tax in Calif.

PALOMAR
BOX 462222, ESCONDIDO, CA 92046
TEL: 760-747-3343 FAX: 760-747-3346
email: info@Palomar-Engineers.com
www.Palomar-Engineers.com

CUSTOM TRANSFORMERS




Plate and Filament Transformers
• Hypersil or Grain Oriented DG Cores
• CM Chokes • Inductors • Toroidal Windings

Electronic Products Design, Inc.
919-365-9199 Fax 919-365-7005
www.epd-inc.com • sales@epd-inc.com
2231 Wendell Road, Wendell, NC 27591

VIBROPLEX

The Vibroplex Co. Inc.
2906 Tazewell Pike, Suite A2B
Knoxville, TN 37918 800-840-9973

Morse code keys, parts, accessories, logo items
www.vibroplex.com

THE HF EQUATION FOR SUCCESS

Call For More Info

ISOTRON

Antennas for 160 - 6 meters
NO CLUMSY AND UNSIGHTLY WIRES
Great Performance • Easy Installation

www.isotronantennas.com
wd0eja@isotronantennas.com

Successful Since 1980 **719-687-0650** CC & R Friendly
137 Manchester Dr. • Florissant, CO 80816
BILAL COMPANY

Webster

Since 1974 Your Factory
AUTHORIZED **BIRD** DISTRIBUTOR

115 BELLARMINE, ROCHESTER, MI 48309
Toll Free: 800-521-2333 Fax: 248-375-0121


Optimize Your Antenna With the Field-Proven AntennaSmith™...

TZ-900 Antenna Impedance Analyzer
Designed for the field - portable and easy to operate with quick tuning and a high-resolution color display.



FREE ARRL Antenna Book with every TZ-900

... and Kill the Noise with the ANC-4 and DSP-599zx!



■ DSP-599zx Audio Signal & Noise Processor
■ ANC-4 Antenna Noise Canceller

See our TNCs & the HamLink™ family on our website

Upgrades for PK-232, DSP-599zx & more!
Call Us Now!

TIMEWAVE

Available at:
♦ Universal Radio
♦ AES
♦ HRO
♦ Radio City
♦ R&L Electronics

651-489-5080 Fax 651-489-5066 sales@timewave.com www.timewave.com
1025 Selby Ave., Suite 101, St. Paul, MN 55104 USA

Further setting the scene, Hedberg's introduction also states that soon after the Haiti Earthquake last winter "MARS deployed a team of civilian radio operators to Port-au-Prince . . . to facilitate emergency communications between military, medical, and non-governmental relief efforts."

The fact of the matter is that MARS has no authority for deploying its members anywhere, at home or abroad. It's a very sticky point, legally. Members may volunteer on their own initiative to operate away from their homes, but MARS HQ cannot order them to do so. The volunteers in Port-au-Prince were invited by hospitals and had no direct military support task.

Such nitpicking notwithstanding, Hedberg should be encouraged to extend his analysis of MARS past the Second World War into the epoch of 9/11 and Katrina. The Army Amateur

How MARS Got Its Name

It was 1947, in the brief window of peace separating World War II and the Korean War, and somewhere in the Pentagon it was decided to revive the prewar organization of civilian radio amateurs supporting the armed forces. Capt. Robert L. Gabardy drew the assignment.

He not only breathed new life into the dormant Army Amateur Radio Service, he gave it a new name: MARS.

"Since the Air Force was a potential participant, we could no longer call it the Army Amateur Radio System and the term 'Military Affiliate Radio System' (MARS) was selected," he explained in a 1998 letter to QST. "Since Mars was the Roman god of war, the acronym seemed subtle and accurate."

Sadly, Captain Gabardy just missed commemoration of the 85th anniversary of the AARS-MARS's founding on Aug. 7, 1925. On March 23, 2010, he passed away in Fountain Hills, Arizona. He was 88.

The story of how MARS got its name ironically became public knowledge because a former ARRL staffer, writing about pre-war traffic handling in the June 1998 QST, mourned that the AARS "ceased operation in 1941, never to be revived."

Not quite so, responded Garbardy in the Oct. 1998 QST letters column.

"The military recognized the value of having a pool of trained radio operators based on its World War experience," he said, "so it set about in 1947 to reestablish the AARS. I was assigned the mission.

"The office that was set up to handle the new mission consisted of an engineer, a secretary, and myself," he wrote. "The engineer was Al Hart . . . who was one of the pioneers in ham radio in the 1920s . . . Al was also the person who jumped at the idea of setting aside surplus communication equipment for members of the MARS . . .

"From our office on the fifth floor of the Pentagon, we operated the first Amateur Radio station from that building, using my callsign at the time - WØBFO - and a twin-lead antenna just 18 inches off the building roof. We worked the world on 10 meters," he said.

Although Gabardy missed the anniversary, he did live long enough to be interviewed by Maj. Scott Hedberg for his MARS history project.

That first MARS station, by the way, is still alive and well on the Pentagon's fifth floor, but with the very latest radio and antenna gear.

4x HIGHER OUTPUT POWER FOR \$249?

The Ten-Tec 715 RF Speech Processor provides up to 4x higher average SSB output power on any HF transceiver!

Click here for details



TEN-TEC
The SSB Company

www.tentec.com

1 (800) 833-7373

Visit Your Local RADIO CLUB

CALIFORNIA

Fresno Amateur Radio Club - Meets 2nd Friday/monthly, 7 PM at Cedar Lanes bowling alley, Cedar and Shields in Fresno. Net Sunday at 7 PM on W6TO/R, 146.94 (-) PL 141.3hz. Tech Net Wednesday at 7 PM on W6TO/R www.W6TO.com; W6TO@ARRL.net. Contact Ken, WA6OIB @559-323-6753
12/10

ILLINOIS

North Shore RC - www.ns9rc.org - is one of Chicago's largest/most active radio clubs. Meetings feature a wide variety of amateur radio topics and are normally held on the second Tuesday of each month at 7:30 PM, the Heller Nature Center, 2821 Ridge Rd., Highland Park, IL. Regular weekly net is held on Thursday night at 8:00 PM on the 147.345+ (107.2) and 442.725+ (114.8) repeaters. Club's other repeaters include: 224.32- (110.9), D-Star 442.09375+ and 1292.20- voice and 1242.20 data. Provides licensing classes, exams and help to new hams.
11/10

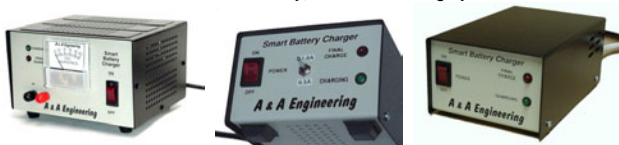
VIRGINIA

Williamsburg Area Amateur Radio Club (WAARC) meets on 2nd Tuesday of each month at 7PM at James City County Library, 7700 Croaker Rd., Williamsburg, VA. Talk-in on 146.76 (~). Contact Ken, NU4I at 757-564-7731 or nu4i@arri.net. Website www.k4rc.net
03/11

Click here to have your club listed!

Smart Battery Chargers For Gel-Cell or Lead Acid Batteries

May be left connected indefinitely, will not overcharge your batteries



Small models for QRP and 5A model for Heavy Duty Deep Cycle Batteries
KITS and Assembled units with various cable & solar options, see website

www.a-a-engineering.com



A & A Engineering



2521 W. LaPalma #K • Anaheim CA 92801
(714) 952-2114 • FAX (714) 952-3280

REFLECTIONS III

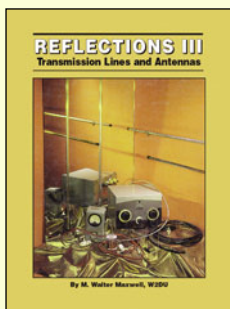
Transmission Lines and Antennas

by M. Walter Maxwell, W2DU

Includes info in
Reflections I & II
and much more!

Here's a peek inside:

- ◆ Too Low an SWR Can Kill You
- ◆ View into the Conjugate Mirror
- ◆ Using the Smith Chart
- ◆ Low SWR for the Wrong Reasons
- ◆ Standing-Wave Development and Line Impedance
- ◆ The Line Match Problem
- ◆ Computer Programs for Impedance Matching
- ◆ How Does a Transmatch Work?
- ◆ Some Aspects of the Balun Problem
- ◆ The Quadrifilar Helix Antenna
- ◆ Dispelling New Misconceptions Concerning
Wave Interference in Impedance Matching
- ◆ Antennas in Space from an Historical
and Archival Perspective . . . and more!



This 424-page, fully revised and updated
third edition is a must-have!

FREE
Shipping &
Handling with \$100
purchase!

Order today for only **\$39.95**

Shipping & Handling: U.S. & Possessions - add \$7 for first item, \$3.50 for second and \$2 for each additional.
FREE shipping on orders over \$100.00 (merchandise only). Foreign-Calculated by order weight and destination
and added to your credit card charge.

CQ Communications, Inc., 25 Newbridge Rd.,
Hicksville, NY 11801

www.cq-amateur-radio.com

Order Toll-Free 800-853-9797



Radio System became MARS, thanks to a Capt. Robert L. Gabardy who with two helpers undertook the task of reviving the organization after its near-death experience. But then MARS and the ARRL's parallel EmComm activities pretty much went their own ways, seemingly oblivious to both the common heritage and shared mission.

