

WorldRadio

ONLINE

Year 40, Issue 8

FEBRUARY 2011

KF5BOC's Wild Ride Aboard the Space Station, Page 14

Hams' ECHO From the Past, Page 7

**PJ4D On Bonaire, Part II:
Oh the Pile-Ups! Page 18**

CW Testing's RIP – 4 Years Later, Page 30



NEWS • FCC • DX • SATELLITES • CONTESTS • HAMFESTS • AERIALS • CW



Long-Delayed Echoes Copied On 7 MHz During CQWW DX Contest

A German radio amateur has reported the phenomenon known as Long-Delayed Echoes while operating on 40 meters November 27 during the 2010 CQ World-Wide CW DX Contest.

Peter Brogl, DK6NP, of Furth, Germany, at first “thought someone was playing ticks on me,” the Space Weather website reported, when he heard a carbon copy of his signal 46 seconds later. So he changed frequency. After re-sending his callsign, he heard the echo again.

A geomagnetic storm was occurring at the time.

For more than an hour, Brogl heard the echoes, allowing him time to make several recordings: < <http://brogl.net/Audio/> >.

Long-Delayed Echoes were first reported in 1927 by Norwegian civil engineer Jorgen Hals “but happen rarely and are not really understood,” according to a report on Amateur Radio Newline. “Most researchers believe that unusual propagation conditions linked to solar storms may be one of many possible explanations. Others can be seen on the Shlionski Long-Delayed Echo page: < <http://bit.ly/e8DsdE> >.

(ARN, Space Weather, Southgate)

K7JA Named to Advertising and Marketing Post at CQ Communications

Charles H. “Chip” Margelli, K7JA, has been appointed Director of Advertising Sales and Marketing for CQ Communications, Inc., it was announced by company President and Publisher Richard Ross, K2MGA.

Chip is responsible for advertising sales for *CQ Amateur Radio*, *CQ VHF*, *Popular Communications* and *WorldRadio Online* magazines, as well as marketing efforts for all CQ Communications products. He succeeds Don Allen, W9CW, *CQ* and *CQ VHF* Advertising Manager; and Arnie Sposato, N2IQO, *Popular Communications* Advertising Manager, both of whom retired at the end of 2010, and Jon Kummer, WA2OJK, who coordinated advertising sales for *WorldRadio Online*.

Chip brings to CQ more than three decades of experience in the amateur radio industry, including nearly 30 years with Yaesu (now Vertex Standard) and, more recently, four years with Heil Sound. He is fluent in Japanese, German and Spanish (as well as English).

An active ham for more than 45 years, Chip is known worldwide as a champion contester, DXer and DXpeditioner. He is currently active on all amateur bands from 1.8 through 1300 MHz, and is a 2008 inductee into the CQ Amateur Radio Hall of Fame. Chip and his wife, Janet, KL7MF, live in Garden Grove, California. Outside of amateur radio, Chip enjoys photography and astronomy, and is a marathon runner.

“I am absolutely thrilled to be joining the CQ Communications organization,” Chip says. “The CQ family of action-packed magazines is widely respected throughout the world of amateur radio and shortwave listening, and to be a part of this dynamic communications group is the opportunity of a lifetime!”



“Chip will be able to relate to our advertisers and prospective advertisers in a unique way,” notes CQ Publisher Dick Ross, K2MGA, “having been in their shoes, working for both a major and a mid-sized manufacturer. Plus, he already knows and is well-known throughout the amateur radio industry, so he will be able to hit the ground running.”

“As we welcome Chip,” Ross continued, “we sadly say farewell and thank you to both Don Allen and Arnie Sposato. Don and Arnie each have represented all three of our print publications over the course of their many years at CQ. Their combined knowledge of the industry and of the people behind the nameplates is unparalleled and we will miss them greatly. We wish them both only the best in retirement.”

CQ Communications, Inc., based in Hicksville, New York, publishes *CQ Amateur Radio*, *CQ VHF*, *Popular Communications* and *WorldRadio Online* magazines, in addition to CQ books, videos and related products. It also sponsors a comprehensive series of operating awards and contests. Its flagship magazine, *CQ Amateur Radio*, has been in continuous monthly publication for more than 65 years. (CQ Communications, Inc.)

New General Class Question Pool Released

Prospective General class amateur radio licensees taking their exam in July this year or later have a new pool of examination questions to contend with.

The Question Pool Committee (QPC) of the National Conference of Volunteer Examiner Coordinators (NCVEC) released the new General class (Element 3) question pool in early December.

It becomes effective for all General class examinations administered on or after July 1, 2011 and will remain valid until June 30, 2015. The current General question pool that became effective July 1, 2007 will expire June 30, 2011.

The new General pool – including graphics and diagrams – contains 457 questions, from which 35 are selected for an Element 3 examination.

The current Technician class question pool that was effective July 1, 2010 is valid through June 30, 2014. The current Amateur Extra class pool that was effective July 1, 2008 is valid until June 30, 2012. (ARRL)

Mexican Hams Conduct Near-Space Radio Experiment

A recently launched Mexican near-space crossband repeater carried on a high altitude balloon “has been deemed an overwhelming success,” according to a report on Amateur Radio Newline.

The SARSEM-ICARUS II Mexican Aerostatic Sub-Space Repeater System was launched by Amateur Radio Club of the State of Guanajuato in late 2010. It “reached an altitude of 94,301 feet during which time 103 contacts were made using the crossband repeater,” flight controllers said. “Ground stations reported it having coverage of 551 miles across 13 states of Mexico.”

Newline reported the balloon’s payload included a UHF-to-VHF repeater, temperature and voltage sensors, flight computer, and a secondary backup system including GPS and control system. “Also on board was a video camera transmitting live video back to the ground on 900 MHz,” it said.

This was the second successful ham radio balloon flight for the club. A third flight is planned for this year. (ARN)

Send your voice to the world with a handheld radio.

Work a D-STAR repeater and you're tied in to worldwide communications, whether you're using a D-STAR mobile or handheld radio. Enjoy advanced digital communication with D-STAR transceivers.

Easy to use entry class digital handheld
VHF/UHF DUAL BAND TRANSCEIVER

IC-80AD

D-STAR
DV mode

Analog FM

Easy to use
DR mode

IPX4
Water-resistant

Wideband receiver

Optional GPS Mic
HM-189GPS



Feature-rich handheld with dualwatch
VHF/UHF DUAL BAND TRANSCEIVER

IC-92AD

D-STAR
DV mode

Analog FM

IPX7
Submersible

Dualwatch receive

Wideband receiver

Optional GPS Mic
HM-175GPS



D-PRS™

*Frequency specs may vary. Refer to owner's manual for exact frequency specs. **IPX7: Tested to work after being under 1 meter of water for 30 minutes.
©2011 Icom America Inc. The Icom logo is a registered trademark of Icom Inc. The D-PRS logo is a trademark of Icom Inc.
All specifications are subject to change without notice or obligation. 30548

ICOM®

WorldRadio ONLINE

TABLE OF CONTENTS

Year 40 Issue 08

FEBRUARY 2011

FEATURES

ECHO From the Past: Radio Amateurs At the Dawn of the Space Age

By Richard Fisher, K16SN 7

A Nephew's Tribute to His Uncle Norman, W5UAK

Another Blueprint for Attracting Young People to Amateur Radio

By Grady E. McCright, W5GEM 26

COLUMNS

EDITOR'S LOG 6

AMATEUR SATELLITES: NA1SS: 'Welcome Aboard the International Space Station' 14

DX WORLD: The PJ4D 10/10/10 DXpedition, Part II:
12 Days, 34,000 QSOs and Oh, the Pile-Ups 24

FISTS: After CW Testing Stopped – A Hard Look,
Four Years Later 30

PROPAGATION: Using Antenna Height As An Aid to Propagation 33

PROMOTION & RECRUITMENT: PR Stands for Public Relations and
Personal Relationships 36

WITH THE HANDIHAMS: *Reading the Manual* Can Be a Challenge
for the Blind Operator 38

MARS: Thinking About the Unthinkable: If We Don't Do It, Who Will? 41

STATION APPEARANCE: K3RLL/4: Low Power With High Benefits in
Northern Florida 46

RULES & REGS: Upgrade To Amateur Extra 49

TRAIL-FRIENDLY RADIO: Wind Watching: Surfer Dude Meets T-FR 51

AERIALS: Kurt Digs Up More of the Skinny On 'Skin Effect' 58

DEPARTMENTS

WorldRadio Online Newsfront 2

DX Predictions - February 17

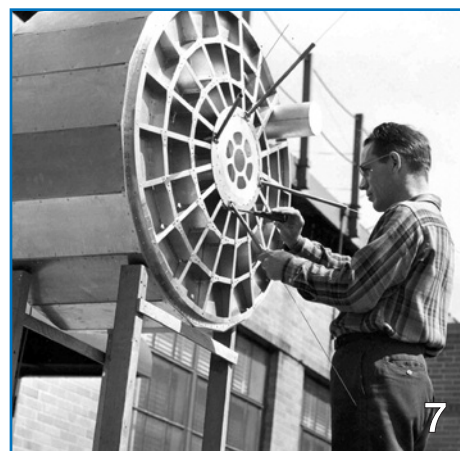
Hamfests & Special Events 40

Visit Your Local Radio Club 50

Contest Calendar 54

VE Exams 56

WorldRadio Online Mart 57



On the Cover: Expedition 25 Commander Doug Wheelock, KF5BOC, has worked many Earth-based radio amateurs from NA1SS aboard the International Space Station. A YouTube video gives viewers a snapshot of how North American stations sound in space: < <http://bit.ly/fN6lcU> >. See this month's Amateur Satellites. (Courtesy of NASA)

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.



Getting On the Air? Now, There's a Novelty!

I have got to do this more often . . . get on the radio, that is," *CQ Amateur Radio* editor Rich Moseson, W2VU, wrote in *Zero Bias - A CQ editorial* in the magazine's May 2010 issue.

His words hit me with the subtlety of a 20-meter pile-up < <http://bit.ly/eJwpyv> >. And still do.

Rich pointed out that with his day job devoted to "reading and writing about ham radio," he often spends free time on other interests. Perfectly understandable. But getting on the air reminded him of why he "fell in love with ham radio to begin with," and why he's remained so enthused by it.

It got me to thinking: *How much do I get on the radio?* A quick look at the 2010 KI6SN logs showed mini-bursts of activity, but for the most part I was a *very occasional* operator – sometimes a week or more between contacts. It's a painful admission and a pathetic display. In my case, no known cause. *It just happens.*

For someone who still gets a great thrill making every contact – especially on high-frequency (HF) CW, and 2-meter FM simplex – I resolved for 2011 to be a lot more active. The logs will look much different this year.

Give It to Me Straight, Doc

Just how pervasive is *I Don't Get On the Air Enough Syndrome*? In December's *WRO Live Online Chat*, we took a shot at answering the question.

In an online poll, we asked: *What is the primary activity you plan on doing more of in 2011?* Unscientific, for sure. But the choices and responses were interesting: Contesting (7 percent), DX Chasing (4 percent), Digital Modes (21 percent), Homebrewing (14 percent) and Improving Antennas (11 percent).

But the choice far-and-away getting the most votes was: *Getting On the Air, in General*, (43 percent). Seems there are a lot of radio amateurs suffering from *IDGOTAES*.

Internet news groups and live chats, radio club meetings and repeater group break-fasts are all important to nourish the amateur radio community.

But isn't there something to be said for experiencing the simple joy of talking on the air to another OM or YL with a shared passion for amateur radio? I think we sometimes forget that. Take a moment to recall a great QSO, prized DX contact, a contact to complete an award or contest achievement.

Rich has it right: "Is this a great hobby, or what? I *really* have to do this operating stuff more often!" Me, too. How about you?

Other December Poll Results: Mid-Week Chat Coming in April

Would you participate in a WRO Live Online Chat on a weeknight? A whopping 82 percent of respondents said they would. Then we followed with:

If WRO were to schedule a weeknight Live Online Chat, what evening would you prefer? Wednesday was the clear winner, with 38 percent of the vote. Monday got 5 percent, Tuesday, Thursday and Friday each got 19 percent.

So, we've scheduled a Wednesday evening *WRO Live Online Chat* at 8 p.m. Eastern (0100 UTC Thursday) on April 13.

"How about a chat at about 1200Z on a Saturday or Sunday every now and then," asked **Steve Fletcher, G4GXL**, from Norfolk, England. "We may get some more (chat participants) from Europe." A great idea, and we'll plan on doing that soon. We'll pick a kick-off time that will be good for chatters on *both sides of the pond*.

Are you planning to take part in the ARRL 10-Meter Contest? More than half (53 percent) said *No*, while 33 percent said *Yes*. There were 13 percent who weren't sure. Wonder if lousy HF propagation is throwing a wet blanket on 10-meter enthusiasm. If so, how sad.

Upcoming WRO Internet Chats

Want to join us on the Web? Here's how the *WRO Live Online Chat* schedule is shaping up: Sundays, **February 6** and **March 6**.

We'll hold our **first mid-week session on Wednesday, April 13**, as well.

They all begin at 8 p.m. Eastern time (0100 UTC the next day) and are casual, friendly affairs. Visit: < <http://www.WorldRadioOnline.blogspot.com> > to sign-up for an e-mail reminder that a chat is imminent. You can see **REPLAYS** of all previous chats on the site, as well.

– **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: deverelogan@gmail.com)

Carl Luetzelschwab, K9LA, Propagation

(E-mail: k9la@arrl.net)

Cheryl Muhr, N0WBV, YLs

(E-mail: n0wbv@earthlink.net)

Randall Noon, KC0CCR, FISTS CW Club

(E-mail: rnoon@nppd.com)

Bill Pasternak, WA6ITF, VHF, FM & Repeaters

(E-mail: wa6itf@arnesline.org)

Carole Perry, WB2MGP, Hams With Class

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

Bill Sexton, N1IN/AAR1FP, MARS

(E-mail: sextonw@juno.com)

Kurt N. Sterba, Aerials

(E-mail via: worldradioonline@gmail.com)

Patrick Tice, WA0TDA, With the Handi-Hams

(E-mail: wa0tda@comcast.net)

BUSINESS STAFF

Richard A. Ross, K2MGA, Publisher

Chip Margelli, K7JA, Director of Advertising

(E-mail: ads@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 8, 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 © 2011 by CQ Communications, Inc. *WorldRadio Online* & CQ Communications, Inc. assume no responsibility for information, actions or products on/from external links/sites.

ECHO From the Past: Radio Amateurs At the Dawn of the Space Age

By Richard Fisher, KI6SN

With amateur radio and a friendly SSB contact as the backdrop in a modern day mystery, the popular PBS series *History Detectives* recently went on the hunt to verify that a four-inch-square piece of aluminum-coated Mylar® was indeed a remnant of the United States' early space program.

'Doc' Saxmann, W3HNT

In the episode aired last September, viewers learned that Chuck Roedel, WA2MXR, who now lives in Florida, had received the Mylar® sample in the mail after an October 1978 phone contact with Dwight "Doc" Saxmann, W3HNT.

During the QSO, "Doc," in Maryland, had mentioned to 'MXR, in New Jersey, that he'd been part of the team developing the United States' first balloon-satellites known as ECHO.

Now, Roedel wanted *History Detectives'* sociologist Tukufu Zuberi to sleuth the clues and confirm or deny the Mylar® as authentic and from a *sateloon* of the early space age. Making things particularly challenging was that W3HNT had since become a Silent Key.

"I took some notes while I was talking to him," Roedel recalled, telling Zuberi that "Doc" said he'd worked on a communication satellite program for NASA in the early 1960s – the ECHO 2.

At the time, Roedel "really couldn't understand what (the satellite) was made out of, so ("Doc") said if I sent him an envelope, he would send me back a piece."

In the end, after tracking down W3HNT's son, going to the site where the *sateloons* were developed and tested and having the Mylar® scientifically appraised, Zuberi authenticated the piece as a remnant of ECHO 2.

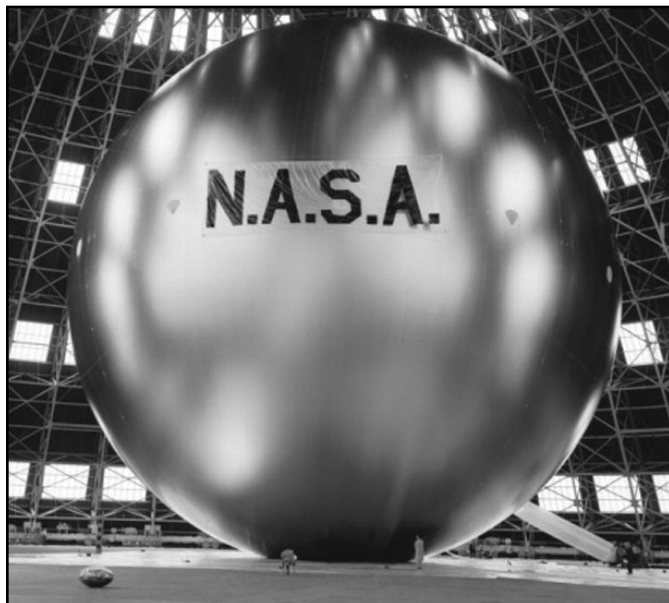
Walt Maxwell, W2DU

Today, amateur radio is commonplace in America's space program. It has been routinely aboard the Space Shuttle dating to November 1983 when Owen Garriott, W5LFL, first took a Motorola 2-meter FM handitalkie onboard the Columbia. The list of astronaut-radio amateurs continues to grow.

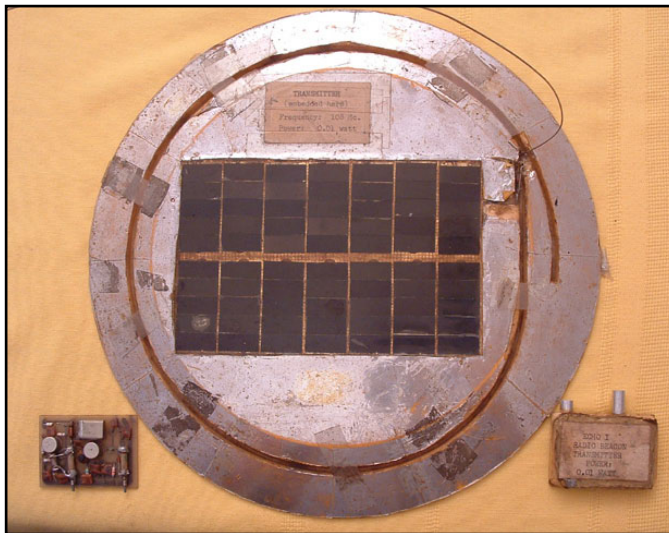
But in the early days, hams' roles were much lower profile. How many people had heard of "Doc" Saxmann before his story appeared on PBS? *And how many others are there?*

Consider M. Walter Maxwell, W2DU, perhaps best known today for his highly regarded books on transmission lines and antennas titled *Reflections*. He was a major contributor to ECHO, and certainly ranks among the country's space age communications founding fathers.

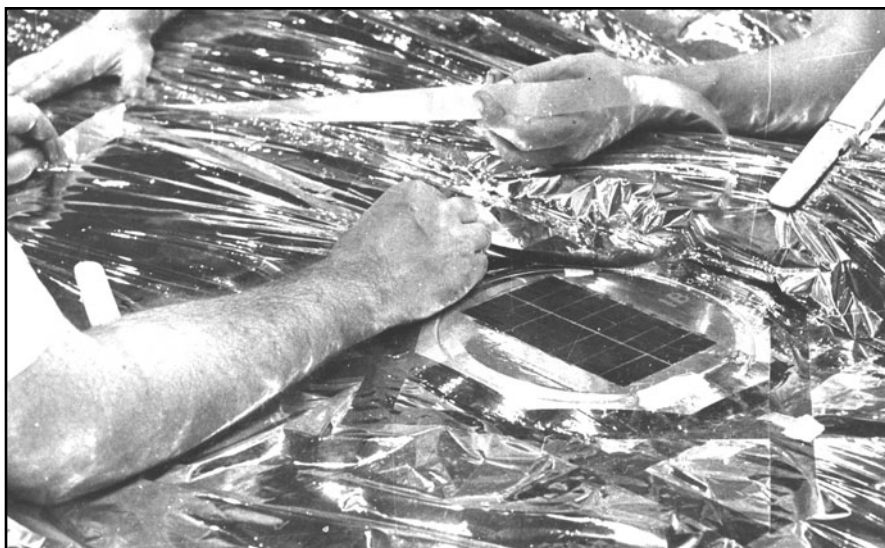
Readers of *Reflections III* – which debuted at the 2010 Dayton Hamvention® and is the second update to his popular book –



Technicians are dwarfed by the 10-story-high ECHO 1 sateloon, inflated during testing at the NASA Langley Research Center 50 years ago. (Courtesy of NASA)



A slot around the periphery of the ECHO 1 beacon transmitter housed the wire antenna during delivery into space. It is visible in the "deployed" position in this 1960s photo. "When the balloon was inflated, the wire was released from the slot, becoming vertical in relation to the surface of the balloon," W2DU wrote. (Courtesy of W2DU)



Technicians carefully attach one of the 108 MHz beacon transmitters to the surface of ECHO 1 before the *sateloon* was folded and packed for launch on August 8, 1960. (Courtesy of W2DU)

learn in Chapter 28 that Maxwell, too, was there *at the dawn*.

Among his many credits, W2DU, like W3HNT, played a role in ECHO. In Maxwell's case, though, it was ECHO 1A – also referred to as ECHO 1 – the nation's

first satellite with the capability of reflecting television signals from its mirror-surface. It was sent into space August 8, 1960.

"It was exciting to see the ECHO spacecraft zoom along the sky during each visible orbit," Maxwell recalled. "One elder-

ly friend of mine, who knew I was working on the project, would not believe that what he saw blazing across the sky was something made by man."

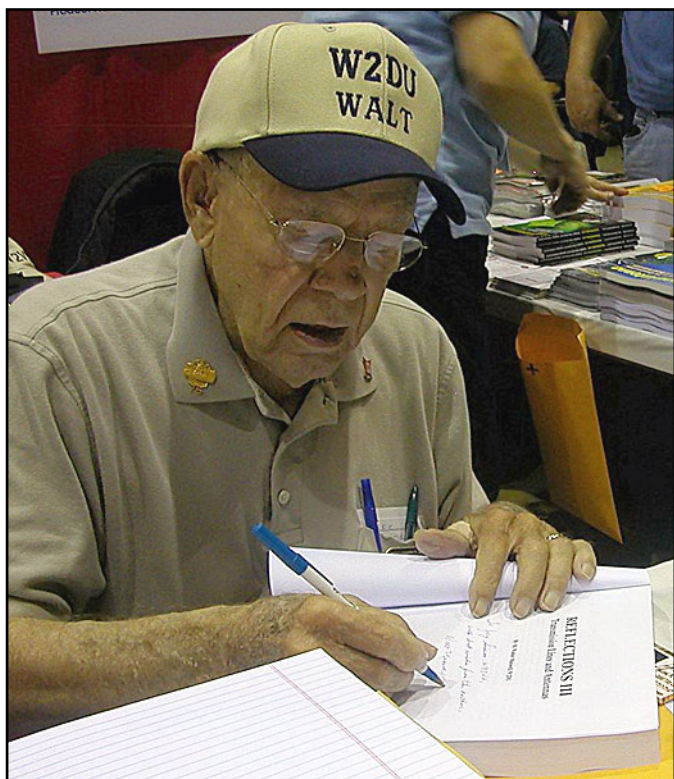
It was a magical era.

ECHO 1's 100-foot spherical aluminum-coated Mylar® surface was designed to reflect high-powered TV signals beamed from Earth to distant receivers across the globe.

As an RCA (Radio Corporation of America) engineer, Maxwell designed the antenna for the ECHO 1's vital 108.0 and 108.03 MHz beacons. Placed at opposite poles of the sphere, they "permitted continual radio tracking of the balloon if lost from visual contact," he wrote.

The solar-powered transmitters pumped just 10 milliwatts of CW into W2DU's antennas, "which produced S9+ signals at the ground stations when the spacecraft was just above the horizon at 1,800 miles distance."

In *Reflections III*, Maxwell describes the tug-of-war he and his team had with the National Advisory Committee for Aeronautics (NACA), the predecessor of NASA, in designing the beacons' antenna system. The agency had stipulated that "no wire could be involved due to the pos-



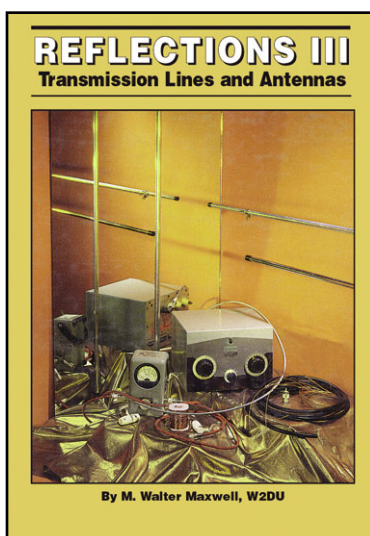
Walt Maxwell, W2DU, space communications pioneer and author, signs copies of *Reflections III* at the CQ Communications booth at the 2010 Dayton Hamvention in May. (Courtesy of K16SN)



The 10-story tall ECHO-1 was made of aluminum-coated Mylar® just one-half millimeter thick – as this historic remnant from the *sateloon* construction cutting floor shows. (Courtesy of K16SN)



Back when first-class postage was 4-cents, the U.S. Postal Service issued a stamp commemorating the remarkable achievements of ECHO 1. (Courtesy of the U.S. Postal Service)



Reflections III: Transmission Lines and Antennas is the second update to Walt Maxwell, W2DU's, popular book. It has significant revisions, additions and enhancements to previous editions, and is published by CQ Communications, Inc. Its online bookstore is at: <http://bit.ly/a9j2HZ>. (Courtesy of K16SN)

sibility of its inadvertently protruding into the skin of the balloon, allowing it to deflate," Maxwell said. The sphere was made of half-millimeter thickness aluminum-coated Mylar®.

