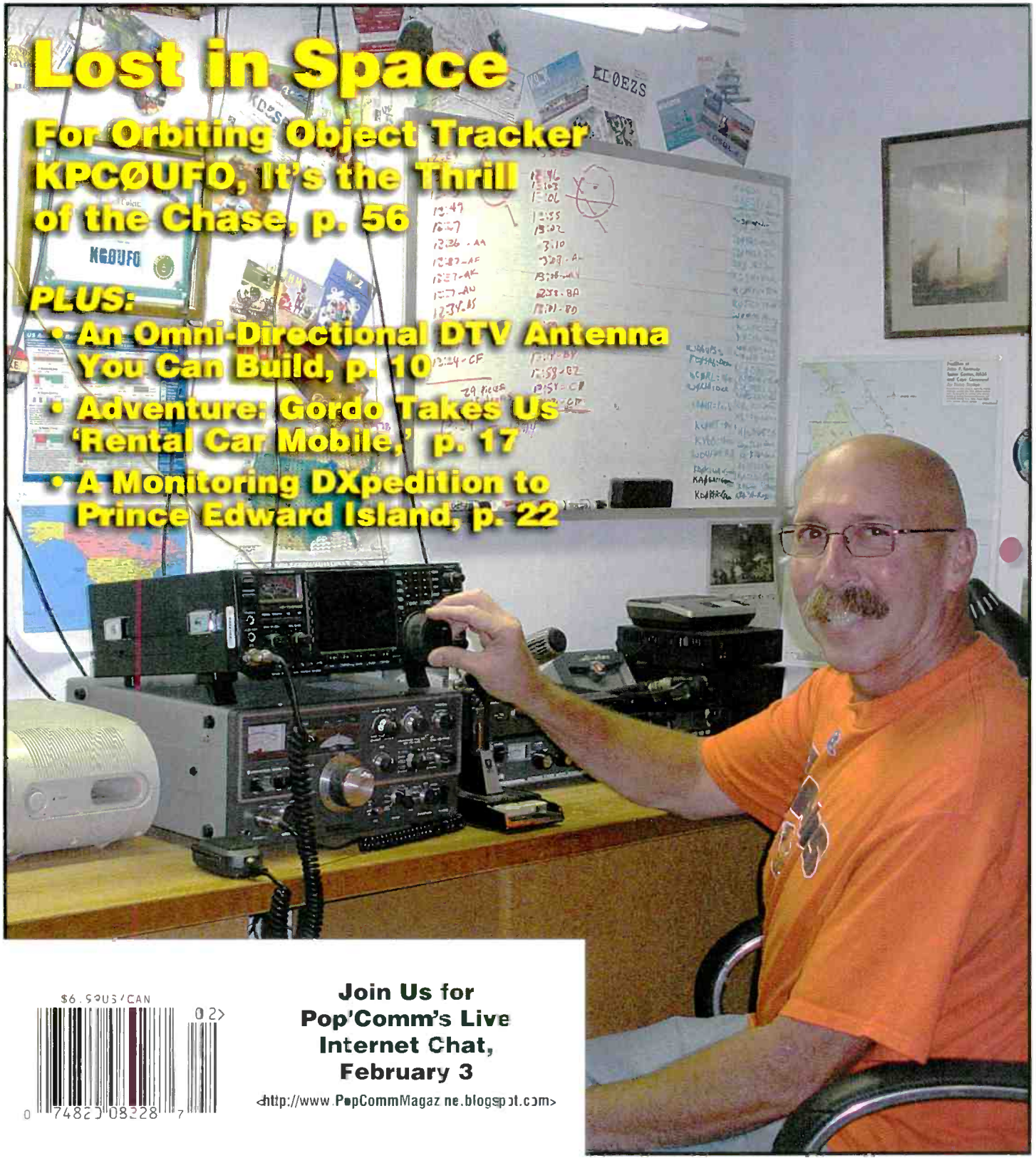
www.popular-communications.com

POPULAR COMMUNICATIONS

FEBRUARY 2013

Shortwave Listening • Scanning • AM & FM • Radio History



Lost in Space

For Orbiting Object Tracker KPCØUFO, It's the Thrill of the Chase, p. 56

PLUS:

- **An Omni-Directional DTV Antenna You Can Build, p. 10**
- **Adventure: Gordo Takes Us 'Rental Car Mobile,' p. 17**
- **A Monitoring DXpedition to Prince Edward Island, p. 22**

$6.95US/CAN

0 74820 08228 7 02

Join Us for Pop'Comm's Live Internet Chat, February 3

<http://www.PopCommMagazine.blogspot.com>

SCANNER MASTER

CALL 1-800-SCANNER

NEW Pre-Programmed Scanners from Uniden and GRE!

Uniden HomePatrol
Trunking Digital

GRE PSR-700
Trunking-Non Digital

30 YEARS SCANNER MASTER

SCANNER MASTER is the nation's oldest and largest scanner-only dealer. For over 30 years we've specialized in nothing but scanners, frequency guides, scanner software and scanner accessories.

Uniden-Bearcat® Scanners

Uniden Remote Heads In Stock!

GRE GRECOM Scanners

RadioShack Scanners

AOR & ICOM Receivers

- Mobile and Portable Scanner Antennas
- The Best in Scanner Software
- Scanner Accessories

Our Services
Programming
New Product Guide
Boston Area Store
Worldwide Shipping
One Page Checkout
Gift Wrapping
Gift Certificates
Newsletter

Buy Your Next Scanner from Scanner Master and Receive

10% OFF Car Chargers

10% OFF Cases

10% OFF Computer Cables

And Much More!

Our Guarantees
30 Day Money Back
Same Day Shipping

See Our Website Or Call For Details

MEMBER OF BBB

North American Master Distributors for some of the world's most unique and exciting scanner accessories, including:

BuTel ARC Scanner Programming and Control Software for Uniden, Radio Shack, AOR and ICOM Scanners

RadioReference.com Subscriptions - The ultimate nationwide frequency and trunking database

EXCLUSIVE Waters & Stanton Products including the Watson line of products from the U.K. - A variety of antennas, speakers, filters, amplifiers, aircraft tracking software and much more!

DD Amtek - Affordable high-performance indoor and outdoor scanner filters and pre-amplifiers!

Your One Source for Everything You Need

We Have All the Basics: Scanners, antennas and accessories for base, mobile or portable operation.

The Latest Technology: Scanner software, pre-amplifiers, filters, a GPS enabled antenna and much more! Tools that will make your operation the best it can be.

Professional Programming: Just plug in your scanner and start listening right out of the box!

Professional Services

Low cost **Lead Generation Systems** to expand your business

News Gathering Systems for media outlets

Remote Control, Audio Recording, and Custom Mobile Solutions for media and public safety

Consultation, Installation, and Complete System Engineering - Turnkey solutions ensuring your system works the first time

Local News and Information how and when you need it!

Come and Visit our Store and Police Scanner Museum:
260 Hopping Brook Road, Holliston, MA 01746

1-800-SCANNER **www.scannermaster.com** **info@scannermaster.com**

Scanner Master is a proud partner of RadioReference.com

Universal Radio — Quality equipment since 1942.

1102S

The **Bonito 1102S *RadioJet*** shortwave receiver combines innovative design with the advantages of modern computer technology. It has a frequency range of 40 kHz to 30 MHz with an excellent sensitivity of .03 µVolts on a noise level of -137 dBm with an extreme resolution of 144 dB at a sampling of 24kHz. The Noise floor is extremely low, because there are no active parts between the antenna and the ADC. Strictly speaking, this radio is not an SDR, although it is exclusively controlled by computer. So far, no SDR has defined, controlled, read or computed anything like the RadioJet. Bonito *RadioJet* is a short wave receiver with a built-in USB audio device and a 24kHz multichannel IM jack or to put it simply: The most obvious application of modern radio technology. The software has been designed in such a way that its size and its coloring can be custom-tailored to any screen. This can be achieved with the presets or user-defined. The center piece of this IF-receiver is the supplied software. It makes all the different applications possible. An IF-Input-Device is built into the *RadioJet* so that the radio is like an external USB-Audio recorder and an easy installation without a complicated driver is assured: simply plug and play. The supplied standard software features: Reception and recording of transmissions in USB, LSB, CW, AM, FM and DRM. All filters are completely variable and can have their waviness and notches drawn by hand with the equalizer. S-meter and spectroscope have an extremely accurate dBm-scale and can be calibrated. This device derives its power from the USB connection. BNC antenna input. Made in Germany. 4.5 x 1.25 x 4 inches. This device requires a USB cable (not supplied).

Order #5789 **$699.95**

PERSEUS

The **Microtelecom Perseus** is a cutting-edge, multimode, software defined receiver covering 10 kHz to 40 MHz. Enjoy world class performance: 3rd order IP: +31 dBm, Sensitivity: -131 dBm, Dynamic Range: 104 dB (BW 500 Hz CW). Nine six-pole front end bandpass filters prevent overload of the A/D converter. There is a 3 step attenuator plus switchable low noise preamplifier. An impressive full span lab-grade spectrum display function is featured. An almost magical spectrum record feature allows you to record up to an 1600 kHz portion of radio spectrum for later tuning and decoding. A Wide/Narrow noise blanker has recently been added. The audio source is via your PC soundcard. The Perseus operates from 5 VDC and comes with an international AC power supply, AC plug converter, SO239 to BNC RF adapter, USB cable and CD with software and detailed manual. Made in Italy.