The same tunnel vision prevailed as MARS morphed into separate Army, Air Force and Navy-Marine Corps branches. Result: competition and duplication, both between the League and MARS and among the three quasi-independent MARS branches, plus everybody's resistance to coordination that inevitably led to depleted resources for all concerned.

In Case There's a Party

Some mighty sizeable issues are ripe for discussion if MARS and the ARRL and their governmental partners somehow get together for an 85th year commemoration. There's the long-ignored need for a joint command mechanism to replace the three separate chains of command in MARS.

Also, the mostly imagined competition and not-so-imaginary overlap between ARRL and MARS EmComm network activity needs to be rationalized so the two don't trip all over each other in a disaster. And instead of talking vaguely of "interoperation," the whole emergency management community must begin fitting amateur responders into the professional response architecture the same way part-time volunteer firefighters are legitimized and utilized throughout the public safety world.

Like the firefighters, hams aren't a problem for the EMA leadership, they're the solution. The problem is runaway budgets, obviously, as EMA fulltime staff expands despite the fortunate rarity of the "E" (emergencies) to "M" (manage).

Off to the side, MARS could offer ARRL members some excellent openings for broadening their expertise in government communications. Army MARS membership is down to around 1,000 compared to the 2,800 members reported only three years ago. Operator and leadership opportunities abound, and truly, MARS is a great place for expanding one's operational and/or technological horizons.

With fresh leadership stepping forward at the Pentagon, at Newington and in MARS itself, there could hardly be a better time for new beginnings. Even at age 85.

—Bill Sexton, NIIN

Corrections

Two captions with the *News Analysis* under the headline 'After Action' Report from Haiti in the May 2010 *WorldRadio Online* contained errors.

— In the photograph of the Army Military Auxiliary Radio System station on Page 18, the operator sitting to the right of Gary Mentro, N3OS/NNNØEKB was misidentified. He is Bill Williams, AG4QX/NNNØYTD, a Navy-Marine Corps MARS member from Tampa, Florida.

— On Page 16, a severed wire shown with a GAP Titan antenna at the University of Miami Hospital's field installation was erroneously identified. It is part of a feedline.

In the *Author's note* accompanying the Haiti package under the headline *The Big Picture: Amateurs and Organizations Team to Make a Difference*, WX4NHC/UMH team member Julio Ripoll's call sign was incorrect. He is WD4R.



The Rules Say...

John B. Johnston, W3BE

No Message Privacy

Q When the control operator of an amateur station is handed an encrypted message from one government agency for delivery to another, can it be passed compliantly in a packet message?

A. No. While Part 97 does not address encryption by that term, Section 97.113(a)(4) prohibits the transmission of messages encoded for the purpose of obscuring their meaning. Although there are three exceptions, they do not exempt encrypted messages.

The first is in Section 97.211(b) which authorizes a telecommand station to transmit to a station in space operation special codes intended to obscure the meaning.

Secondly, Section 97.215(b) says that the control signals transmitted to a model craft are not considered codes or ciphers intended to obscure the meaning of communications.

Lastly, Section 97.217 provides similarly for the transmission of telemetry (measurements at a distance from the measuring instrument.)

W3BE-O-GRAM: Obscuring the meaning of transmitted messages – except for the above exceptions – is out of place in our internationally wide open self-policing amateur radio service.

Q. Then how can we use our ham stations compliantly to intercommunicate in privacy?

A. Not attainable. Other than the three exceptions above, there is no basis in the rules for any expectation of message privacy.

W3BE-O-GRAM: Our amateur service is not for secretive intercommunications. Section 97.3(a)(4), rather, says it is for the purpose of self-training, intercommunication and technical investigations carried out by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest.

Q. Can we intercommunicate in the railroad American Morse code?

A. No, not on our amateur service bands. Section 97.305(a) says “Except as specified elsewhere in this part, an amateur station may transmit a CW emission on any frequency authorized to the control operator.” Section 97.3(c)(1) specifically defines the term CW as “international Morse code telegraphy emissions” having certain specified designators: those with A, C, H, J or R as the first symbol; 1 as the second symbol; A or B as the third symbol; and emissions J2A and J2B. There is no provision for any other telegraphy code, including the American Morse.

International Morse code is defined in Section 97.3(a)(27) as “a dot-dash code as defined in ITU-T Recommendation F.1 (March, 1998), Division B, I. Morse code.” In other words, international Morse code is a specifically defined code. American Morse code is a different telegraphy code – not authorized in Part 97.

That elsewhere exception in Section 97.305(a) refers to our secondary status in the 60 meter band. Section 97.303(h) limits amateur stations to phone emission type 2K8J3E on specific channels. Those restrictions enable the primary users of those channels to ascertain the call sign of any amateur station transmission that causes interference to their communications.

Q. The definition of CW is “international Morse code telegraphy.” Couldn’t we communicate in American Morse as data using an unspecified digital code, thereby complying with the requirements of Section 97.309?

A. No. Your end-around trick play would work only in the unlikely event that the emission type is actually telemetry, telecommand or computer communications having the designator for such as specified in Section 97.3(c)(2).

W3BE-O-GRAM: After years of listening to the tweedle-tweedle sounds of RTTY, hams claim to be able to recognize by ear certain characters; RYRYRYRY, for instance.

Q. I’ve mastered the Japanese telegraphy code. Can my station transmit that?

A. No. Section 97.305 means what it says. If you want to communicate in some telegraphy code other than our authorized international Morse, the appropriate route is to make your arguments known to the FCC in a petition for rulemaking to authorize such.

W3BE-O-GRAM: Be sure to include a discussion of the increased monitoring challenge to our amateur volunteers.

Q. I can’t believe the FCC intends to outlaw other telegraphy codes when it permits all those other digital modes.

A. Believe instead that the rules mean what they say: international Morse code CW telegraphy only.

W3BE-O-GRAM: The W3BE crystal ball is in the shop for cleaning. It had become way too unreliable in predicting what government agencies intend.

Q. If it is prohibited to make an autopatch on a repeater transmitting under automatic control, or to participate through an automatically controlled repeater in a CW or phone traffic net handling third party traffic, those rules are being violated all across the country every day.

A. Section 97.115(c) says that no station may transmit third party communications while being automatically controlled except a station transmitting an RTTY or data emission. It would not be compliant, therefore, for a repeater to be automatically controlled while transmitting CW or phone emission third party communications.

W3BE-O-GRAM: In this locality, at least, our repeaters do not seem to be experiencing the violative behavior that you report. It is not unusual, rather, for a QSO to be terminated in order for the user to answer a cellular telephone call.

Q. How then is a phone patch to a non-ham on an automatically controlled repeater permitted?

A. It really isn't feasible compliantly. The person on the telephone – ham or non-ham – would be participating in stating the third party message. Section 97.115(b), however, only authorizes such to occur where the control operator is present at the control point and is continuously monitoring and supervising the third party's participation.

For a tutorial on this topic, read BE Informed No. 7 All About Third Party Communications.

Q. Then how can a non-ham initiate a third-party RTTY or data type emission message transmitted by an automatically controlled station?

A. That message would be initiated at a station participating in a message forwarding system. Section 97.219(a) authorizes any amateur station to partic-

ipate in such a system, subject to the privileges of the class of operator license held. Section 97.221 says that a station may be automatically controlled while transmitting an RTTY or data emission on the certain bands provided certain conditions are met.

Section 97.219(b) says that - for stations participating in a message forwarding system - the control operator of the station originating a message is primarily accountable for any violation of the rules in Part 97 contained within the message. Paragraph (d) says that for stations participating in a message forwarding system, the control operator of the first forwarding station must:

(1) Authenticate the identity of the station from which it accepts communications on behalf of the system; or

(2) Accept accountability for any violation of the rules in this part contained in messages it retransmits to the system.

For stations participating in a message forwarding system, Paragraph (c) says that the control operators of forwarding stations that retransmit inadvertently communications that violate the rules in this part are not accountable for the violative communications. They are, however, responsible for discontinuing such communications once they become aware of their presence.

W3BE-O-GRAM: These accommodations make possible our complex digital systems, notably packet switching. They are not to invite non-amateur operators to share our frequency bands.

Q. What specific 70-cm channels should I use for a point-to-point link between my hand-held and the relay station in my car to access a 2-meter repeater?

A. Select from those that would ensure your station being compliant with Section 97.101(b): Cooperate in making the most effective use of our frequencies. Ask the frequency coordinator in your area for its recommendation. Repeater systems frequently use the 70-cm channels for their auxiliary stations, down-linking from remote receiving sites.

Q. What is a frequency coordinator?

A. Section 97.3(a)(22) says it is an entity, recognized in a local or regional area by amateur operators whose stations are eligible to be auxiliary or repeater stations, that recommends transmit/receive channels and associated operating and

COAX-SEAL
"The Original Connector Sealant"

MOISTURE PROOFS ALL COAX CONNECTORS
Universal Electronics, Inc.
4515 Little Savannah Rd • Cullowhee, NC 28723
(828) 293-2222 • FAX: (828) 293-2221
www.coaxseal.com

JAMES E MACKEY
PHILATELICS, STATIONERY

OVERSEAS POSTAGE
AIR MAIL ENVELOPES

P.O. BOX 270569
WEST HARTFORD, CT 06127-0569
(860) 521-7254
web site: <http://www.net1plus.com> e-mail: k3fn@aol.com
users.ryoung/index.htm

1-585-591-8149
Custom Ham Hats
Only! **\$14.99 + S&H**
Exclusive EMBROIDER for Amateur Radio Operators!
www.pennystitch.com

Licensed 1985 or Earlier?