After weeks of RCA testing unacceptable alternatives, NACA ultimately allowed W2DU to use "a stainless-steel spring wire antenna after we (RCA) promised to secure the wire embedded in the beacon plate until after the balloon had inflated to ensure that the wire (vertically polarized) would not damage the Mylar® skin of the balloon." *Success.*

A meticulous and analytic engineer, Maxwell is eager to set the record straight in areas where the *History Detectives* strayed from historical fact.

The satellite launch date "was August 8, not the 12th," as the program erroneously reported, he said. And "although ECHO 1 was the first satellite with the capability of reflecting television signals from its mirror-surface, it was not the first communications satellite to orbit the Earth." It's an erroneous assertion, among several about ECHO, which has been perpetuated in print, films and newsreels.

"The *first* such orbiting satellite was an ATLAS ICBM, launched Dec 18, 1958 carrying a receiver, transmitter and tape recorder, which carried a message from President Dwight Eisenhower – the *first* communication from space. This was the SCORE (Signal Communication by Orbiting Relay Equipment) project, which I describe in detail in the first section of Chapter 28 in *Reflections III*."

"The historian who generated the information (in the *History Detectives* episode) was apparently unaware of the

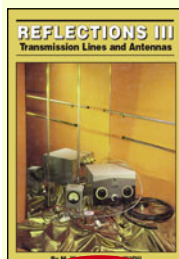


Walt Maxwell, W2DU, at the Antenna Laboratory of the David Sarnoff Research Center in 1959. (Courtesy of W2DU)

REFLECTIONS III

by Walter Maxwell, W2DU

Here's a sampling of what you'll find inside this fully revised and updated third edition!



FREE
Shipping & Handling
on \$100 purchase!

- ◆ Too Low an SWR Can Kill You
- ◆ The View into the Conjugate Mirror
- ◆ Standing-Wave Development and Line Impedance
- ◆ Using the Smith Chart
- ◆ The Line Match Problem
- ◆ Computer Programs for Impedance Matching
- ◆ 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 edition is a must-have!
Order today for only \$39.95

Shipping & Handling: USA - \$7 for 1st book, \$3.50 for 2nd, \$2 for each add'l
CN/MX- \$15 for 1st, \$7 for 2nd, \$3.50 for each add'l.
All Other Countries- \$25 for 1st, \$10 for 2nd, \$5 for each add'l.



CQ Communications, Inc.
25 Newbridge Rd., Hicksville, NY 11801
www.cq-amateur-radio.com
Order Toll-Free 800-853-9797



Advanced Dual Band Mobile Radio

5.2" x 1.6" Large dot matrix (264 x 64 dots) LCD display

GPS / APRS® / Bluetooth® Features

FTM-350AR

New Vacuum Cup-Mounting Bracket permits Angle Adjustment
New APRS® Operation Capability, and newly Expanded User Friendly Functions



144/(220)*430 MHz 50 W FM Dual Band Transceiver

FTM-350AR **NEW**

220 MHz 1 W (USA version only)

New Features of The FTM-350AR

1. New Vacuum Cup-Mounting Bracket with Angle Adjustment

The new MMB-98 Mounting bracket allows easy installation of the radio control display to your Dashboard by placing the vacuum mount in the desired location and pressing a lever. You may then adjust the display to the optimum viewing angle.



2. Expanded APRS® functions

- Uses the worldwide-accepted GPS NMEA data format
- Navigation to another APRS® BEACON station is possible, even if the beacon station is moving.
- Waypoint data (Data in/out) is available from the ACC connector on the rear of the main unit.
- Sub-Band APRS® operation may be active in the background, even when operating in Mono-Band Display mode.
- Newly added Voice Alert function
- Re-allocated often used keys to more convenient positions for easier operation
- Programmable keys on the DTMF Microphone provide direct access to APRS® functions

*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.vertexstandard.com>

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

YAESU
Choice of the World's top DX'ers™
Vertex Standard
US Headquarters
10900 Walker Street
Cypress, CA 90630 (714)827-7600

The New Premium HF/50 MHz Transceiver

FT DX 5000 Series

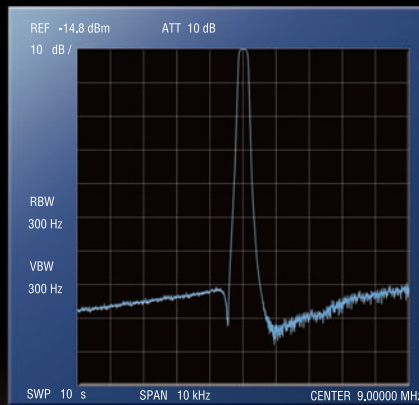
The Dawn of a New Era - Dynamic Range
112 dB / IP3 +40 dBm



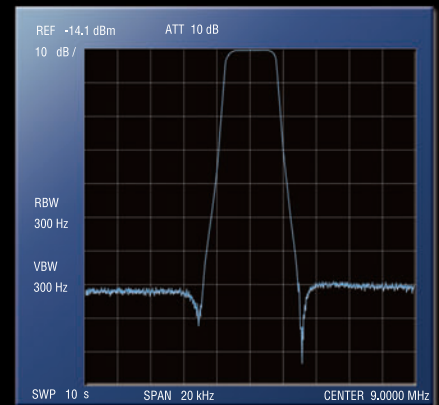
Roofing Filter Performance

Super sharp "Roofing" filters for VFO-A/Main Receiver to give you the best performance and flexibility

Newly designed sharp "Roofing" filters for VFO-A/Main Receiver, selectable between 300 Hz, (optional/included in MP), 600 Hz, 3 kHz (6-pole crystal filter), 6 kHz, 15 kHz (4-pole MCF).



300Hz



3kHz

NEW



Photography shows FT DX 5000MP

HF/50 MHz 200 W Transceiver
FT DX 5000MP

Station Monitor SM-5000 included
±0.05ppm OCXO included
300 Hz Roofing Filter included
600 Hz Roofing Filter included
3 kHz Roofing Filter included

HF/50 MHz 200 W Transceiver
FT DX 5000D

Station Monitor SM-5000 included
±0.5ppm TCXO included
600 Hz Roofing Filter included
3 kHz Roofing Filter included

HF/50 MHz 200 W Transceiver
FT DX 5000

Station Monitor SM-5000 optional
±0.5ppm TCXO included
600 Hz Roofing Filter included
3 kHz Roofing Filter included

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

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

YAESU
Choice of the World's top DX'ersSM
Vertex Standard US Headquarters
10900 Walker Street Cypress, CA 90630 (714) 827-7600

YAESU
FT-817ND



The **Yaesu FT-817ND** is an improved, deluxe version of the hugely popular FT-817. It includes 60 meter coverage plus the new high capacity FNB-85 battery. The radio is a fully self-contained, battery-powered, low power amateur MF/HF/VHF/UHF transceiver. Great for portable QRP operation!

FREE



Receive this cool canvas urban bag **FREE** with your FT-817ND from Universal Radio. Visit www.universal-radio.com for details!

universal radio inc.
Universal Radio
 6830 Americana Pkwy.
 Reynoldsburg, OH 43068
 ♦ Orders: 800 431-3939
 ♦ Info: 614 866-4267
www.universal-radio.com

**Batteries, Antennas,
Coax & more!**

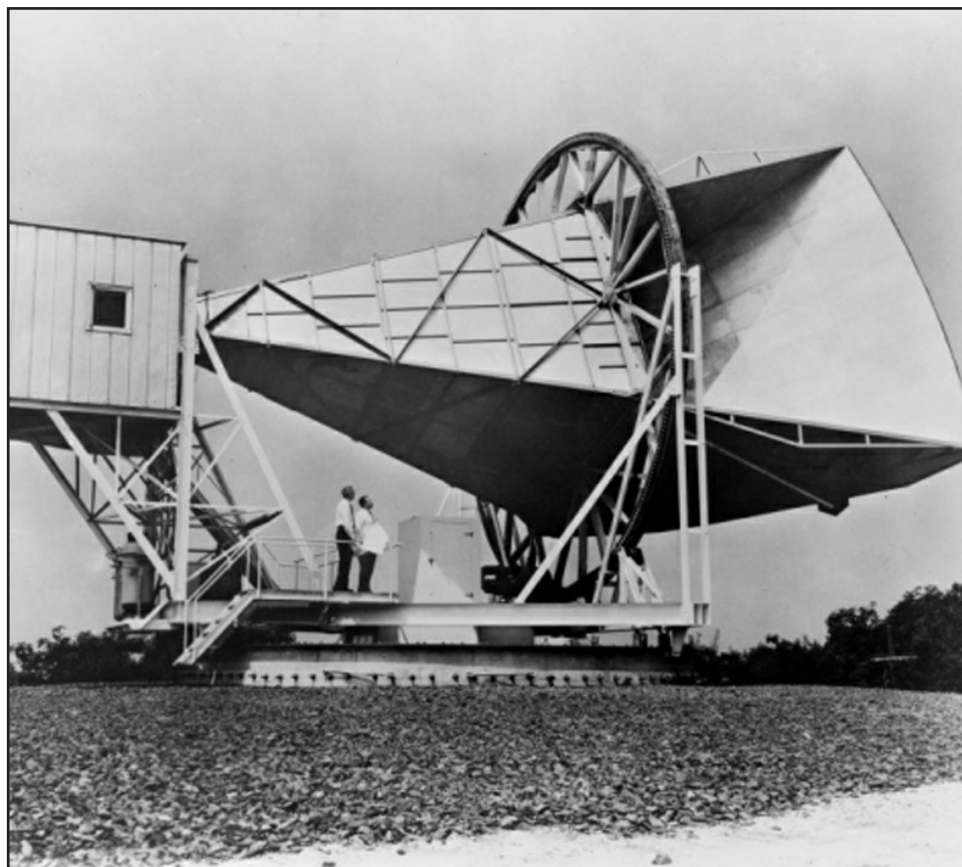
2700 MAH AA cells
\$2.95

Free catalog upon request
DC ACE, INC.
1-877-803-5550
 P.O. Box 364, Lincolnshire, IL 60069
www.dcace.com sales@dcace.com

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



A 50-foot-long horn reflector antenna at Bell Telephone Laboratories in Holmdel, New Jersey was used to receive signals from ECHO 1, according to NASA. (Courtesy of NASA)

SCORE project that occurred nearly two years earlier."

President Eisenhower would go on, however, to send the world another message via ECHO 1. To hear it and to see footage of the renowned *sateloon*, view the You Tube video *ECHO 1 Launched Communications Revolution*: < <http://bit.ly/aYEmwG> >. Maxwell cautions, again, that some information in the report is factually flawed, as is the case with many ECHO videos appearing on You Tube. *Reflections III* is a credible historical source that will set the record straight, he said.

For a newsreel report on ECHO 1, see the 1-minute, 30-second mark of the You Tube video at: < <http://bit.ly/9p6orz> >

To listen to a recording of ECHO's beacon, courtesy of Dick Daniels, W4PUJ, visit: < <http://bit.ly/9IBn5W> >

Looking over his shoulder to those

early space projects, as innovative and uplifting as ECHO 1 was, W2DU says it was "not quite as exciting as when we first heard the signals from TIROS 1 when they first appeared on April 1, 1960.

"They were the first signals I heard on a project I was intimately associated with," he said. "Until we heard those signals, we weren't quite sure that all our efforts were going to work — we held our breaths until the S9+40dB signal appeared on the receivers.

"But it was with a sigh of relief that the signals from ECHO gave us when they also pounded in on the same receiving system as that used with TIROS. The receivers were R-390s with TapeTone VHF to HF converters, along with the rotatable tracking antenna system used at our ground station in Princeton, New Jersey."

(For information on obtaining a copy of Walt Maxwell, W2DU's, "Reflections III: Transmission Lines and Antennas," visit the CQ Communications On-Line Bookstore at: < <http://bit.ly/a9j2HZ> >. — Ed.

20M SSB

TX

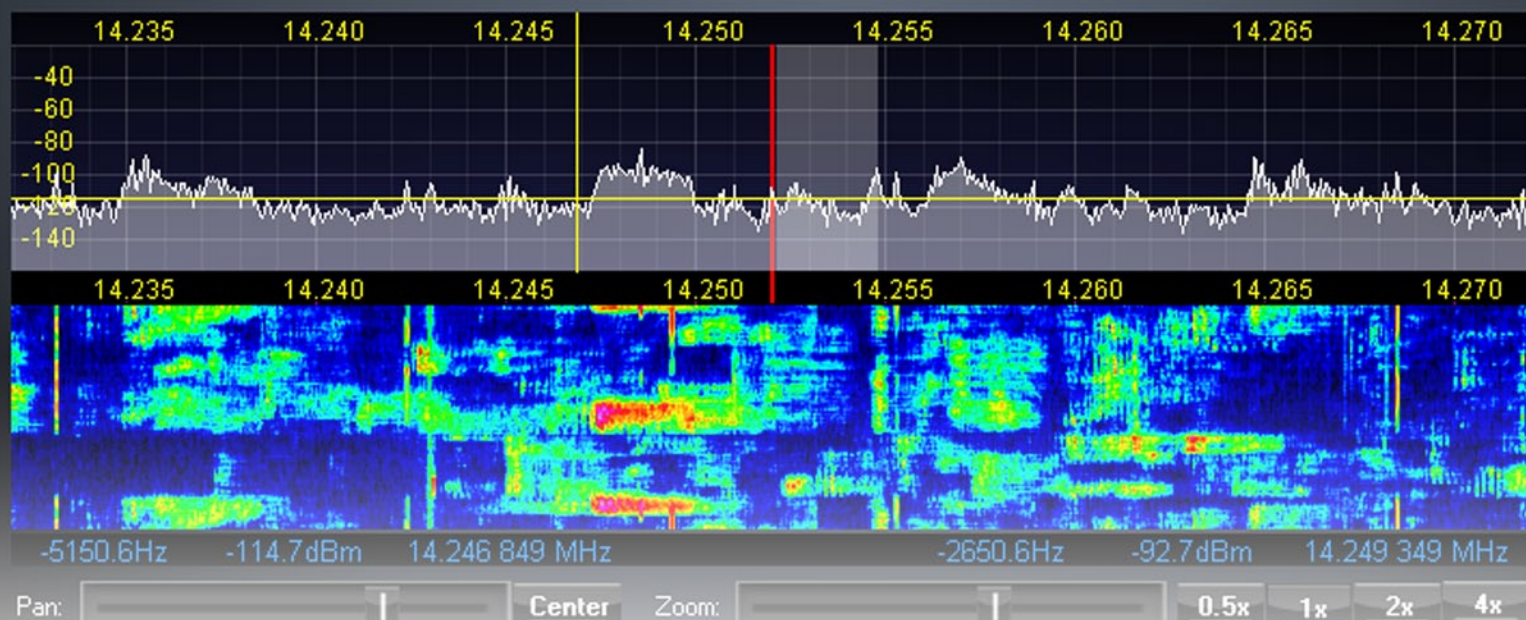
7.000000

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



NA1SS: 'Welcome Aboard the International Space Station'

By Terry Douds, N8KI

A belated *Happy 2011!* If this year continues at the pace 2010 ended with, we're in for another great ride with the *birds*. So let's get to it.

Don't Miss This!

Here is a must-see video for those who have contacted the ISS on 2 meters – or tried to. Project Engineer for ARISS, Kenneth Ransom, N5VHO, posted a wonderful video from NASA-TV showing Expedition 25 Commander Doug Wheelock, KF5BOC, using NA1SS aboard the ISS.

After taking viewers on a tour of the ISS, Wheelock puts the station on the air, talking to U.S. radio amateurs beginning at the 11-minute, 30 second point of the 20+ minute video.

It gives the viewer a great example of the pileups that happen in space from the

U.S. with many people trying to contact the space station. Watch it at: < <http://bit.ly/fN6lcU> >.

Speaking of the International Space Station . . .

While we are on the topic, there have been many exciting things happening onboard the ISS.

NASA has approved the use of the original ARISS VHF and UHF Ericsson handheld radios housed in the Russian segment of the ISS to be used in the U.S. segment of the space station. When the Ericsson radios are installed in the Columbus module, it will become the second amateur radio station aboard the space station.

The second station is planned to initially use the same frequencies currently used by the Kenwood D-700 amateur

radio transceiver aboard the ISS. Studies are underway to determine a compatible operating plan, which would allow both stations to operate simultaneously.

Update: ARISSat-1

At this writing – in December – there was a lot going on with ARISSat-1, which with luck may be deployed by the time you're reading this. (Check the **WRO Blog** for **ARISSat-1** activation updates: < <http://www.WorldRadioOnline.blogspot.com> > - Ed.)

The satellites – it's plural, because one is for the actual flight and one is a back-up – had been sent from Orlando, Florida to the Johnson Space Center in Houston for a NASA Safety Review in October. The review was completed with the written safety presentation and the written hazard report being OK'd with only simple modifications required. The safety review was a two-day meeting running six hour sessions October 13-14, 2010.

The Russian Energia Space Agency was handling the details to ship the satellite to Russia. A new Russian Orlan suit battery will be shipped to the International Space Station (ISS) separately to be installed in the satellite onboard.

After the battery and an experiment from Kursk University are installed, the satellite was to be tested for flight and a final safety review was scheduled. AMSAT-NA's Lou McFadin, W5DID, and Mark Steiner, K3MS, were scheduled to travel to Russia to assist with final testing before the satellite was forwarded to the launch site.

For those not familiar with the ARISSat-1, it contains a Mode U/V (70 cm uplink, 2-meter downlink) linear inverting (transmit LSB, receive USB) transponder with a 16 kHz bandwidth. It can be worked with QRP transmitters and omni-directional antennas.

It has a digital beacon utilizing BPSK-1000 w/FEC < <http://bit.ly/fa6p1S> > and a legacy mode 400 BPSK to be used for



Expedition 25 Commander Doug Wheelock, KF5BOC, operates NA1SS aboard the International Space Station in a YouTube video that gives viewers a snapshot of how Earth stations sound in space: < <http://bit.ly/fN6lcU> >. (Courtesy of NASA, YouTube)

telemetry and experiment data. A PC/Mac demodulator and decoder software was made available.

A CW beacon was included that will either send the callsign – RSØ1S – or the names of the developers. FM audio sends voice telemetry and the RSØ1S call, and SSTV is to be supported using the Robot-36 format.

There are 24 voice greetings in 15 languages (English, Spanish, Russian, French, Italian, Dutch, Swedish, Japanese, Chinese, Catalan, Bengali, Portuguese, Hebrew, Nepalese and German), done mostly by children, but there's a special one, as well, by former Cosmonaut Yuri Gagarin, the first man in space.

ARISSat-1 was scheduled to be sent to the ISS aboard the Russian Progress vehicle 41P in January and deployed during EVA R-28 this month.

The ARISSat-1's development from the earlier SuitSat can be seen at: < <http://bit.ly/edW5Zo> >.

AMSAT OKs Educational Outreach Plan With Schools

AMSAT President, Barry Baines, WD4ASW, announced at the 2010 Space Symposium that the Board of Directors voted to approve a Memorandum of Understanding between AMSAT and the University of Florida, Gainesville to

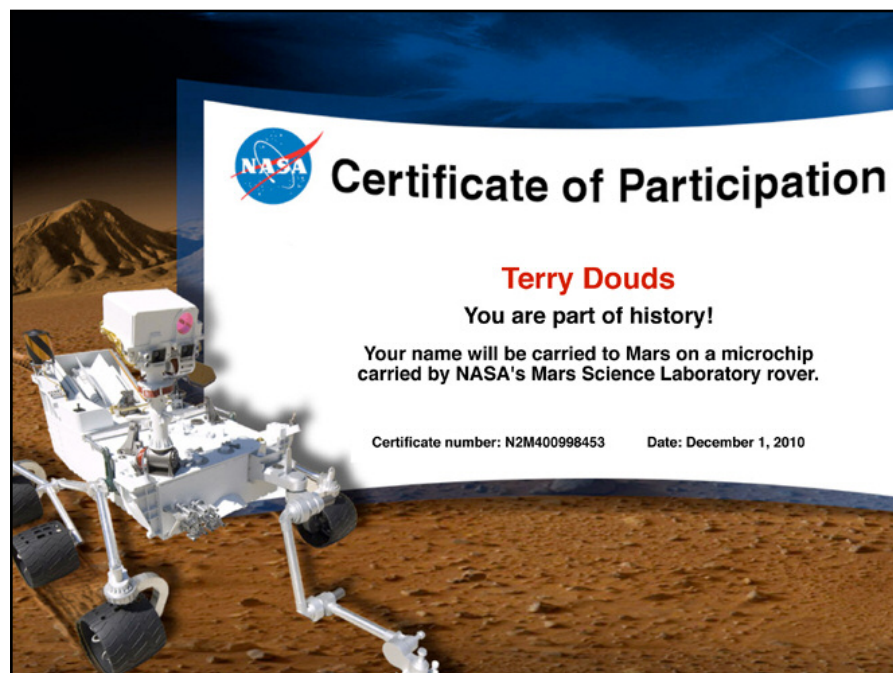
embark upon an educational outreach program.

Discussion with University of Florida's Dr. Norman Fitz-Coy, who leads a graduate CubeSat < <http://bit.ly/e35Y9L> > development program, has revealed several opportunities for AMSAT members to mentor the students on electronics and system engineering issues including on-orbit satellite management learned from operating AMSAT's fleet of spacecraft. AMSAT will offer assistance with ground station development and operation as well.


The AMSAT Board of Directors voted, as well, to continue with the educational outreach project between AMSAT, SUNY-Binghamton and IBM's Heritage Corridor Center for Advanced Studies.

The NextGen Satellite Program at SUNY-Binghamton is led by Alex Harvilchuck, N3NP. During the first year of this cooperative effort, the NextGen student team characterized supercapacitor performance in a vacuum and developed an engineering model of deployable solar cells on a 3U CubeSat.

The partnership will perform the system engineering leveraging on AMSAT's pioneering Project Fox CubeSat. One goal for Project Fox is to establish development of "standardized" CubeSat components that can be made available to uni-



WRO *Amateur Satellites* columnist Terry Douds, N8KI's, name is included on a memory chip headed for the planet Mars this year – and here's the certificate to prove it. (Courtesy of N8KI)



The Standard By Which All Others Are Judged

MAXIMUM PERFORMANCE WITHOUT COMPROMISE

X510HDN & X510HDM
High Power Antenna
Diamond Antenna's best base antenna. Designed for strength and performance, the X510HD Series 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.

5G7900A & 5G7900ANMO
One of Diamond Antenna's® Supergainer® "top of the line" mobile antennas.

5G7900A & 5G7900ANMO
2m/70cm, 150 Watts, 62"

X50A & X50NA
2m/70cm, 200 Watts, 135 MPH, 5.6'

X510HDN & X510HDM
2m/70cm, 330-250 Watts, 90 MPH, 17.2'

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

versity CubeSat development teams, freeing them to concentrate on the science of their research programs. This will have the net impact of having an amateur transponder flying in many CubeSats in the future.

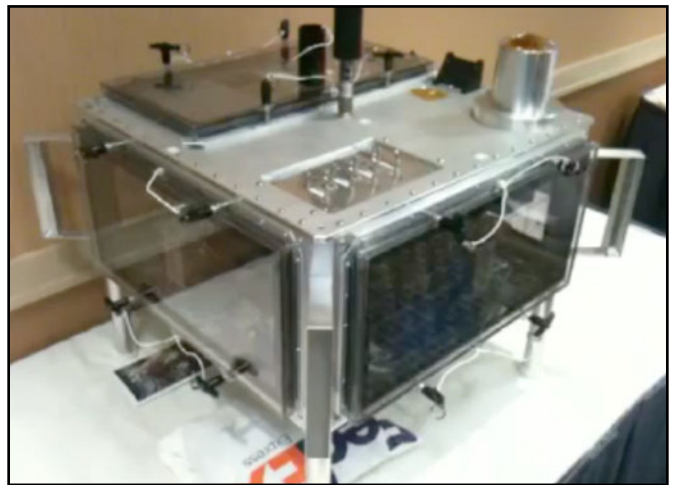
You, Too, Can Go to Mars!

In the *I Find This Really Interesting* department, there was a note in the AMSAT News Service concerning a website you can go to and send your name to Mars via the NASA microchip project – I tried it, and my name is going! Yours can too, and you'll receive a certificate like the one shown with this month's column – go to: < <http://tinyurl.com/yhaphmg> >.

FUNcube Project Targets Youth in UK

AMSAT-UK's FUNcube < <http://bit.ly/efEM5Q> > is an educational single CubeSat project with the goal of enthusing and educating young people about radio, space, physics and electronics.

The target audience consists of primary and secondary school pupils. FUNcube will feature a 145 MHz telemetry beacon that will provide a strong signal for the students to receive. A sim-



The ARISat-1 Engineering Model, as shown at the 2010 Space Symposium. (Courtesy of N8KI)

ple receiver board, the FUNcube Dongle, is being developed, as well. It is intended to be connected to the USB port of a laptop to display telemetry and messages in an interesting way for the students.