Order #0122 **$999.95**

The **Shuttle Pro V2** hand controller adds great ergonomic versatility to your Perseus receiver. It allows one-handed access to nine fully programmable push buttons as well as a shuttle/jog knob for analog type tuning. *Order #5319* **$99.95**

SDR-IQ

The **RFspace SDR-IQ™** with RF DSP™ offers unprecedented performance with a frequency coverage of 500 Hz to 30 MHz in 1 Hz steps. (Please note the low end tuning range is 500 Hz, not 500 kHz). It features the fastest and highest resolution plug and play spectrum display available. The SDR-IQ™ comes with the latest version of SpectraVue™ software. It supports AM, WFM, USB, LSB, N-FM, DSB and CW with fully adjustable DSP Filter bandwidths and FFT sizes of 2048 to 262144 points. The resolution bandwidth is as low as 0.031 Hz. The SDR-IQ™ is the smallest SDR with RF DSP™ that samples the whole HF band at once and performs the initial filtering at a 67 MHz sample rate with 23 bit accuracy. It has a high performance Analog Devices 14 bit analog to digital converter and sends 16 bits of I/Q Data to the PC via USB (no messy soundcard cables required). The SDR-IQ is USB powered so no power supply is required. Works great with laptops running on batteries. It offers incredible receive performance and high resolution spectrum display capability. The rear panel has a USB port, serial port and BNC antenna input jack. The SDR-IQ software CD works with Windows 2000, XP and Vista. Made in the United States.

Order #0106 **$509.95**

NetSDR

The **RFspace NetSDR** is a high performance networked software designed receiver with 1.6 MHz bandwidth. The NetSDR uses a high performance 80 MHz, 16 bit ADC with both dithering and randomization for best performance. The output I/Q bandwidth is configurable via software. PC communications are handled over a 100 base-T port using 24 or 16 bit I/Q words. The NetSDR is a complete plug and play solution. As opposed to other SDRs in the market, there is no need for additional preamplifiers, preselectors or code development. The unit is compatible with the Moetronix SpectraVue and SDR-Radio software that will have you up and running in minutes. The software includes analog and digital mode demodulation and I/Q capture of spectrum at up to a 1.6 MHz bandwidth. The SDR-Radio software allows the use of the NetSDR over the Internet. The full 1.6 MHz waterfall and demodulation audio can be transported via a 5 KB/s link. For those interested in writing their own applications, RFspace supplies a fully documented protocol for communicating with the hardware. There is no need to calculate the down converter DSP parameters. The NetSDR just needs the center frequency, attenuator and preselector filter settings, output sample rate and mode to begin streaming data. Other solutions require complicated USB interfacing that is platform specific. The NetSDR utilizes straight TCP/IP and Ethernet for all communications. This offers the highest possible performance due to the highly optimized Ethernet drivers on PC, Mac and Linux systems. The NetSDR packets are fully routable so that the receiver may be placed at remote locations. Multiple receivers can also be combined and their data transported over a higher data rate Ethernet pipe using simple switches and routers. In this application, each NetSDR can be set to a different IP address or port. *Order #0383* **$1449.95**

universal radio inc.

Universal Radio, Inc.
6830 Americana Pkwy.
Reynoldsburg, Ohio
43068-4113 U.S.A.

800 431-3939 Orders & Prices
614 866-4267 Information
614 866-2339 FAX Line
dx@universal-radio.com

www.universal-radio.com

Visit our website for more exciting new *and* used hobby radios.

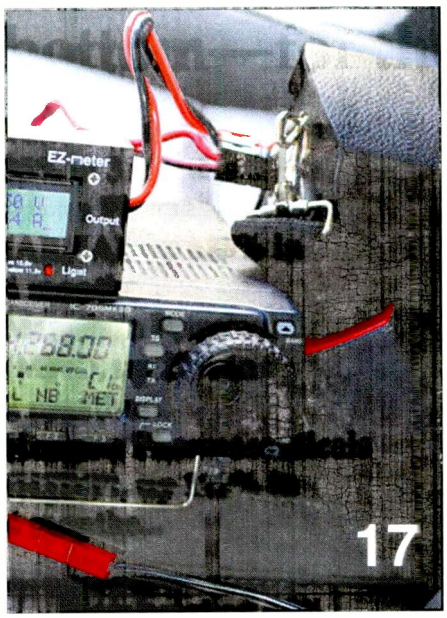
- Visa
- MasterCard
- Discover
- JCB

- Prices and specs. are subject to change.
- Special offers are subject to change.
- Returns subject to a 15% restocking fee.
- Prices shown do not include shipping.

POPULAR COMMUNICATIONS

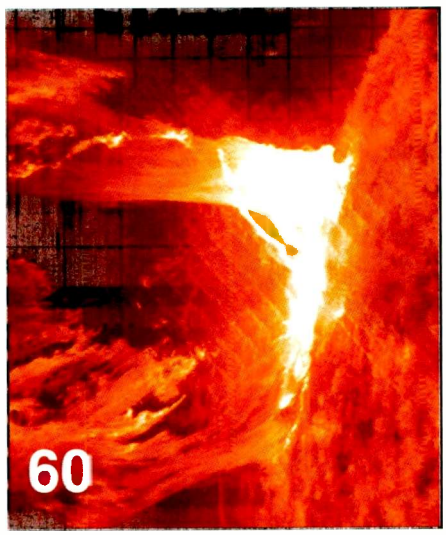
FEBRUARY 2013
VOLUME 31, NUMBER 7

CONTENTS



FEATURES

FEATURED COLUMNS



ON THE COVER

Mike Coletta, KPCØUFO, of Pueblo, Colorado, has a most unusual monitoring passion: tracking orbiting objects via the U.S. Air Force Space Fence. Coletta was prominently featured in a segment of the Discovery Channel program *America's Most Secret Structures*. The gear and homemade antennas he uses are detailed in this edition's *Pop'Comm Monitor of the Month*, as well as a profile of this avid scanner with such high expectations. Turn to page 56 *(Cover design by Pop'Comm Art Director, Liz Ryan. Photography courtesy of KPCØUFO)*

COLUMNS

DEPARTMENTS

POPULAR COMMUNICATIONS

EDITORIAL STAFF

Richard Fisher, KI6SN, Editor
(E-mail: editor@popular-communications.com)
Jason Feldman,WPC2COD, Associate Editor
(E-mail: jason@popular-communications.com)
Richard S. Moseson, W2VU, Editorial Director
(E-mail: w2vu@popular-communications.com)

CONTRIBUTING EDITORS

Peter J. Bertini, K1ZJH, Restoration/Electronics
Bruce A. Conti, AM/FM Broadcasts
Rob de Santos, Trends In Technology
Gerry L. Dexter, Shortwave Broadcast
Mitch Gill, NA7US, Homeland Security
Bill Hoefer, KPC4KGC, Aviation
Tomas Hood, NW7US, Propagation
Shannon Huniwell, Classic Radio
Kirk Kleinschmidt, NTØZ, Amateur Radio
Bill Price, N3AVY, Humor/Communications
Ken Reiss, Technical/Scanning
Dan Srebnick, K2DLS, Computers And Radio
Bob Sturtevant, AD7IL, Puzzles And Trivia
Jason Togyer, KB3CNM, Cartoons
Gordon West, WB6NOA, General Radio Comm.

BUSINESS STAFF

Richard A. Ross, K2MGA, Publisher
Jon Kummer WA2OJK, Advertising Manager
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 Kehrwieder, Production Director
Emily Leary, Production Manager/Webmaster
Hal Keith, Technical Illustrator
Larry Mulvehill, WB2ZPI, Photographer
Rod Somera, Webmaster

A publication of

CQ Communications, Inc.
25 Newbridge Road
Hicksville, NY 11801-2953 USA

Popular Communications (ISSN-0733-3315), Vol. 31, No. 6 published monthly by CQ Communications, Inc., 25 Newbridge Road, Hicksville, NY 11801. Telephone (516) 681-2922. FAX (516) 681-2926. Web Site:<http://www.popular-communications.com/> Periodicals Postage Paid at Hicksville, NY and at additional mailing offices. Subscription prices (payable in U.S. dollars): Domestic—one year $34.95, two years $62.95, three years $91.95. Canada/Mexico—one year $44.95, two years $82.95, three years $121.95. Foreign Air Post—one year $54.95, two years $102.95, three years $151.95.

U.S. Government Agencies: Subscriptions to Popular Communications are available to agencies of the United States government, including military services, only on a cash with order basis. Requests for quotations, bids, contracts, etc. will be refused and will not be returned or processed.

Printed in U.S.A.

Postmaster: Please send change of address to: Popular Communications, 25 Newbridge Rd., Hicksville, NY 11801

EDITORIAL
Tuning In

by Richard Fisher, KPC6PC/KI6SN
<editor@popular-communications.com>

Pop'Comm @ 30: Avast Ye Matey, Should Pirates Be Aboard?

It didn't take long for *Pop'Comm* Founding Editor Tom Kneitel, K2AES (SK), to get things whipped up among the magazine's readers when he scheduled regular, high profile coverage of clandestine and pirate radio in his new magazine.