QCWA invites you to join with those distinguished amateurs licensed 25 years or longer. Request an application from:

QCWA, Inc., Dept. WR
PO Box 3247
Framingham, MA 01705-3247
www.qcwa.org



Synthetic Paper • Tear Resistant
Rugged Waterproof
All Weather Amateur Radio Log Book
ASA Inc. P.O. Box 454 • Glenwood, NJ 07418
WaterProofLogBooks.Com



W2IHY Technologies Outstanding Transmit Audio Is Our Specialty

8 Band EQ
W2IHY 8 Band EQ & Noise Gate Thousands of Satisfied Users Worldwide



Add the legendary W2IHY 8 Band Equalizer And Noise Gate to your shack and get ready for great audio reports! From smooth rag-chew audio that makes them ask what you're running ... to penetrating DX/Contest audio that gets results, wide-range adjustability is at your command. Noise Gate reduces background noise for a cleaner, more effective signal. Universal Interface lets you use most any microphone with any radio including classics. I-K-Y selector for plug-n-play with popular brand micro-phones. Switched outputs for 2 radios. Headphone Monitor. RFI protection.

EQplus By W2IHY
Premium Audio Processing



Did you turn on an amplifier? Your signal is loud and squeaky-clean. EQplus users hear that report all the time. Compressor/Limiter increases talk power without the distortion and restricted frequency response of ordinary speech processors. Dual Band EQ, Downward Expander for noise reduction, Effects for psychoacoustic magic. LED Bar Graph. Front panel controls. Universal Interface matches most all mics, all radios. I-K-Y mic selector. Switched outputs for 3 radios. Headphone Monitor. RFI protection. Powerful stand alone system or combine with W2IHY 8-Band EQ for maximum adjustability.

Products purchased from W2IHY include 30 Day Money Back Guarantee and 3 Year Parts/Labor Warranty. Top-rated Product Quality, Technical Support and Customer Service.

Awesome Audio Demonstrations
www.w2ihy.com

845-889-4253
email: julius@w2ihy.com
order online at www.w2ihy.com

W2IHY Technologies Inc.
19 Vanessa Lane
Staatsburg, NY 12580



technical parameters for such stations in order to avoid or minimize potential interference.

Q. Who “owns” the frequency coordination? Is it our club or is it the license trustee?

A. The FCC rules do not address your question. The FCC, moreover, does not regulate our coordinators.

W3BE-O-GRAM: The definition in Section 97.3(a)(22) addresses coordination in the context of stations.

Q. If our trustee moves the repeater elsewhere and we continue operating a different machine on the same channel, who would the FCC consider the coordinated party?

A. The FCC would consider the station coordinated by the frequency coordinator recognized in your local or regional area by those amateur operators whose stations are eligible to be a repeater station.

Q. What regulation authorizes an official body in your country to organize radio examinations?

A. Title 47 of the U.S. Code of Federal Regulations Section 97.509(a) says that each examination for an amateur operator license must be administered by a team of at least three volunteer examiners at an examination session coordinated by a volunteer-examiner coordinator.

APPRECIATION



Our R&R Superham-of-the-Month...

is Ed Redington, now W3NZ, shown at the Virginia Beach Hamfest. Congratulations, Ed!

Read the rules - Heed the rules

Visit <http://www.w3BEInformed.org> for links to rules and information sites. E-mail your questions about the amateur service rules to john@johnston.net.



Celebrates its 65th Anniversary!



CQ is devoted entirely to the things that Hams care about. It's a fine blend of technical ideas and projects, news and reviews of new Ham products and operating information, written and edited by a group of people who are absolutely crazy about this hobby!

SUBSCRIBE TODAY!

	USA	VE/XE	Foreign
1 Year	\$36.95	\$49.95	\$61.95
2 Years	\$66.95	\$92.95	\$116.95
*3 Years	\$96.95	\$135.95	\$171.95

Best Deal!

Here's a peek at CQ's August issue:

“From Zone 2 Canada, This is VE2DXY”

Operating a Contest Expedition for CQ WW SSB

Results of the 2009 CQ WW DX SSB Contest

The 2010 Dayton Hamvention Safari - Part - 1



Click here to subscribe online!

CQ Amateur Radio

25 Newbridge Road

Hicksville, NY 11801

Phone 516-681-2922

www.cq-amateur-radio.com



Stand and Be Proud: DXers Are Different

By Kelly Jones, NØVD

While trying to work the recent E4X DXpedition to Palestine, I found myself shaking my head (and yelling at the radio on occasion) at the poor behavior of other hams.

The amount of jamming, intentional carriers, foul language and just plain rude operating procedures of our "DX Brothers" made me want to turn off the radio and do something else.

Perhaps it's age that has changed my view, but I don't seem to recall the lack of consideration being as bad even just a few years ago as it is today – especially when a rare one comes on the air.

Now, don't get me wrong – I understand feeling the need to work a DXpedition, especially a rare one, as quickly as you can. I understand that not putting them in the log sooner rather than later can lead to frustration. Frustration can then lead to desperation. Desperation can then lead to inappropriate behavior. However, keep in mind that once things get out of control, it just makes things worse for everybody, including yourself.

Having heard the mayhem that was occurring, I recalled some words of wisdom that Paul Dunphy, VE1DX, had written a few years ago. His story still holds water today – perhaps even more so:

There are advantages to living on a hillside. We had often wondered if fate had a part in this when we had picked this particular QTH many years ago. Beaming east, we had a clear shot at Europe, and any DX that raised its head out of the trenches was usually in the log within minutes.

We soon learned, however, that the DX that exists in the Pacific, far out in those distant lands over the western horizon, had better be coming in long path. For try as we might, beaming into solid rock has its disadvantages. There is balance in nature.

We also found that living on a hillside provided two different perspectives on DX knowledge and advice. We learned to anticipate the Old Timer making his way down the hill from time to time, often stopping in to discuss many things, but mostly DX. And, even more often, we found that the local QRPer made their way up the hill, seeking answers to DX questions or offering suggestions on how things might be improved.

Again, we had to reflect on the balance nature had provided in this area. Just the other day, we were thinking about this when one of the locals came up the hill to talk of DX and DXers.

"Maybe you can tell me something," he said, after finding himself a comfortable chair on the verandah. "When I first started DXing, things were different than today. I realize that things change and that technology is far different today than it was even five years ago. But there is a fundamental change in DXers. All they do now is fight on the Internet and on the DX

clusters. It seems to me that DXers spend more time sending rude e-mail and playing 'one-upmanship' than anything else. Why is this?"

We thought about what the QRPer had asked and we were at a bit of a loss as to where to begin. We were beaming west on this one . . . for on the surface the QRPer seemed to have a point.

Just as we were about to give it a shot, we saw the Old Timer making his way down the hill. As usual, he stopped and drew up a chair. In hindsight, he may have wished he had kept on going.

The QRPer turned his attention to the Old Timer and repeated the question. We heaved an inward sigh of relief. The relief pitcher was on the mound!

The Old Timer thought for a moment and then replied, "Why is this? You really don't know?" The QRPer shrugged and said slowly, "No, not really. I don't know. When I first got on the air, things were a lot different, that's all I know. I want to know what has changed. What made the DXers change so radically?"

The Old Timer took a deep breath. It was clear that the answer was obvious to him and he couldn't see why the QRPer was even asking the question. "Do you remember Bill, W7PHO?" he began. The QRPer nodded enthusiastically. "I sure do! He may have run a DX net, but he ran a tight ship. A real DXer." The Old Timer continued, "Then you remember Lloyd and Iris Colvin too, right? And Don Wallace, W6AM? And how about Dick, WØMLY? Remember when they all were active on the bands?"

"Yes, of course I do", the QRPer replied, "and they all were great DXers. That's my point. What has changed?"

We were starting to see the Old Timer's point, but it was clear the QRPer wasn't even getting a glimmer. The Old Timer continued on: "Do you remember Gus, W4BPD?" The QRPer shook his head. "No, but I read all about him and I heard the stories of the times when he activated all the rare ones. He was a true blue DXer, just like the others you mentioned. All this has changed. Why?"

The Old Timer simply wasn't getting anywhere, but he continued on anyhow. "OK, how about Dick Spenceley, KV4AA, and Stew Perry, W1BB who carried the word for 160 DX for so many years. And the great DXers who are still active, like Wayne Mills, N7NG . . . remember when he was on from Clipperton? How about OH2BH? Martti's been everywhere, and some places twice or even three times. And the DX Bulletins. Do you remember Harvey McCoy of the Long Island DX Bulletin, Bob Winn of QRZ DX and Hugh Cassidy of the West Coast DX Bulletin? And what about Chod Harris, VP2ML, and The DX Bulletin? And do you recall that time the three of us went to Dayton and we met Bob and Ellen White?"

What about Ron, ZL1AMO? Did you ever work Reinhard, DL1UF, and Boulder, DJ6SI? Did you know that Kan, JA1BK is a member of the DX Hall of fame? And how many times have you heard Al Hix, W8AH, blast his way through the pileups?"

"Yes, yes! I remember all that. And everyone you mentioned was, or still is, a true blue DXer! Every last one of them. Why I even recall some of the guys at the club talking about a fellow named Don Miller who was a great DXer in the early days . . . but they said nobody could explain or understand him."