FUNcube will carry a UHF-to-VHF linear transponder that will generate up to 1 watt and can be used by radio amateurs worldwide for SSB and CW communications. Measuring just 10 x 10 x 10 cm, and with a mass of less than 1-kilogram, it will be the smallest-ever satellite to carry a linear transponder and the choice of frequencies will enable radio amateurs to use their existing VO-52, DO-64, HO68 and similar stations.

Interested amateur satellite operators are invited to join the growing user group to follow all the latest with the Funcube and the receiver board, the FUNcube Dongle. Join the user group at: < <http://bit.ly/fFwYNJ> >.

On the Finnish Line: Aalto-1

Aalto-1 is a student satellite project of Aalto University, Finland. When launched, it would be the first Finnish satellite.

It is planned to operate as a Mode V/U satellite, but there will be an S-band transmitter included, as well. Up to 8 watts of power will be available from the solar panels.

An Aalto-1 Discussion Forum in English can be found online at: < <http://bit.ly/erJaRg> >.

More CubeSat Student Action

While we are discussing student-built CubeSats, a short video has been posted that introduces the Firefly mission, a CubeSat built by undergraduate students with the partnership of Goddard Space Flight Center and the National Science Foundation. You can see it at: < <http://bit.ly/hK0ror> >.

ReadySat Go is a store-and-forward data collection CubeSat being developed by students at San Jose State University. They have posted a YouTube video showing construction: < <http://bit.ly/eembX1> >.

That's It

As always, there is a lot to cover and barely enough room, so be watching for more in my next column. I hope to hear you soon *on the birds!*

Come See Us At



EAGLE ONE Vertical Antenna

We will be there in our 36 foot motor-home with antennas on the air to show you operation of antenna on all bands

- Home and Portable operation
- Roof–Ground–Mobile Mounts
- 160 through 6 meters
- Restricted Area
- AMERICAN MADE

S & G Engineering
w8afxw8gms@yahoo.com
w8afx.com

Phone: 740-886-9125



DX Predictions

FEBRUARY 2011

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/Tokyo, Oceania-Australia/Melbourne, Europe-Germany/Frankfurt, and South America-Brazil/Rio de Janeiro. Smoothed sunspot number = 21.

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	(10)	9	*15	(8)	*14
12	(10)	8	*14	(8)	13
14	(19)	8	*13	(12)	*25
16	22	11	*18	16	*28
18	*23	(10)	16	(14)	*30
20	*23	16	(18)	(10)	*31
22	20	*20	24	(9)	*30
24	17	*20	27	(9)	*28
2	*13	*18	28	8	*22
4	12	14	*23	8	*19
6	(11)	10	19	8	*16
8	(10)	*9	17	*9	*15

CENTRAL U.S.A.

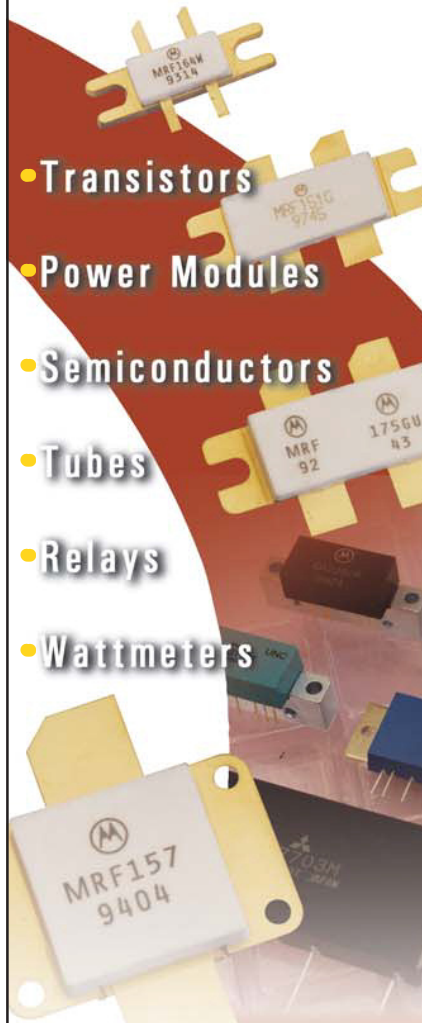
UTC	AFRI	ASIA	OCEA	EURO	SA
8	(10)	*9	*15	*8*8	*14
10	(10)	8	*14	(8)	*13
12	19	8	*13	12	*19
14	23	9	*20	*17	*26
16	24	(8)	17	17	*28
18	*24	(8)	(15)	15	*30
20	*23	(13)	22	(10)	*31
22	20	18	26	(9)	*30
24	*13	17	29	9	*25
2	12	(13)	23	8	*21
4	11	(10)	19	8	*18
6	(10)	(9)	16	8	*16

EAST COAST

UTC	AFRI	ASIA	OCEA	EURO	SA
7	13	(9) *8	(14)	*8	*15
9	12	8	*13	*(8)8	*14
11	*25	8	*13	16	*18
13	*29	9	*20	*18	*24
15	*31	(9)	18	*18	*27
17	*31	(8)	(16)	16	*29
19	*29	(8)	(19)	13	*30
21	*24	16	24	(10)	*31
23	*17	16	28	9	*27
1	*15	(11)	23	9	*23
3	*14	(10)	18	8	*19
5	*13	(9)	16	8	*17

From
MILLIWATTS
to KILOWATTS™

More Watts per Dollar™



- Transistors
- Power Modules
- Semiconductors
- Tubes
- Relays
- Wattmeters



ORDERS ONLY:

800-RF-PARTS • 800-737-2787

Se Habla Español • We Export

TECH HELP / ORDER / INFO: 760-744-0700

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



An Address to Remember:

www.rfparts.com

E-mail:

rfp@rfparts.com





The PJ4D 10/10/10 DXpedition, Part II: 12 Days, 34,000 QSOs and Oh, the Pile-Ups

By Kelly Jones, NØVD

*Last month in Part I of **The PJ4D 10/10/10 DXpedition**, I told the story of how an international group of operators, myself included, planned a DXpedition and traveled to Bonaire in October 2010 – and how we prepared to activate the new DXCC entity as PJ4D.*

As you can imagine, there were many challenges including getting gear to the island, securing a special callsign, and station coordination – not only on Bonaire, but with the other islands of the to-be former Netherlands Antilles, as well. This was the first time in history that four new DXCC entities would come on the air at the same time.

As you'll see, though, getting there was only half of the fun . . .

A couple of months prior to our departure, I received an email from Bob Allphin, K4UEE. Bob was leading a team to activate Saba, PJ6. Saba is one of the other islands that was to become a “new one” on October 10 in addition to Bonaire (PJ4), Curacao (PJ2) and St. Maarten (PJ7).

Bob has been on many high profile DXpeditions in the past and he knows what goes into the planning of this type of event. One of his concerns was interference on the bands due to four new DXCC entities hitting the air at once. Since there is a finite amount of band space, coordinating between the islands to minimize not only intra-island interference, but interference to the average ham was something that needed discussion, as well.

Running Interference on Interference

If you think about it, most pile-ups on CW are around 5-10 kHz wide. SSB pile-ups tend to be 10-20 kHz wide. Then add the mix the DX station's transmit frequency for another few kilohertz. Now multiply that times four and you can quickly see how much of the band these four simultaneous DXpeditions would chew up.

It was apparent as well that the four islands needed to coordinate between themselves so as not to “step on” each other. Imagine what would happen if there were two (*or three or even*



Sunsets from the tropical island of Bonaire are breathtaking. The PJ4D team saw lots of these on its DXpedition. In the distance is the small nature preserve island Klein Boniare, which means “Little Bonaire.”

(Photos by NØVD unless otherwise noted)



EXPLORE NEW HORIZONS

with this feature rich GPS-equipped portable.

Kenwood's dual-band transceiver with full APRS® and EchoLink® support. Featuring the SiRFstar III™ high-performance GPS receiver.

The TH-D72A is perhaps the most technology advanced, feature rich portable offered to the Amateur market. Easy to use, yet affordable. You be the judge!

The All New TH-D72A

144/440 MHz FM Dual Bander



- 1200/9600 bps packet TNC
- Sky Command II
- Stand-alone Digipeater
- USB port (mini B)
- MIL-STD810 and IP54 weatherproofing
- 1000 memory channels
- Cross-tone

The TH-D72A comes with the PB-45L a 1,800 mAH lithium-ion rechargeable battery. A single charge will power the transceiver for approximately 6 hours of normal use at the 5W Transmit level. To save battery power the Output can be set at 5, 0.5, or 0.05 Watts.

The GPS and its logging functions can be used for up to 35 hours by turning off the transceiver functions and running in the GPS only mode. Store up to 5000 points of track data, there are three ways to save track data: Interval, Travel Distance or APRS® Beacon.

Free MCP-4A software will convert log data to the KML file format.

SiRFstar III™ is a trademark of CSR plc.
APRS® is a registered trademark of Bob Bruninga, see www.aprs.org
EchoLink® is a registered trademark of Synergenics, LLC in the USA, see www.echolink.org

Contact your local dealer today for more information.

KENWOOD
Listen to the Future

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#02311


www.kenwoodusa.com





John Barcroft, K6AM, smiles ear-to-ear after applying some of his technical *know how* to fix one of the amps that was damaged in shipping. The amp didn't give PJ4D any more trouble after "Dr. John's" operation.

four) islands listening in the same frequency range – total mayhem would ensue!

While there was some opposition to a "master band plan" by some on Bonaire, for the most part things worked out well. And in the end each island had its own little slice of the band where it was to operate. This certainly helped minimize confusion on the bands and ultimately helped maximize QSOs.

Circling the Wagons, Solidifying the Plan

With the bandplan hashed out and having the majority of our gear now on the island, our planning seemed to have paid off. The next step was to get ourselves off to paradise. Marco van Dijk, PE2MC; Bert van Oort, PE2KY; and Michiel Minderhoud, PG4M had arrived on Friday, October 8. I met Ken Eigsti, WØLSD, at the Houston airport and we took the final leg, a red eye, to Bonaire arriving bright and early around 5:30 a.m. on Saturday, October 9. Our other team members would come later. John Barcroft, K6AM, was flying via Curacao and would not arrive until around 5 p.m. Saturday afternoon and Scott Robbins, W4PA, was to arrive later in the week.

After getting to Bonaire and through immigration and customs, Ken and I met Peter De Graaf, PJ4NX, who had actually "relieved" my contact at the airport who was responsible for taking us to our rental QTH.

Since Peter was our new taxi driver, we packed up our luggage and the pieces of gear we hand-carried into his Jeep. It was great to see Peter again as it had been a year since my last visit to Bonaire. We headed to the rental QTH, unloaded our belongings, exchanged pleasantries and discussed a plan of attack. Being Saturday morning, we had less than 18 hours to go from *zero* to *on the air* at midnight – and there was a lot to do in a short amount of time.

The first thing on our list was to pick up the gear previously stored on the island. We needed to stop by the importer as well to pick up the gear that had been shipped by sea container.



Newly installed 40- and 80-meter dipoles are draped from the 48-foot military mast. The support was originally to have been used to support two Yagis, but after trying in vain to find a way to guy the antennas, we ultimately scrapped the idea. After a week of using just a single station, this gave us two additional antennas and the ability to get our second operating position on the air.

Ken and I began the various trips around the island and assembling gear and running miscellaneous errands. We stopped at the QTH of the Dutch PJ4D operators to see how they were doing in terms of getting on the air. As it turns out, they had been setting up for several hours and were in the process of assembling their Optibeam. After catching up with the other operators, comparing notes and knowing we had limited time to get our own station up and running, we headed back to our QTH.

The original plan for our QTH was to have two complete medium power stations on the air at all times. K6AM and I had prepared an operating schedule outlining who was to be on what radio and when.

Let's Play 'Beat the Clock'

The goal was to get both beam antennas in the air and assemble the multiband vertical last. Because time was not on our side, though, we made the decision to assemble the vertical first. This would at least get one radio on the air at the starting bell. And since the vertical covered the low bands, this was a guarantee *something* would be on the air at midnight local time.

Since I use the vertical whenever I am on the island, quick work was made putting it together. It is fully marked and can

be slapped together in just a couple of hours. With that task out of the way and with the sun now showing no mercy for anybody outside, we moved inside to begin setting up the operating positions.

Over the last few years I have found a rental house in a quiet subdivision just south of the airport that I typically rent. Having been here before, I had an idea of where to put the two stations. During our equipment runs, we picked up a couple of operating tables from PJ4NX.

The furniture in the main living area was rearranged with some of it being taken out and stored in the garage. The locations for the stations were decided and we began setting up the first of the two operating positions.

Just as Ken and I were finishing up the first operating position, I realized it was about time to pick up K6AM at the airport. He was the last of the initial team members to arrive since he had to juggle flights and come in via Curacao.

The interesting thing about Bonaire is that it used to be very easy to get to via San Juan, Puerto Rico. However, over the years, flights on U.S.-based airlines have dwindled and the only direct flights are Saturday-to-Saturday. If you want to come any other day you must connect in Aruba or Curacao. Even though it was Saturday, because John was coming from so far west, he had to begin his travel a day earlier. Thus, he was forced to connect in Curacao and take a small *puddle jumper* over to Bonaire later in the afternoon. So off to the airport I go.

T-Minus Seven Hours . . .

As fate would have it, John was standing outside of the airport waiting on me. We quickly loaded up his luggage and big load of gear and headed back to the house.

I briefed him on our "operational changes" regarding the vertical being installed first and that we only had one station ready. By this time we had roughly seven hours to finish with the rest of the setup. The only catch was that part of the seven hours was to be spent with an "all teams meeting." PJ4NX had scheduled a meet-and-greet dinner at one of the local eating establishments in order for all operators on the island to get acquainted with each other. Hence, we knew time was of the essence.

Once back at the house, we worked feverishly to get everything setup. One of the things I truly like about John is that he is one of the most easygoing guys

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



Ham Radio Insurance Associates

'Insurance for Hams by Hams'

Since 1994

1-800-545-8881

www.hamradioinsurance.com

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

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

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

See our TNCs & the HamLink™ family on our website

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

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
Coffeeville, AL 36524
<http://www.visradio.com>

IIX EQUIPMENT LTD. The Finest in Tower Accessories
Girpole 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.w9lix.com
Order Online! IIX Equipment Ltd.
lix@w9lix.com 4421 West 87th St.
708-423-0605 Hometown, IL 60456
Cell: 708-337-8172 **Doug, W9IIX**
Fax: 708-423-1691

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

ICOM IC-RX7



- ✓ Sale price
- ✓ Free Go Bag
- ✓ Free UPS shipping
- ✓ Free Race Scanning book

This is our **best deal** ever on a portable wideband receiver! The stylish **Icom IC-RX7-05** receiver tunes from 150 kHz to 1300 MHz (less cellular and gaps), has 1650 memories, CTCSS/DTSC, backlit LCD, RF gain, attenuator and keypad. With Li-Ion battery, BC-149A charger and belt clip. List \$364.00 Regular price \$299.95 **SALE \$199.95**

Universal Radio
6830 Americana Pkwy.
Reynoldsburg, OH 43068
♦ Orders: 800 431-3939
♦ Info: 614 866-4267
www.universal-radio.com



Scott Robbins, W4PA, operates station No. 1 at PJ4D on Bonaire.

you'll ever meet. On top of that, he is one heck of a technician. I explained to John that one of the amplifiers had been damaged during shipping and it needed some of his *tender loving care*. Never one to turn down a "broken amp challenge," John quickly began to troubleshoot. Meanwhile, Ken and I worked to set up the second operating position.

Countdown continues . . .

It was now just five hours before the starting gun. We packed ourselves into the truck and headed to the dinner meeting. The restaurant was a very small local neighborhood establishment and the roughly 15 operators on the island nearly filled the place. And to top it off, the staff at the restaurant only spoke Spanish.

I've always been fascinated by linguistics and at one time spoke fluent Spanish. However, I've forgotten most of it so using my rusty Spanish was somewhat amusing. Nonetheless, the evening was very enjoyable. Everyone had a good time.

The thing on everybody's mind at this point, however, was kicking off the "big event" which was to get underway in just a couple of hours. So we all said our good-byes and headed back to our respective QTHs in anticipation of activating a new DXCC entity.

'Murphy' Arrives On the Scene

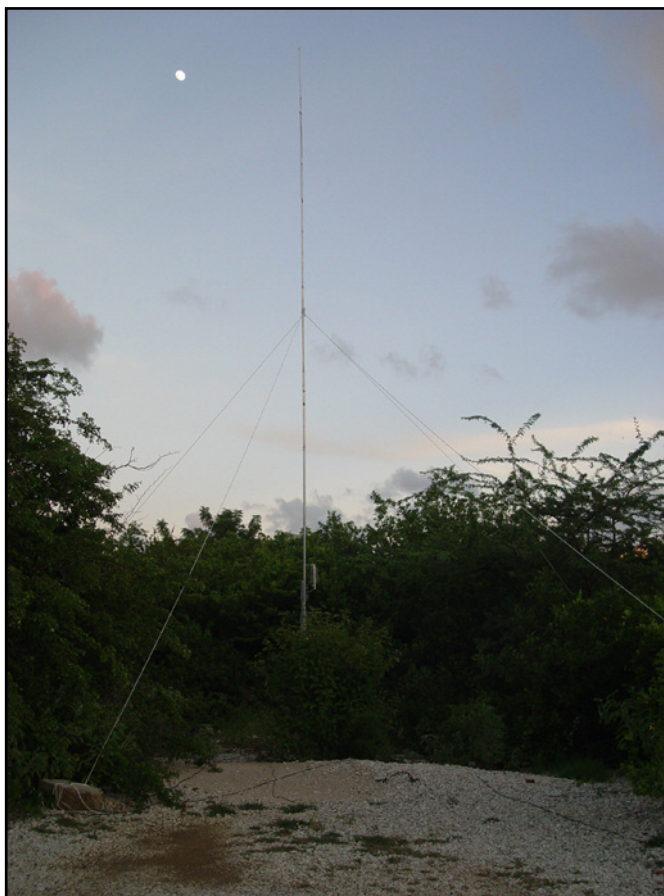
One thing can be said about the best laid

plans – always have a Plan B. While it was our intention to have both stations operational at 04:00Z on 10/10/10, Mr. Murphy apparently hitched a ride in one of the equipment containers. Besides not having a full arsenal of antennas in the air, we simply ran out of time to get the second station set up. We did, however, have our primary station ready to go and figured we could run 80 and 40 meters the first night – we'd get to the second station come daylight.

Oh, the Pile-Ups

As you can imagine, the first night's pile-ups were *simply amazing*. QSO after QSO were being put in the log and many DXers were happy. It was literally a string of *who's who* in the DX world for the first few hours. All of our planning and hard work finally paid off – it seemed somewhat surreal, but we had just put a new DXCC entity on the air!

Once daybreak came on Sunday morning, Ken and I attempted to get the beams in place. Since I had rented this QTH in the past I had some ideas on where to place the beams. However, after spending an entire day in the hot sun trying *this and that*, we finally gave up on the idea of having Yagis in the air. It was very disheartening, but the bottom line was that there was no good way to either anchor or guy any kind of mast to support a Yagi. So we relegated ourselves to a single



Our trusty Butternut HF6V vertical had originally been planned as a “back-up” antenna, but it ended up being our primary radiator for the first week. It was installed on a vacant lot adjacent to our operating QTH. Despite the fact that we were roughly 500 feet from the water, this little vertical played extremely well, covering all bands from 10-80 meters.

operating position using just a multiband vertical. This was our primary station setup until the end of the first week.

RTTY and More Antennas

Our group of operators had more or less scheduled to be on the air for two weeks. However, our Dutch counterparts were only on Bonaire for one week. When they left the island, they left Ken all of the RTTY gear, as well. While Ken is a great SSB operator, his primary interest is RTTY – radio teletype. Between John, Ken and Scott, a plan was devised to get a second station on the air in order to keep the PJ4D RTTY station on the air.

The masts that had been planned for the Yagis were military surplus “stack-together” sections. Each section is four feet long and they simply “click” together for a total of 48 feet. We brought dipoles with us for 40 and 80 meters as well. However, they were never taken out of the shipping container.

Ultimately the mast was assembled with the two dipoles attached at the top and somehow or other the guys managed to raise the fully extended mast – all 48 feet of it. In the end, the dipoles acted somewhat like guy wires and two more antennas were now available for use. This gave us the ability to get our



Peter de Graaf, PJ4NX, and WRO DX World columnist Kelly Jones, NØVD, have a stare down. *Oops, wrong script.* Actually, the two discuss operating plans at the Radio Netherlands Worldwide service where the callsign PJ4W was used. In the background are the cooling ducts for one of the 300KW shortwave stations. (Courtesy of PE2MC)



Bureau Telecommunicatie en Post

Mr. Kelly Jones
231 Summit Road
Woodland Park, CO 80863
USA

Date: October 7th, 2010
Subject: Special call sign
Reference: BT2010/DIR-731

Dear Mr. Jones:

In answer to your request for a special call sign to be used in the 10-10-10 event on the island of Bonaire I inform you that you are hereby granted permission to install, maintain and operate an amateur radio station with use of the call sign PJ4D during the period of October 10th, 2010 through October 22nd, 2010.

After proper identification the inspectors of the Bureau Telecommunicatie en Post must be allowed to inspect the amateur radio station.

Regards,

The director Bureau Telecommunicatie en Post
Mr. J.D. de Canha

C.c.: Head Technical Department
BTetP Bonaire

Official notification from the Bureau Telecommunicatie en Post revealed the team would be operating as PJ4D.



Bert van Oort, PE2KY, works the bands from PJ4D on Bonaire.
(Courtesy of PE2MC)

second operating position on the air. And now with two stations in operation, we were able to give *The Deserving* more opportunities for a QSO with PJ4D.

And How Were the Bands?

Having been to Bonaire in the past, several of us had an idea of when the various bands opened and closed. However, since we are seeing a slight uptick in the sunspots, propagation truly cooperated.

It was not uncommon for several bands to be open at the same time. In fact, we put a significant number of QSOs in the log on 10 and 12 meters – making for many happy DXers. There were times when 10 meters was open to both Europe and North America at the same time.

One of the toughest paths from PJ4 is to the Far East. We knew the demand from JA would be there, so we made a conscious effort to put as many Japanese DXers in the log as we could. We found that 15 meters seemed to produce the best propagation to that part of the world.



Bert van Oort, PE2KY, with the Optibeam assembled at PJ4D. Final assembly was next. (Courtesy of PE2MC)

Many of the Bonaire 2010 operators attended an all-teams meeting Saturday night just prior to the kick-off of the *Big Event*. The dinner was held at a local neighborhood restaurant named *Mi Banana*. The staff spoke only Spanish and our group nearly filled the restaurant.



Once we began hearing W6s and W7s on 15, we knew there was a deeper layer of JAs calling in vain.

I will give *kudos* to the North American operators. When we asked for them to standby, it was extremely refreshing to see the ops acknowledge our request. Having the guys actually standby was a tremendous help in putting some of the weaker, long-haul DX in the log.

As for the low bands, we tried to work both Europe and North America as fairly as we could. Since the window of opportunity is much smaller in EU, we tried to maximize that opportunity. Of course, many EU and NA DXers made it into the log on the low bands.

Looking Back, Wrapping Up, Heading Home

Over the course of the PJ4D DXpedition, we had a great time. The Yaesu rigs played extremely well and overall we did not have any major equipment issues.

The pile-ups? They were truly something to be heard and continued in earnest for the full two weeks. The camaraderie and friendships, both old and new, were simply incredible. In fact, all of us were quite sad to see things wind down toward the end.

Because our flight was leaving very early on Saturday morning, we decided to cease operations around 0400Z on October 21. This gave us the entire day Friday to get everything taken down, packed, stored and ready for shipping.

Starting teardown early Friday morning proved to be a wise decision. Our rental truck had to be returned by 5 p.m. local time Friday and we didn't have a minute to spare. There had been some talk of operating until about noon Friday, but if we had done so we certainly would have been late in the rental return.

PJ4D Vital Stats

In the end the PJ4D DXpedition put nearly 34,000 QSOs in the log over the course of 12 days. Our maximum on-air station count was three, but more often than not two was the norm.

While it was our intention to have a total of four on the air nearly around the clock, some sacrifices were made. However all said and done, we made the best of the situation and are happy with the outcome.

I hope you were able to work us and I hope it was as much fun for you as it was for us. If you did work us and you would



Two locals on PJ4 are Peter de Graaf, PJ4NX, left, and Hans van Hese, PJ4LS. Both were instrumental in planning and logistics. "We owe a great deal of gratitude to both of these gentlemen," NØVD said.

like a QSL card, please send your request to our QSL manager, W3HNK. If you were not able to get through the piles or weren't able to work us for whatever reason, have no fear. I will be returning to PJ4 during the first week of March – perhaps we'll have a QSO then.

That's it for this month's column. 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, as well, and until next time, see you in pileups!

A Nephew's Tribute to His Uncle Norman, W5UAK

Another Blueprint for Attracting Young People to Amateur Radio

By Grady E. McCright, W5GEM

Have you ever considered how that bonfire you see lighting the night sky probably grew from the flame of one small match? It applies to human relationships, as well.

Way back in 1957, my Uncle Norman was granted his Novice license as KN2ENM while living in Chatham, New Jersey. At about this same time, Norman Spiva sent me the first of many shipments of electronics paraphernalia. The first package contained a Progressive Education Kit that he had used to learn about electronics.

At 14 years of age, I took to electronics like a capacitor to electrons, truly fascinated by what I could construct with pieces from that kit. There were eight-or-so projects. The process was to build one and then disassemble it to be ready to assemble the next and more complicated one – from a Morse code practice generator to a one-lung (er, one-tube) broadcast receiver.