Thirty years ago this month, in Tom's *Beaming In* editorial, he wrote that a ton of mail had been arriving in response to the magazine's *Free Radio Focus* column "and our coverage of pirate and unlicensed radio in general." *Pop'Comm was barely six months old.*

The mail, he wrote, was "running heavily *pro* and heavily *con* . . . Those who like the in-depth coverage say that it's long overdue in a national publication," he said. "Those who don't like it claim that *Pop'Comm* is endorsing the practice" of illegal radio operation.

Tom went on to say that *Pop'Comm's* position "is that pirate broadcasting is a fact of life; it's nothing at all new — dating back to the 1920s and continuing to the present."

K2AES said that "these days" — which was February 1983 — pirates "are more in evidence than ever before. By ignoring (them) and pretending that (pirates) don't exist, *Pop'Comm* will not make (them) go away."

The magazine's policy would be "to present all of the information we have available and leave it to the judgment of readers to select what they want and ignore those (stations) they don't wish to know about or hear."

Free Radio Focus was written in the early days by Al Muick, a veteran SWLer even 30 years ago. Apparently interest in the topic is just as alive and well today.

Late in 2012, *Pop'Comm* received an email from Fred Bennett, N2FJ, of Ogdensburg, New York, wondering about the magazine's commitment to coverage of pirate and clandestine radio in 21st Century: "Is *The Pirates Den* no longer in *Pop'Comm?* Just started getting back in SWL and I love to find pirate radio stations . . . Will (the column) be coming back?"

Photo A. *The Pirates Den* was a regular *Pop'Comm* column covering unlicensed radio in the 1980s.

Fred is referring to a *Pop'Comm* fixture in the mid-1980s, **Photo A**.

Of course, Gerry Dexter, WPC9GLD, conscientiously includes a PIRATES listings in his unparalleled monthly *Global Information Guide* — including entries for such stations as Captain Morgan Shortwave, Radio Ronin Shortwave, TCS Relay, Rave On Radio, Radio Free Mars, Wolverine Radio, Radio Whatever, Black Bandit Radio, and many more.

Now, 30+ years after *Pop'Comm's* launch we wonder: *Would readers like to see a full-blown column devoted to pirate radio again appear regularly in Pop'Comm?*

LET'S HEAR FROM YOU: Register your vote — *pro* or *con* — through the online *Pop'Comm Pirate Radio Survey* at: <http://svy.mk/UPAHwS>.

Is it time for *Pop'Comm* to take something old and make it new again? Please let us know.

– Richard Fisher, KPC6PC/KI6SN

Pop'Comm-WRO Online Chat, February 3

We hope you can join in on the *Pop'Comm-WRO Live Online Chat* on Sunday, February 3, beginning at 8 p.m. Eastern time (0100 UTC Monday). As always, the hour-long session promises to be casual, friendly, and laid back. What better way to finish the weekend?

At chat time visit the *WorldRadio Online* blog at <http://www.WorldRadioOnline.blogspot.com> and click on the *Cover It Live* box. You'll be linked right into the chat. See you there!

Icom has the receivers for the experts...

Official Amateur Radio Transceiver Supplier

BOY SCOUTS OF AMERICA®

IC-R9500 The Ultimate Wide Band Receiver

- 0.005–3335.000MHz*
- USB, LSB, CW, FSK, FM, WFM, AM
- 1020 Alphanumeric Memory Channels
- P25 (Option UT-122)
- Five Roofing Filters and so much more!

For those just getting started...

IC-R75 Wide Band Receiver

- 0.03–60.0 MHz*
- Triple Conversion
- Twin Passband Tuning
- Digital Signal Processing (DSP)

AND for those on the go!

IC-R20 Advanced Ops

- RX: 0.150–3304.999MHz*
- AM, FM, WFM, SSB, CW
- 1250 Alphanumeric Memory Channels
- Dualwatch Receive
- 4-hour Digital Recorder

IC-RX7 Track Ready

- RX: 0.150–1300.0MHz*
- AM, FM, WFM
- 1825 Alphanumeric Memory Channels
- 100 Ch/Second High Speed Scan
- Computer Programmable[2]
- Water Resistance Equivalent to IPX4

IC-R6 Pocket Compact

- RX: .100–1309.995MHz*
- AM, FM, WFM
- 1300 Alphanumeric Memory Channels
- 100 Ch/Second High Speed Scan
- Computer Controllable[1]

Information & Downloads

RECEIVERS | AMATEUR TOOL KIT | COMIC BOOKS | VIDEOS | WWW.ICOMAMERICA.COM

Electronic advertisements feature active links for each radio.

ICOM®

*Frequency specs may vary. Refer to owner's manual for exact frequency specs. [1]Optional CT-17 required. [2]Optional CS-RX7 required.

The Weirder Side of Wireless, and Beyond

sher,

this Valentine's Day month is 89.9 KISS-FM Kobe," broadcasting

Valentine's Shoutout: A Whole Lot of KISSing Going On

In this second month of the year we come upon that time for *icky sweetness*. We're referring to Valentine's Day, February 14.

Have you realized just how much K... going

- 99.9 KISS ... Channel"
- KISS-FM 93.1 – El Paso, Texas <http://bit.ly/TnDoYh>
- 96.7 KISS FM – All ... Some of It" <http://bit.ly/SJI3...>
- 98.1 KISS-FM – "The Bay's Old School ...
- ... Station"
- <http://bit.ly/Rbhx7c>
- ... Hit Music Channel"
- KISS 105 ... Station!"
- KISS 100.com – ... United Kingdom" <http://...>

And, believe it or not, there's KISS AM Radio, as well, at <http://bit.ly/...>

Ain't life grand? ... Day! *(Source: KPC6PC)*

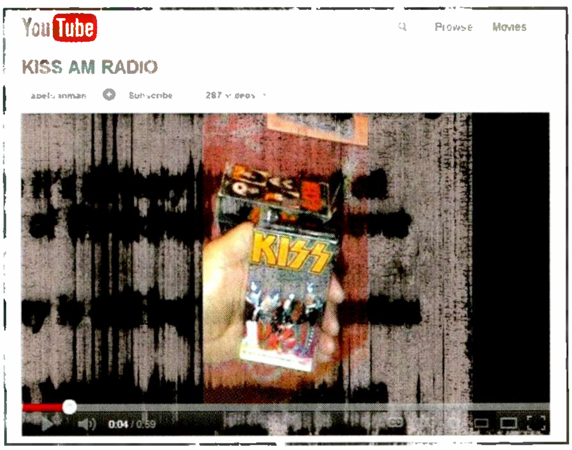


Photo B. It blew our minds, but there is KISS AM Radio, as well. Check it out at <http://bit.ly/...>. Seeing is believing. *(Internet ...)*

Amateur Special Event Station Commemorates 'Navy Zero Days'

To celebrate ... literally a once-in-a-lifetime event ... special event station NØD (Now Zero Days) ... activated "for three days during and after ... world," officials said, citing the ... prediction of doomsday, December 21, 2012.

Promoting the event ... that "December 20 is a celebration of the end of the world. December 21, the day of destruction, we will be on the air as long as possible. December 22 . . . that is a little iffy right now."

Radio amateurs from around the world were invited to contact the station, which was transmitting from an "undisclosed location."

"If Doomsday actually does happen, we regret that a QSL will not be possible," the team warned ahead of the event. Of course, there was a happy ending and NØD QSLs were sent across the land.

Unless it collapsed under its own doomsday apocalypse, the NØD website is at <http://www.nowzerodays.com>. *(Source: Southgate ARC News)*

No Mayhem On AM: Is Nobody Listening to the BBC?

In *The Register* online, Bill Ray reports that the BBC quietly switched off AM radio transmitters in October to see if anyone noticed -- and it seems not a lot of people did. *(READ: The Register story at <http://bit.ly/...>)*

Communications News, Trends and Short Takes

Compiled by
Richard Fisher, KPC6PC

U.S. Military Leaving 'Radios in a Box' in Afghanistan

As part of its handoff in Afghanistan, the U.S. military is giving broadcast training to local civilians and leaving behind RIABs — *or radios in a box, Photo A.*

"With coalition resources dwindling, getting the message out — and ensuring it's actually effective — is just one more challenge the Afghans must face as they confront the ongoing insurgency in Logar," a report on National Public Radio noted.

"DJ and presenter Saifitullah calls this station *Unity Radio,*" NPR said in its audio report. "It broadcasts daily from 6 a.m. to 10 p.m. to the surrounding provinces, and Saifitullah says the station gets calls from listeners some 30 to 40 miles away."

Photo A. Afghan civilians broadcast a program from the radio studio at the U.S. military's Forward Operating Base Shank in Logar province, south of Kabul, Afghanistan after undergoing training by the U.S. military to disseminate anti-insurgent messages via local radio. *(Courtesy of U.S. Department of Defense)*

"The main focus of these (broadcasts) is to tell the local people who the enemy is, and that the enemy is supported by people from outside Afghanistan," Colonel Hayatullah Mamond, one of the chief message writers, said. *Source: NPR*

LAX Traveler Station Goes Silent, Opening 530 kHz for DX

If you are an AM broadcast band DXer and have not been able to hear the Travelers Information Station (TIS) on 530 kHz from Los Angeles International Airport, there's good reason. It has been off the air.