The Old Timer held up his hand and stopped the QRPer. "He was a special case and someday I'll tell you about Don. But right now you have to concentrate on those we've already discussed. There are many more, but these are enough to make the point. Now do you understand?"

"Understand what?" the QRPer replied, "I understand all these hams were, or still are, great DXers. Some went on DXpeditions, some worked everything that moved, and some did both. But I don't understand why all the DXers stopped this and have taken up fighting on the Internet. That was my question and, while you've brought back a lot of great DX memories, you haven't answered my question. Why have all the DXers changed?"

The Old Timer was not to be deterred. "But I have answered your question, son. These ones you say are fighting and arguing on the Internet and DX clusters. Do you remember their calls? What are their DX totals? How many DXpeditions have they been on?"

The QRPer sat back and stared at the two of us like he had just been clubbed between his beady little eyes. It took a few moments for it to sink in. "I don't remember their calls," he said slowly, "I don't think I've ever heard any of them on the air, either." He shook his head slowly as realization set in. "They aren't very active, are they?"

The Old Timer looked right back at him and replied, "No, not at all. They don't have the time. They are not DXers. DXers work DX! DXers tune the bands. DXers go on DXpeditions. And DXers use the Internet and DX clusters to exchange DX information. And that is why they are different. Subscribing to a DX Reflector does not make you a DXer! No more than subscribing to a DX Bulletin made hams DXers in the early days."

The QRPer was starting to understand. "You're right!" he chimed in, "absolutely right. Why didn't I see it before? DXers haven't changed at all! Not one bit. I was mixing up DXers and non-DXers."

The Old Timer looked at him for a minute or so and then gave the final pitch. "The road to understanding is often slow and not always straight. But this afternoon you've made a leap forward. DXers are an unusual bunch," he continued, "and true blue DXers are the top echelon of amateur radio."

"They are the ones who establish friendships that bring so many together from around the world. And they do this even though most will never meet face to face, but nevertheless they are close. They don't argue and fight on the Internet or anywhere else. Those who do are not DXers! They may claim to be, but they are not, and they never will be."

"You are a DXer, son! Stand tall and be proud. Understand this but don't try to extend this understanding to one of these argumentative types who is not a DXer. It is a waste of time and energy."

"Let them fight it out on the DX clusters and on the Internet. You are different. Always remember that and don't let

anyone tell you otherwise!" And with that he stood up, looked at us for few seconds and then made his way down the hill and over to the DX club meeting.

Son of a gun! It was hard to find fault with the Old Timer's thinking. Most DXers, when they stop and think about it, can find instances where because they were a DXer and DXing was a way of life that they did things, or refrained from doing things, not often done by non-DX types.

We had known this Inevitable Truth but had never thought it applied to the situation the QRPer had described. When the Old Timer speaks, it is like the fireworks over the Potomac on the 4th of July! DX IS!

That's it for this month's column. A special thanks to Paul Dunphy, VE1DX, for reminding us that as DXers, we should adhere to a higher standard. I look forward to hearing your comments, complaints or whatever is on your mind. If you have a story or opinion you would like to share, please send it to me at n0vd@dxcentral.com. I'll do my best to include it in and upcoming column. Look for me on Facebook or Twitter and until next time, see you in pileups!

handhams

Ham Radio for people with disabilities since 1967

• License manuals and books on tape

COURAGE HANDI-HAM SYSTEM

763-520-0511 hamradio@courage.org

3915 Golden Valley Rd., Golden Valley, MN 55422



Real Hams Do Code

Learn code with hypnosis today.

Download Now!

www.success-is-easy.com

800-425-2552

Success Easy 160 W. Camino Real, Ste. 128 Boca Raton, FL 33132

The DX Store

Amateur Radio Equipment for DXers!



Whether you're operating from halfway around the world or just up the hall from your living room, you want equipment you can count on to perform... You want



sales@dxstore.com

www.dxstore.com



The Power of Demonstration: Our Top Recruiting Tool

Devere "Dee" Logan, W1HEO

Ask any group of radio hams how they became interested in our hobby and they'll probably recall the details of their first personal demonstration of amateur radio. Experiencing first hand the excitement of chatting with someone in a faraway country or simply across town can be very impressive. Who can forget the name of their "Elmer," and the exact circumstances of that memorable event?

As most marketing professionals say, personal experience with a product is often the important first step in making a sale.

And so it is with amateur radio. A person-to-person contact is a powerful beginning to sparking an interest in joining our ranks.

Each of us can become a personal ambassador for amateur radio by offering to demonstrate it in action. The spark can be ignited during casual conversations in which we share some interesting radio anecdotes from our own experience.

Think of the many opportunities we have to do this. Wherever there's a casual gathering, opportunities await. At work, with friends, relatives, at social events, in the neighborhood, club meetings and many other places we can plant the seeds of potential interest.

"I had an interesting chat with a fellow ham in England last weekend," you might say. "He was explaining the rules of cricket, and I was comparing it with baseball."

Never underestimate the power of unique personal experiences such as this.

Following such a comment might be a personal invitation to visit our shacks for a personal demonstration.

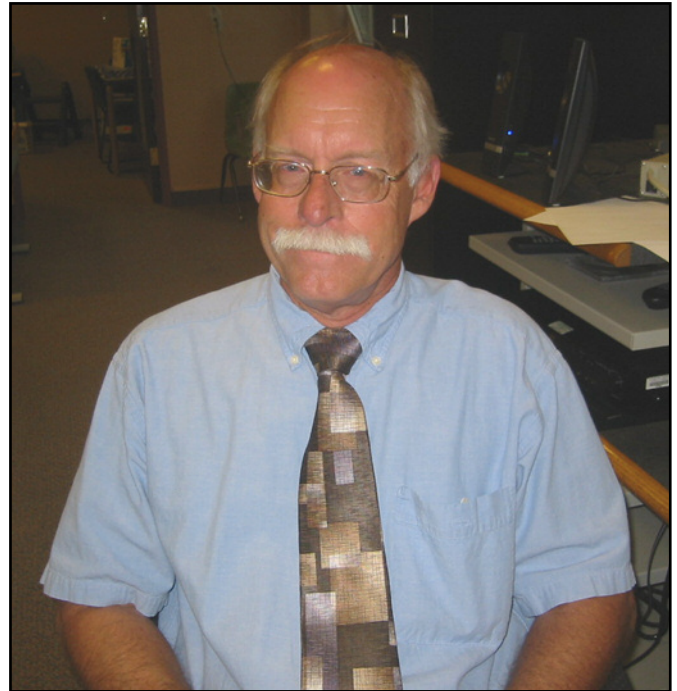
Radio clubs have a wonderful opportunity to demonstrate on-air operations during the annual ARRL Field Day. Not only does it showcase our radio service, but it also can promote club membership.

An educator's view

We asked Bill Wihebrink, N8IJG, Program Specialist for Technology in the Cleveland Heights, Ohio, school district, about getting young people interested in amateur radio. Note his emphasis on personal demonstration.

Young people are used to high technology with cell phones and text messaging, so how should we present ham radio?

N8IJG: I believe that displaying our hobby to youth through hands-on events and activities that allow actual participation is the most important key. An event like Kid's Day is an activity allowing us to inform the public sector about another aspect of using a communication tool beyond MySpace, Twitter and other Internet networking sites. We shouldn't confine this to a clubhouse or club station, but rather set up stations in a public arena where the youth, parents and passers by can experience the various modes of communication.



Bill Wihebrink, N8IJG, Program Specialist for Technology in the Cleveland Heights, Ohio, school district.

You've been involved in hosting an amateur radio Kid's Day, so what have you observed during those events that attract young people?

N8IJG: The biggest draw to the event is the unknown. Most students have heard of amateur radio, but most want to find out what the hobby is about and what it can offer. Students and parents can walk around the different stations and talk with operators who explain their communication mode, answer questions, and allow them to operate a station.

What approach doesn't work?

N8IJG: So far, I haven't found anything that doesn't work with our youth. The hurdle is notifying the public about the event. I've created and distributed fliers, which has been effective.

What role does an "Elmer" play in today's environment?

N8IJG: I feel that Elmers today have just as an important role to guide and mentor newly licensed amateur radio operators as they have in the past. Most school systems today have a total academic learning environment, and students don't have an opportunity to enroll in technical classes. We must, as hobbyists, take those wanting to learn about amateur radio as well as newly licensed operators and guide them in under-

standing how to create and maintain a functional amateur radio station.

How should hams present amateur radio today?

N8IJG: I believe that presenting our hobby through public awareness events is important. I'm planning a local event in the area, *QRP in the Park*. This once-a-month Sunday event will allow local amateurs to bring their portable gear to a local park for a couple of hours and make contacts with other hams using low-power equipment.

Promotional panorama

We note that the Wireless Institute of Australia has suggested promoting to groups that would benefit from amateur radio communications. "One group includes those who are involved in boating," they pointed out. "Another group is the four-wheel drive people who tour the inland."

Congratulations to the Lincoln Amateur Radio Club for receiving the Nebraska Volunteer Group of the Year Award at the Nebraska Impact Awards presentation. The club recently responded to a major telephone outage that affected southeastern Nebraska.