I remember the kit contained a resistive power cord to reduce the house voltage to a level that could be rectified for powering the tube in the set. That cloth-insulated power cord became quite warm during operation of the more advanced projects. I built all of them and was hooked.

Thanks to Uncle Norman, a Kit Spawns a Career

I went on to college with a major in electrical engineering and ultimately spent over 37 years working in the aerospace program from Apollo to early space station. It was a wonderful career that might never have happened without the thoughtfulness of Uncle Norman and his used Progressive Education Kit.

Uncle Norman soon became a General class licensee and then obtained Advanced with the station callsign W5UAK.

He was a very successful and brilliant man, retiring as a Program Director for



Norman Spiva sits at the operating position of W5UAK prior to the station going off the air. (Courtesy of W5GEM)

Dun and Bradstreet in New York. He has established a scholarship at his alma mater in Missouri. He is a member of the Ten-Ten Club, Century Club and the American Radio Relay League, having achieved Worked All States. His ham station was on the air nearly 50 years.

Take a Lesson: There's Opportunity to Attract Others

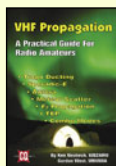
Over the years following the arrival of the Progressive Education Kit, other packages arrived at my home in northeast Texas – including a power supply, a 1957 *ARRL Handbook*, a Hallicrafters S-20R Sky Champion receiver and packages of electronics parts that he had gotten from the markets that once populated lower Manhattan before the World Trade Center was built.

Uncle Norman ignited my interest in electronics and all things electrical, and he nourished that interest through my formative years. All of us who are licensed as amateur radio operators should take a lesson. For the future of this nation and in the interest of our hobby, we should seek opportunities to be a positive influence on the youth of America.

Maybe just a little spark and encouragement or the gift of a castoff receiver might create a new ham and a future engineer or scientist who will contribute to the production of advanced technology in years to come. Without new and creative technology coming out the end of the manufacturing pipeline, the economy and world leadership of this nation will suffer.

Uncle Norman was certainly not the only influence on my career choice, but

CQ Books & DVDs



VHF Propagation

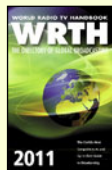
by Neubeck, WB2AMU & West WB6NOA

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

2011 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!

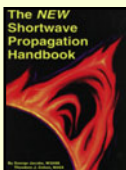


Order WRTH \$35.00

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

W6SAI HF Antenna Handbook

by Bill Orr, W6SAI

W6SAI was known for his easy-to-understand 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



33 Simple Weekend Projects

by Dave Ingram, K4TWJ

Do-it-yourself electronics projects from the most basic to the fairly sophisticated.

Practical tips and techniques on creating your own projects.

Order 33PROJ \$17.95

Understanding, Building & Using Baluns & Ununs

by Sevick, W2FMI

Successor to the popular and authoritative Baluns and Ununs. New tutorial material, and designs with crystal clear explanations of how and why they work.

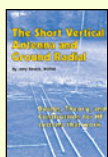


Order 2BU \$19.95

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.



Order SVERT \$10.00

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 the low bands.



Order SLOPER \$24.95

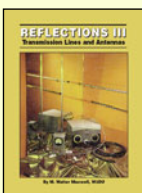
Vertical Antenna Handbook

by Paul Lee, N6PL

Learn basic theory and practice of the vertical antenna. Discover easy-to-build construction projects.



Order No. VAH \$17.95



Reflections III

by Walter Maxwell, W2DU

Includes all the information in Reflections I & II and much, much more! This fully revised and updated, this

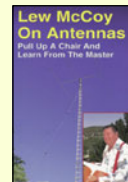
424-page, third edition is truly a must have!

Order REFLEC \$39.95

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

HamRadio Anthologies



~~\$19.95~~ \$16 ea.

Buy all 4 for only \$60

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

Homebrewing Techniques Order AHOME
Test Eqp't & Repair Techniques Order ATEST
Antennas - 1968 - 1972 Order ANTS1
Antennas - 1973 - 1975 Order ANTS2
All 4 for \$60 Order ASET

The Quad Antenna

by Bob Haviland, W4MB

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



"Getting Started" DVD Paks

CQ Ham Radio Welcome Pak

1 DVD contains 3 programs:
Ham Radio Horizons
Getting Started in Ham Radio
Getting Started in VHF

Order HAMDVD ~~\$24.95~~ \$18.00



CQ HF Specialty Pak

1 DVD contains 2 programs:
Getting Started in DXing
Getting Started in Contesting

Order HFDVD ~~\$24.95~~ \$18.00



CQ VHF Specialty Pak

1 DVD contains 3 programs:
Getting Started in Satellites
Getting Started in VHF
Getting Started in Packet

Order VHFVDVD ~~\$24.95~~ \$18.00

Any 2 Paks only \$35.00 3 Paks only \$52.00



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. CN/MX-\$15 for 1st item, \$7 for 2nd and \$3 for each add'l. All Other Countries-\$25 for 1st item, \$10 for 2nd and \$5 for each additional.

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

Call: 1-800-853-9797 • Fax: 516-681-2926 • website: www.popular-communications.com

he was the first. Our local radio-TV repairman, Cecil Doss, took me under his wing, allowing me to hang around his shop while I was in high school, read his correspondence course on electronics repair and restore a few radios and TVs. He helped me over some rough spots in Heathkit assembly, and construction of other electronic undertakings.

Reflecting On An Era, Continuing a Legacy

At 93 years of age, it became time for the W5UAK station to go QRT (off the air). Uncle Norman once again thought of his nephew. He requested that his station be given to me. I received 98 pounds of ham radio gear, including an ICOM 756PRO transceiver. The W5UAK station is now on the air as W5GEM and I could not be more proud.

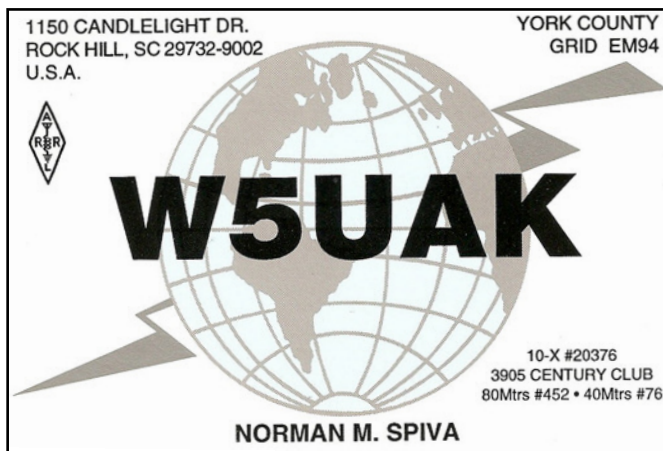
I am fortunate to have received all of his logs from the time he was a Novice – a marvel to review. For example, his first attempt at a contact as a Novice on October 25, 1957 failed. So did the next 17 tries. Finally after 11 hours of calling CQ and trying to break in, KN2ENM, running only 35 watts, made his first contact with another Novice, WN2TIK, Whippany, New Jersey. The contact was brief and his note indicates, *He lost me in the QRM and he was sending so fast, I copied little.*

But Uncle Norman was on the air and had logged his first contact. Another note in the margin says, *Large deal.* I can imagine his thrill with his first QSO.

Over the next several days, 61 attempts at a second contact failed. Uncle Norman was never one to give up easily. His log reflects a nice contact of nearly an hour with WN2PDY, Lewis, in Syracuse, New York. He received a 589 signal report and sent Lewis a 599. His margin note says, *Best QSO yet – Excellent.*

A month after receiving his license, KN2ENM added an antenna tuner and noted a better match for his transmitter. Over the next few months, he adjusted the length of his antenna for a lower SWR, changed the length of his feed line, added a plate meter and another 6L6 in parallel with his single output tube, and made other modifications and adjustments.

By New Years of 1958, Uncle Norman's contacts were becoming routine. He was learning fast, spending a lot of time



After letting go of his K2ENM callsign, Uncle Norman was issued W5UAK, requiring a new set of QSL cards.

at the station, and seemed to really enjoy his operation. He was never shy about trying new things as his log books are crammed full of notes concerning antenna adjustments, modifications to his homebrew Novice rig, and comments concerning tips and hints from his CW contacts with other hams.

On July 17, 1958, KN2ENM dropped the N and became K2ENM when he was granted his General class license. On September 1, he placed his newly assembled Heathkit Apache into service. At this point in his logbook there are a few A3 phone contacts. While he did try amplitude modulation (AM) emissions, the bulk of the entries are still on CW.

November 1, 1958 saw a new trap antenna installed. The logbook reflects the station's SWR is now down to 1.0:1 on higher 80-meter band frequencies and no higher than 2.6:1 on any 80 meter band frequency.

Over the next few months, the trap antenna was adjusted several times and there are notes in the log concerning other Apache users along with some tips from other hams.

In December, a 10-meter dipole was added to the antenna farm. In November of 1959, K2ENM tried SSB for the first



A You Tube video shows a Hallicrafters SR-20R Sky Champion receiver in action, like the one Grady McCright received from his Uncle Norman < <http://bit.ly/gK8QWM> >.
(Courtesy of You Tube)

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. **GWIM \$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. **GWIM \$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

"It is interesting to review Uncle Norman's logs and see how his station improved as new equipment and antennas came along."

time and noted in the log that it worked fine. As it did all over the world, SSB caught on and when he was using phone from then on, SSB was the option of choice.

In October of 1960, Uncle Norman's log shows a SSB contact with W2IL, Tel from Haddonfield, New Jersey, who said he had retired from RCA and had been a ham since 1903. The United States didn't even issue licenses until 1912, so Tel had certainly been a ham from the very early days.

A Snapshot of Progress

It is interesting to review Uncle Norman's logs and see how his station improved as new equipment and antennas came along. Being on the east coast of the U.S., his QSOs encompass most of the countries in Eastern Europe including the USSR. K2ENM bagged his share of DX around the world and as his expertise and station capabilities grew, so did the DX entries.

From the time he started making phone emissions, his logs are sprinkled with notes of third parties at the microphone. He served as an Elmer to many people during his 50-plus as a ham radio operator.

After retirement, Uncle Norman moved to Saline County, Arkansas and in October 1973 became W5UAK. By this time, he was running a 1,000-watt amplifier from time to time, but

the linear was not used after 1993. He remained a very active operator through a move in 1989 to be near his daughter in Rock Hill, South Carolina.

In 2001, he made his final upgrade to the station with the purchase of an ICOM 756PRO and an MFJ 464 CW Keyer/Reader. W5UAK's final contact was logged on April 23, 2006 when the station went QRT for the final time.

Uncle Norman Now

Uncle Norman is living in a retirement home at 94 years of age and is doing reasonably well. His equipment is back on the air as W5GEM and is used almost daily.

I am so happy to see W5UAK displayed on the screen when I'm powering up the rig as it is calibrating. It will always be a thrill and an honor to log a new contact using his station.

QST to All Radio Amateurs . . .

May each of us hope and strive to ignite a bonfire under some youngster both to promote our great hobby and to encourage the youth of this country to reach for the stars and pursue whatever career interests they may have with all diligence.

Exposure to amateur radio and training will aid these young folks into becoming productive citizens of this great country and maybe, *just maybe*, a few of them will contribute to advancing our technology in the future.

Think of Uncle Norman: W5UAK is a world-class radio amateur and a world-class Elmer who has had such enjoyment – and an impact on others – through his hobby.

Thanks, Uncle Norman, for a job well done.



After CW Testing Stopped – A Hard Look, Four Years Later

By Randall Noon, KC0CCR

The official notice that CW testing would no longer be required to obtain an amateur operator's license in the U.S. was announced by the FCC on December 15, 2006. The last required CW tests were given in the 30-day period after the official announcement. A number of hopeful hams packed into some of the January 2007 testing sessions to have future bragging rights that they received their licenses by passing the 5 wpm test way back when it was required. Lots of predictions were made about what this would do to ham radio, some of them quite dire. Since it has now been four full years since official CW testing ceased, let's examine what the facts indicate has really happened.

How Did the Change Affect Licensing?

With respect to the total number of hams with licenses, the figures in Table 1 show the number of licensed hams at the end of October in each year from 2005 to 2010. Using October 2005 as the base year, there was a downward trend for three years from 2005 to 2007. Then the trend reversed in 2008 and has been upward in the past three years. In fact, more hams are currently licensed than at any time in the history of amateur radio in the US. This is about 0.23 percent of the U.S. population.

It does appear that the testing changes made in 2007 do correlate with an increase in the number of licensed hams.

Who Are They?

Are these active hams, or just hams who took the test and don't get on the air? To answer, I went to the data published by the ARRL concerning Field Day statistics for the same period. The assumption is that people who participate in Field Day are at least minimally active hams. The results of this comparison are shown in Table 2.

The figures in Table 2 indicate that the percentage of Field Day participants as compared to the total number of licensed

hams in each year dropped slightly, perhaps insignificantly, from 2005 to 2006. However, the percentage of Field Day participants as compared to the total number of licensed hams jumped in 2007, from 4.98 percent in 2005 to 5.31 percent in 2007. This is a 6.6 percent increase. Since 2007, the higher level of Field Day participation has stayed at this level. While there were 4.6 percent more licensed hams in 2010 than in 2005, participation on Field Day in 2010 was 9 percent higher than Field Day 2005.

Thus, Field Day participation has not increased just because the number of hams has increased. More hams now participate in Field Day activities both in absolute numbers, and as a percent of the total number of licensed hams than ever before, and the data indicates the change occurred in 2007.

Has the Use of CW Dropped Since Testing Stopped?

Table 3 shows the total number of QSOs documented in entries each year on Field Day from 2005 to 2010, and also indicates the split among phone QSOs, CW QSOs and digital QSOs. The table shows the total number of entries, the total number of Get On The Air (GOTA) stations, and the total number of participants, as well. Again, Field Day data was used to answer this question because it is eminently quantifiable and because it is assumed that hams will use the same modes on Field Day that they do in when operating at other times.

The figures indicate there was a slight increase in the percentage of CW QSOs from 2005 to 2007, and there was a slight decrease in the percentage of CW QSOs from 2007 to 2010.

In absolute numbers, however, the numbers of CW QSOs in both 2009 and 2010 have been the highest ever. Further, the number of CW QSOs in 2010 was 7.4 percent higher than in 2005, even though the number of licensed hams has increased 4.6 percent in that same period.

Year	2005	2006	2007	2008	2009	2010
Total Hams	664,260	658,454	656,501	661,591	679,441	694,991
% +/-	Base year	-0.9 %	-1.17%	-0.4%	+2.3%	+4.6%

Table 1. Total number of U.S. licensed radio amateurs as of October in each year.

Year	2005	2006	2007	2008	2009	2010
Total Hams	664,260	658,454	656,501	661,591	679,441	694,991
FD number	33,078	32,506	34,833	35,798	37,798	37,765
% of total	4.98%	4.94%	5.31%	5.41%	5.56%	5.43%

Table 2. Percent who participated in ARRL Field Day

Interestingly, the increases and decrease in the percentage of CW QSOs have not necessarily been countered by corresponding decreases and increases in the percentage of phone QSOs. The percentage of phone QSOs slightly decreased from 2005 to 2007 (as CW QSOs slightly increased), but the percentage of phone QSOs have slightly decreased from 2008 to 2010 (as CW QSOs also slightly increased). In absolute numbers, the number of phone QSOs has also significantly increased in the period 2005 to 2010. In 2010, the number of phone QSOs was 7.9 percent higher than in 2005.

So, Just What is Going On?

The numbers indicate that while both CW and phone QSOs have increased in absolute numbers, *as a percentage* of each year's QSOs they both have slightly declined due to the corresponding rise in digital QSOs. In other words, as a percentage of the total number of QSOs, digital is stealing an equal share of the pie from both CW and phone. The absolute number of digital QSOs in 2010 was 92.4 percent greater than in 2005.

In short, CW usage among hams, as measured by Field Day usage, has not dropped since testing ceased in 2007. In fact, it appears that the use of CW has gained in absolute usage because the newer hams licensed since 2007 appear to be more actively engaged in the hobby, as evident by the higher levels of participation in Field Day.

The numbers indicate that the end of CW testing did not herald the end of CW, as was predicted by some. But then again, this should have been expected. CW has not been used by hams just because there was a test; it has been used because it has been, and continues to be, a useful mode of wireless communication.

Do the Figures Indicate Anything Else?

The numbers indicate that since 2007 there has been a small, but steady and significant increase in the use of digital modes on Field Day in addition to the traditional CW and phone modes. This suggests that a number of the newer hams who have been licensed since 2007 are bringing into the hobby computer based communication skills in addition to the

traditional CW and phone modes. In my opinion, that's a good development.

Upcoming CW Activities

The **Winter Sprint** sponsored by FISTS will run from 1700 UTC to 2100 UTC on Saturday, February 12. Sprints are fun and do not require marathon level endurance or the predatory pile up instincts of a wolverine to win, place or show. It's just four hours of hanging out

with radio buddies and making CW contacts. Operation is on the 3.5, 7, 14, 21, and 28 MHz amateur bands, and an operator may work stations only once per band. Contacting the same operator on several bands, however, is just fine. There are three operating classes: 5 to 100 watts; 5 watts or less, and clubs (any power). A person does not have to be a FISTS member to participate. For more information, go to: < <http://www.fists.org/sprints.html> >.

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

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

handhams

Ham Radio for people with disabilities since 1967
• License manuals and books on tape
COURAGE HANDI-HAM SYSTEM
763-520-0511 hamradio@couragem.org
3915 Golden Valley Rd., Golden Valley, MN 55422

JAMES E MACKEY
PHILATELICS, STATIONERY

OVERSEAS POSTAGE
AIR MAIL ENVELOPES

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

1-585-591-8149

Custom Ham Hats
Only! **\$14.99 + S&H**

Exclusive EMBROIDER for Amateur Radio Operators!
www.pennystitch.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

HamRadio Anthologies

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 AHOME ~~\$19.95~~ **SALE \$18.00**

Test Equipment & Repair Techniques - From building test gear to trouble shooting the rig, here's the best articles on the subject, carefully selected to meet today's needs. Order ATEST ~~\$19.95~~ **SALE \$18.00**

Antennas 1968 - 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. All articles have been selected to be as timely and valuable to today's Ham.

Shipping & Handling: USA - \$7 for 1st book, \$3.50 for 2nd, \$2 for each additional. CN/MX- \$15 for 1st, \$7 for 2nd, \$3.50 for each add'l. All Other Countries- \$25 for 1st, \$10 for 2nd, \$5 for each add'l.

CQ Communications, Inc.
25 Newbridge Rd., Hicksville, NY 11801 516-681-2922
www.cq-amateur-radio.com

Item	2005	2006	2007	2008	2009	2010
CW QSO's	503,205 41.3%	518,799 42.0%	511,580 42.2%	506,139 40.9%	556,525 40.9%	540,419 40.6%
Digital	21,766 1.8%	21,459 1.7%	22,112 1.8%	27,869 2.3%	38,340 2.8%	41,872 3.2%
Phone	692,722 56.9%	696,567 56.3%	679,240 56.0%	702,847 56.8%	765,536 56.3%	747,519 56.2%
Totals	1,217,693	1,236,825	1,212,932	1,236,855	1,360,401	1,329,810
Total Entries	2,212	2,199	2,331	2,409	2,642	2,649
GOTA's	396	432	467	447	470	467
Participants	33,078	32,506	34,833	35,798	37,592	37,765

Table 3. Field Day Overall Statistics, 2005-2010

Don't forget the **Freeze Your Keys** events that many clubs sponsor in February. One to listen for on February 19 is the *Seventh Annual Freeze Your Keys Winter Operating Event* from 1400 UTC to 2200 UTC - call sign WØEBB, sponsored by the Leavenworth, Kansas Kickapoo QRP Amateur Radio Club. Check CW frequencies 14.060 and 7.040. QSLs go to Gary Auchard, 34058 167th St, Leavenworth, KS 66048; w0ebb@juno.com. These are fun events. Look for one to join in your area.

Last, would you like to improve your CW, or do you know someone who would? Would you like to have an on-air **Code Buddy**, a person with whom you can practice your code without feeling embarrassed as you learn? You are in luck, my friend. FISTS offers a "Code Buddy" program to help you practice your on-the-air code. This is a good way to improve your code skills, or knock the rust off of skills you used to have, and it is free. Just sign up. For more information, visit: < <http://www.qsl.net/w9em/index.html> >.



Here's the 2010 ARRL Field Day set up for the combined Hiawatha and Falls City Amateur Radio Clubs at the Wal-Mart in Hiawatha, Kansas. (Courtesy of KCØCCR)



Using Antenna Height As An Aid to Propagation

By Carl Luetzelschwab, K9LA

While getting ready for last November's CQ World Wide CW contest, I ran some propagation predictions using VOACAP (Voice of America Coverage Analysis Program) at a smoothed sunspot number of 30 to give me a general idea of what bands to be on and when.

After that I started thinking about antennas and how I could do something to help propagation. Don't get me wrong—propagation will be what it is and we can't do anything about it, but my thoughts ran along the lines of "could I do something with my antennas to aid (enhance) propagation?"

The answer to that question is put up bigger antennas at the correct height. I'm going to skip "bigger" for now, and focus on the height aspect. I'll restrict this analysis to 20 meters.

My antenna farm on 20 consists of a Tennadyne T6 log periodic dipole array at 60 feet. The T6 is six elements on a 12-foot boom and it covers 20 through 10 meters. Modeling suggests it is roughly equivalent to, or slightly better than, a two-element monobander on each band.

To investigate the height aspect, we need to know what elevation angle(s) the ionosphere is giving us to make it from Point A to Point B. So I went back to VOACAP and ran a pre-

diction using Method 25 (All Modes) for a path from my Indiana location to DL (Germany) at 1300 UTC.

For the DL end of the path (the receive end) I assumed an antenna with a gain of 16 dBi. For my end of the path (the transmit end) I assumed 1,000 watts and 0 dBi gain (more on this later). Figure 1 shows the results.

Note that five modes (different paths through the ionosphere) are possible for this path on 14.1 MHz, and they are 3F2, 3E, 4F2, a second 4F2, and 4E. But I need to take into account signal strength to see which modes are truly useable.

Now, a typical modern receiver has an MDS (minimum discernible signal) of around -135 dBm (dB referenced to one milliwatt) in a CW bandwidth, which translates to -165 dBW (dB referenced to one Watt) in VOACAP's format.

Remember, I used 0 dBi for my antenna gain. I did that so I could add the actual gain of my transmit antenna (the T6 at 60 feet) at the mode elevation angle (ANGLE) to the mode signal power (SIG. POW.) in Figure 1. That would give me the true signal power, and I can see which modes are below -165 dBW—which I'll eliminate from the analysis.

SUMMARY	5 MODES		FREQ = 14.1 MHZ		UT = 13.0		
	3.F2	3. E	4.F2	4.F2	4. E	Most REL	3.F2
TIME DEL.	23.68	23.15	24.21	25.48	23.33		23.68
ANGLE	6.34	1.07	12.32	19.06	5.14		6.34
VIR. HITE	236.29	125.30	253.22	372.44	136.93		236.29
TRAN. LOSS	149.56	820.86	158.73	191.36	962.18		149.56
T. GAIN	0.00	0.00	0.00	0.00	0.00		0.00
R. GAIN	16.00	16.00	16.00	16.00	16.00		16.00
ABSORB	4.51	5.28	3.40	2.54	4.74		
FS. LOSS	132.46	132.26	132.65	133.09	132.33		
FIELD ST.	-5.38	-676.68	-14.54	-47.18	-817.99		-4.88
SIG. POW.	-119.56	-790.86	-128.73	-161.36	-932.18		-119.07
SNR	43.18	-628.12	34.02	1.39	-769.43		43.68
MODE PROB	0.91	0.00	0.58	0.58	0.00		0.91
R. PWRG	1000.00	1000.00	1000.00	1000.00	1000.00		8.52
RELIABIL	0.80	0.00	0.63	0.10	0.00		0.80
SERV PROB	0.40	0.00	0.30	0.08	0.00		0.40
SIG LOW	23.23	15.70	25.00	25.00	15.70		23.39
SIG UP	10.32	25.00	14.38	25.00	9.81		10.99
NOISE =	-163	S. POWER =	-119.1				
SIGNAL =	15.7	15.6	9.8 /	6.0	5.3	5.7	
NOISE =	9.4	-162.7	5.4 /	1.4	4.5	1.6	
RELIAB =	12.2	43.7	25.2				
SPROB =	35.5	18.1	35.5				
□ CCIR Coefficients ~METHOD 25 VOACAP 06.0418W PAGE 2							

Figure 1 – All Modes Predictions for 20 meters

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



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



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

Real Hams Do Code

Learn code with hypnosis today.
Download Now!

www.success-is-easy.com

561-302-7731

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

Licensed 1986 or Earlier?