There is no word as to why it went silent but it does open up that frequency in the southwestern United States for DXing a 50-kilowatt religious station in Turks and Caicos Islands that operates on 530 kHz. *Source: Amateur Radio Newsline*

Tragedy: BBC Reveals What WWII Broadcasts *Didn't* Say

Some 70 years after nearly a half-million Hungarian Jews were killed in a 1944 Nazi invasion, BBC News reports that during that time, its radio broadcasts "followed a deliberate policy of failing to warn Hungarian citizens of the fate that would befall them should the Nazis invade their country." In 1942 a memo setting out policy for the BBC Hungarian Service stated: "We shouldn't mention the Jews at all."

During World War II, the BBC's radio broadcasts were not independent, but overseen by the Political Warfare Executive (PWE), which occupied a floor in Bush House, the World Service's headquarters in London at the time.

According to the BBC story, "historically sympathetic to Germany, the Hungarians were allied with them but not fully settled in the Nazi camp. The PWE — through the BBC broadcasts — sought to win over Hungarians and foment trouble in their alliance with Germany. It hoped to encourage resistance and bog German troops down in Hungary as an occupying force.

"And to this end the BBC broadcast every day, giving updates on the war, general news, and opinion pieces on Hungarian politics. But among all these broadcasts there were crucial things that were not being said, things that might have warned thousands of Hungarian Jews of the horrors to come in the event of a German occupation."

(READ The full BBC story at <http://bbc.in/XS02M1>. Source: BBC

FEMA Director: Hand-Cranked or Battery Radios Are Vital

As Hurricane Sandy roared up the East Coast, Federal Emergency Management Agency Director Craig Fugate said in a CBS interview is that "one of the things you don't want to think about anymore is having a battery powered or even hand-cranked radio to get news from local broadcasters."

"The Internet goes out, cell phones will be congested radio is sometimes the way to get those important messages about what's going on in the local community. (WATCH the full interview with FEMA Director Craig Fugate at <http://bit.ly/V0ttEf>. His comments about the importance of radio begin at the 2-minute, 25-second mark of the interview. – KPC6PC)
Source: CBS News

UK's Switch to Digital Radio in Question Due to Lack of Listeners

The switchover to DAB digital radio in the United Kingdom is likely to be delayed because listening targets have not been met, according to a report in *The Daily Telegraph*.

"Digital sets were expected to account for half of all radio listening by (2012), but the figure stands at just 31.3 percent," the report said. Ofcom, the independent regulator and competition authority for United Kingdom communication industries, "confirmed that the 50 percent threshold — which the Government set

(Continued on page 77)

Capitol Hill And FCC Actions Affecting Communications

Compiled by Richard Fisher, KPC6PC

FCC Seeks Booty from Alleged Florida FM Pirates

Four Florida men have been issued forfeiture orders totaling $65,000 by the FCC for allegedly operating unauthorized FM stations, a posting on *RBR.com* reported.

None of the men responded to the FCC's Notice of Apparent Liability.

- Damian Anthony Ojouku Allen and Michael William Downer, both of Pompano Beach are alleged to have been operating a station on 101.1 MHz. Each man was hit with a $20,000 fine.
- McArthur Bussey of Fort Lauderdale was fined $15,000 for allegedly operating an unauthorized station on 89.1 MHz.
- Burt Byng was fined $10,000 for allegedly running a station on 107.1 MHz in Miami.

Source: RBR.com <http://www.RBR.com>

Proposals: OK VLF and Primary Status on 160 Meters for Amateurs

The FCC has issued a Notice of Proposed Rule Making (ET-Docket 12-338) which, among many other things, formally proposes a secondary allocation at 135.7-137.8 kHz for radio amateurs.

The 130-page notice, whose broad purpose is to implement the decisions of the 2007 World Radiocommunication Conference (WRC-07), also proposed granting primary status to amateur radio on the 1900-2000 kHz segment of the 160-meter band. That segment is currently shared with radiolocation systems. The 1800-1900 kHz band segment is already allocated exclusively to the Amateur Service.

The only current U.S. users of the spectrum segment including the proposed 135.7-137.8 kHz band are power companies operating PLC (power line carrier) systems for monitoring electrical infrastructure.

Broadband over Power Lines (BPL) is a form of PLC, but the systems at these frequencies are used internally by the power companies. Ironically, if the amateur allocation is approved here, the FCC says it is likely that hams will have to coordinate with utilities and avoid causing interference to the PLC systems. *Source: CQ Newsroom <http://www.CQNewsroom.blogspot.com>.*

AM Station Dinged for Being Under Powered

A California AM station was issued an FCC Notice of Violation for transmitting below its authorized 820-watt output power.

The FCC cited Adelman Broadcasting for operating KLOA-AM in Ridgecrest at only 17 percent of its authorized power, or approximately 140 watts.

"In a Notice of Violation, the agency warned the document doesn't preclude the Enforcement Bureau from taking further action, including proposing a fine," a report on *RadioWorld.com* said.

"Goodtime Oldies" KLOA-AM is at 1240 kHz <http://www.1240kloa.com>.

"Under FCC rules, the antenna input power of an AM station must be maintained as near as is practical 'to the authorized antenna input power and may not be less than 90 percent nor more than 105 percent of the authorized power."

FCC agents were unable to see the station logs because "the engineer had them" and wasn't available. "The commission has asked Adelman for more information, specifically about any remedial action taken," the Internet report said. *Source: RadioWorld.com <http://www.RadioWorld.com>*

Commission Plans Hearings in Wake of Sandy

The FCC is scheduling a series of field hearings to review communications in the wake of Hurricane Sandy. "This unprecedented storm has revealed new challenges that will require a national dialogue around ideas and actions to ensure the resilience of communications networks," Commission Chairman Julius Genachowski said. "As our thoughts and sympathies remain with those who have suffered loss and damage as a result of Superstorm Sandy, I urge all stakeholders to engage constructively in the period ahead."

Senator Chuck Schumer (D-NY) asked the FCC to work with telecommunications companies and first responders to maximize reliability and minimize costs.

Genachowski said the first hearings will be in the New York City area. They will focus on how to assure communications for first-responders, government emergency personnel, and consumers. One in four consumers in areas hit hard by Sandy lost service because of the storm. *Source: Multiple published reports*

Rules on Newspaper-Radio-TV Station Ownership Under Review

The FCC is calling for elimination of rules that bar common ownership of newspapers and radio stations in the same market. The proposal is part of a broader set of rule changes involving cross-ownership of media outlets, Chairman Julius Genachowski said before the Council on Foreign Relations in Washington.

According to *Bloomberg News*, "Genachowski's proposals include allowing common ownership of a daily newspaper and a television station in the 20 biggest markets, according to two officials briefed on the plan." *Source: Bloomberg News*

Using Your Secret Decoder Ring

By Rob de Santos
<commhorizons@gmail.com>
Twitter: <@shuttleman58>

"It's a constant race between those who know and those who want to know. As computers and storage get faster and cheaper, it makes some codes easier to break."

Depending on your age, you may remember the "secret decoder rings" promoted as part of radio and TV shows of the past such as "Little Orphan Annie" in the 1930s, "Captain Midnight" in the 1950s, and "Jonny Quest" in the 1960's, <http://bit.ly/Qv9cew>.

These small toys used simple substitution ciphers (also known as Caesar ciphers) which were fun and in truth, *not very secret.* They were not meant to be secure, though, as it was all in fun. Let's continue from where we left off in January's *Horizons: "When We Try Not to Communicate,"* page 10.

When we transmit private information and messages today, we are more concerned about security — and toy decoder rings really won't work for us. In most cases though, we still depend on whatever security is built into the product we are using, be it an ATM, our mobile phone, or ordering products through our home computer. What do these systems do then?

Many secure systems we use today involve some type of symmetric or public-key cryptography. Often, modern communications systems may use both symmetric and public key ciphers in a hybrid form. Keys may be thought of as a string of numbers needed for coding or decoding just as a key is needed to open a door.

To keep the explanations simple, you can understand symmetric keys to mean that both the sender and receiver know the key and once they establish it at the beginning both will use it to encode and decode messages. *(**NOTE:** Thus, a method of exchanging or creating keys initially must also exist. The key creation step may involve your private password or pin code, too. – K8RKD)*

These systems are efficient in terms of time and computer power but require highly reliable and secure record keeping and lots of storage. Most ATMs and other remote access systems use this system.

Public key systems require that the users have a public key which is available to anyone — or anything — who potentially wants to communicate with you to encode messages for you and a private key, known only to you for decoding. Most public key systems work because they depend on the mathematical difficulty of factoring numbers involving large prime numbers or solving other hard mathematical problems — for example, discrete logarithms and elliptic curves. Many Web browsers and other network communication use public key systems.

Is any system truly secure? Are there any unbreakable codes? In the sense that every coded message needs a way to decode it, and given enough time to try every possibility, you could say there are no unbreakable codes.

Practically though, there are many *nearly-unbreakable* codes. Perhaps you recall from past columns that Shannon's theories indicate we can reconstruct missing information from many messages based on what we know — content, language, and so on. Similarly, if we make the message appear random enough — in other words, no apparent patterns that might give away the content — then reconstruction gets very difficult to nearly impossible.