The Chesapeake, Virginia, K4AMG Memorial Amateur Radio Club, whose motto is "Elmers R Us," has listed several things that work in the classroom. Among them: showing a promotional video (<http://www.neoham.org>), building FM

receivers and a 2-meter/ HF station, participation in the School Club Roundup, and making 2-meter ground plane antennas in class.

WRO Hams With Class columnist Carole Perry, WB2MGP, who for years made amateur radio a part of her in-school curriculum, links our hobby to possible careers in electronics. She observes that many of her former students have contacted her years later, indicating that ham radio had been an influence on their career decisions.

Morse code may not be a requirement for a ham license today, but it remains an interesting mode for youth. During a presentation to local Cub Scouts, we used a code oscillator to demonstrate Morse. Inviting one of them to send their initials resulted in a long lineup of others wanting to do the same.

We'd like to share your stories and experiences in promotion and recruitment, so send us a line and photos if you have them. E-mail us at deverelogan@gmail.com and we'll share your experiences in future columns.

Until next time, we encourage you to remain "radio active" by spreading the word about our great hobby and radio service. Because, if we don't, who will?

Devere "Dee" Logan, WIHEO, is a veteran ham and writer who is an accredited member of the Public Relations Society of America and a member of its College of Fellows.



Youth enjoy ham radio demonstrations such as Kid's Day held at a local library.



CONTEST CORNER

CONTEST: ARRL UHF Contest
DATE & TIME: 1800Z 7 Aug – 1800Z 8 Aug
BANDS/MODE: 222 MHz and up
POINTS: 3 Pts. 222 or 432 MHz QSO; 6 Pts. 902 or 1296 MHz QSO; 12 Pts. 2.3 GHz or higher
MULTIPLIERS: Grid Squares per band
EXCHANGE: Grid Square locator
ENTRY CATEGORIES: Single op, Low or High; Rover
ENTRIES: Deadline 7 September Paper logs to: ARRL UHF Contest
 225 Main St., Newington, CT., 06111
 Cabrillo logs to: augustuhf@arrl.org
 Rules at: www.arrl.org/august-uhf

CONTEST: TARA Grid Dip
DATE & TIME: 0000-2359Z 7 Aug
BANDS/MODE: 160-6M RTTY & PSK31
POINTS: 1 Pt. per QSO
MULTIPLIERS: Grid locators once per band
EXCHANGE: Name + 4-digit grid locator
ENTRY CATEGORIES: PSK categories: QRP <5W; Low 5-20W; High 20-100W; Rover 100W max! RTTY categories: QRP <5W; Low 5-100W; High - Legal Limit; Rover - Legal Limit
ENTRIES: 1 Sep Fill out online form at:
www.n2ty.org/seasons/tara_grid_score.html
 E-mail: grid-manager@n2ty.org
 Web: www.n2ty.org Rules at:
http://www.n2ty.org/seasons/tara_grid_rules.html

CONTEST: 10-10 International Summer
DATE & TIME: 0001Z 7 Aug - 2359Z 8 Aug
BANDS/MODE: 10M Phone (SSB, AM or FM)
POINTS: 1 Pt. non-member; 2 Pts. members
MULTIPLIERS: Prefixes
EXCHANGE: Call + Name + QTH + 10-10 #
ENTRY CATEGORIES: QRP (<10W); Individual; Club
ENTRIES: Deadline 23 August. Dan Morris, KZ3T 131 Valencia Ln., Statesville, NC 28625
 E-mail: dbm72941@roadrunner.com
 Rules at: www.ten-ten.org/Forms/QSOPartyRules_05312009.pdf

CONTEST: North American QSO Party
DATE & TIME: 1800Z 7 Aug - 0600Z 8 Aug
BANDS/MODE: 160-10M CW
POINTS: 1 Pt. per QSO
MULTIPLIERS: State/Provinces/Territories/NA Countries
EXCHANGE: Name + State/Province/Territory/NA Country; non-NA sta's give name only
ENTRY CATEGORIES: Single op; Multi op, 2 XMTRS – Note: 100W limit for all categories!
ENTRIES: 14 Days Bruce Horn, WA7BNM, 4225 Farmdale Ave., Studio City, CA 91604
 Cabrillo upload: www.ncjweb.com/naqplogssubmit.php
 E-mail: cwnaqp@ncjweb.com
 Rules at: www.ncjweb.com/naqprules.pdf

CONTEST: WAE DX
DATE & TIME: 0000Z 14 Aug - 2359Z 15 Aug
BANDS/MODE: 80-10M CW
POINTS: 1 Pt. per QSO
MULTIPLIERS: WAE Countries
EXCHANGE: RST + serial #
ENTRY CATEGORIES: Single op - Low (<100W); Single op - High (>100W); Multi op
ENTRIES: 30 Aug Electronic log submissions only!
 Cabrillo or STF logs to: wacw@dxhf.darc.de
 Additional help for handwritten log conversion:
<http://contestsoftware.com/e/home.html>
 E-mail: waedc-info@dxhf.darc.de
 Web: www.waedc.de
 Rules at: www.darc.de/referate/dx/contest/waedc/en/rules/

CONTEST: Maryland-DC QSO Party
DATE & TIME: 1600Z 14 Aug. - 0400Z 15 Aug. & 1600-2359Z 9 Aug.
BANDS/MODE: 160M - 440 MHz SSB; 80-440 CW/Digi; 6M-70cM FM
POINTS: 10 Pts Club; 5 Pts. Mobile; 4 Pts. QRP; 3 Pts. CW/Digi; 1 Pt. all others
MULTIPLIERS: X1 for each MD County/DC/City of Baltimore; MDC sta's count 25 counties + states + DX Country
EXCHANGE: State/Country/Province - MDC sta's give County/City of Baltimore/DC
ENTRY CATEGORIES: Club, Mobile, QRP, Standard (Multi-ops are counted as Clubs)
ENTRIES: 14 September SASE & Logs to MDC QSO Party
 P.O. Box 308 Davidsonville, MD 21035
 Rules at: http://mdcqsoparty.w3vpr.org/Documents/Maryland_QSO_Party_Rules_Eff_2010_v2-0.pdf
 E-mail: mdqsop@w3vpr.org
 Logging software available – see rules site for links

CONTEST: SARTG WW
DATE & TIME: 0000-0800Z + 1600-2359Z 21 Aug; 0800-1600Z 22 Aug
BANDS/MODE: 80-10M RTTY
POINTS: 5 Pts. own country; 10 Pts. same continent; 15 Pts. other continents
MULTIPLIERS: DXCC countries on each band
EXCHANGE: RS(T) + serial #
ENTRY CATEGORIES: A = Single op, all band; B = Single op, single band; C = Multi Op, single XMTRS, all-band
ENTRIES: 30 Days SARTG Contest Manager Ewe Hakansson, SM7BHM
 Pilspetsvagen 4 SE-291 66 Kristianstad Sweden
 Cabrillo to: contest@sartg.com
 Rules at: www.sartg.com/contest/wwrules.htm

CONTEST: North American QSO Party
DATE & TIME: 1800Z 21 Aug - 0600Z 22 Aug
BANDS/MODE: 80-10M SSB
POINTS: 1 Pt. per QSO
MULTIPLIERS: State/Provinces/Territories/NA Countries
EXCHANGE: Name + State/Province/Territory/NA Country; non-NA sta's give name only
ENTRY CATEGORIES: Single op; Multi op, 2 XMTRS – Note: 100W limit!
ENTRIES: 14 Days Bruce Horn, WA7BNM 4225 Farmdale Ave., Studio City, CA 91604
 Upload Cabrillo: www.ncjweb.com/naqplogssubmit.php
 E-mail: ssbnaqp@ncjweb.com
 Rules at: www.ncjweb.com/naqprules.pdf

CONTEST: Run for the Bacon
DATE & TIME: 0100-0300Z 16 Aug
BANDS/MODE: 160-10M CW
POINTS: 1 Pt. non-member QSO; 3 Pts. FP member; 5 Pts. FP member different continent
MULTIPLIERS: States/Provinces/Countries
EXCHANGE: RST + State/Province/Country + FP #; (non-members give power)
ENTRY CATEGORIES: Single band; All band
ENTRIES: Online submission only at: www.fqrp.com/autolog.php

CONTEST: ARRL 10 GHz & Up
DATE & TIME: 0600 your local time 21 Aug – 2359 local time 22 Aug
BANDS/MODE: 10 GHz and up
POINTS: 100 Pts. Per QSO + distance in kilometers
MULTIPLIERS: None
EXCHANGE: Six character maidenhead locator
ENTRY CATEGORIES: 10 GHz only; 10 GHz and up
ENTRIES: 20 Oct. Note: Identical contest takes place in September, Deadline is for both contests). ARRL Contest Branch 225 Main St., Newington, CT. 06111.
 E-logs by E-mail to: 10ghz@arrl.org
 (Note: Cabrillo is not required for this contest)
 Rules at: www.arrl.org/10-ghz-up

CONTEST: Ohio QSO Party
 DATE & TIME: 1600Z 28 Aug - 0400Z 29 Aug
 BANDS/MODE: 80-10M SSB/CW
 POINTS: 1 Pt. SSB; 2 Pts. CW
 MULTIPLIERS: Ohio counties (88 possible); OH sta's count Ohio counties/States/Provinces
 EXCHANGE: Ohio sta's give serial # + county; US & Canadian sta's give serial # + State/Province; DX sta's give serial # + "DX"
 ENTRY CATEGORIES: Single op, QRP (<5W CW, <10W SSB) Low (<100W); High (>100W); Multi op; Mobile; Rover
 ENTRIES: 30 days Paper or floppy disc entries by mail to: Ohio QSO Party c/o Jim Stahl, K8MR 30499 Jackson Rd., Chagrin Falls, OH 44022-1730
 Cabrillo (preferred) to: logs@ohqp.us
 Rules at: www.ohqp.org/images/2009%20Rules.pdf