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

QCWA, Inc., Dept. WR
PO Box 3247
Framingham, MA 01705-3247
USA

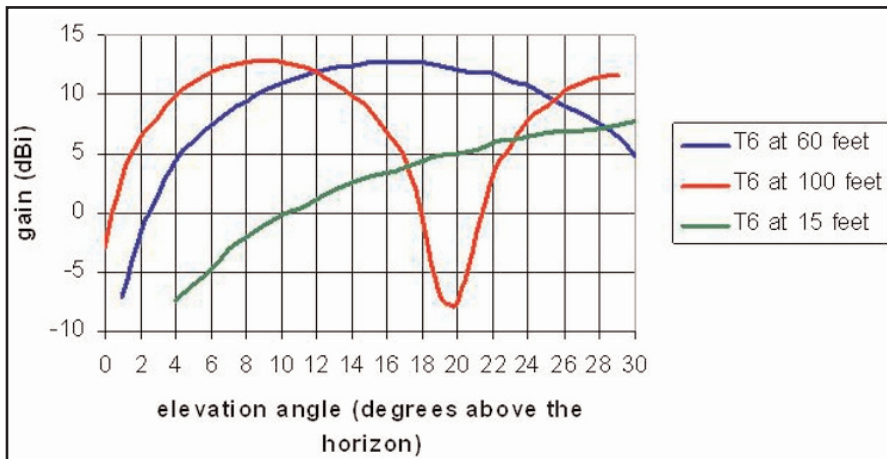


Figure 2 – Antenna Patterns

Mode	Transmit elevation angle at K9LA in degrees	Signal power at DL in dBW	Signal strength at DL in S-units
3F2	6.34	-112	~ S7
3E	1.07	-798	below the MDS
4F2	12.32	-117	~ S6
4F2	19.06	-148	~ S0
4E	5.14	-926	below the MDS

Table 1 – Summary of the Modes

Figure 2 plots the pattern of my T6 at 60 feet (the blue curve) in rectangular coordinates (it also includes the patterns of an antenna at 100 feet and at 15 feet for later discussion).

With the data in Figure 2, I can pick off the gain at the desired elevation angle and add it to the signal power in Figure 1. A summary of the actual median signal powers at DL for the various modes is in Table 1.

Two of the modes give signal powers well below -165 dBW: the 3E mode (three hops via the E region) and the 4E mode (four hops via the E region). So I'll eliminate these. This leaves the three F2 region modes.

The 3F2 mode results in the highest signal strength – about S7. The first 4F2 mode (at the lower elevation angle) isn't far behind at about S6, and could potentially contribute to fading since it's close to the 3F2 mode strength. The second 4F2 mode (at the higher elevation angle) is quite a bit lower at about S0, and we can essentially disregard it.

Thus 1,000 watts to my T6 at 60 feet would put an S7 median signal into DL via the best mode. Now we can address my earlier question: could I do something with my antennas to aid (enhance) propagation?

If I moved my T6 to 100 feet (the red curve in Figure 2), some simple math with the data I've presented says the 3F2 mode would now be at S8 and the 4F2 mode would remain at S6. Is the cost and effort of the extra tower hardware worth an S-unit? That's a question only you can answer based on your goals in amateur radio.

What if I could only put my T6 at 15 feet (the green curve in Figure 2)? Going through the math indicates the 3F2 mode would now be at S5 and the 4F2 mode would be at S4. That's still a workable situation. Sure, you won't be first in the pile-ups, but a little operating savvy will overcome some of that deficit. As a side note, if someone tells you his low height antenna only radiates straight up, be cautious about agreeing with him. As we've seen, a low height antenna will still put some useful radiation at the low elevation angles.

This analysis was rather simple, as I've just touched the surface here. I only looked at one path on one band at one time at one smoothed sunspot number during one month. To put your antenna(s) at the proper height would require much more analysis.

Fortunately, someone has already done that. It's Dean Straw, N6BV,

retired ARRL Senior Technical Editor. Check out his HFTA (HF Terrain Analysis) program on the CD that comes with the ARRL Antenna Book. What you'll be able to do is plot your antenna elevation pattern (like Figure 2) and superimpose elevation angle statistics on the same plot to see how well your antenna covers the angles that the ionosphere dictates.

Four closing comments are in order:

First, my analysis assumed flat ground. But many hams live on hills and in valleys. What do you do about this situation, as elevation angles are sensitive to terrain features? The best way to address this is with the aforementioned HFTA, as it can determine your elevation patterns over your specific terrain (from user-supplied terrain data) using diffraction theory.

Second, there are fewer modes as we move higher in frequency. That's because the MUF (maximum useable frequency) is more critical as we move up in frequency. I should mention that regardless of the number of modes, VOACAP presents the best mode and the reported signal power is the sum of all the modes (of course many don't contribute at all since they are so low).

Third, a good rule of thumb to remember is that if you double the height of your antenna, the signal strength will increase by about one S-unit. Likewise, if you have to reduce your antenna height (that would be a tough one to take, right?), halving the height loses about one S-unit.

Fourth, the idea of putting your antennas at the proper height based on the elevation angles dictated by the ionosphere has its roots in Yagi Antenna Design (ARRL, 1986) by Dr. James Lawson, W2PV (SK). He reasoned that elevation angles from 3 to 17 degrees pretty much covered all the great circle distances and number of hops for F2 region propagation.

Based on those angles, he further postulated that a height of 1.5 wavelengths is optimum to cover these angles. By the way, 1.5 wavelengths is 100 feet on 20 meters, and now you know why I used 100 feet in Figure 2.

To cover even more elevation angles, many hams – especially contesters – put up stacks of Yagis, with the ability to select many combinations of the antennas in the stack. Again, this is done to cover the elevation angles the ionosphere gives us for all conditions.

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: USA - \$7 for first item, \$3.50 for 2nd and \$2 for each additional. **CN/MX-** \$15 for first item, \$7 for 2nd and \$3.50 for each additional. **All Other Countries-** \$25 for first item, \$10 for 2nd and \$5 for each additional.

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

The NEW Shortwave Propagation Handbook

The single most comprehensive source of information on HF propagation is once again available from CQ!

- 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 Road, Hicksville, NY 11801
Phone 516-681-2922 • FAX 516-681-2926





PR Stands for Public Relations and Personal Relationships

By Devere "Dee" Logan, W1HEO

PR stands for public relations, but effective *personal relationships* are developed by people. Most of us were introduced to amateur radio by another person, and this personal touch remains one of the most effective ways to attract people to our great hobby and public service. So here's to those people who truly put the "P" in ham radio public relations.

More ham radio people

First, as we move through another year, let's salute the people in ham radio who have helped to increase our numbers. The fact is, by showing the growth of our radio service we're sending a strong message to those in Washington, D.C. who regulate our radio service and control our future.

Let's look at the record. During 2010, the number of amateur radio licensees in the U.S. grew to more than 694,000. That's quite a healthy increase over the 655,000 of three years ago. This didn't happen without a good deal of personal influ-



Malcolm Gordon, ZL3UU, shows two young ladies some tips on building an AM receiver, part of the ZL3 Radio Buildathon project. (Courtesy of ZL3DWS)



Youngsters listen intently during the ZL3 Radio Buildathon in Christchurch, New Zealand.

ence by ham radio people. Our hats are off to them for their fine efforts.

This doesn't mean that promotional activities targeted at the general public aren't necessary. We need to use all available tools to communicate amateur radio and its value as a rewarding personal hobby and important public service. But turning awareness into a desire to learn more and possibly become a licensed ham is often a *one-on-one* activity.

This critical step is one of the major links in the chain of four key activities that are emphasized by the Ham Radio Promotion Project < <http://www.neoham.org> >.

First, we must promote ham radio to raise awareness. Second is prospecting for those who appear interested. Third is qualifying, finding out who are likely candidates for a license. And fourth is training: helping prospects to prepare for the license exam.

To progress through these four steps, it requires interested and motivated people. Successful, active radio clubs often have enough members to do this. Club-sponsored radio classes are a good way to recruit club members. All it takes is people to teach the classes.

What you can do

Each of us has many opportunities to tell others about the many fun and exciting things we do as radio amateurs. Story telling about our on-air experiences is a powerful word-of-mouth tool. Many successful businesses were built as a result of customers telling others about their experiences with good products or services. And it costs *nothing*!

References to your radio activities are easily worked into casual conversations. For example, sharing some of the details of a shortwave contact with a fellow ham in another country can be interesting. You might subtly note that the ability to do this with your personal station at home isn't something you can do with a cell phone. (And there's no monthly bill!) This may intrigue the listener, who might even express interest in learning more about ham radio.

Personal contacts with others who could benefit from an understanding of amateur radio's potential and pass this information along to their associates are another one-on-one, word-of-mouth opportunity. Typical contacts include teachers, scout leaders, youth leaders, civic leaders, emergency preparedness groups, service clubs, fellow employees, and neighbors to mention just a few.

It helps to follow through on such contacts by offering further information. This might include literature, a showing of the promotional video "Amateur Radio: Wireless Window to the World" < <http://www.neoham.org> >, or giving a presentation. Radio clubs can often help by supplying local contacts, training classes etc.

The ZL Radio Buildathons

People working together can accomplish wonderful things. We hear from Christchurch, New Zealand, **WRO** reader David Searle, ZL3DWS, who describes Radio Buildathons organized by radio hams in his area. He's coordinated eight of the activities for the last three years that include "local kids 8 to 81."

The purpose of the ZL3 Radio Buildathons is to introduce

amateur radio and electronic construction to the public and bring several radio clubs together to work on a fun project. Another goal is to educate and mentor future technologists and communicators. The Buildathons are also designed to grow the number of new amateur radio operators.

Some of the projects include building kits, including simple shortwave broadcast radios, direct conversion ham band receivers, and matching low-power Morse code transmitters.

Where did the money for the kits come from? Searle reports that \$4,000 came from the city council along with help from local companies, the G-QRP club and Far Circuits.

This is a good example of what people working together can accomplish – in this case a group of ham radio clubs. Their Radio Buildathons create awareness of our hobby and undoubtedly can result in future licensees. For further information, visit <<http://sites.google.com/site/zl3buildathon/>> or contact ZL3DWS at: davidsearle@contactplus.co.nz.

The Promotional Panorama

Here are a few miscellaneous items that may be of interest:

There's nothing like the power of demonstration. You might want to check out an interesting Youtube tour of the International Space Station showing ham radio contacts in progress. The site is: < <http://www.youtube.com/watch?v=h73EYcyszf8> > Also, there's a section of the promotional video "Amateur Radio: Wireless Window to the World" <<http://www.neoham.org>> showing the space station and comments by astronaut Richard Garriott, W5KWQ.

Internet-based social networking is attracting growing numbers of all ages: 88 percent of those ages 18-34; 69 percent of those ages 35-49; and 41 percent of persons age 50+ claim to have visited in a recent 30-day period according to Public Relations Society of America's monthly newspaper *Tactics*.

Despite the increasing popularity of the Internet, traditional media deserve to be included when you distribute radio club news releases. Recent surveys show that the number one people's choice for local news is television (64 percent), followed by newspapers and then the Internet.

Radio club newsletters provide a variety of benefits. They announce meetings, programs, news of activities, and update readers on various happenings. Content is important, and so is good editing. Stick to the facts by using the journalistic style first paragraph that covers the *who, what, where, when* and *why*.

Good writing keeps things simple. *Avoid needless words* is the golden rule of writing. Check the paperback book *The Elements of Style* by Strunk and White for tips on good writing.

Distribute your newsletter to area news outlets and civic leaders. It's a good way to maintain a link to those who should be aware of amateur radio's activities and benefit to the community.

Let us know what promotional activities are working for you. We'll pass the word.

Devere "Dee" Logan, WIHEO, is a veteran writer and public relations counselor. Contact him at deverelogan@gmail.com



Reading the Manual Can Be a Challenge for the Blind Operator

By Patrick Tice, WAØTDA

Read the manual! How many times have you heard that advice? Oh, sure . . . We all want to dig into the box, toss the packing material aside, connect the new rig, and get on the air! Who wants to take the time to read the instruction manual? *Let's go!*

Of course a few minutes later, humbled by the new rig's menu system, we have to reluctantly dig back into that pile of packing material and find the instruction manual.

Yes, these days it really does pay to take a few minutes to check out the instruction manual and at least find the part labeled *getting started* or *quick start guide*.

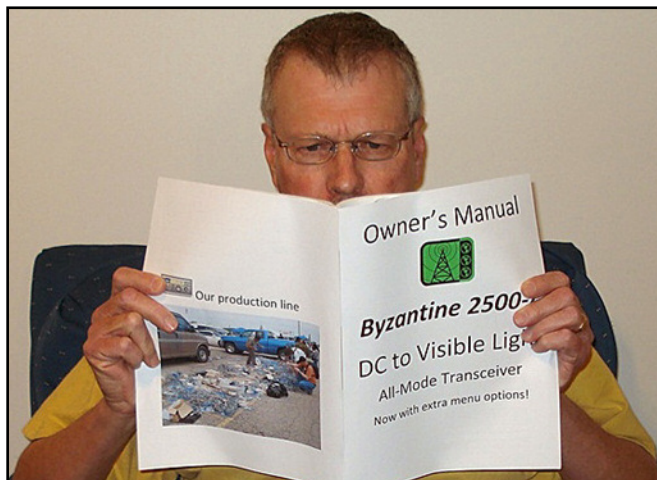
Almost every new piece of equipment will have default settings that we will want to change, and checking the manual will actually prove to be a time-saver.

So while reading the manual may be an inconvenience for most of us, what is the blind amateur radio operator supposed to do? There's the radio, sitting on the desk. The blind operator can get a sense of what the radio feels like, paying attention to the front panel controls and the points of connection on the rear panel. What all of these things actually connect to or control, well . . . That's all described in the manual. And the blind operator can't see it.

There are a couple of ways to approach this problem if you are a blind ham. The traditional one is to have a sighted person, usually a spouse with a lot of patience, help you read through the print manual and cover at least the *getting started* section and the diagrams of the front and rear panel layouts. It is difficult to get around this part of the manual without having sighted help, but if the radio is similar to a previous model by the same manufacturer, the blind operator may have a leg up on understanding the layout of the controls and connectors.

Another option is the PDF version of the manual, which may be downloaded from the manufacturer's website. Nearly all new PDF manuals these days contain embedded text – plain computer text that can be picked up and read by a screen reading software program used by a blind person. Theoretically, this accessibility feature in a PDF manual can give a blind operator access to the instruction manual, but there is a catch: Diagrams are still not accessible to a blind operator using a screen reading program.

The text embedded in a PDF can be thought of more or less as a plain text file. The reason manufacturers use diagrams in a manual is because the diagram is the easiest, fastest, and most intuitive way to show what is in which position on the front panel of the radio. The various controls can be labeled and a sighted operator can see at a glance where the noise blanker or audio gain controls are in relation to each other. Since the diagram does not convert to plain text, the blind operator cannot make use of the diagram at all.



Eager to get on the air with his new, extremely rare “Byzantine 2500-1 DC to Visible Light All-Mode Transceiver,” WRO With the Handihams columnist Patrick Tice, WAØTDA, said he finally had to “give up and read the manual.” (Courtesy of WAØTDA)

Another problem with PDF instruction manuals is that some of the text may end up out of context. This can happen when there is some text accompanying a picture or a diagram or perhaps in a sidebar on the page and it gets mixed in with the main body text on the page. Even though the embedded text in a PDF instruction manual is a wonderful reference tool for a blind operator using the search field in a PDF reader, this format is still not absolutely the best way to learn the radio right out-of-the-box. As I mentioned, a sighted person is generally required at the outset to explain the most basic front and rear panel diagrams.

Once a blind operator has learned these basics about the radio, the PDF instruction manual now becomes a useful reference tool. Menu item settings may be too numerous to commit to memory, and a search of the text in the PDF manual can provide a quick link to the explanation of a given menu item. The embedded text in PDF has thus far proven to be a huge advancement in accessibility for people with disabilities, and every blind amateur radio operator should have a library of PDF instruction manuals for all the equipment in the ham shack.

In the early days of PDF, there was no embedded text. It is still possible to produce PDF without embedded text, so it is not a certainty that every PDF manual one can find online contains text accessible to a blind operator. Older manuals that have been scanned as an image are one example. Fortunately, the default method of saving to PDF these days seems to be with embed-

ded (and thus blind-accessible) text. If you produce an amateur radio document yourself and want to share it on the Internet in PDF, be sure that you have the right options selected for saving with embedded text. In most cases, you will have to make no changes at all to your PDF production program since accessibility will be enabled by default. If you scan a document with both text and diagrams, your scanning software may include the option to save as PDF without text embedded or PDF with text embedded. Be sure to choose the second option to make your document accessible to blind users.

There are many examples of accessible PDF amateur radio documents online. In fact, *WorldRadio Online* magazine is one example of a PDF with embedded accessible text. You can check for accessible text by opening your latest copy of **WRO**, then placing the computer cursor in a text area. Click and hold the left mouse button and drag the cursor over the text. If it can be selected, it has embedded text.

Next, use your copy of **WRO** to practice search for a term. Open your issue with your PDF reading software, then use the <CTRL> key and the letter "F" at the same time. This places the cursor into the search box. Type in the word sterba, and press the <Enter> key. The first thing you will likely find is Kurt N. Sterba in the list of contributing editors. Press the <Enter> key again, and you will most likely find the *Aerials* column. Now you know how a blind person searches a PDF document, and you can save time by using this keyboard shortcut yourself.

If your club newsletter or a description of an amateur radio construction project goes online, be sure to consider providing the embedded text if you are using PDF. It's easy to do, and blind operators will really appreciate being able to access the document themselves with their screen reading computers.

Want to learn more about Handihams? Check out www.handiham.org or contact us:

Courage Center Handiham System
3915 Golden Valley Road
Golden Valley, MN 55422
Toll-Free: 1-866-426-3442
hamradio@couragecenter.org

RSGB Books



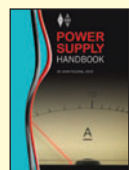
HF Antenna Collection

252 pages.

A collection of outstanding articles and short pieces which were published in *Radio Communication* magazine. Includes single- and multi-element, horizontal and

vertical antennas, extremely small transceiving and receiving antennas, feeders, tuners and more!

Order: RSHFAC **\$33.00**



Power Supply Handbook

By John Fielding, ZS5JF
288 pages

How power supplies work, selecting components, building and modifying supplies,

measuring the finished supply, batteries, chargers, test equipment - it's all right here!

Order: RSPSH **\$28.50**

World at Their Fingertips

By John Clarricoats, G6CL



The story of amateur radio in the U.K. and a history of the Radio Society of Great Britain. Its pages and illustrations give an account of the development of a hobby that has provided technical knowledge and service to the community.

Order: RSWATF **\$16.00**

QRP Basics

By Rev. George Dobbs, G3RJV
208 pages

How to get the best results from a QRP station whether from home or outdoors. How to construct your own station, complete transmitters, receivers and some accessories. Includes toroidal coils, construction techniques and equipping a work station.

Order: RSQRPB **\$28.50**

VHF/UHF Handbook

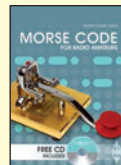
Edited by Andy Barter, G8ATD
320 pages.

Guides you through the theory and practice of VHF/UHF operating and transmission lines. Includes information on getting started, antennas, constructing your own equipment, satellite ops, local nets and specialized modes.

Order: RXVUH **\$29.50**

Morse Code for Radio Amateurs

by Roger Cooke, G3LDI



Fully revised and updated tenth edition shows how to learn Morse code and get the maximum enjoyment from using it. Includes a dual purpose CD (computer/audio) with nearly an hour of audio recordings of Morse code at 5, 10, 15, 20 and 25 words per minute

Order: RSMCRA **\$16.00**

HF Antennas for Everyone

Edited by Giles Rad, G1MFG



No matter the size of your available space - you'll find antenna designs that will help you get your signals in and out!

Order: RSHFAE **\$27.95**

HF Amateur Radio

2007 Second Ed.

This full revised and expanded second edition 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 Occasions



By Murray Greenman, ZL1PBPU
208 pages

Simply the most "complete" book on digital modes available. Over 100 illustrations!

Order: RSDMFAC **\$28.50**

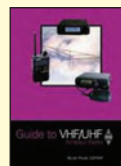
Microwave Know How for the Radio Amateur

Edited by Andy Barter, G8ATD

This 192-page compilation of articles aimed at those interested in building equipment for the microwave bands

Order: RSKH **\$25.00**

Guide to VHF/UHF Amateur Radio



By Ian Poole, G3YWX
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 if each band and more!

Order No. RSGVUAR **\$16.95**



CQ Communications Inc.

25 Newbridge Rd., Hicksville, NY 11801

516-681-2922 • Fax 516-681-2926 • Order Toll-Free 800-853-9797





HAMFESTS & SPECIAL EVENTS

FEBRUARY

WASHINGTON, PENNSYLVANIA – **Special Event Station W3C** at the Washington County Sportsmen Show, February 3 through 6 at the Washington Crown Center Mall – for the 11th year. Operation from 1200 to 1800 UTC each day. Frequencies: 7.225 and 14.250 MHz (SSB). QSL information: Ed Oelschlager, 60 Carl Ave., B2, Eighty Four, PA 15330. Other information: < <http://www.wa3comarc.org> >.

HATILLO, PUERTO RICO – The Caribbean Amateur Radio Club from Hatillo Puerto Rico will be sponsoring **The Great Hamfest of the North** on Sunday, February 6, at the Hatillo Municipal Coliseum, Hatillo, Puerto Rico from 0800 to 1400 Hrs. This event is free and open to the public. There will be FCC walk-in exams by W4VEC, many vendors, door prizes, used equipment sales and conferences. Contact frequencies are 147.21 (-) (Tone 127.3) and 146.52 (simplex). Contact Serafin Martinez, KP4FIE, at: < serafinmrtz@yahoo.com >.

KENT, OHIO – **FYAO Special Event QRP Station K8BF**, February 19, 1500-2300 UTC during the **Sixth Annual Freeze Your Acorns Off (FYAO)** operating event. Sponsored by the Portage County Amateur Radio Service (PCARS) < <http://www.portcars.org> >. Operating in general areas of 15, 20, 40 and 80 meters – SSB, CW and Digital. Also FM on Echolink through the KC8RKV node. Contact K8BF or the other stations signing /FYAO. Certificate available: Send QSL and large SASE to Al Atkins, KB8VJL, 12433 Chamberlain Rd., Aurora, OH 44202.

SAN ANTONIO, TEXAS – **Siege Days at the Alamo Historic Commemoration**, San Antonio, Texas. **WA5DTK**. February 23 through March 6. Frequencies: 7.040 and 7.240 MHz; and 14.050 and 14.250 MHz. For special QSL, write Barry Brewer, 601 Wagon Wheel Trail, Pflugerville, TX 78660.

COLCHESTER, VERMONT – **HAM-CON: Vermont's Amateur Radio Convention**, sponsored by The Radio Amateurs of Northern Vermont, February 26, from 8 a.m. to 2 p.m. at the Hampton Inn Convention Center, I-89 at Exit 16, Colchester. Features include flea market, dealers, forums, demonstrations and VE Exams. General admission is \$8. If purchased on-line, \$6. Tables are free, while they last. Check Web Site for advanced ticket sales, forum schedule and vendor setup information. Talk-in on 145.15 repeat, bulletins on 146.67. Contact W1SJ at 802-879-6589. E-mail: < w1sj@arrl.net >. Web: < <http://www.ranv.org> >.

MARCH

FINDLAY, OHIO – **Special Event Station W8FT**, from the **Findlay Radio Club**, celebrating **90 years** of existence with a special event station beginning at 1300 UTC March 20, and running until 0100 UTC March 21. Operation will be on: 3.555, 3.855, 7.055, 7.260, 14.055, 14.255, 21.055, and 21.285 MHz. All contacts will receive a special QSL card from the club honoring the event.

LAS CRUCES, NEW MEXICO – **Special Event Station K5B**, operated by the Mesilla Valley Radio Club in Las Cruces, New Mexico, for the **22nd Annual Bataan Memorial Death March Marathon**. March 27 from 1000Z to 2300Z. Frequencies: 3.893, 7.225, 14.330, 21.337 MHz. For QSL, write: Special Event Station K5B, c/o Mesilla Valley Radio Club, PO Box 1443, Las Cruces, NM 88004-1443. For more information: < <http://www.n5bl.org/bataan> >.

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

CQ's "Getting Started" series now available on DVDs!

Our renowned Getting Started videos have been grouped together on DVDs!

CQ Ham Radio Welcome Pak 3 in 1 - Three programs on one DVD for only **\$24.95**

Ham Radio Horizons - An introduction for the prospective ham to what our hobby is all about.

Getting Started in Ham Radio - How to select equipment, antennas, bands, use repeater stations, grounding, basic soldering.

Getting Started in VHF - Intro to VHF. Repeater usage, VHF-DXing, satellites and more!



CQ VHF Specialty Pak 3 in 1

Three programs on one DVD for only **\$24.95**

Getting Started in Amateur Satellites - A newcomer's guide through the equipment, techniques and jargon of satellite communications.

Getting Started in VHF - Introduction to VHF. Repeater usage, VHF-DXing, satellites and more!

Getting Started in Packet Radio - How to set up the necessary equipment and get on the air on Packet. No theory . . . just the nuts and bolts of how to do it!



1 Pak....\$24.95
2 Paks....\$45.95
3 Paks....\$65.95

CQ HF Specialty Pak 2 in 1 - Two programs on one DVD for only **\$24.95**

Getting Started in DXing - Top DXers share their tips and techniques to help you hold your own!

Getting Started in Contesting - Learn from the experts. Practical advice, no complicated jargon!



Purchase 1 Pak for \$24.95 - 2 Paks for \$45.95 - or get all 3 for only **\$65.95!**

Buy any combination in quantity and save!



CQ Communications, Inc. • 25 Newbridge Rd., Hicksville, NY 11801
Order Today! 1-800-853-9797



Thinking About the Unthinkable: If We Don't Do It, Who Will?

COMMENTARY

By Bill Sexton, N1IN/AAM1RD/AAR1FP



There's no military directive covering the situation and it's not an everyday exercise scenario. But as soon as a Florida charter boat skipper from Air Force MARS and a New York Army MARS member heard each other was on the scene of the Haiti earthquake a year ago, they knew exactly what to do.