Secure systems also depend on other factors: the time it would take to decode the message (if it runs to a billion years, any snoop won't bother), it takes more resources than are available (computer time, for example), the apparent randomness of the message, the uniqueness of the keys, physically secure systems, and more. A good secure system uses more than one of these.

Let's look at numbers stations for an example. Nothing apparently complicated here, just long strings of numbers. So why do they work? Evidence suggests it is because the keys are "one time pads" — for example, use the key once and never again. Both sender and receiver need to know which key is going be used on a given day and both must have access to the list of keys or "pads."

Let's say *Evil Leader* makes up a coding system and book of keys. He keeps one copy and gives one copy to *Agent 99.* Each message has some portion of it given over to designating which key to use for the rest of the message. When *Agent 99* tunes his shortwave radio and writes down his list of numbers, he finds the matching key and decodes the remainder of the message.

If the pads are almost truly random, the book of keys never physically compromised, and the pads of equal or greater length than the messages, then Shannon's work tells us the system is essentially unbreakable.

Communications security is a constant race between those who know and those who want to know. As computers and storage get faster and cheaper, it makes some codes easier to break. It also gives those who wish us ill more time to find the flaws in our coding schemes. We can be sure that newer, more effective encryption techniques will be found and that more and more of what we do will require encryption.

There are many excellent online resources that will give you more information on modern secure communications and cryptography for both the mathematically inclined and those not so inclined. Drop me a note and let me know your thoughts on the future of communications. – K8RKD

An Omnidirectional DTV Antenna — With Gain!

Here's a Turnstile-Bowtie-Gain Configuration You Can Build

By Philip Karras, KPC3FL/KE3FL

Where I live, we are able to receive over the air (OTA) television stations from two cities. Unfortunately, the directional headings are almost a perfect 180 degrees from one another.

Before HDTV, I was able to get all the major network stations with an attic antenna pointed between the two cities. This antenna was unable to get the UHF stations, so I designed a simple single element full-wave loop style antenna I called the Turnstile-Bowtie antenna.

My article about it appeared in the January 2003 issue of *Popular Communications*. *(REFERENCE: "Phil's Easy Way to Improve Your UHF TV Reception," page 6. – KE3FL)*

Today I find that it is even more difficult to get all the stations I used to get with the antennas I now have. *(REFERENCE: "To A Neighbor's Lessee, Now She Can See Her DTV — A Primer on Digital Signal Reception, Part I," August 2011, page 12; and "A Made-For-DTV Mystery — Continued . . . Part 2", September 2011, page 21 – KE3FL)*

I started collecting articles about UHF gain antennas to build since I noticed that my simple bowtie UHF antennas were still doing well *but just not well enough*.

I really liked the articles I found in *Popular Communications* by Richard Fisher, KPC6PC/KI6SN, each published in Fall 2011. *(REFERENCE: "Seeing is Believing, A Simple DTV Antenna You Can Build," August, page 20;" and "Sending a Homemade DTV Antenna Outside," September, page 30 – KE3FL)*

"I wanted it to receive DTV stations simultaneously from the two cities in my area. This meant that I had to change the design into my turnstile-bowtie omnidirectional antenna."

Let's Get Busy

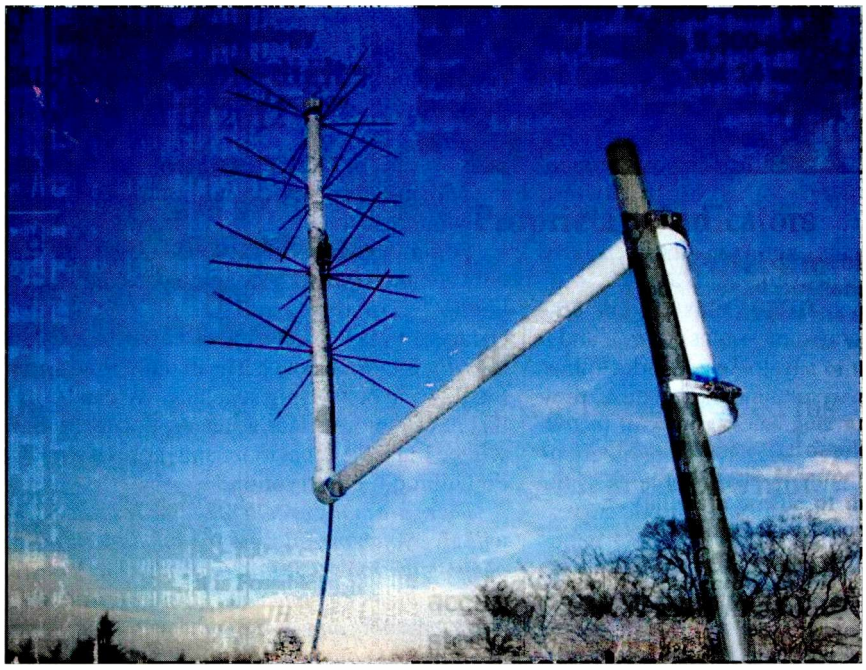
While I wanted to build the antenna KPC6PC wrote about, I also wanted it to receive stations simultaneously from the two cities in my area. This meant that I had to change the design into a turnstile-bowtie omnidirectional design — but with the four sections of KPC6PC's gain antenna. I figured it would be easier to do this if I mounted the elements on a pipe or dowel rather than a flat piece of wood. However, a piece of wood 1.5 by 1.5 by 30 inches would also do. Either way, I call it the *KPC3FL Turnstile-Bowtie-Gain DTV Antenna.*

I used 5 feet of PVC with an outside diameter (OD) a bit more than 1 inch, but less than 1.5 inches. It is *1120 Sch 40 PR 480 PSI rated at 23 degrees C.* I then cut it into 30-, 24-, and 6-inch lengths. I bought two end caps and two right angle couplers so I could use the 6-inch section to clamp to another antenna mast. The 2-foot section would keep the antenna 2 feet away from the mast. The 30-inch section was for the antenna, as specified in KPC6PC's article, but with the added sections to make it a turnstile design.

Parts List: Making It Happen

Here are the parts you'll need to build this antenna.

- (18) No. 6 half-inch screws
- (1) 5-foot piece of PVC 1120 Sch 40 PR 480 PSI rated at 23 degrees C



The KPC3FL Turnstile-Bowtie-Gain Antenna is designed for 360-degree DTV reception to help viewers who may have challenges receiving stations scattered in several directions. *(Photography courtesy of KPC3FL)*

Photo A. Only a handful of easily-to-find parts and tools are needed to make the KPC3FL omnidirectional DTV antenna.

Photo B. A pipe cutter is used to *very lightly* score the PVC pipe to create a guide for screw placement.

Photo C. "Adding the phasing wire is a bit more involved than with a single array antenna because the additional elements need to be correctly connected to the set of 'original' elements," writes KPC3FL.

- (16) 15-inch lengths of co[illegible] other heavy gauge wire
- 6+ feet of solid No. 24 wire (for phasing line connections between the screws)
- PVC end [illegible]
- PVC right [illegible]
- Small can of PVC [illegible]
- Approximate [illegible] clamps (depending on the diameter of your mast)

(NOTE: Parts and tools needed to build this antenna are shown in Photo A — KE3FL)

My elements were made from stiff wire that was cut into 16 pieces each 14.5-inches long. This length was selected after looking at a different design [illegible] 7-inch-long elements [illegible] lengths instead of the 16-inch length used in the KPC6PC article.

If you choose to use the 16-inch length, add another inch since this design needs a right angle bend of the [illegible] that will lose about an inch of overall element length. On the other [illegible] of the length of the screw is also now part of the antenna and the screw I used was a No. 6 hex-head [illegible] drilling/tapping screw.

I don't believe that the element length plus-or-minus [illegible] inch is that critical for this an[illegible] longer lengths since that will help a bit with the longer wavelengths [illegible] better to design for the lowest frequency — longest wavelength — when designing a receiving antenna for multiple wavelengths.

In this case: Multiple TV stations are in the UHF band, which [illegible] TV channel numbers 14 [illegible] 764 MHz. The lowe[illegible] MHz Channel 14, with a bandwidth of 470 to 476 MHz.

So, the wavelength would be about 2 feet — or each element of a half-wave dipole would be 6 inches. Anything longer than that might help get some of the higher VHF stations.

Building Preparations

After cutting the PVC sections to length [illegible] scored the locations for the screws [illegible] the section designed to be the antenna, Photo B. They [illegible] inches apart, plus the one between the two middle elements for the feed line connections. These measurements were taken from KPC6PC's August 2011 *Pop'Comm* article [illegible] inches from the top, then 7-, 5.5-, 2.5-, [illegible] 7-inch spacing. *(NOTE: For ref-*

erence, the illustration from the August 2011 DTV antenna article is online at Pop'Comm On the Web, <http://www.PopCommMagazine.blogspot.com>. – KPC6PC>.

The screws at the first 3.5-inch locations are for the feed line, so only two screws were needed there. I used a pipe cutter to score the circle around the pipe so I could put the four screws at the correct location for each section.

This is to be a *very light* scoring. We do not want to compromise the strength of the pipe, so only put a very light mark to indicate where the screws go. Each screw should be 90 degrees from the first screw and all screws need to be in a straight line from top to bottom.

Using a pipe cutter is rather easy when one is cutting a pipe, but care must be taken not to move the cutter when scoring the PVC or the line won't match up at its starting and ending points. Go slowly and it should work well enough to get the lines correctly marked.