CONTEST: SCC RTTY Championship
 DATE & TIME: 1200Z 28 Aug - 1159Z 29 Aug
 BANDS/MODE: 80-10M RTTY
 POINTS: 1 Pt. own country; 2 Pts. own continent; 2 Pts. different W, VE, VK, ZL, ZS, JA and PY call area, LU provinces and Asiatic Russia UA9/UA0 oblasts; 3 Pts. other continents
 MULTIPLIERS: Different 4-digit numbers representing op's licensing year, once per band
 EXCHANGE: RST + year first licensed; Clubs give RST + year license issued to club
 ENTRY CATEGORIES: Single op, Low <100W; Single op, High (<100W); Single op, assisted; Multi op, single XMTR
 ENTRIES: 15 Sep Electronic logs only!
 Cabrillo (preferred) or ASCII by E-mail: rtty@hamradio.si
 Rules at: http://lea.hamradio.si/~scc/rtty/htmlrules.htm

CONTEST: Kansas QSO Party
 DATE & TIME: 1400Z 29 Aug - 0200Z 30 Aug + 1400-2000Z 30 Aug
 BANDS/MODE: 80-2M, All Modes
 POINTS: 2 Pts. Phone; 3 Pts. CW or Digi
 MULTIPLIERS: Non-Kansas sta's count KS counties (105 possible); Kansas sta's count States/Provinces/DXCC
 EXCHANGE: Kansas sta's give RS(T) + county; All others give RS(T) + State/Province/DX
 ENTRY CATEGORIES: Single Op QRP (<5W), Low (<100W), High (>100W); Unlimited (Multi-op, multi-XMTR, any power); Youth; Kansas Mobile
 ENTRIES: Deadline 1 Oct. Cabrillo (preferred) to: logs@KsQSOParty.org
 Paper logs (limit of 50 QSO's) or mail submission: Kansas QSO Party c/o Randy Wing, NØLD, 13138 SW 186th St., Rose Hill, KS 67133-8559.
 Rules at: www.ksqsoparty.org/rules

CONTEST: Hawaii QSO Party
 DATE & TIME: 0700Z 28 Aug - 2200Z 29 Aug
 BANDS/MODE: 160-10M SSB/CW/RTTY/PSK
 POINTS: SSB = 2 Pts. 10/15/20M, 4 Pts. 40M, 8 Pts. 80M, 16 Pts. 160M; All other modes = 4 Pts. 10/15/20M; 8 Pts. 40M, 16 Pts. 80M, 32 Pts. 160M
 MULTIPLIERS: HI QTH ID's (9 possible), each band
 EXCHANGE: HI sta's give RS(T) + County; W/VE sta's give RS(T) + State/Province; DX gives RS(T) only
 ENTRY CATEGORIES: Single XMTR, QRP; Single Op; Multi-Multi
 ENTRIES: 30 September E-mail submission of text formats to: awards@karc.net
 Rules at: www.karc.net/OperatingEvents/HawaiiQSOParty/HIQSOPartyRules.html

Click here for information on listing your contest in the next issue of WRO!

DX Predictions AUGUST 2010

Maximum usable frequency from West Coast, Central U.S. and East Coast (courtesy of Engineering Systems Inc., Box 1934, Middleburg, VA 20118). The numbers listed in each section are the average maximum usable frequencies (MUF) in MHz for contacting five major areas of the world centered on Africa-Kenya/Nairobi, Asia-Japan/Toyko, Oceania-Australia/Melbourne, Europe-Germany/Frankfurt, and South America-Brazil/Rio de Janeiro. Smoothed sunspot number = 10.

Chance of contact as determined by path loss is indicated as bold *MUF for good, plain MUF for fair, and in (parenthesis) for poor. UTC is hours.

WEST COAST

UTC	AFRI	ASIA	OCEA	EURO	SA
10	(11)	*12	*18	(9)	*16
12	(17)	10	*16	15	((14)
14	21	*13	*14	18	20
16	23	*14	(13)	19	*24
18	*24	(12)	(12)	17	*27
20	*23	*18	23	16	*29
22	19	*21	*28	(12)	*29
24	17	*21	*30	(9)	*27
2	15	*20	*30	(10)	*22
4	*15	*19	*29	*15	*18
6	16	*17	*26	13	*16
8	14	*14	*21	(11)	*14

CENTRAL U.S.A.

UTC	AFRI	ASIA	OCEA	EURO	SA
8	(13)	12	*20	(9)	*14
10	(15)	*11	*17	15	*15
12	20	12	*15	*18	17
14	23	13	*14	*19	*22
16	24	(11)	(13)	*19	*25
18	*25	(10)	(12)	*18	*28
20	*23	15	24	*17	*29
22	19	18	28	15	*29
24	*16	20	*30	11	*27
2	*15	19	*30	10	*22
4	*15	17	*29	*13	*19
6	14	15	*25	11	*16

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SA
7	16	(11)	*19	10	*14
9	17	(9)	*16	14	*15
11	23	*15	*15	*17	17
13	*27	14	(14)	*19	*22
15	*29	(11)	(13)	*20	*25
17	*28	(10)	(12)	*19	*27
19	*25	(14)	(19)	*18	*29
21	*21	17	26	*16	*29
23	*18	19	29	13	*27
1	*15	18	29	*11	*22
3	*13	(15)	*27	*10	*19
5	*18	13	22	*12	*16



VE EXAMS

As a service to our readers, WorldRadio Online presents a feature listing of those VE exams, times and locations which are sent to us. Please remember that our deadline for publication is two months in advance. For example, if your group is scheduling an exam for December, please have the information to us by October 1st. *World Radio Online*, VE Exams, 25 Newbridge Road, Hicksville, NY 11801. List the location (city and state), any information examinees should have (advance registration, etc.) and the name of the person to contact for further information. Examinees should bring their original license (along with a photo copy), two forms of identification (at least one should be a photo), and required fee.