Neither had received instructions from his chain of command. There wasn't any Oporder (operations order) from the people who called for amateur radio's back-up. All that Ron Tomo, KE2UK/AAT2BC, and Jack Satterfield, W4GR/AFA4DG, did know was that thousands of lives were at risk, a couple of hospitals desperately needed help with communications, and their MARS training should prove valuable.

It sure did. Within a few hours of their separate arrivals in Port-au-Prince, Jack and Ron, who'd never met before, partnered to form an instant inter-service communications team.

They not only shuttled radio messages to and from the U.S., but from their separate locations a couple of miles apart organized a VHF net linking trauma centers. They fielded local emergency calls. They reprogrammed and repaired medics' intercom radios, rewired American electrical plugs for Haitian outlets and assisted coordinating patient transport to the U.S. Navy hospital ship offshore.

Satterfield and Tomo even aided in caring for some of the injured during a stretch of 20-hour days. All on their own initiative, and a pretty challenging workout it was for a youngish senior citizen (Jack was 61) and aging yuppie (Ron, an IT vice president from Long Island, 57).

A Fresh Look at the Emcomm Task

Though unaware at the time, the two volunteers also field-tested an undocumented and promising new mission for

the three independent branches of the Military Auxiliary Radio System. MARS normally defines its operations in terms of rigid standard operating procedures (SOPs), net plans, and hierarchical top-down leadership—branch by branch, state by state. In Haiti, the two hams demonstrated the high value of *can-do* initiative where the customary rulebooks don't

apply and the promised support systems just aren't there.

Does this sound like a situation that, in the worst of worst-case scenarios, any ham – any *surviving* ham – might confront in some future event?

In terms of re-validating the amateur role in disaster planning, the Haiti response couldn't have come at a better

Teaming Up in Port-au-Prince



During their time in Haiti, Jack Satterfield, W4GR/AFA4DG, and Ron Tomo, KE2UK, worked nets together 20 hours a day and more, but only met this once face-to-face during their deployment. Satterfield, of St. Pete Beach, Florida, left, visited the aid station where Tomo, of North Bellmore, New York, on his right, was located to pick up a radio needing repair. Satterfield was furnishing backup communications for the University of Miami Hospital's field unit in Port-au-Prince a couple of miles away from Tomo at the Nassau University Medical Center's trauma center from Long Island. The two had deployed in answer to the two hospitals' call, not MARS HQ (which has no authority to order deployment). With them were spinal surgeon Dr. Greg Soon Shiong (wearing fanny-pack) and Haitian site manager Alexis Francelot. (Courtesy of KE2UK)

time. Both DHS (Department of Homeland Security) and DoD (Department of Defense) are under pressure to accelerate preparing for major catastrophic events – say, a terrorist radiological attack on the East Coast or 100-year earthquake in California, the sort of “Big One” frequently mentioned at conferences but then pushed out of mind afterward.

For its part, MARS *needs* a fresh start. What with one thing and another, including several top leadership changes and a shakeup in the Pentagon, a sort of doldrums set in after the early post-Katrina invigoration. Going into the New Year 2011, all three MARS branches confronted some daunting realities. Among them:

ß Neither the armed services nor civil agencies yet offered specific guidelines for utilizing MARS resources in a catastrophic event. FEMA may have drafted 11 “Pre-scripted Mission Assignments” for rapid response, but if it includes MARS participation, then it’s news to leaders out in the field where that rapid response will be most immediately needed. For the moment, at least, MARS mirrors the free agent in pro sports – with a promising batting average but no contract. (Without an agent, even. The DoD office responsible for MARS was abolished during an economy drive last August).

ß In any case, “pre-scripted” SOPs and operations orders would probably be among the first casualties in a nuclear explosion, radiological accident or other worst-case scenario. By definition, communications will be disrupted over large areas; essential response personnel incapacitated, including leaders; infrastructure vital for response utterly destroyed.

ß Fairly flush with federal grants, emergency management agencies have increasingly put full-time employees into jobs volunteer communicators could handle as volunteer firemen respond to emergencies on call.

The MARS Advantage

Unlike Emergency Management Agency staffs concentrated in urban centers, MARS members are dispersed throughout the 50 states and thus pre-positioned for flexible response. Take the two MARS members in Port-au-Prince (and they weren’t the only hams pitching in): They required no Oporder to trigger a swift and effective answer to the needs they encountered. In fact, their deployment was in response to the two hospitals’ invitation, not MARS.

Fully-trained MARS members have the necessary cross-agency procedural know-how plus firm grounding in disciplined, dependable and accurate traffic handling. But most important of all, *they’re on the ground*.

At the time this opinion column was being written late in 2010, it was still astonishingly unclear precisely how MARS as a system might be employed in a major incident. By and large, national and state agencies haven’t slotted MARS into their organizational charts. (Two notable exceptions: the Air Force MARS inflight phone patch service and Army MARS Winlink network).

Sure, the words “support” and “contingency” appear in the reams of mission statements, emergency operation plans and training programs that govern MARS. But the basic nuts-and-bolts details (such as unified command structure, provision of ID credentials, liability coverage, lines of communication to Active Duty forces) are ignored or else are impossibly vague.

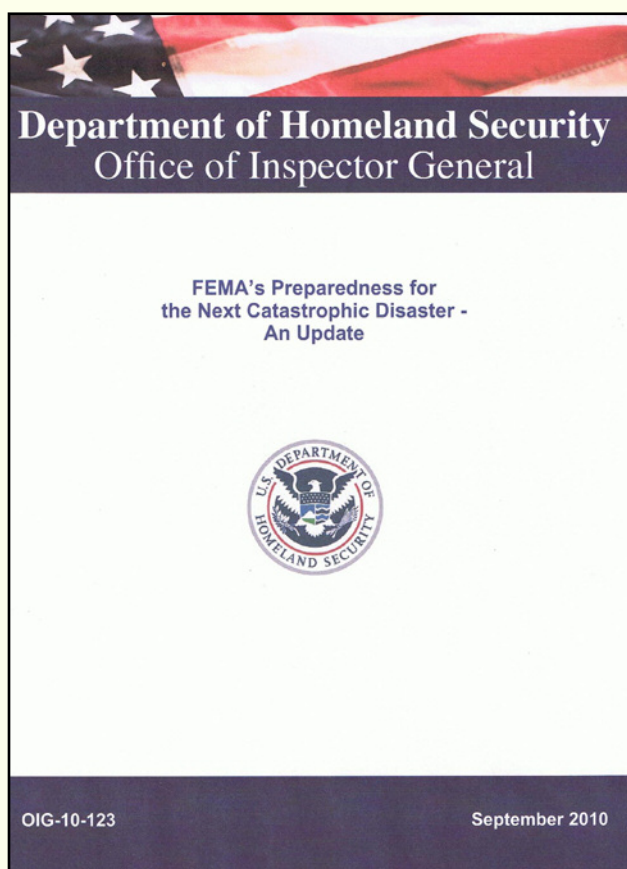
For example, the 2008 *National Response Framework* states: “The Secretary of Defense retains command of DoD military forces providing Defense Support of Civil Authorities. National Guard forces under the command and control of a Governor are not DOD military forces.” (*Fine, but who’s the uniformed go-*

to guy HERE, NOW if, say, a 100-year earthquake devastates California’s San Andreas Fault zone?)

The Incident Command System offers this answer: “Initially, in any incident, responding individual resources (single resources, Strike Teams, and Task Forces) will report directly to the IC/UC (Incident Commander/Unified Command).” *But in the chaos after an enhanced 9/11, the IC, if any, could be in another state and dependable communications probably wouldn’t exist for hours or even days.*

As for military command channels, the new Defense Coordinating Officer (DCO) teams had been on station with each of FEMA’s 10 regional headquarters for a couple of years but as this was column was in preparation there was still no “coordinating” mechanism firmed up between DCOs and the

FEMA’s Report Card on Catastrophe Readiness



In our 2008 report... (w)e recommended: (1) improving the agency’s overall awareness of its readiness for a catastrophic disaster; (2) developing and sustaining systems to track the progress of major programs, initiatives, and other activities; and (3) regularly sharing reports on the status of such activities with key stakeholders. We reiterate those recommendations, which remain open, and will continue to work with the Federal Emergency Management Agency to ensure progress is made toward better preparedness for the next catastrophic disaster.

- From the 2010 progress report issued by the DHS Inspector General’s Office

region and state MARS leadership. In the absence of such arrangements, the question arises to whom does a field leader from MARS turn first in a crisis? – his own higher headquarters, or to the DCO, “who serves as the Federal Emergency Management Agency’s sole point of contact for the Department of Defense’s support in the regions.” (FEMA document.)

Where Does DoD Fit In?

DHS doctrine seems not to attach huge significance to military support. As *ESF-2, Communications Annex (National Incident Management System)* puts it: “The Department of Defense (DoD) provides resources and capabilities to relief operations *after* other Federal resources and capabilities are exhausted” (emphasis added). The official “List of NIMS Acronyms” doesn’t even include “DoD,” only “DHS,” “OMB” (Office of Management and Budget) and “DHHS” (Dept. of Health and Human Services) among cabinet-level arms of the government.

Such lack of focus spells *Opportunity* with a capital O for alert MARS leaders, in my opinion. State directors of Army, Air Force and Navy-Marine Corps MARS don’t need a mandate from on high to fill big catastrophe-readiness gaps. For example, establishing pre-organized clusters of members for voluntary self-deployment in a catastrophic incident is do-able under existing authority.

Judging from a critical audit of DHS preparedness up to May 2010 (and published in September), the new year could be the optimum time for demonstrating MARS engagement in homeland defense. The lengthy update issued by the DHS Inspector

General’s office seriously questioned the agency’s readiness for catastrophe.

As for initiating MARS response to catastrophe, there is useful, if unintended, DHS guidance suggesting where to concentrate it.

Each year the department applies a complex formula including population and risk factors and comes up with two lists indicating priority.

Tier I – at most risk – in 2010 included 10 metro areas in seven states and the National Capital Area (the last of which actually embraces two additional states as well as the District of Columbia). The list: “California (San Francisco Bay area and Los Angeles/Long Beach Area), the District of Columbia (National Capital Region), Illinois (Chicago area), Massachusetts (Boston Area), New Jersey (Jersey City/Newark Area), New York (New York City Area), Pennsylvania (Philadelphia Area), and Texas (Dallas/Fort Worth/Arlington and Houston areas).”

Tier II areas included 54 significant, if less populous, metro areas, from Albany, New York, to Las Vegas, Miami to Seattle. The cities listed vary from year to year but the 50 states know who they are (or aren’t); it’s the basis for federal grants.

Putting Members to Work

I’m grateful to Michael Cullen K1NPT/AFE1R, the AFMARS emergency ops officer in Rhode Island, for spotting a recent DHS report’s rare mention of MARS. It cited “a joint exercise with the Transportation Security Administration and the U.S. Army using the Military Auxiliary Radio System as a

Self-Starting for Disaster Response

Paul Drothler, WO4U, posing beside a fully-equipped EmComm trailer, says hams organized their own response group when a rash of tornadoes overtaxed existing agencies in the immediate area of south central Tennessee in 2002. Their “Tennessee Emergency Communication Association” (TNECA) limited participa-

tion to qualified MARS and ARES members plus other hams with demonstrated skills, equipment and proven readiness to serve wherever needed.

The trailer was the effort of some 15 volunteers who worked over 550 hours to gut and rebuild the interior as well as to construct the specialized roof rack

and mast mounts. Deployed for almost a month in response to Hurricane Katrina, it was ready for 2008’s multiple hurricanes.

“When it came time to respond to Gustav (September 2008) there was very little effort required to activate a team of highly-skilled individuals to travel from Tennessee to the Gulf Coast,” Drothler recalled. The mobile unit and four operators covered 1,300 miles along the Mississippi and back to furnish close-in communications for civil relief organizations.

Drothler, whose MARS experience included four years in the National Guard during which he handled thousands of Korean War MARSgrams, was elected Executive Director of the organization. He’s a former Tennessee Army MARS State Director and Region 4 Logistics Coordinator.

By last November, TNECA enrollment reached 57 and growing. Plus, fund-raising at ham fests and yard sales, augmented by grants, raised \$52,000 for equipment and insurance coverage. By incorporating as a non-profit, the group qualified for tax-exempt contributions. (Photo courtesy of WO4U)



Prepare for the Worst: Reminders from History

For the record, civil emergencies requiring federal response are now sorted into three official categories: disasters, catastrophes, and “events of national significance.”

The last heading defines easily: Olympic Games or Presidential Inaugurations, for instance. Delineating the other two groupings is more complicated except to say catastrophes are worse and mostly happen to other people. Haiti with its earthquake and Bangladesh with its monsoon floods come to mind; our 9/11 stands by itself as an act of war.

Not so, in the view of a Rand Corporation advisory panel on DOD readiness last September. Its chairman, a retired admiral, “with a profound sense of urgency” called on the Pentagon to get moving with “essential and timely preparation” for the worst-case kind of civil calamity.

This expert group specified “a major chemical, biological, radiological, nuclear, or high-yield explosive incident” as catastrophic possibilities, in contrast with the “hurricanes, tornadoes, floods, wildland fires, and other natural disasters” with which Americans are familiar. “Such an incident will happen,” Adm. (ret.) Steve Abbot wrote. “It is only a matter of time.”

The U.S. Coast Guard with its federal ancestors is arguably the country’s oldest agency for civil support (going back to the Revenue Cutter Service of 1790). Meticulous records of rescue operations have been recorded since 1878. The compilation shows that over time, no region of the U.S. has been spared catastrophe of one sort or another.

Here’s a sampling, with detail added from Internet sources:

1878 Yellow Fever Epidemic. The mosquito-borne disease, long endemic in the tropics, probably entered New Orleans with the thousands of refugees from Cuba’s first War of Independence. By riverboat and train it was quickly spread up the Mississippi. By the end of the year, more than 5,000 had died in Memphis. The New Orleans health board counted “not less than 4,600” dead. Overall, the Mississippi Valley experienced 120,000 cases of yellow fever, with 20,000 deaths.

1900 Galveston Hurricane. Given no advance warning, this island city was wiped out. At least 6,000 persons died, probably more. Another 4,000 are estimated to have lost their lives elsewhere on the Gulf Coast.

1918 “Spanish Flu” Pandemic. It sickened 28 per cent of the U.S. population, killing 500,000-675,000 Americans, according to estimates at the U.S. Department of Health and Human Services. Worldwide, some 50 million perished (compared to World War I’s five-year toll of 16 million).

1906 San Francisco Earthquake. The quake and conflagration that followed claimed at least 3,000 lives in the city alone. As a measure of the damage, the dollar total of insurance claims still has been exceeded only by 9/11. Residents left without homes totaled 300,000 out of the city’s 400,000 population.

A silent video taken shortly after the 1906 San Francisco earthquake and filed by the Library of Congress and posted on YouTube shows the massive destruction that leveled most buildings in the city. To see the archival footage, visit: < <http://bit.ly/dZFaSP> >.

(Courtesy of Library of Congress and YouTube)

1913 Ohio Flood. March thaws swelled the Ohio River and its tributaries to historic levels, the broad Ohio rising 21 feet in 24 hours. The official death toll of 467 probably is incomplete. Statewide, at least 40,000 homes were inundated and bridges, rail yards, docks, and factories destroyed from Cleveland to Cincinnati.

1916 Black Tom Explosion. Two night watchmen who were German agents were blamed for the late-night blasts that destroyed the huge Jersey City marine terminal. One million pounds of explosive munitions were concentrated there awaiting shipment to Britain and France for World War I. Flying shrapnel caused serious damage to the nearby Statue of Liberty. The blasts shook Philadelphia 80 miles away, in Maryland were thought to be an earthquake, and broke windows in New York’s Wall St. and Times Square. Damage was put at \$400 million in today’s dollars, but only seven persons were known dead because the explosions occurred while the bistate metropolis slept.

1918 Okeechobee Hurricane. This September category five storm killed at least 2,500 persons in South Florida alone. Many perished when the levees containing Lake Okeechobee were breached and several hundred square miles of flatland was inundated. With the storm’s earlier casualties in the Caribbean included, more than 4,000 lost their lives. Damage exceeded \$1.27 billion in 2010 dollars.

1938 New England Hurricane. Reaching category five before it made its September landfall on Long Island, the storm killed more than 600 and caused property losses estimated close to \$5 billion in today’s dollars. A storm surge of 12-16 feet devastated waterfront property in southern New England; wind gusted at 138 M.P.H. in Boston. The six states’ economies suffered for years afterward due to destruction of infrastructure, bridges and railroads in particular.

In more recent times, notable catastrophic events include the 1984 Bhopal industrial gas accident, which caused 15,000 deaths in India, and the 1986 Chernobyl nuclear reactor breakdown which is believed responsible for 4,000 deaths. The 2004 Indian Ocean tsunami killed more than 200,000. The death toll from Haiti’s Jan. 12, 2010 earthquake is estimated at 230,000 and continues to rise with deaths from cholera. — *NJIN*



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

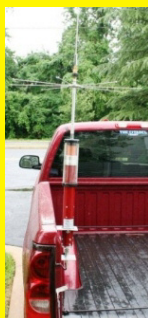
P.O. Box 8547, St. Joseph, MO 64508

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

backup in case of widespread devastation.” That’s encouraging evidence that MARS innovation – in this case, the Winlink e-mail-over-HF system – doesn’t go unnoticed.

For all the added value, though, Winlink’s special capacity for high-volume messaging engages a relatively tiny number among the several thousand MARS members. In fact, that system’s civil support involvement is increasingly in the hands of fulltime TSA and state/local EMA staffers; in many cases MARS only provides the frequencies, software, and initial training. Little external traffic is left for the traditional voice and digital net operated by hams. There’s lots of scope – indeed, lots of pressing need – left open for new tasks to challenge the membership. Morale, as well as mission, depends on it.

After an onslaught of tornadoes in late 2002, a small band of MARS /ARES/RACES members and other concerned hams in middle-eastern Tennessee decided there had to be a better way to organize local response. They were especially determined to remedy the nonfunctional boundaries between various radio organizations. They also wanted to really tighten up the training and embrace volunteers truly interested in deployment – and only such volunteers.

The result was a non-profit corporation called the Tennessee Emergency Communications Association (TNECA). “We recruited people with a wide range of skills in order to build teams that could be self-sufficient when deployed to a disaster area,” said Paul Drothler (WO4U/ex-AAM4RL), the retired telecommunications engineering executive who eventually was elected executive director. Along with their skills (as well as equipment) the initial 23 “associates” also brought a range of licenses that enabled the group to use amateur, military and SHARES resources and frequencies as circumstances required. (SHARES is the National Communications System’s pool of

government agency HF assets for use in emergency, staffed in large part by MARS volunteers.)

Dedicated responders in other areas similarly targeted by storms, etc., might find incorporation unnecessary. Still, the TNECA experience surely proves that Pre-Organized Geography-defined Operations (POGOs) can function effectively within existing MARS/ARES/RACES structures. Who will take the lead in establishing them for the target areas DHS has identified for us?

A Message for MARS

“Big One” catastrophes such as DHS’s “CBRNE Incidents” (chemical, biological, radiological, nuclear, or high-yield explosive) figured in this column in the December issue. I quoted the leader of the RAND Corporation’s recent advisory study on DoD readiness as warning: “Such an incident will happen. It is only a matter of time. The stakes are too high to delay action.”

Dave McGinnis (K7UXO/AAA9TC), the Army MARS national training coordinator, drove that message home in his October lesson assignments. Our mission, he wrote, “is to provide communications in the face of unknown and unforeseen events the scope of which are sometimes not defined or possibly imagined. Rigid thinking does not lend itself to solving dynamic and rapidly evolving problems.”

Someday, somewhere, there *will* be ham radio operators confronted with the unknown and unforeseen situation of being surrounded by devastation, cut off from normal contacts yet facing desperate need to summon help. We’re fortunate for role models like Ron Tomo and Jack Satterfield in Haiti and Paul Drothler’s crew in Tennessee who, on their own and unprompted, began showing the way.



K3RLL/4: Low Power With High Benefits in Northern Florida

(Editor's note – You don't need to be a high-powered band-master to put together a beautiful, efficient radio shack. Low-power operator Donald McBride, K3RLL/4, is proof of that.)

*This month's **Station Appearance** provides a snapshot of his QRP (low-power) station in DeLand, Florida. Despite serious antenna restrictions, he manages quite well with his modest antennas and carefully chosen equipment.*

Are you as proud of your station's appearance and operation as K3RLL/4? Or does your cluttered operating position provide just the environment you need to most enjoy the hobby?

*Either way, send digital photographs of your station with details to: WorldRadioOnline@gmail.com and we'll consider them for publication in **Station Appearance** in an upcoming edition of **WRO**.*

If there's a YouTube video to accompany the still pictures, let us know and we'll set up a link.)

“We all have seen photographs (in **WR's** Station Appearance) over the years of excellent full-power ham stations,” writes Donald McBride, K3RLL/4, from DeLand, Florida, “but for those of us mesmerized by the awesome allure of low power, seeing photos of other QRP stations” holds an awful lot of appeal.

“It is very interesting to see what is on the other end of the QSO – and I think particularly so for QRP enthusiasts since most of us build our gear,” he said.

While he doesn't consider his operating position “notable,” K3RLL/4 has a layout that would make lots of low-power enthusiasts drool.

Accessories and radio gear feeding his indoor antenna include “the essential laptop, and (on top row, from left) 2N240, SW30, and SW20 CW transceivers, a WM-2 QRP watt meter and an external speaker.”

“On the shelf below it are (from left) Elecraft K1 and K2 transceivers and a 5-ampere power supply,” he said. “The third row shows a Yaesu FT-817nd transceiver, a Winkeyer CW keyer and another power supply.

The bottom row shows a wood-covered Bencher CW paddle, and a Z100 Autotuner.

“On the desktop is a circa 1974 Brown Brothers CW paddle and a Vibroplex CW bug, circa 1945,” he said.

Way Back When . . .

K3RLL/4 remembers his pre-amateur radio days as “the best of times and the worst of times as a child sharing a bedroom filled with converted ARC-5s and assorted homebrew equipment with my older brother W3RLL.

“While I find it difficult to forget the times he shocked me, I am forever indebted to Glenn for instilling in me a love for both CW and for tinkering. I was finally licensed in the early '70s as a Novice and, like most of us, quickly upgraded to General and then Advanced back when we took such exams in front of

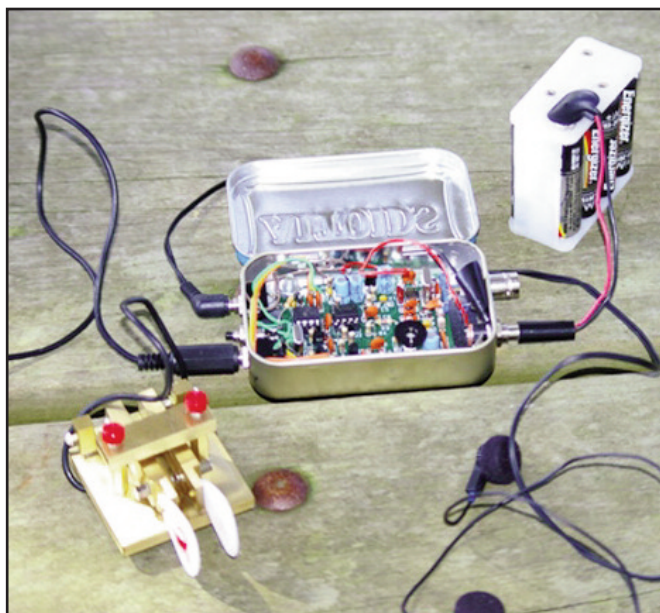
The Deland, Florida operating position of K3RLL/4 includes: (top row from left) 2N240, SW30, and SW20 CW transceivers, a WM-2 QRP watt meter and an external speaker; (second row) Elecraft K1 and K2 transceivers and a 5-ampere power supply; (third row) a Yaesu FT-817nd transceiver, Winkeyer CW keyer and another power supply; and (bottom row) wood-covered Bencher CW paddle and a Z100 Autotuner. “On the desktop is a circa 1974 Brown Brothers CW paddle and a Vibroplex CW bug, circa 1945,” he said. (Photos courtesy of K3RLL/4)



a very somber and intimidating FCC official in the Federal Building in downtown Pittsburgh, Pennsylvania.

He describes his early gear as “quite unremarkable, but similar to other new hams at the time – with a well-used Globe Scout, some crystals and the old National NC-125 given me by my brother and mentor, W3RLL, during my first exploration of ham radio 20 years earlier.

“Building a Heathkit HW-16 CW transceiver and HG-10 VFO was a giant leap forward, but it wasn’t all that long before



For outdoor QRP operation in local parks, K3RLL/4 uses a Small Wonder Labs Rockmite transceiver in an Altoids tin, Arizona ScQRPion keyer paddle, 12-volt AA battery pack and earbuds.

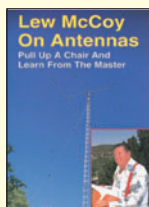


A nicely-crafted wooden cover protects K3RLL/4's Bencher paddle.



BOOKS

Back by popular demand!

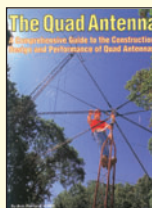


Low McCoy on Antennas

by Lew McCoy, W1ICP

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

Order No. MCCOY **\$19.95**

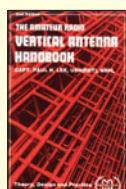


The Quad Antenna

by Bob Haviland, W4MB

A comprehensive guide to the construction, design and performance of Quad Antennas. Chapter titles include General Concepts, Circular-Loop & Arrays, Rectangular & Square Loops, Multi-Element Quads, Delta Loops & Arrays, Design Variations, Optimizing a Quad Design and more!