Let's Get Started

I used an electric drill to put the screws about half way into the PVC. This left enough space to add the phasing wire and the antenna elements. Do not screw them in *all the way* with the drill — now or later. Use a hand screwdriver, and do not over tighten. With PVC, it is surprisingly easy to strip the threads. So be very careful. Use *fingers only* on the screwdriver so you can feel when it gets a little tighter. Then stop. That's all it takes. Eventually, everything will be coated and painted which will help keep the hardware tight.

If you're worried about protecting the screws' integrity to hold things in place, here are two options:

- Include a wood or plastic dowel inside the PVC, or,
- Pour some glue down the pipe — with the bottom stopped up, or not, depending on whether you want to fill the pipe or just coat the screws inside — to keep the pieces of hardware from working its way loose.

Adding the phasing wire, **Photo C**, is a bit more involved than with a single array antenna because the additional elements need to be correctly connected to the set of "original" elements. A flat page image, **Figure 1**, has been made to show which added elements go with which original set of elements.

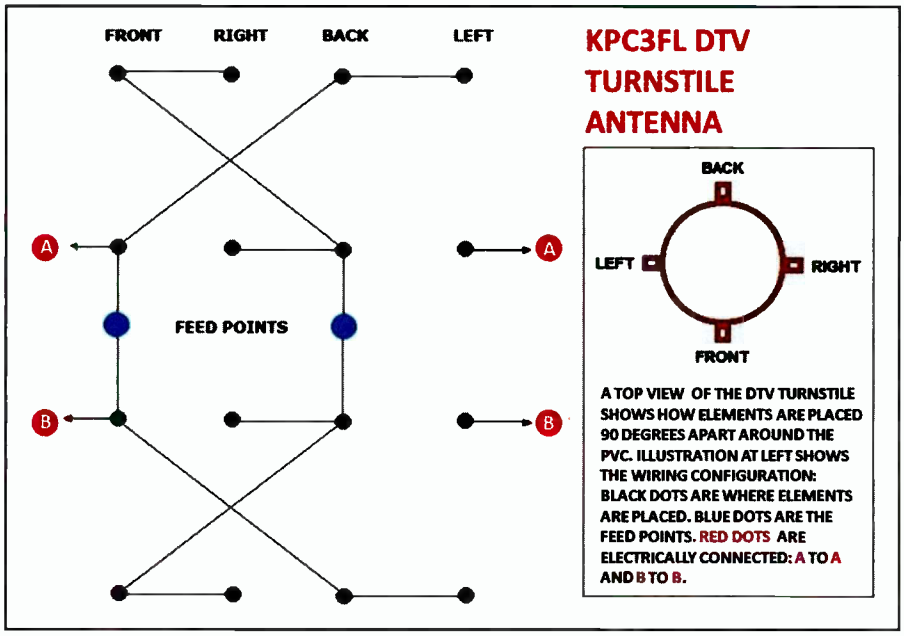


Figure 1.

You can copy the page; then roll the image of the antenna wiring configuration — as if it were wrapped around a piece of PVC — to see in three dimensions how the wiring is done.

Once all the screws are in the PVC, start with the smaller phasing lines to wire up all the screws correctly — again, referring to **Figure 1**.

Now, prepare all the bowtie elements first by bending them at the mid-point. Then cut or scrape away the insulation or coating in the bend area about a half-inch out from the center of the bend, **Photo D**.

Removing Insulation Safely

The safest way to remove the insulation is to cut on the inside of the bend with the knife facing into the bend so the knife will be caught by the bend. Then do the other half of the bend. *Never* cut with the blade facing toward any part of your body! The coat hangers I found back in 2003 were easier to bend and had a coating that was almost identical to solid wire insulation, so cutting with a knife worked really well.

*(**NOTE:** If you're using coat hangers that have a lacquer-type coating, make sure that there is an electrical connection on all areas of your bend. A coarse grade of sandpaper will do the trick – KE3FL)*

I plan on dipping the tips of my antenna elements into a can of liquid tape to recoat them; then paint the entire antenna. In my area, an uncoated hanger wire outdoors will rust and fall apart in about five years. After I screw down the antenna element, I also push the insulation as close to the screw as possible so that more of the tip is exposed. Since the tips are to be dipped anyway, a bit more of them exposed right now does not matter and should make coating the areas near the screws easier.

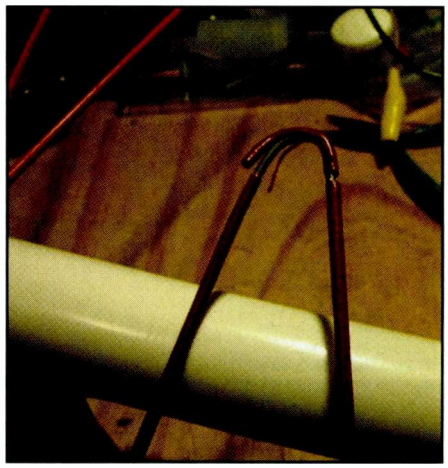


Photo D. Great care must be used in stripping the insulation from the wires used as elements in the KPC3FL turnstile DTV antenna.

Mounting the Phasing Wire and First 4 Elements

To make half of the antenna, add four elements and put them all on the opposite sides of the pipe so that when you bend them, the elements will all be on the same plane — as if it were only going to be a two-dimensional antenna, **Photo E**. For

now, don't add any of the elements at 90 degrees. Hand-tighten the screws. Then bend the elements to be in-line with the pipe and no longer tangential to it.

Once this set of elements is placed on the pipe, widen each element by spreading its tips so they are 3 inches apart.

The last part of this step is to align the first set of antenna elements. Hold the antenna vertically with one end resting on the floor and look from the top to the bottom. Align all elements into the same plane so when looking down at just the correct spot, you will see only the top of the upper-most element. All other elements should be perfectly aligned with the element at the top one so they are hidden beneath it.

So Far, So Good?

At this point, the antenna can be tested. Attach a 300-ohm twin-lead or 75-ohm TV coax feed line to the two feed-line screws, shown in BLUE in **Figure 1**.

For now, we'll forego the feed-point impedance transformer used in most configurations of this antenna. *(**NOTE:** See the sidebar: "Is An Impedance Transformer Really Needed?" – KE3FL)*

Attach the feed line to your TV or DTV converter box and scan for signals to see what kind of reception you're getting. At this point, the antenna should look very similar to the one featured in the August 2011 article — and should perform the same, assuming the wiring has been done correctly.

If the antenna is rotated you should be able to pick up different stations from your area. If you live in a city and are using this antenna to get all stations from all directions, you should receive some stations better than others when you rotate the antenna.

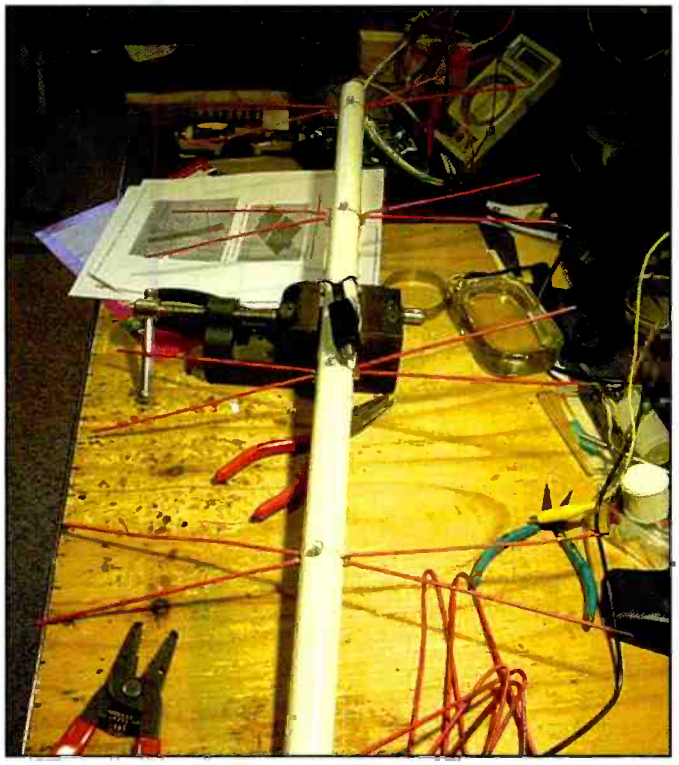


Photo E. "To make half of the antenna," writes KPC3FL, "add four elements and put them all on the opposite sides of the pipe so that when you bend them, the elements will all be on the same plane — as if it were only going to be a two-dimensional antenna."

If your reception is not what it should be, check the wiring to be sure everything has been connected correctly.

Affixing the Other Elements

Once the antenna passes this preliminary test, add the second set of elements to the remaining screws in the same way you did the first set of elements

Again, view the antenna from top to bottom and this time not only make sure the elements are properly aligned, but assure they are 90 degrees from the original elements, **Photo F**.