p/r pref. = pre-register preferred but w/i OK

w/i = walk-in only

p/r = pre-registration only-no w/i

w/i pref. = w/i preferred to p/r

CITY	DATE	CONTACT	NOTES	CITY	DATE	CONTACT	NOTES
ARIZONA				NEW JERSEY			
Mesa	3rd Mon	Steve KY7W, 480-804-1469, kj7wk@cox.net	w/i	Bellmawr	3rd Thurs	Diane, N2LCQ, 609-227-6281	p/r
Phoenix	4th Sat	Gary Hamman, 602-996-8148, K7GH@arrl.net		Roselle	4th Sat	Gerry, AA2ZJ, 732-283-2795, aa2zj@arrl.net	
ARKANSAS				NEW YORK			
Harrison	2nd Sat	Bob, AJ5C, 870-365-3871, aj5c@cox.net		Bethpage	2nd Tues	Bob, 631-499-2214, w2ilp@optonline.net	p/r
Sherwood	1st Sat	Daryl Stout, AE5WX, 501-681-1551, ae5wx@arrl.net	w/i OK	Canandaigua	1st Wed	Squaw Island ARC, David A. Foster, 585-398-0216, D1161F@aol.com	w/i
CALIFORNIA				Canandaigua	1st Wed	David Foster, 585-398-0216, www.siacr.us	w/i
Highland	8/21	Ed, WU6I, 909-864-0155, wu6i@arrl.net	p/r pref.	Valhalla	8/12	Stanley, WA2NRV, wa2nrv@weca.org	
LaVerne	Last Sat	Frank, K6FW, 909-628-8661, k6fw@arrl.net	p/r	Yonkers	Call	Paul, AC2T, 914-237-5589, w2yrc@hotmail.com, www.yarc.org	w/i ok
Long Beach	3rd Sat	Louise, N6ELK, 562-429-1355	p/r	NORTH CAROLINA			
Manteca/Tracy	4th Sat	David, N5FDL, 209-835-6893, n5df@arrl.net	p/r	Fayetteville	8/7	Patricia Edwards, N4UGH, n4ughpat@al.com, 910-584-1801	w/i
Redwood City	Call	Al, WB6IMX@arrl.net, www.amateur-radio.org	w/i	OHIO			
Sacramento	Hotline!	916-492-6115, n6na@arrl.org		Cincinnati	1st Sat	Dale, KC8HJL, 513-769-0789	p/r pref
Santa Rosa	Hotline!	Hotline-Recording 707-579-9608	w/i ok	Sandusky	Call	Luther, N8HC, 419-684-7864, n8hc@arrl.net	p/r
Sebastopol	Hotline!	Recording 707-579-9608		OREGON			
Sunnyvale	Visit Site	Gordon, W6NW, Sv@amateur-radio.org, www.amateur-radio.org	w/i	Astoria	Call	AA7OA, 503-338-3333	p/r
COLORADO				Bend	Weds	Joe, K7SQ, 541-385-3152	p/r
Englewood	1st Sat	Dave, N0HEQ, 303-795-5718, n0heq@arrl.net, Commerical Exams also	p/r pref	Lincoln City	1st Sat	Carl, w7li@arrl.net, 503-965-7575	w/i ok
FLORIDA				McMinnville	Call	Mark, AC7ZQ, 503-843-3580	w/i only
Melbourne	1st Sat	John, AA8IS@earthlink.net, 321-412-2779	w/i ok	Sisters	Call	Dave, N7TYO, 541-549-7831	p/r
North Port	Call	Bill Norris, KC7TSG, 941-426-0214	w/i pref.	Tigard	Call	John, KS0F, 503-626-7399	p/r
St. Pete	Call	Mark, NP3R, 727-528-0071		PENNSYLVANIA			
Sanford	4th Sat	James, N4ZKT, 407-333-4245, n4zkt@bellsouth.net		Erie	3rd Sat	Ron, KB3QBB, 814-833-6829, kb3qbb@arrl.com, www.wattsburg-wireless.us	p/r
HAWAII				Lebanon	3rd Sat	Wa3gpm@arrl.net	
Oahu Is.	Call	Lee, KH6BZF, 808-247-0587	p/r	Pittsburgh	8/14	Bob, N3LWP, 412-366-0488, n3lwp@verizon.net	w/i ok
IOWA				PUERTO RICO			
Vinton	3rd Tues	Kenneth, N0EGV, 319-223-5739, n0egv@southslope.net	w/i ok	San Juan	Last Sat	Hotline: 787-789-4998, prarl@prarl.org	w/i
ILLINOIS				SOUTH CAROLINA			
Bolingbrook	3rd Sat	Dale, W9KHX, 815-723-3332	w/i ok	Charleston	3rd Wed	Robert Johnson, ae4rj@amsat.org; www.qsl.net/wa4usn/	w/i
Burr Ridge	Any Day	Argonne ARC, W9DS, 630-986-0061	p/r	Charleston	2nd Sat	Riley Stone, 843-832-9105, k4hyy@sc.rr.com	w/i
Lake in Hills	4th Sat	Jeffrey Dubin, N9MXT, 847-815-9407		VIRGINIA			
Roselle	2nd Tues	Sam, W9SFB, 630-894-0708, w9sfb@aol.com	p/r	Alexandria	2nd Sat	John, WZ4A, 703-971-3905, wz4a@arrl.net	w/i
INDIANA				Stafford	Sat	Bart, N3GQ, 540-373-4506, n3gq@arrl.net, www.qsl.net/semcomm	p/r
Richmond	Call	Mike, 765-439-4230, w1idx@arrl.net	w/i	WASHINGTON			
South Bend	3rd Mon	Alan, NY9A, 574-232-6883	p/r	Tacoma	2nd Tues	Radio Club of Tacoma, 253-759-2040, www.w7dk.org	
MICHIGAN				Vancouver	Hotline!	CCARC, 360-896-8909	p/r
Garden City	Call	Ken Wardell, AB8ZD, 734-421-7730, gsnapshot@att.net	w/i ok	Vancouver	Call	Vancouver ARC-Clark County, 360-892-5580 C. Wayne Schuler, AI9Q ai9q@arrl.net	w/i ok
Oak Park	1st Tues	D. Flint at 248-981-8145		WEST VIRGINIA			
MINNESOTA				Parkersburg	2nd Mon	Dana Pickens, WV8G, 304-422-6101	w/i, p/r
Apple Valley	2nd Thur	Jim, N0OA, 612-384-7709, N0OA@arrl.net	p/r pref.	WISCONSIN			
MISSISSIPPI				Racine	1st Sat	Robert, W0WLN, 262-886-8551	w/i pref.
Harrison Cty	1st Sat	Don, W5DJW, 228-868-5670, donw5djw@bellsouth.net	w/i ok				
NEVADA							
Stagecoach	2nd Sat	Jack, AC6FU, 775-577-2637 ac6fu@arrl.net					

Add your local VE Exam information to this FREE monthly listing! Click here for posting information.

WorldRadio Online MART

• Buy • Trade • Sell •

BEAM HEADINGS from your QTH to over 400 USA & Worldwide locations \$25.00. ENGINEERING SYSTEMS INC., P.O. Box 1934 Middleburg, VA 20118-1934; w4het@aol.com. xxx

CERTIFICATE FOR PROVEN TWO-WAY RADIO CONTACTS with amateurs in all 10 USA call areas. Award suitable to frame and proven achievements added on request. Send SASE to W6LS, 45527 3rd St. East, Lancaster, CA 93535-1802 to get data sheet. F00

WANTED FOR MUSEUM: PRE-1980 MICRO-COMPUTERS, also early-micro-computer journals, newsletters and advertising literature. KK4WW, P.O. Box 179, Floyd, VA 24091; 540/763-2321, 540/745-2322. F00X

FOR SALE: CQ/HAM RADIO/QST/73 magazines and binders. SASE brings data sheet. W6DDB, 45527 Third Street East, Lancaster, CA 93535-1802. F00

[List your item here!](#)
[Click here for information!](#)

Collins Radio Repair & Tune-Up DVD Guides

Restoring or repairing classic Collins S-Line equipment? These DVDs are like having an experienced professional right next to you!

From Hi-Res Communications, Inc., these well-produced, authoritative DVDs cover all the most common repair and tune-up subjects on these classic radios.



Collins KWM-2
Two disc set, 236 minutes total
Order No. C-KWM \$89.95



Collins 75S-3/32S-3
Two disc set, 226 minutes total
Order No. C-75S \$89.95



Collins 30L-1
Single Disc 61 minutes total
Order No. C-30L \$39.95

Shipping & Handling: US & Possessions-add \$7 for the first item, \$3.50 for the second and \$2 for each additional item. Foreign-calculated by order weight and destination and added to your credit card charge.

CQ Communications, Inc.
25 Newbridge Rd, Hicksville, NY 11801
www.cq-amateur-radio.com -
800-853-9797 - FAX us at 516 681-2926

ADVERTISERS' INDEX

10-10 International Net, Inc.	21	www.ten-ten.org & www.10-10.org
A & A Engineering	36	www.a-aengineering.com
ASA, Inc.	38	www.waterprooflogbooks.com
Bilal Co./Isotron Antennas	34	www.isotronantennas.com
CQ Amateur Radio Magazine	39	www.cq-amateur-radio.com
CQ Books, CDs & DVDs	27, 30	www.cq-amateur-radio.com
CQ VHF Magazine	25	www.cq-vhf.com
CW-Easy/Success-Easy	41	www.success-is-easy.com
Courage Handi-Ham System	41	www.handiham.org
DC Ace, Inc.	13	www.dcace.com
DX Engineering	25	www.dxengineering.com
DX Store	41	www.dxstore.com
Diamond Antenna	29	www.diamondantenna.net
Electric Radio	13	www.ermag.com
Electronic Products Design, Inc.	34	www.epd-inc.com
Engineering Systems, Inc.	25	
FlexRadio Systems	19	www.flex-radio.com
Ham Radio Outlet	5	www.hamradio.com
HamTestOnline	18	www.hamtestonline.com
ICOM America, Inc.	3	www.icomamerica.com
IIX Equipment Ltd.	21, 25	www.w9iix.com
J-ames Pole Antennas	18	www.jamespole.com
Kenwood U.S.A. Corporation	15	www.kenwoodusa.com
Mackey, James E.	38	www.net1plus.com/users/ryoung/index.htm
NiCd Lady, The	18	www.NiCdLady.com
Nifty! Ham Accessories	18	www.niftyaccessories.com
Palomar Engineers	13, 34	www.Palomar-Engineers.com
Penny's Stitch n' Print	38	www.pennystitch.com
Popular Communications	30	www.popular-communications.com
QCWA	38	www.qcwa.org
RF Parts Company	31	www.rfparts.com
RSGB Books	49	www.cq-amateur-radio.com
SteppIR Antennas Inc.	7	www.steppir.com
TEN-TEC, Inc.	35	www.tentec.com
Timewave Technology Inc.	34	www.timewave.us
Universal Electronics	38	www.coaxseal.com
VIS Amateur Supply	13	www.visradio.com
Vibroplex	34	www.vibroplex.com
W2IHY Technologies	38	www.w2ihy.com
W5YI Group	17	www.w5yi.org
WB0W, Inc.	14	www.wb0w.com
Webster Communications, Inc.	34	
Wilderness Radio	23	www.fix.net/~jparker/wild.html
Wireman/Clear Signal Products	21	www.thewireman.com & www.coaxman.com
Yaesu	10, 11	www.vxstdusa.com

Advertise in the next issue of WorldRadio Online!
[Click here for deadlines and contact info.](#)



Miracles Do Happen – Just Don't Buy Into the Literature

Kurt N. Sterba

A reader asks: *Here is a question for "Krusty Ol' Kurt," I guess! What does he think of this antenna being touted in my Yahoo Groups? <http://youtube.com/watch?v=QIZZCbc3044>.*

Kurt took a look at the 9 minute, 25 second You Tube video and there was Robert Victor, VA2ERY, describing the "Miracle Mixed-Mode Dipole Antenna." As he described the new dipole Kurt recognized it as a variation on his own "End-Fed Dipole" he described in a 2001 Kolumn.

After watching the explanation and looking over the Miracle website, Kurt concluded that the antenna is OK but the sales pitch and the literature contain misleading, incorrect and overly complicated explanations of what is a simple – but elegant in its simplicity – antenna.

Even QST's reviewer was led to believe it was an electrical end-fed dipole. Actually it is physically end-fed but electrically center-fed, as stated in Miracle's literature.