Order No. QUAD **\$19.95**

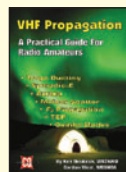


The Vertical Antenna Handbook

by Paul Lee, N6PL

You'll learn basic theory and practice of the vertical antenna. Discover many easy-to-build construction projects.

Order No. VAH **\$17.95**



VHF Propagation Handbook The Practical Guide for Radio Amateurs

by Ken Neubeck, WB2AMU & Gordon West, WB6NOA

The combined ham radio experience of the authors represents many years of VHF observations and research. Tropo Ducting, Sporadic-E, Aurora, Meteor Scatter, F2 Propagation, TEP, Combo Modes, it's all here!

Order: VHFProp **\$15.95**



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. Also includes practical tips and techniques on how to create your own electronic projects.

Order No. 33PROJ **\$17.95**

Shipping & Handling: USA - \$7 for first book, \$3.50 for 2nd and \$2 for each additional. CN/MX- \$15 for first book, \$7 for 2nd and \$3.50 for each add'l. All Other Countries- \$25 for first book, \$10 for 2nd and \$5 for each add'l.

CQ Communications Inc.

25 Newbridge Rd., Hicksville, NY 11801

516-681-2922; Fax 516-681-2926

Order Toll-Free 800-853-9797



**** **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

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

THE ISOTRON ANTENNA
Great Things Come in Small Packages!

- Great Performance
- Single Band Models
- 1000 Watts PEP
- Portable Operation
- Easy Installation
- Multiband Models
- No Radials
- Maritime Operation

American Made—Our 30th Year!
www.isotronantennas.com
wd0eja@isotronantennas.com
BILAL COMPANY • 719-687-0650

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

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

WorldRadio ONLINE
Click Here to Sign Up for New Issue Alerts
WorldRadio ONLINE

Getting ready for action, Donald McBride, K3RLL/4, poses with his motorcycle. Portable operation is one way he finds to get around antenna restrictions imposed by the Florida community in which he lives.



my ham desk was covered with *the poor man's Collins*, a full set of matching green boxes from Benton Harbor.”

The Allure of QRP

Not long into that phase, K3RLL/4 said, “a chance QSO with someone nearby with a great signal running a Heathkit HW-7 dramatically changed my direction in amateur radio. I was generously gifted a HW-7 in trade for fixing this fellow’s other one and the writing was on the wall.

“The big green QRO (higher power) boxes started collecting dust and soon disappeared as the little *Hot Water Seven* garnered my full attention,” he said. “That little HW-7 earned my Worked All States – QRP, and since then, I haven’t looked back, moving through a Ten-Tec Argonaut and eventually to the equipment shown in the photos.”

A Move to Florida, With Challenges

“Not long into my tenure as a ham, employment and family forced a move to Florida and learning to live within the confines of antenna restrictions and homeowner covenants,” McBride said. “This has forced most of my operating to be portable from one little local park or another where full-size wire antennas can be temporarily erected without fear of retribution from the *Condo Commandos* so prevalent in the Sunshine State.”

“Summers in rural Pennsylvania allow the exuberant freedom of an outdoor G5RV Junior antenna *high and in the clear*, which really makes QRP fun,” he said. “They tell me it snows up there in

the winters, so here in Florida, home antennas include a heavily-loaded attic dipole and for particularly dark nights, a flat-black painted Hustler 4-BTV sometimes emerges from the garage for QRP contests or nets.”

Low-Power Accomplishments and Joy

K3RLL/4 modestly said his “amateur radio accomplishments have been few” with credits including having served on the Board of Directors of QRP Amateur Radio Club International and as a net control station. In addition to his QRP WAS, McBride has “worked 130 countries to date, but QRP has led to many wonderful associations with people near and far that have greatly enhanced the joy of our amazing hobby.”

He says that for anyone “contemplating the prospect of low-power operation, they may do well to investigate any of the numerous QRP activities sponsored by such groups as QRP ARCI, NAQCC, the Flying Pigs and the Adventure Radio Society.

“An Internet search on any of these groups will lead to much helpful information. NAQCC, in particular, is a cost-free group that encourages low-power operation with simple wire antennas—the budget-minded ham’s Nirvana,” he said.

“From this end of my ham radio experience, it seems clear that building and portable operation are the driving forces of my ham interest while I remain enthralled with the allure of low-power CW communication,” K3RLL/4 said. “What can compare with the magic using a radio one has built and powered only by AA batteries to talk with someone far off in a distant land?”



The Rules Say...

John B. Johnston, W3BE

UPGRADE TO AMATEUR EXTRA

Q I am volunteering at our local high school where a teacher wants to obtain a club station license for the school radio club. The prospective trustee-teacher is a Technician and I am an Amateur Extra. If the teacher becomes the trustee for the license, can the school club call sign be used in the Amateur Extra class bands while I am the control operator without adding my call sign in the station ID announcement?

A. No. That would really confuse your listeners; the ULS would show the presumptive control operator of an amateur station transmitting on exclusive Amateur Extra Class operator frequencies holding only a Technician Class Operator license.

Section 97.119(e) says that when the operator license class held by the control operator (you) exceeds that of the station licensee (the trustee), an indicator consisting of the call sign assigned to the control operator's station (yours) must be included after the call sign. See BE Informed No. 14 About That Station Identification.

W3BE-O-GRAM: The teacher-trustee should upgrade to Amateur Extra Class. For another option, read BE Informed No. 4 WHICH CALL SIGN?

Q. I was of the opinion that any amateur station operated within the defined area of the National Radio Quiet Zone < <http://bit.ly/hb8LT4> > had to notify the National Radio Astronomy Observatory and obtain its approval prior to operation. However, the only place in the rules I can find the Quiet Zone mentioned and the area defined is in Section 97.203 requiring the operator of a Beacon Station to make notification. I don't find any other requirement. Am I missing the requirement somewhere or is the Beacon Station the only type station that must be compliant?

A. That is the only such requirement codified in Part 97. In fact, Section 97.203(e) says that before establishing an *automatically controlled* beacon in the National Radio Quiet Zone or before changing the transmitting frequency, transmitter power, antenna height or directivity, the station licensee must give written notification thereof to the Interference Office, National Radio Astronomy Observatory, P.O. Box 2, Green Bank, WV 24944. The notification must include the geographical coordinates of the antenna, antenna ground elevation above mean sea level (AMSL), antenna center of radiation above ground level (AGL), antenna directivity, proposed frequency, type of emission, and transmitter power. Section 97.3(a)(32) defines the *National Radio Quiet Zone* as the area in Maryland, Virginia and West Virginia Bounded by 39°15' N on the north, 78°30' W on the east, 37°30' N on the south and 80°30' W on the west.

In Section 1.924 is a listing of other quiet zones. A summary is in BE Informed No. 59 QUIET ZONE DIRECTORY. It also discusses the frequency sharing requirements of Section 97.303 which similarly apply to amateur stations.

Q. I read with interest that a VE exam session was administered in Antarctica. According to the report, it appears that only one of the required three administering VEs was physically present at the session. The other two were in Connecticut. Section 97.509(c) used to require each administering VE to be present and observing the examinee throughout the entire examination. Has there been an amendment to the rules to authorize such shortcuts?

A. No, those rules regarding the administering VEs have not been amended to authorize any such procedure. The administering VEs are still responsible for the proper conduct and necessary supervision of each examination. They must immediately terminate the examination upon failure of the examinee to comply with their instructions.

W3BE-O-GRAM: One report states that video conferencing technology was utilized such that the three administering VEs – two in Connecticut and the one on site in Antarctica – were able to observe and communicate before, during and after the session. Apparently, that VEC is taking the lead in establishing that the time is here when only one member of the administering VE team must be physically present at the exam session site. Revising the volunteer examiner system to require one administering VE rather than the current requirement for three might strengthen the integrity of the system. The accountability trail would be far more determinable in cases where it is obvious that the question set had been compromised.

Q. Our radio club would like to know how to secure a list of newly licensed amateurs, and those who have recently changed addresses. We want to send a congratulatory letter with an invitation to join our club to new licensees. Any thoughts about how our club might access the FCC licensee database?

A. Yes. That information is readily obtainable directly from the FCC. Read BE Informed No. 58 HOW TO DOWNLOAD QUERIES FROM THE FCC DATABASE.

Q. My question is about the assignment of a vanity call sign during the two-year "hold" period to a person related to a Silent Key. Does the applicant have to be related to the last person the call sign was assigned to or can the applicant be a relative of any person that held the call in the past? The person that held WØ** before me let it expire but he is still alive. When I pass on, I would love to have this call go to someone in his family. I know he has relatives that now are Techs and Generals. I want to get one of them upgraded to

Extra Class so if anything happens to me they could put in for the call. As near as I can see the rules would allow for this in that they do not say the relative has to be a relative of the last person to hold the call sign. Am I correct?

A. Yes. The exception that permits a relative of a former holder now deceased to request a call sign during the 2-year "hold" period is available to a relative of **any** former holder of a call sign – not just the most recent former holder. The operative rule is Section 97.19(c)(3). Call sign WØ** is of the 1 X 2 format and – as such – is in Group A. When the holder dies or fails to renew the license, the call sign becomes available to the vanity call sign system two years after the date of death or expiration unless an exception applies to the applicant. It is only available to a station licensee who also holds an Amateur Extra Class operator license unless the applicant is a former holder of the call sign. Section 97.19(c)(1) says that a call sign shown on an expired license is not available to the vanity call sign system for two years following the expiration of the license. This is the basis for the two-year hold period. It coincides with the two-year grace period for renewal codified in Section 97.21(b).

Section 97.19(c)(3), however, provides an exception to the two-year hold period

for an applicant who is a close relative of any now-deceased former licensee who held the call sign. These relatives are the: spouse, child, grandchild, stepchild, parent, grandparent, stepparent, brother, sister, stepbrother, stepsister, aunt, uncle, niece, nephew, or in-law (parent, step-parent, sibling, or step-sibling of a licensee's spouse; the spouse of a licensee's sibling, step-sibling, child, or stepchild; or the spouse of a licensee's spouse's sibling or step-sibling.)

As soon as the status of the license grant is changed from **active** to **cancelled** on the ULS database, an otherwise eligible close relative of any former holder of that particular call sign, now deceased, may be assigned the call sign. **Cancelled** status does not include licenses in the grace period for renewal. The cancellation date is either the date of death provided to the FCC, the date the license is surrendered, or the date of the first day of the third year after the license expires. In any event, to benefit from the exception to the two-year hold period, the applicant would have to be a close relative of the former holder now deceased.

You might shorten the time period it takes for an SK's license grant to be cancelled on the FCC licensee database. For this, prepare an envelope containing your signed request for cancellation of the

deceased's license grant due to the death of the grantee. Include a copy of the license document and a copy the death certificate or an obituary notice from the newspaper showing the date of death. Mail the package to the Federal Communications Commission, ATTN: Becky Williams, 1270 Fairfield Road, Gettysburg, PA 17325. As soon as you confirm that the license status shows **cancelled** on the FCC licensee database, file your application for the vanity call sign. It will not be held for you. Read BE Informed No. 21 HOW TO OBTAIN YOUR DECEASED RELATIVE'S FORMER CALL SIGN.

W3BE-O-GRAM: Do not apply for any vanity call sign while it shows active on the ULS.

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.

Visit Your Local RADIO CLUB

COLORADO

Denver Radio Club (DRC) meets 3rd Wed., 7:30 PM, El Jebel Shrine Temple, 4625 W. 50th Ave., Denver, CO. Learning/Tech sessions 6:30 PM. Oldest club in Colorado (1917). Net Sun 8:30 PM 145.490/448.625 rptr,: w0tx@arrlnet: <http://www.w0tx.org> 01/12

MICHIGAN

Muskegon Area Amateur Radio Council meets the 1st Thursday of every month at 7 PM at our clubhouse at 2888 Scenic Drive. Visit our website: <http://w8zho.org> 01/12

VIRGINIA

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

Click here to have your club listed!

APPRECIATION



Our R&R Superham-of-the-Month is Dave Johnson, WA4DJ, president of the recently rejuvenated Shenandoah Valley (Virginia) QCWA Chapter No. 155. Here he's at the Berryville Hamfest. Congratulations, Dave!



Wind Watching: Surfer Dude Meets T-FR

By Richard Fisher, KI6SN



A 6-mile-per-hour breeze out of north-northeast in Southern California extends the audio cassette tape version of the *Surfer Dude / T-FR Wind Watcher* horizontal to the ground at KI6SN. (Courtesy of KI6SN)

Knowing wind conditions can be pretty important to trail-friendly radio operators—especially when shooting lines over tree tops for antennas. Even a light breeze can goof things up royally.

Turns out surfers are pretty manic about wind, as well. In a case of *Surfer Dude Meets T-FR*, our son, who spends a lot of time riding the waves off Newport Beach, California, passed along a clever idea he uses to determine surface wind direction and speed that's perfect for radio amateurs in the field. *Cowabunga.*

If you've got a used audio cassette or VCR cassette, you've got everything you need for this trail-friendly weather vane-anemometer combination.

Simply pull out a length of the tape, cut it and dangle it from a tree branch or your portable antenna mast. It's light and durable—capable of being put in motion with the slightest breeze. It glistens in sunlight, making it easy to see. After getting wet, the tape dries quickly and resumes its weather-wise duties.

If you want to get really analytic, pull out a specified length of the recording tape at home—say, two-and-a-half feet—and dangle it from whatever's convenient outside. Preferably in the clear. Note how much the wind is affecting it, recording the angle at which the tape is fluttering.

Now check the official wind speed for your area at the time. You'll get a sense for what wind velocity extends a two-and-a-half foot length of recording tape to what fluttering angle. Make note of it, and other wind speeds as well.

Next time you head into the field, you'll be able to get a pretty accurate measure of wind direction and velocity based on your pre-determined baseline flutter angles.

Audio cassette tape is one-eighth-inch wide (3.175 millimeters) while VCR tape is one-half-inch wide (12.7 millimeters). Of course, the narrower the tape, the more sensitive it will be. VCR tape is best for higher-wind conditions.

At KI6SN, a 6-mile-per-hour breeze out of the north-northeast gave us the threshold for extending our two-and-a-half-foot-long audio tape fully horizontal compared to the ground. If you think of the face of a clock, imagine it as the little hand at 9 o'clock. Theoretically, in a wind of about 3 miles-per-hour, it's in the 7:30 position, and so on.

Of course, readings for the VCR tape will be much different—it's four times wider than audio tape, and heavier. We'll leave those calculations and experimentation to you. Let us know what you find out and we'll publish your VCR velocity baseline figures in an upcoming column.

The *Surfer Dude / T-FR Wind Watcher* is easy to put up—but *don't forget to take it down*. We don't know the half-life of audio cassette or VCR tape, but suffice to say, if you're leaving anything more than footprints in your T-FR operating location, you're not being a good citizen of the environment. *'Nuff said.*

Do you have tips for trail-friendly weather monitoring or forecasting? Send them in an e-mail and we'll be happy to share them with readers in an upcoming column. Write: < KI6SN@aol.com >.

More On T-FR Signal Monitoring Via the Internet

December's piece on monitoring your T-FR signal on the Internet through remote receivers (*A Novel Approach to Long*

Distance T-FR Signal Monitoring – From Your Computer brought in a lot of mail from operators who appreciated learning about the growing phenomenon. **Larry Jones, WB9FHP**, was even kind enough to send a Radiogram of thanks from Paoli, Indiana.

Elwood Downey, WB0OEW, of Tuscon, Arizona, pointed out that, “there’s a whole collection of Web SDRs (software defined radios) similar to WB4MAK (cited in December’s column) but located all around the world.”

On ‘OEW’s recommendation, we checked out: < <http://www.websdr.org> >. Wow.

In addition to the WB4MAK link featured last month, we found receivers based in Markt Allhau, Austria; Zofingen, Switzerland; Reston, Virginia; Novo mesto, Slovenia; Delft, Dwingeloo and Eindhoven, The Netherlands; Bucharest, Romania; Kolomna, Russia; Gran Canaria Island; Timisoara, Romania; Walla Walla, Washington; Sofia, Bulgaria; Warwick, Rhode Island and at the University of British Columbia, Canada.

If you know of other remote receivers accessible through the Internet, please drop an e-mail with the Web address and we’ll list them in an upcoming column. Write: < KI6SN@aol.com >.

‘There’s Magic in That ‘Thar Box’

While it’s true 99.99 percent of high-frequency trail-friendly radio operation is conducted using small, efficient high-fre-

quency transceivers, there are some operators who like to go *retro* and pull out classic receiver and transmitter combinations for field use.

The challenge, as always with separate units, is figuring out how to shift from transmit to receive (T/R) during the course of a QSO. In most primitive times at KI6SN, we’ve even resorted to unplugging the antenna from the back of the receiver and re-plugging it into the transmitter during a contact, and vice versa.

While it’s a great physical workout, the exercise can get old in a hurry.

How nice it would be to have a ready-to-go T-FR T/R unit standing by, no matter which receiver and transmitter end up in your backpack.

In the December 2010 edition of *CQ Amateur Radio* magazine, QRP columnist Cam Hartford, N6GA, has a comprehensive review of the Four State QRP Group’s Magic Box T/R Switching System – a kit capable of being the go



A single audio cassette, left, or VCR cassette can provide many lifetimes of material for simple, yet effective weather vane-anemometer combinations that are ideal for trail-friendly operators in the field. (Courtesy of KI6SN)

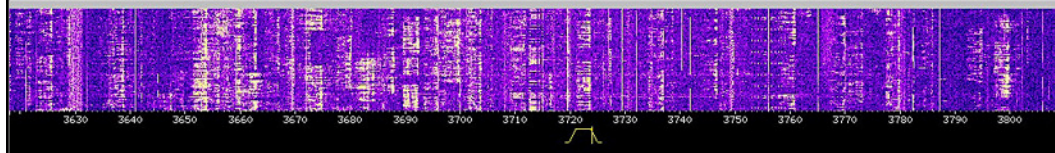
On this page you can control and listen to the Multi User WebSDR receiver located in Markt Allhau, South East Austria, Locator: JN87BH, Operated by Christian OE3DUS, e-mail [oe3dus\(AT\)oevsv.at](mailto:oe3dus(AT)oevsv.at) and Rai OE4RLC, e-mail [oe4rlc\(AT\)amrs.at](mailto:oe4rlc(AT)amrs.at).

Note that the setup is rather experimental, and neither continuous service nor good performance are guaranteed. Comments into the chat-box are welcome;

Many thanks to Pieter PA3FWM for providing know how and Software to establish this Multi User WebSDR. More information about the WebSDR project can be found on <http://www.websdr.org>.

Note: you need both *Java* and *JavaScript* enabled for this page to work properly. If you don't hear anything, probably Java is disabled or its version is too old (i.e., pre-1.4.2).

Please log in by typing your name or callsign here (it will be saved for later visits in a cookie):



Frequency:

3724.00 kHz

down 50 Hz up 50 Hz

Or tune by clicking/dragging on the frequency scale.

Bandwidth:

2.49 kHz @ -6dB; 2.95 kHz @ -60dB.

Or drag the pastband edges on the frequency scale.

Waterfall settings:

Speed:

☒ slow

☐ medium

☐ fast

Size:

☐ small

☒ medium

☐ large

View:

☐ spectrum

☒ waterfall

☐ weak sigs

☐ almost freeze all but one ☐ strong sigs

51 53 55 57 59 +24dB +44dB +64dB
-56.5 dB; peak -56.1 dB;

The WebSDR remote receiver at the club station of the Austrian Military Radio Society, OE4XLC, in Markt Allhau, is just one of a growing number of units around the world that are ideal for monitoring radio signals. To access it, visit: < <http://www.websdr.org> >. (Courtesy of OE4XLC website)

between for just about any transmitter-receiver negotiation. *Henry Kissinger, eat your heart out.*

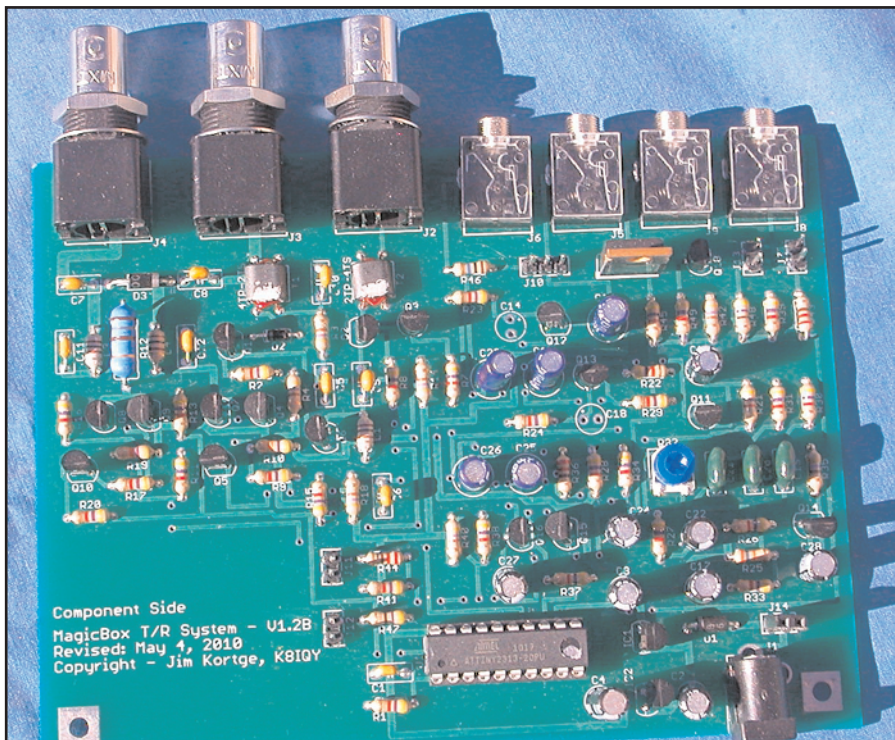
Among its many features beyond antenna switching is receiver muting and sidetone injection for monitoring your CW keying during transmit. Masterfully designed by Jim Kortge, K8IQY, the Magic Box can handle up to 10-watts RF output.

The unit's multiple cables might at first be a turn-off for minimalist field operators. But when you think about it, if you're on a multi-day trip into the wild, the Magic Box may well be worth the hook-up time.

"The sidetone is easy to listen to and the T/R transitions are very smooth, very quiet and very fast," N6GA wrote, adding, "if you are not a fan of QSK (break-in keying): < <http://anse.rs/h1jiXE> >," you can select semi-QSK with a jumper."

You'll not want to miss N6GA's full Magic Box review in December 2010's *CQ*.

To learn more about FSQRP's Magic Box, visit: < <http://bit.ly/dLIcGQ> >. For information about receiving *CQ Amateur Radio* magazine, see: < <http://www.cq-amateur-radio.com/> >.



Built by *CQ Amateur Radio* QRP columnist Cam Hartford, N6GA, and reviewed in the magazine's December 2010 edition, the Four State QRP Group Magic Box T/R switching kit can be useful to the trail-friendly radio operator using a separate transmitter and receiver in the field. (Courtesy of K16SN)

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.



Subscribe Today!

1 year \$32.95

2 years \$58.95

3 years \$85.95

CN/MX- 1-yr \$42.95, 2-yrs \$78.95, 3-yrs \$115.95

Foreign- 1-yr \$52.95, 2-yrs \$98.95, 3-yrs \$145.95

Payable in U.S. dollars

Popular Communications

25 Newbridge Road, Hicksville, NY 11801

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

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

The NEW Shortwave Propagation Handbook

The single most comprehensive
source of information on HF
propagation is once again
available from CQ!

- 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

The NEW
Shortwave
Propagation
Handbook

\$19.95

plus \$7 s.h.

Order Today!!!!



CQ Communications, Inc.



25 Newbridge Road, Hicksville, NY 11801



Phone 516-681-2922 • FAX 516-681-2926



CONTEST CORNER

CONTEST: Vermont QSO Party

DATE & TIME: 1300Z 5 Feb – 0300Z 6 Feb & 1300Z 6 Feb – 0300Z 7 Feb

BANDS/MODE: 160-UHF CW/SSB/Digital

POINTS: 1 Pt. SSB; 2 Pts. CW/Digital

MULTIPLIERS: Vermont Counties (14); VT sta's use States/Provinces/Countries

EXCHANGE: RS(T) + State/Province/Country; VT sta's give RS(T) + County

ENTRY CATEGORIES: Single op; Multi-Single; Multi-Multi' Single Op, Mobile; School; Club; (All categories CW/SSB/Digital or Mixed modes)

ENTRIES: 30 Days E-mail (Cabrillo): vtqsologs@westriverradio.org.

Online submission form: www.b4h.net/cabforms/vtqp_cab.php

Rules at: <http://vtqsoparty.westriverradio.org/>

CONTEST: 10-10 International Winter Contest

DATE & TIME: 0000Z 5 Feb – 2359Z 6 Feb

BANDS/MODE: 10M SSB

POINTS: 1 Pt. non-member QSO; 2 Pts. Member QSO

MULTIPLIERS: None given

EXCHANGE: Name + State/Province/Country + Member # (non-members give power)

ENTRY CATEGORIES: Individual; Club; QRP

ENTRIES: 15 Days Dan Morris, KZ3T 131 Valencia Ln., Statesville, NC 28625

Rules at: www.ten-ten.org/Forms/QSOPartyRules_082710.pdf

CONTEST: Minnesota QSO Party

DATE & TIME: 1400-2359Z 5 Feb

BANDS/MODE: 160-2M CW/SSB/FM/Digital

POINTS: 2 Pts.