Ready for Prime Time

Construction of the antenna is now complete. Another test should be performed with your TV. If you can now see stations from all directions without rotating the antenna, that's good. The antenna may get signals from some directions better than

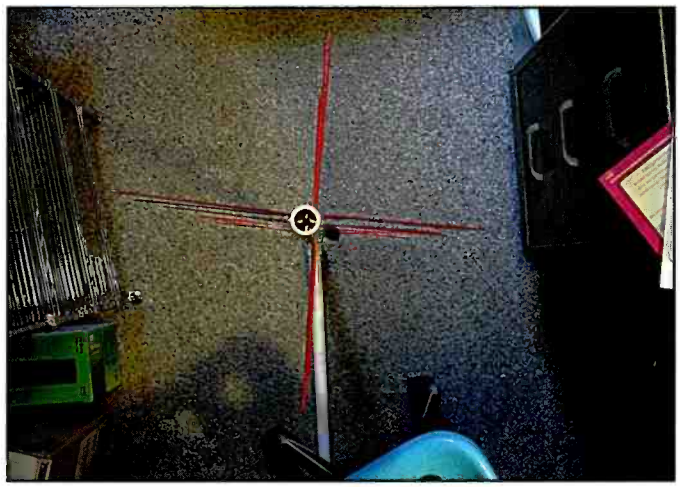


Photo F. Element alignment is checked by sighting down the antenna from a vantage point above it.

Photo G. Some of KPC3FL's testing was done with the antenna configured to stand on its own.

Kitchen Table Antenna Test

Antenna	?	4	5	7	9	11	13	14	20	24	26	31	32	45	50	54	60	66	67
Whip	?	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
HBTBwG	G	P	X	X	X	G	G	X	G	G	X	X	P	G	X	G	X	X	G

Outdoor Antenna Test

Antenna	2	4	5	7	9	11	13	14	20	24	26	31	32	45	50	54	60	66	67
Whip	P	X	X	X	X	X	X	X	X	G	X	X	X	G	X	G	X	X	X
HBTBwG	G	g	G	X	X	G	G	X	G	G	P	X	G	G	G	G	X	g	G
Changes	I	a	A			A	A		A	S	a		A	S	A	S		a	A

Results

Lost:	0
Same:	3
Improved: (I or a)	4
Added:	7

HBTBwG: Home Brew Turnstile Bowtie with Gain
G: Good
g: Mostly Good, but degrades to Poor
p: Mostly Poor but pops to Good for a bit
P: Poor - signal comes and goes frequently
X: No signal at all
I: A previously-received station now improved
a: A new station whose reception is < (G)

Figure 2.

Photo H. "I placed the antenna on the kitchen table near the bay window that faces mostly north," KPC3FL said. "The elements were facing Baltimore, mostly through the house, and Washington D.C., through a smaller kitchen window on the mostly south-facing wall of the house."

others if rotated. If so, "point" it for best reception of the stations at greatest distance, if possible.

I have not looked at this antenna using modeling software, so I have only my experience to count on. In my area, I point the flat side of one set of elements toward Washington D.C., and the flat of the other set toward Baltimore, Maryland. These are about 90 degrees from one another for me, but there are other stations this antenna picks up. For example, I get Channel 66 from Manassas, Virginia, which is closer to the 90 degrees from Baltimore than is Washington, D.C.

A Critique: How Does It Perform?

I ran three tests with this antenna and have not yet finished and installed it. The first test was with just the first set of elements and I was pleasantly surprised by how well it did inside the house, even get-

Photo I. In testing, the whip received four Baltimore stations — one poorly and three well. Meanwhile, the KPC3FL Turnstile-Bowtie-Gain DTV Antenna, "up a little higher — about four feet — was able to improve on that and received three new stations poor or a bit better and 11 stations well," he said.

ting Channel 4 from Washington D.C. The station results of the two tests conducted with the finished antenna vs. the TV-supplied whip antenna are in Figure 2.

The second test was done after putting the antenna together in such a way that it would stand on its own, **Photo G**.

I placed the antenna on the kitchen table near the bay window that faces mostly north, **Photo H**. The elements were facing Baltimore, mostly through the house, and Washington D.C. through a smaller kitchen window on the mostly south-facing wall.

The results of this test gave us one fairly good station for the whip antenna and eight good stations from Baltimore, Washington, and Manassas, Virginia to watch with the KPC3FL Turnstile-Bowtie-Gain Antenna.

The test done outside was a little better for both antennas. The whip received one poor and three good stations, all from Baltimore, **Photo I**. With the turnstile up a little higher — about four feet — we were able to improve on that and received three new stations *poor* or a *bit better* and 11 stations *well*. This included all seven Baltimore stations plus four Washington D.C. stations. The three *not-so-good* stations included two more from Washington plus the Manassas station.

In Conclusion

An information box headlined "*For Your Reference*" accompanies this article. It contains websites you might find useful as you design and test DTV antennas.

I hope this KPC3FL DIY antenna helps others who need 360-degree receiving capabilities for good DTV reception. I would love to hear from readers as they build and test this antenna. You can contact me through my website, <http://qs.vrex.com/ke3fl>.

For Your Reference

Here are some websites you may find useful in designing and testing DTV antennas:

- North American broadcast television frequencies: <http://bit.ly/mIs3jR>
- For wavelength vs. frequency calculations: <http://bit.ly/Po05eX>
- FCC DTV Station Location Mapping and Signal Data: <http://bit.ly/mPkhYV>.

*(**NOTE:** The ZIP Code for KPC3FL's Mt. Airy, Maryland location is 21771 – KPC6 PC)*

Is an Impedance Transformer Really Needed?

By Phil Karras, KE3FL/KPC3FL

In a number of tests I ran while trying to improve reception of Washington, D.C. stations, I installed about 50 feet of twin-lead from a simple, single-element, turnstile full-wave-loop bowtie antenna to the TV and then terminated it with a transformer.

During experimentation I discovered the transformer's case could simply be popped open. I removed the transformer and easily soldered two wires from the 300-ohm twin-lead to the F connector, as can be seen in the photograph. There were two revelations:

- Two more stations were received without the transformer than with it.
- A few of the other stations, which were poor, were now good.

Photo J. "My granddaughter was nice enough to hold the empty transformer case for a picture," KPC3FL said.

My conclusion is that the transformer is not needed and reception *will probably be better* without it — especially if the transformer is defective or not built as it should have been.

My granddaughter was nice enough to hold the empty transformer case for a picture, **Photo J**.

When transmitting, we need some way to ensure proper impedance matching of the rig to an antenna, or we suffer the consequences of burned out final transistors — or worse.

When receiving, though, a matching transformer is not always needed. You will only know if this is the case by trying it *with and without* a transformer.

I've tested this a number of times, both with my high-frequency radios and with TVs. When I find that the receiver does as well or better without the matching transformer, I work without it. This may be because the transformers I used were junk to begin with. As I come across these "defective" transformers I dispose of them and work without them.

Wanted: Your Data on Transformer Use

I would like more data concerning *impedance-matching transformer vs. no transformer*. Experiment with your DTV setup and see if it helps or hinders.

Since my tests are unique to my area, I have no idea if this will work better in all situations or not. My gut feeling is that it will, unless there's something — perhaps a reflection — that might interfere without a transformer as opposed to using one. I'm very interested in your results.

At the moment, I have more questions than answers.

QUESTION: In the August 2011 *Pop'Comm* DTV antenna design and article, a short run of 300-ohm twin-lead with a 75-ohm transformer is connected to a 75-ohm antenna — a common configuration. Why connect 300-ohm twin-lead to a 75-ohm antenna and then convert it back using a 75-ohm transformer? Why suffer the signal loss through the transformer? Why don't we just connect the coax to the antenna directly, as we do for almost all amateur radio antennas, and get rid of the conversion loss?

QUESTION: Years ago, we connected all TV antennas to the TV using 300-ohm twin-lead. Back then, the TV had a network inside to match the impedance of the feed line and antenna combination to whatever the TV needed. But all TV antennas were based on the dipole, including the ubiquitous log periodic antenna. The input impedance of a dipole correctly cut for the frequency of operation is about 73 ohms. To me, this doesn't add up.

I will admit I do not know what the feed point impedance is of either the four element antenna the August 2011 *Pop'Comm* article was based on, or my turnstile version of it. But both are based on dipoles with wide elements to give them broader bandwidth. I also do not know what the feed point impedance is of the old standard TV log periodic antenna, but again it is based on a dipole.

QUESTION: All dipoles have approximately 73-ohm impedance, so connecting 75-ohm feed line directly to the antenna going back to a TV with 75-ohm input impedance would make far more sense than first connecting 300-ohm twin-lead to it and then converting that back to 75 ohms, right? So, why is it always done this way? I do mean *always*, because even the bowtie antennas you can buy have twin-lead connected to them — again, an approximate 73-ohm antenna with 300-ohm feed line. *Why?*

In any event, my method has always been to *give it a try* to see what happens. So I did, and it seems to work better than using a transformer. So, I removed the transformer and I will continue to do so until I see evidence to the contrary.

And While We're at It . . .

Two more things:

First, if you find a bowtie antenna online or at a retail store, you will notice it is using 300-ohm twin-lead. Yet, the antenna is a wide-element dipole with an approximate 73-ohm impedance. So, why are they feeding it with 300-ohm twin-lead, even today? ***(NOTE:** One possible answer is that the twin-lead, even in such a short piece, is much lower in cost to provide than is good quality coax. – KE3FL)*

Second, when I first saw these antennas, I designed my version as a full-wave-loop, which has 300-ohm impedance. I did this because every antenna I saw was using 300-ohm twin-lead. So I naturally assumed the antenna *must* be a full-wave loop design since this design has 300-ohm impedance. I then simply attached it to the TVs of the day with 300-ohm inputs.