To illustrate how it works let's look at the original inventor's antenna. Back in August 1991 QST published W2OZH's article "Resonant Feed-Line Dipoles."

The illustration accompanying this column shows the antenna's configuration.

Simple and easy to understand, here's how it works. The transmitter's signal is sent down the coaxial cable. It goes round-and-round through the choke and comes out at the end of the coax.

Here it meets an ordinary dipole which, like any other dipole, consists of two parts. One part is the 1/4-wave wire connected to the inner conductor of the coax. The other is the 1/4-wave of the coax's outer braid that extends back to the choke.

As W2OZH states, "the RF current has no trouble traveling up the inside of the coax and making a 180-degree turn to travel back on the outside of the braid!" It would travel all the way back to the transmitter but the impedance of the choke stops it at the quarter-wave point making this the other half of the dipole.

So you can see that what we have here is a coax-fed dipole just like any other coax-fed dipole except that we don't have the coax hanging down from the center of the dipole. Instead

the feedline coax comes from one end of the antenna. Simple but elegant.

Now we need only one support at the far end of the dipole. The other end of the coax is right at the transmitter. Makes a nice neat installation.

Now, Look At Kurt's Dipole . . .

Let's jump ahead 10 years to 2001. Kurt devoted a Kolumn to W2OZH's antenna but came up with a nicer 20 meter version of the antenna.

Instead of the big 6-inch-diameter coil choke, he substituted a smaller 10-turn coil with the coax wound though two F240-61 toroids.

W2OZH had to adjust the length of wire in his coil to resonate it at the operating frequency to get a high enough impedance to stop the RF from going on down the cable. Like any parallel tuned circuit its impedance drops off rapidly when the frequency is changed.

Kurt's toroid choke gives a high impedance (about 3,000-ohms) that is broad-band.

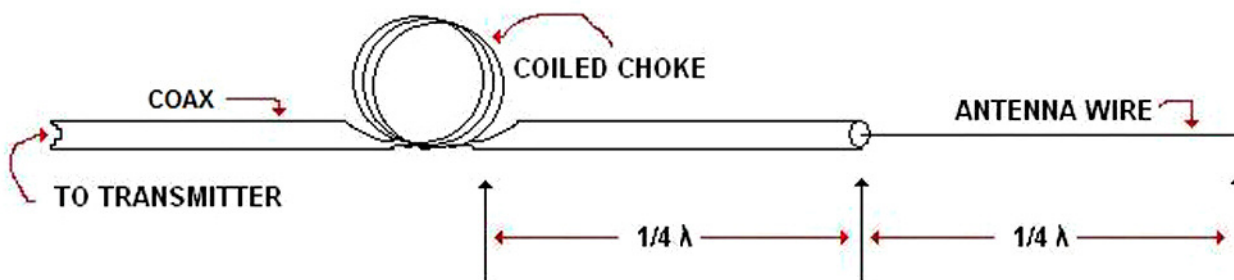
. . . And Then the Miracle

The Miracle Mixed Mode Dipole is just like Kurt's and W2OZH's antennas except that the coil is replaced by the "Current Mode Discriminator." The advertising says "The CMD operates somewhat like a common-mode choke, but it is engineered to maximize the separation of these two current modes well beyond conventional parameters." *Baloney!*

The differential mode RF signal is completely contained within the coax. Nothing comes out through the shield. It needs no outside help to go on its merry way, thank you.

The separation from the common mode signal on the outside is already maximized. All the MMD has to do is stop the common-mode signal at the quarter-wave point. You can do that with ferrites. Krusty Olde Kurt thinks that that is all there is in the MMD.

W2OZH'S RESONANT FEED-LINE DIPOLE



Kurt's blood boils when he sees absolutely incorrect statements in antenna advertising and there is a lot of it on the Miracle website. For example: "The MMD is not the first antenna attempting to use this principle, but other designs have generally missed the boat, usually because the operating principles were poorly understood or applied. A well known example of this is the Resonant Feedline Dipole for which it is claimed that the skin effect plays a role in keeping the different modes of current separate - our R&D program showed this to be untrue." *Balderdash!*

To quote the *ARRL Antenna Book*, a good authority, "Currents from the transmitter flow on the *outer surface* of the coax's inner conductor and on the *inner surface* of the shield. *Skin effect keeps the currents inside the transmission line confined to where they are in the line.*"

Of course. Any antenna engineer knows that. That's why you can have other currents on the outside of the shield. The inside and outside of the shield are just like two separate wires, this because of skin effect. Because of this, anything placed over the coax cannot have any affect on the currents inside. That's why we call the braid a shield. The people at Miracle sure need to take a look at their R&D program.

To further quote Miracle: "The RFD (W2OZH's Resonant Feed-line Dipole) is most often described with a wound-coax choke at one end, which actually performs very poorly. Some designs even suggest the choke should be tuned to resonance - a terrible idea!" *More garbage!*

Any ham knows that when you tune a parallel-tuned circuit to resonance its impedance goes way up in accordance with the "Q" of the circuit. W2OZH's tuned choke probably goes up to 20 times more than if untuned. So it works much better as a choke.

Enough about the advertising literature. What does Kurt think of the antenna? It is limited to 100-watts PEP (or with a tuner, 50 watts). Within this power limitation it looks like a very good antenna. It will work exactly the same as any dipole but is a lot easier to install in many applications. It's easy to transport - just coil it up and stick in your car and go. It's lightweight, easy to carry and put up.

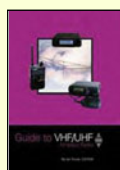
Kurt gives it a "thumbs up." Just don't read the literature.

Kurt welcomes questions of general interest from readers and will answer them in his Kolumn. Write to him at: WorldRadioOnline@gmail.com.

RSGB Books from CQ

View more
RSGB books on our
web site!

Guide to VHF/UHF Amateur Radio



By Ian Poole, G3YWX

RSGB 2000 Ed., 112 pgs.
Everything you will need to help you enjoy VHF/UHF to the fullest. Choosing the right transmitter, receiver, antenna, utilizing the correct part of each band and more!

Order No. RSGVUAR **\$16.00**

Technical Topics Scrapbook 1985-1989

by Pat Hawker, G3VA

RSGB, 1st Ed., 1993, 346 pages
A collection of popular 'Technical Topics' published in RadCom. Info, ideas, mods and tips for amateurs.

Order: RSVUDXB **\$18.00**

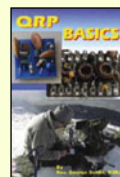


Backyard Antennas



RSGB, 1st Ed., 2000, 208 pgs.
Whether you have a house, bungalow or apartment, Backyard Antennas will help you find the solution to radiating a good signal on your favorite band.

Order: RSBYA **\$33.00**



QRP Basics

By Rev. George Dobbs, G3RJV

RSGB, 2003 Edition, 208 pages
How to get the best results from a QRP station whether from home or outdoors. Explains how to construct your own station, including complete transmitters, receivers and some accessories. Other sections include toroidal coils, construction techniques and equipping a workshop. You'll also find a listing of QRP contests and awards.

Order: RSQRPB **\$28.50**



IOTA Directory

Edited by Roger Balister, G3KMA

RSGB, 2007 Ed..
Fully updated, lists all islands that qualify for IOTA, grouped by continent, and indexed by prefix. Award rules and includes application forms.

Order: RSIOTA **\$18.00**

World at Their Fingertips



By John Clarricoats, G6CL

RSGB, 1st Edition, 307 pages
The story of amateur radio in the United Kingdom and a history of the Radio Society of Great Britain. Numerous illustrations enhance this unique account.

Order: RSWTF **\$16.00**

Packet Radio Primer

By Dave Coomber, G8UYZ & Martin Croft, G8NZU

RSGB, 2nd Ed., 1995, 266 pages
Detailed practical advice for beginners. Completely revised and greatly expanded to cover developments in this field and beyond bare basics into advanced areas such as satellite operations.

Order: RSPRP **\$16.00**



Microwave Projects 2

By Andy Barter, G8ATD
216 pages

If you're interested in building equipment for the amateur radio microwave bands, the designs in this book are sure to please! Projects have been selected from international authors and all projects use modern techniques and up-to-date components. Details on how to obtain ready-made boards are included with most projects.

Order: RSMP2 **\$28.50**



HF Amateur Radio

RSGB, 2007 Second Ed.

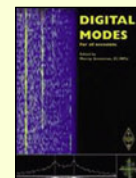
HF or shortwave bands are one of the most interesting areas of amateur radio. Guides you through setting up an efficient amateur radio station, equipment to choose, installation, the best antenna for your location and MUCH more.

Order: RSHFAR **\$23.00**



Digital Modes for All Occasion

By Murray Greenman, ZL1PBPU



RSGB, 2002 Edition, 281 pages
Simply the most "complete" book on Digital Modes available. Over 100 illustrations!

Order: RSDMFAC **\$28.50**

Shipping & Handling: U.S. & Possessions-add \$7 for the first item, \$3.50 for the second and \$2 for each additional item. FREE shipping on orders over \$100 shipping to one domestic address.
All Foreign Shipping & Handling - calculated by order weight and destination and added to your credit card charge.

CQ Communications, Inc., 25 Newbridge Rd., Hicksville, NY 11801
Call 800-853-9797 - Fax 516-681-2926 - www.cq-amateur-radio.com