MULTIPLIERS: MN Counties (87); MN sta's count MN Counties + States/Provinces/Countries

EXCHANGE: Name + State/Province/Country; MN sta's give Name + County

ENTRY CATEGORIES: Single Op, QRP (<5W), Low (<101W), High; Mobile; VHF; Multi Op

ENTRIES: 15 Mar. MNQP 4745 170th Ln., NE Ham Lake, MN 55304-5233

E-mail (Cabrillo): mnqp@isd.net

Rules at: [www.w0aa.org/media/documents/mnqp/](http://www.w0aa.org/media/documents/mnqp/MNQP%20Contest%20Rules.pdf)

[MNQP%20Contest%20Rules.pdf](http://www.w0aa.org/media/documents/mnqp/MNQP%20Contest%20Rules.pdf)

CONTEST: Delaware QSO Party

DATE & TIME: 1700Z 5 Feb – 0100Z 6 Feb

BANDS/MODE: 160-2M CW/SSB/Digital

POINTS: 1 Pt. Phone; 2 Pts. CW/Digital

MULTIPLIERS: DE Counties (3); DE sta's count States/Provinces/Countries

EXCHANGE: RS(T) + State/Province/Country; DE sta's give RS(T) + County

ENTRY CATEGORIES: Single Op, QRP, Low, High; Multi-Single, QRP, Low, High

ENTRIES: 30 Days Contest Chairman, FSARC, P.O. Box 1050 Newark, DE 19715-1050

E-mail (Cabrillo): qsoparty@gmail.com

Rules at: www.fsarc.org/qsoparty/qsosohome.htm

CONTEST: North American Sprint

DATE & TIME: 0000-0400Z 6 Feb

BANDS/MODE: 80/40/20M CW

POINTS: 1 Pt. per QSO

MULTIPLIERS: States/Provinces/North American Countries

EXCHANGE: Other call + Your call + Serial # + Name + State/Province/Country

ENTRY CATEGORIES: Single Op, QRP, Low, High

ENTRIES: 7 Days E-mail Cabrillo: cwsprint@ncjweb.com

On-line submission: www.ncjweb.com/sprintlogssubmit.php

Rules at: www.ncjweb.com/sprinrules.pdf

CONTEST: CQ WW RTTY WPX

DATE & TIME: 0000Z 12 Feb – 2359Z 13 Feb

BANDS/MODE: 80-10M RTTY

POINTS: 1 Pt. same country, 20/15/10M; 2 Pts. same country 80/40M;

2 Pts. different countries, same continent, 20/15/10M; 4 Pts. different

countries, same continent 80/40M; 3 Pts. different continent, 20/15/10M;

6 Pts. different continent 80/40M

MULTIPLIERS: Prefixes

EXCHANGE: RST + Serial #

ENTRY CATEGORIES: Single Op, Low (<101W); Single Op, High;

Multi Op, Single XMTR; Multi Op, 2 XMTR's; Multi Op, Multi XMTR's

ENTRIES: 30 Days CQ RTTY WPX Contest 25 Newbridge Rd

Hicksville, NY 11801

E-mail logs (Cabrillo preferred): rtty@cqwpx.com

Rules at: www.cqwpxrtty.com/rules.htm (Note: 2011 rules not posted at time of submission)

CONTEST: Asia Pacific Spring Sprint

DATE & TIME: 1100-1300Z 12 Feb

BANDS/MODE: 40/20M CW

POINTS: 1 Pt.

MULTIPLIERS: Prefixes

EXCHANGE: RST + Serial #

ENTRY CATEGORIES: Single Op only!

ENTRIES: 7 Days

Online submission (Cabrillo preferred) only: apsprint@jsfc.org

Rules at: <http://jsfc.org/apsprint/aprule.txt>

CONTEST: FISTS Winter Sprint

DATE & TIME: 1700-2100Z 12 Feb

BANDS/MODE: 80-10M CW

POINTS: 2 Pts. Non-member QSO; 5 Pts. Member QSO

MULTIPLIERS: States/Provinces/Countries

EXCHANGE: RST + State/Province/Country + name + member # (non-members give power)

ENTRY CATEGORIES: QRP (<5W); QRO (>100W); Club

ENTRIES: 30 Days Gil Woodside, WA1LAD 30 Hilltop Ave.,

West Warwick, RI 02893-2825

E-mail logs (Cabrillo preferred): wa1lad@cox.net

Rules at: www.fists.org/sprints.html

CONTEST: North American Sprint

DATE & TIME: 0000-0400Z 13 Feb

BANDS/MODE: 80/40/20M SSB

POINTS: 1 Pt. per QSO

MULTIPLIERS: States/Provinces/North American Countries

EXCHANGE: Other call + Your call + Serial # + Name +

State/Province/Country

ENTRY CATEGORIES: Single Op, QRP, Low, High

ENTRIES: 7 Days

E-mail logs (Cabrillo preferred): ssbsprint@ncjweb.com

On-line log submission: www.ncjweb.com/sprintlogssubmit.php

Rules at: www.ncjweb.com/sprinrules.pdf

CONTEST: ARRL School Club Roundup

DATE & TIME: 1300Z 14 Feb – 2359Z 18 Feb

BANDS/MODE: All Bands, CW/SSB/RTTY/Digital

POINTS: 1 Pt. Phone; 2 Pts. CW/RTTY/Digital

MULTIPLIERS: States/Provinces/Countries

EXCHANGE: RS(T) + Category + State/Province/Country

ENTRY CATEGORIES: Single Op; Club or Multi-Op; School Club/Group

ENTRIES: 30 Days SCR c/o LIMARC P.O. Box 392 Levittown,

NY 11756-0932

Sample log and forms at: <http://home.earthlink.net/~scr-log/>

Rules at: www.arrl.org/school-club-roundup

CONTEST: ARRL International DX

DATE & TIME: 0000Z 19 Feb – 2359Z 20 Feb

BANDS/MODE: 160-10M CW

POINTS: 3 Pts.

MULTIPLIERS: States/Provinces/DXCC Countries

EXCHANGE: RST + (State/Province); Non-W/VE sta's give RST + power

ENTRY CATEGORIES: Single Op All Band (QRP/Low/High); Single Op,

Single Band; Single Op, Unlimited; Multi-Single; Multi-Two; Multi-Multi
ENTRIES: 22 Mar. ARRL International DX Contest 225 Main St.,
 Newington, CT 06111
 E-mail logs (Cabrillo): dxcw@arrl.org
 Rules at: www.arrl.org/contests/rules/2011/intldx.html

CONTEST: CQ 160M

DATE & TIME: 2200Z 25 Feb – 2159Z 27 Feb

BANDS/MODE: 160M SSB

POINTS: 2 Pts. Own Country; 5 Pts. Other Country, same Continent or
 Maritime Mobile; 10 Pts., Other Continents

MULTIPLIERS: States/Provinces/Countries (includes KL7, KH6)

EXCHANGE: RS + State/Province; DX gives RS + CQ Zone

ENTRY CATEGORIES: Single Op, QRP (<5W) Low (<150W) High;
 Single Op Assisted (High); Multi-Op

ENTRIES: CQ 160-Meter Contest 25 Newbridge Rd., Hicksville,
 NY 11801

Rules at: www.cq160.com/rules.htm

CONTEST: North American QSO Party

DATE & TIME: 1800Z Feb 26 – 0600Z 27 Feb

BANDS/MODE: 80-10M RTTY

POINTS: 1 Pt.

MULTIPLIERS: States/Provinces/North American Countries

EXCHANGE: Name + State/Province/Country

ENTRY CATEGORIES: Single Op, QRP (<5W), Low; Multi-two (Max of
 100W for all categories)

ENTRIES: 14 Days

E-mail logs (Cabrillo): rttnaqp@ncjweb.com

Online submission: www.ncjweb.com/naqplogsubmit.php

Rules at: www.ncjweb.com/naqprules.php (Note: 2010 rules - 2011 rules not
 posted at time of submission)

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

CQ VHF Ham Radio
 Above 50 MHz

*The magazine for the
 VHF/UHF Enthusiast*



Within the pages of CQ VHF you'll
 find more meaty reading aimed at the
 really serious VHFer. That's what our surveys
 told us you wanted and that's what we deliver!

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. As always, every
 subscription comes with our money back guarantee.

1 year only \$26.00

2 years \$52.00

3 years \$78.00

Canada/Mexico - 1 yr \$36, 2 yrs \$72, 3 yrs \$108;

Foreign 1 yr \$39, 2 yrs \$78.00, 3 yrs \$117

Payable in U.S. dollars

CQ VHF Magazine

25 Newbridge Rd, Hicksville, NY 11801

www.cq-vhf.com

FAX : 516 681-2926 • Toll-Free: 800-853-9797

2011-2012 **CQ** calendar

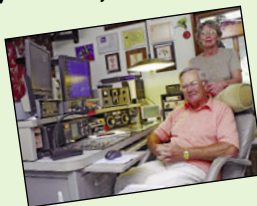
15 months of value
 January 2011 through
 March 2012



**Better than ever! This year's calendar will bring you 15 spectacular color
 images of some of the biggest, most photogenic shacks, antennas,
 scenics and personalities from across the country for only \$10.95!**

Calendar includes dates of important Ham Radio events such as major
 contests and other operating events, meteor showers, phases of the
 moon, and other astronomical information, plus important and popular
 holidays. The CQ Amateur Radio Operators Calendar is not only great
 to look at, it's truly useful, too!

**\$10.95 ea.
 +\$2 s/h**



CQ Communications, Inc.

25 Newbridge Road, Hicksville, NY 11801

Call 1-800-853-9797 • FAX 516-681-2926

www.cq-amateur-radio.com





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				NEVADA			
Mesa	3rd Mon	Steve KY7W, 480-804-1469, kj7wk@cox.net	w/i	Stagecoach	2nd Sat	Jack, AC6FU, 775-577-2637 ac6fu@arrl.net	
Phoenix	4th Sat	Gary Hamman, 602-996-8148, K7GH@arrl.net		NEW JERSEY			
ARKANSAS				Roselle	4th Sat	Gerry, AA2ZJ, 732-283-2795, aa2zj@arrl.net	
Vilonia	3rd Sat	James, KE5OVE, 501-796-3910, ke5ove@arrl.net	p/r pref.	Winslow	4th Tues	Mark, K2AX, 609-820-1523, JTRA@comcast.net	
Harrison	2nd Sat	Bob, AJ5C, 870-365-3871, aj5c@cox.net		NEW YORK			
CALIFORNIA				Bethpage	2nd Tues	Bob, 631-499-2214, w2ilp@optonline.net	p/r
Highland	2/19	Ed, WU6I, 909-864-0155, wu6i@arrl.net	p/r pref.	Canandaigua	1st Wed	Squaw Island ARC, David A. Foster, 585-398-0216, D1161F@aol.com	w/i
LaVerne	Last Sat	Frank, K6FW, 909-628-8661, k6fw@arrl.net	p/r	Canandaigua	1st Wed	David Foster, 585-398-0216, www.siarc.us	w/i
Long Beach	3rd Sat	Louise, N6ELK, 562-429-1355	p/r	Valhalla	Call	Stanley, WA2NRV, wa2nrv@weca.org	
Manteca/Tracy	4th Sat	David, N5FDL, 209-835-6893, n5dfl@arrl.net	p/r	Yonkers	Call	Paul, AC2T, 914-237-5589, w2yrc@hotmail.com, www.yarc.org	w/i ok
Redwood City	Call	Al, WB6IMX@arrl.net, www.amateur-radio.org	w/i	NORTH CAROLINA			
Sacramento	Hotline!	916-492-6115, n6na@arrl.org		Fayetteville	Call	Patricia Edwards, N4UGH, n4ughpat@aol.com, 910-584-1801	w/i
San Francisco	See site	www.hamcrams.com	p/r pref	OHIO			
Santa Rosa	Hotline!	Hotline-Recording 707-579-9608	w/i ok	Cincinnati	1st Sat	Dale, KC8HJL, 513-769-0789	p/r pref
Sebastopol	Hotline!	Recording 707-579-9608		Sandusky	Call	Luther, N8HC, 419-684-7864, n8hc@arrl.net	p/r
Sunnyvale	Visit Site	Gordon, W6NW, Sv@amateur-radio.org, www.amateur-radio.org	w/i	OREGON			
COLORADO				Astoria	Call	AA7OA, 503-338-3333	p/r
Englewood	1st Sat	Dave, N0HEQ, 303-795-5718, n0heq@arrl.net, Commerical Exams also	p/r pref	Bend	Weds	Joe, K7SQ, 541-385-3152	p/r
FLORIDA				Lincoln City	1st Sat	Carl, w7li@arrl.net, 503-965-7575	w/i ok
Longwood	4th Sat	James, N4ZKT, 407-333-4245		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	w/i pref.	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	PUERTO RICO			
IOWA				San Juan	Last Sat	Hotline: 787-789-4998, prarl@prarl.org	w/i
Ames	Call	George, NP2N, georgeoster@msn.com	w/i ok	SOUTH CAROLINA			
Vinton	3rd Tues	Kenneth, N0EGV, 319-223-5739, n0egv@southslope.net	w/i ok	Charleston	3rd Wed	Robert Johnson, ae4rj@amsat.org; www.qsl.net/wa4usn/	w/i
ILLINOIS				Charleston	2nd Sat	Riley Stone, 843-832-9105, k4hy@sc.rr.com	w/i
Bolingbrook	3rd Sat	Dale, W9KHX, 815-723-3332	w/i ok	VIRGINIA			
Burr Ridge	Any Day	Argonne ARC, W9DS, 630-986-0061	p/r	Alexandria	2nd Sat	John, WZ4A, 703-971-3905, wz4a@arrl.net	w/i
Lake in Hills	4th Sat	Jeffrey Dubin, N9MXT, 847-815-9407		Stafford	Sat	Bart, N3GQ, 540-373-4506, n3gq@arrl.net, www.qsl.net/semcomm	p/r
Roselle	2nd Tues	Sam, W9SFB, 630-894-0708, w9sfb@aol.com	p/r	WASHINGTON			
INDIANA				Tacoma	2nd Tues	Radio Club of Tacoma, 253-759-2040, www.w7dk.org	
Richmond	Call	Mike, 765-439-4230, w1idx@arrl.net	w/i	Vancouver	Hotline!	CCARC, 360-896-8909	p/r
South Bend	3rd Mon	Alan, NY9A, 574-232-6883	p/r	Vancouver	Call	Vancouver ARC-Clark County, 360-892-5580 C. Wayne Schuler, AI9Q ai9q@arrl.net	w/i ok
MASSACHUSETTS				WEST VIRGINIA			
Brookline	Call	Jim, N1ICN, 617-364-4658, n1icn@arrl.net	p/r	Parkersburg	2nd Mon	Dana Pickens, WV8G, 304-422-6101	w/i, p/r
MICHIGAN				WISCONSIN			
Garden City	Call	Ken Wardell, AB8ZD, 734-421-7730, gsnaps@att.net	w/i ok	Racine	1st Sat	Robert, W0WLN, 262-886-8551	w/i pref.
Muskegon	1st Sat	Bob Carter 231-780-5575, res001wt1@frontier.com					
Oak Park	1st Tues	W9NPI@comcast.net, 248-543-2284	w/i ok				
MINNESOTA							
Apple Valley	2nd Thur	Jim, N0OA, 612-384-7709, N0OA@arrl.net	p/r pref.				
MISSISSIPPI							
Gulfport	1st Sat	Harrison Cty., Clay, W5ACS 228-863-2042 w5acs@arrl.net	w/i ok				

*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

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

[Click here to list your items!](#)

SLOPER ANTENNAS

By Juergen A. 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. These fundamentals are supplemented by construction guidelines for directive antennas using a single element or several elements. Previously, gathering all the necessary information to construct an effective sloper for a particular application was tedious and time consuming. You'll find all the information needed for successful home building of the antennas.

Some of the Topics: Vertical dipole and sloper in free space, over perfect or real ground - sloper with several elements - feeding sloper antennas - multi-band sloper - W3DZZ and double Zepp as a sloper antenna - multi-element sloper antennas for multi-band operation - special types of halfwave sloper antennas and much more!

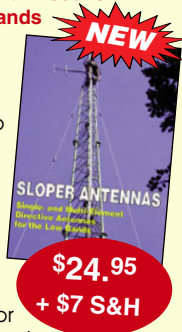
CQ Communications, Inc.

25 Newbridge Rd, Hicksville, NY 11801

www.cq-amateur-radio.com

FAX us at 516 681-2926

Order today! 800-853-9797



ADVERTISERS' INDEX

10-10 International Net, Inc.	48	www.ten-ten.org & www.10-10.org
ASA, Inc.	48	www.waterprooflogbooks.com
Bilal Co./Isotron Antennas	48	www.isotronantennas.com
CQ Amateur Radio Magazine	59	www.cq-amateur-radio.com
CQ Books, CDs, DVDs	27, 47	www.cq-amateur-radio.com
CQ AR Ops Calendar	55	www.cq-amateur-radio.com
CQ DVDs	40	www.cq-amateur-radio.com
CQ VHF Magazine	55	www.cq-vhf.com
CW-Easy/Success-Easy	34	www.success-is-easy.com
Courage Handi-Ham System	31	www.handiham.org
DC Ace, Inc.	12	www.dcace.com
DX Engineering	34	www.dxengineering.com
DX Store	21	www.dxstore.com
Diamond Antenna	15	www.diamondantenna.net
Eagle One Antenna	16	www.w8afx.com
Electric Radio	48	www.ermag.com
Electronic Products Design, Inc.	31	www.epd-inc.com
Engineering Systems, Inc.	34	
FlexRadio Systems	13	www.flex-radio.com
Ham Radio Anthologies	31	www.cq-amateur-radio.com
Ham Radio Insurance Assoc.	21	www.hamradioinsurance.com
HamTestOnline	12	www.hamtestonline.com
ICOM America, Inc.	3	www.icomamerica.com
IIX Equipment Ltd.	22, 34	www.w9iix.com
J-ames Pole Antennas	22	www.jamespole.com
Kenwood U.S.A. Corporation	19	www.kenwoodusa.com
Mackey, James E.	31	www.airmailpostage.com
Palomar Engineers	21	www.Palomar-Engineers.com
Penny's Stitch n' Print	31	www.pennystitch.com
Popular Communications	53	www.popular-communications.com
QCWA	34	www.qcwa.org
RF Parts Company	17	www.rfparts.com
RSGB Books	39	www.cq-amateur-radio.com
SteppIR Antennas Inc.	5	www.steppir.com
Timewave Technology Inc.	21	www.timewave.us
Uniden America Corporation	25	www.HomePatrol.com
Universal Electronics	31	www.coaxseal.com
Universal Radio, Inc.	12, 22	www.universal-radio.com
VIS Amateur Supply	22	www.visradio.com
Vibroplex	31	www.vibroplex.com
W5YI Group	29	www.w5yi.org
WB0W, Inc.	45	www.wb0w.com
Wireman/Clear Signal Products	48	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.](#)



Kurt Digs Up More of the Skinny On 'Skin Effect'

By Kurt N. Sterba

In August 2010's *Aerials* column, Krusty Olde Kurt praised the Miracle Mixed-Mode Dipole antenna that a curious reader had asked about. But Kurt took a very dim view of the literature describing its operation.

The antenna is just like Kurt's end-fed dipole except that instead of a ferrite inductor it has something called a *Current-Mode Discriminator*. Miracle's Robert Victor, VA2ERY, disagrees with Kurt's comments and it is appropriate that we show his letter:

Dear Kurt . . .

"I'm very pleased to see the good recommendation you gave our Mixed-Mode Dipole antenna. It is doing very well for us commercially and the unit I've installed on the roof of our plant has really pleased me with its performance.

"You take the time to slam some of our statements regarding the operation of the MMD, but I'm not surprised: What would a Kurt Sterba article be without a good, solid slam at some antenna manufacturer's claim?

"But as someone who has built their reputation on exposing myths in both marketing and hamdom, I suggest you've fallen down badly on this one, in that you swallow wholesale that common-mode currents on a feedline are kept separate from the feed current by skin effect. You cite the ARRL Handbook's statements to this effect to back yourself up.

"Get out of the armchair, Kurt. Run to the library, fire up the Internet, check the ARRL archives, scour the planet – find one single piece of experimental evidence that shows this theory is true. You won't, by the way.

"Sure, it's repeated in many quarters, stated as a fact from JA to PY, but that's not experimental proof, is it? Once you've found this out, set that pointed thinking cap of yours on your head and *THINK* about it. I believe – and I hope I'm not wrong – that you are smart enough to come to the same conclusion I have: Skin effect plays no role in this scenario. It's just one more myth that hams (this time including you) have swallowed without blinking or thinking.

"This will be (for you) perhaps the first (and maybe only) occasion where the Mythbuster busts his own myth, but how about it? You're so set on taking apart others' baloney, do you have the brains and integrity to take apart your own?

"Let me give you a hint: Common-mode RF is just as common in TX (transmit) systems using balanced line as it is in coax systems. But there's no coax shield and hence no *skin* on a ladder line. So how would that happen if skin effect is needed to *keep the currents separate* as you parrot?

"This is only one of several errors in your article, but don't despair. I'll be happy to straighten you out on the rest once we've covered this one.

"C'mon Kurt. Drop the Wilford Brimley routine for five minutes and think for a change. I'll look forward to either 1) your



A Drake T-4XC transmitter, Ten-Tec amplifier, Bird wattmeter, Palomar Engineers clamp-on RF current meter and Ten-Tec dummy load were used in Kurt's *skin effect* experiment. (Courtesy of Kurt N. Sterba)

claim that 'everybody knows this so I won't waste my time' or 2) 'this actually got me thinking and now I have to admit that Victor might be right after all.'"

Kurt Responds: Revelations From the Library and the Lab

Well, to start with, Kurt looked in his own library and *surprise!* He quickly found reference to an article with experimental evidence: *Experimental Researches on Skin Effect in Conductors* in Transactions of the American Institute of Electrical Engineers in 1915. So we've known about skin effect for about a hundred years.

Most engineers take it as a given just like Ohm's law. Coaxial cable designers use it to design the shields on their cables. Kurt's 1943 *Radio Engineers Handbook* explains in detail how to calculate skin effect for various types of conductors.

So is there current on the outside of the shield? Yes, Victor is correct. But how can Kurt say there isn't any?

To see why, we need to look at skin effect in detail:

With skin effect, AC current flows near the outside of a conductor instead of throughout the conductor as DC current does. Engineers have come up with a *skin depth* – the depth below the surface where current drops to 36.8 percent of its value at the surface. Why such an odd number? It's because the drop is exponential and this is a good number in mathematical equations. Leave that to the mathematicians.

What we need to know is that at one skin depth the current is down to 36.8 percent. At two skin depths it is down to 36.8 per-

cent of that. At three skin depths, it's 36.8 percent of the value at two skin depths. And so on . . .

It never drops to zero. It just gets extremely small. At seven skin depths it is 1/1,000 of the current inside the cable. For all practical purposes there is no current on the outside. Being a practical man, Kurt says there isn't any.

But it is easy to check this, so Kurt ran an experiment. The equipment is shown in the accompanying photograph. On the left is Kurt's venerable Drake T-4XC transmitter. Next is his Ten-Tec amplifier followed by a Bird wattmeter. Then, down below, on the cable, is a Palomar Engineers clamp-on RF current meter. To the left of it, a Ten-Tec dummy load.

On 20 meters, 150 watts of power went through this set-up. Using Ohm's law for RG-58 50-ohm cable we find that there is 1.732 amperes or 1,732-milliamperes flowing inside the cable.

How much do we find on the outside? Answer: 2-milliamperes. Skin effect has cut the current down almost 1,000 to 1. Kurt's end-fed dipole ignores this tiny bit of current and it works just fine. So does Richard Fisher, KI6SN's, trail friendly end-fed dipole – featured in his October 2010 *Trail-Friendly Radio* column.

So exactly what does VA2ERY's *Current Mode Discriminator* do to this *teeny little current* that is useful to the antenna's operation? Not much.

Kurt welcomes questions of general interest from readers and will answer them in his column. Write to him at: WorldRadioOnline@gmail.com.

If you enjoy Amateur Radio...you'll enjoy

It's a different kind of ham magazine.



Fun to read, interesting from cover to cover, written so you can understand it. That's CQ. Read and enjoyed by thousands of people each month in 116 countries around the world.

It's more than just a magazine. It's an institution.

CQ also sponsors these world-famous award programs and contests: The CQ World-Wide DX Phone and CW Contests, the CQ WAZ Award, the CQ World-Wide WPX Phone and CW Contests, the CQ World-Wide VHF Contest, the CQ USA-CA Award, the CQ WPX Award, the CQ World-Wide 160 Meter Phone and CW Contests, the CQ World-Wide RTTY Contest, the CQ 5 Band WAZ Award, the CQ DX Award, CQ iDX Award, CQ DX Field Award, CQ DX Marathon and the highly acclaimed CQ DX Hall of Fame. Accept the challenge. Join the fun. Read CQ.

**SUBSCRIBE
TODAY!**

	USA	VE/XE	Foreign
1 Year	<input type="checkbox"/> 36.95	<input type="checkbox"/> 49.95	<input type="checkbox"/> 61.95
2 Years	<input type="checkbox"/> 66.95	<input type="checkbox"/> 92.95	<input type="checkbox"/> 116.95
3 Years	<input type="checkbox"/> 96.95	<input type="checkbox"/> 135.95	<input type="checkbox"/> 171.95

Please allow 6-8 weeks for delivery of first issue.

CQ The Radio Amateur's Journal

25 Newbridge Road • Hicksville, New York 11801

www.cq-amateur-radio.com • Phone 516-681-2922 • FAX 516-681-2926