Today I have to attach the 300-ohm twin-lead to the back of an F-connector plate, but I do not use a transformer there either. If it is a feed-through female-version connector, I use a short piece of 75-ohm coax with a connector on one end and solder the twin-lead to the coax directly. This works fine.

Have Radio, Will Travel: From TSA to Rental Car, It's Yes, Yes, Yes

By Gordon West, WPC6NOA/WB6NOA

In this era of super-high security, when it comes to traveling with radio gear — whether solely for listening or for transmitting — you may be thinking *no, no, no.*

Well, you may be surprised by how much you hear the opposite. For example:

- *Yes,* you can bring your high-frequency transceiver, including a sealed battery, on board commercial airlines, without worrying that Transportation Security Administration (TSA) agents will confiscate your gear, <http://www.TSA.gov>.
- *Yes,* you can bring aboard coax cable, antenna mounts, and your break-down mobile high-frequency whip and 2 meter/440 MHz magnetic mount antennas. The TSA still won't mind.
- *Yes,* all rental cars still come with an accessory 12-volt socket — more than capable of powering a scanner or a dual band VHF/UHF mid-power mobile transceiver. And I'll tell you here how to enable 15 to 20 amperes of HF mobile transmitting power.

Staying Within TSA Rules

After several trips with my high-frequency mobile station aboard planes, trains, and big boats, it's just about full speed ahead on bringing your radio gear along with you, **Photo A**.

For example, the TSA does not forbid gelled or sealed 10- to 15-amp-hour batteries on board, but it wants them in carry-on bags, not in your checked luggage.

When the battery shows up on the conveyor belt during passenger screening, it may get some extra scrutiny. *(**NOTE:** I sure hope so! – WPC6NOA.)* It may undergo the sniff test, as well, plus require an explanation from the passenger on the purpose of the battery.

Just remember the battery goes with your carry-on bag. If you're a licensed radio amateur, tape a copy of your ticket to the battery to further document its intended use. Make sure all leads are well protected against an accidental short!

Battery Possibilities

I travel with a 10.5-amp-hour sealed lead acid battery from Daysaver, <http://www.daysaver.com/>, featuring twin-Anderson connectors, built-in overload circuit breaker, and the round accessory socket — *no cigarettes!* It is housed in a handy carrying case with strap, **Photo B**.

Meanwhile, HamSource <http://www.hamsource.com> has a digital combination volt meter and ampere meter, **Photo C**, that when placed in series with the Anderson connector output along with the HamSource power supply/voltage isolator, is perfect for maintaining the 10.5-amp-hour sealed battery.

"After carrying my mobile station aboard planes, trains, and big boats, rest assured: All systems can be GO for bringing your radio along."

West Mountain Radio also has a new PWRcheck digital power meter <http://www.westmountainradio.com>.

Rental Car Power Strategies

You won't need to drag along the 15-pound battery if you're planning to use your rental car only for medium or low power VHF and UHF communications. Pull the current you need directly out of the car's 12-volt socket and make sure you run your rig on medium or low power output. *(**CAUTION:** Never operate on high output power through a rental car's 12-volt socket. – WPC6NOA.)*

Older rental vehicles with a power socket intended as a cigarette lighter could handle up to 20 amperes of current. Newer rentals, though, scale back their output to about 10 amps of available current at 12 volts DC.

Photo A. The Transportation Security Administration (TSA) allows all of this radio gear, accessories, and tools in your carry-on bag — including a battery! *(Photography courtesy of WPC6NOA)*

Photo B. The 10.5-amp-hour sealed lead-acid battery from Daysaver is used as a "buffer battery" between the rental car's power socket and WB6NOA's radio gear. It features twin-Anderson connectors, built-in overload circuit breaker, and the round accessory power socket. It is housed in a handy carrying case with strap.

Photo C. HamSource has a digital combination volt meter and ampere meter that when placed in series with the Anderson connector output along with the HamSource power supply/voltage isolator, is perfect for maintaining the 10.5-amp-hour sealed battery.

Here is where your carry along sealed battery comes in. The gelled battery acts as a buffer between your high-frequency transceiver and the vehicle's electrical socket, **Photo D**.

Run full power output on 20 meters SSB or CW and the battery will soak up 20-ampere current peaks, and gradually pulls about 2 or 3 amperes from the rental car to replenish itself back to a full charge in the listen mode. *(**SEE:** The sidebar headlined "In Review: The DaySaver Lightweight Lithium Iron Phosphate Battery" accompanying this article. – WPC6NOA.)*

In Alaska, all I had was a 7-amp-hour burglar alarm buffer battery, and I was never accused of low-voltage FMing on high frequency. This much-lighter battery did the buffer job nicely.

Antennas and the Rental Car

Commercial flying with high-frequency antennas offers the traveler a couple of options.

You can pack your break down high-frequency antenna into your checked luggage. Or, you can bring it on board the aircraft as long as it can be broken down into small enough pieces for your carry-on bag. I travel with a three-piece Outbacker antenna <http://www.outbackerantennas.com>, **Photos E** and **F**, and RF Parts K400 trunk-lid antenna mount, <http://bit.ly/UfwW5s>, **Photo G** — and about 15 feet of RG8X coax.

The Diamond K400 3/8-inch hatch mount antenna base easily slips over the trunk lid, and is tightened down by four Allen screws. *(**NOTE:** I do not use the supplied metal tab that prevents the Allen screws from biting into the paint. Those four screws need to make good DC contact with the trunk lid. In my experience, the rental car agency has never objected to the four tiny spots made by the screws on the inside of the trunk lid. – WPC6NOA)*

The Diamond mount swivels in all directions, so your antenna is standing straight and tall when you close the trunk cover. Rout the coax in through the door. Most rental car doors have a rubber seal and I have not pinched RG8X coax yet.

Tune the whip on the HF band you're on and you're on the air!

I also bring a short jumper coax and an MFJ Enterprises MFJ-907 RF Impedance Transformer as an antenna feed point matcher, **Photo H**. Depending on how you mount your antenna on the rental car,

Photo D. A gelled battery can act as a buffer between your high-frequency transceiver and the rental vehicle's electrical socket.

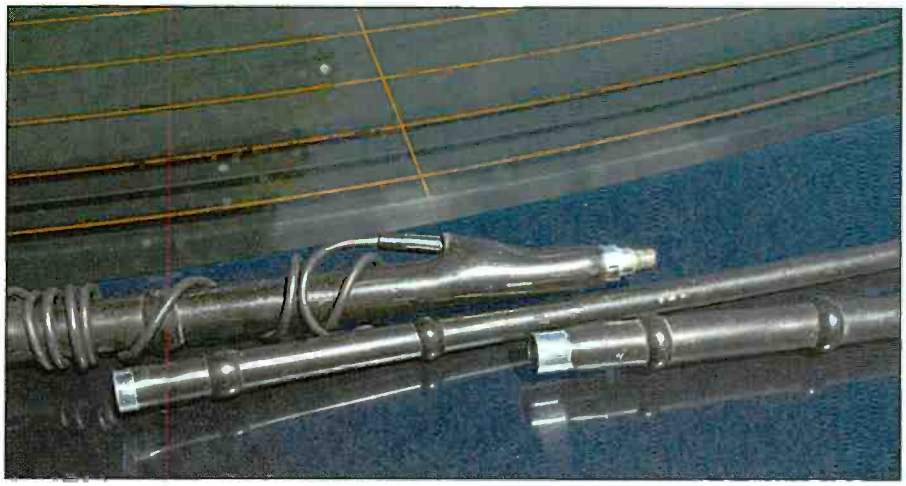


Photo E. This Outbacker high-frequency antenna breaks down into three easy-to-carry pieces for toting on airline flights.

you may need some impedance matching. The little MFJ switchable shunt capacitance/shunt inductance device works great.

There are many different styles of whip HF antennas that can break down to fit inside a carry-on bag or your checked luggage. Identify the whip with your FCC license, and TSA won't mistake it for a ski pole or a cattle prod — both of which are on the TSA's prohibited list.

Rules Regarding Tools

For ultra-portable applications, I have a vice grip that has an attached antenna mount. It was *just* under 7 inches in length. TSA's rule on tools was met by just a few millimeters! Diagonal cutters, black tape, screwdrivers, and pliers under 7 inches in length are TSA approved for carry-on bags.

On the Road

Of course, use the utmost caution when operating or monitoring while mobile. No hobby — even amateur radio, VHF/UHF scanning or SWLing — is worth hurting yourself or others.

Ahead of any trip, do your homework on distracted driver and hands-free restrictions that apply to the state or country you're visiting. *(**NOTE:** U.S. laws vary from state to state and location to location. For a breakdown of rules specific to where you're going, visit D!STRACTION.gov at <http://1.usa.gov/UX3R0A>, **Photo I.** – WPC6NOA.)*

Even your amateur radio ticket may not get you out of a distracted driver citation. Here's a suggestion that's sound on several levels: Operate rental car HF *only* when you are *not in motion*. The same holds true for VHF and UHF repeater operation. Getting caught doing 50 in a 35-mph zone is enough to ruin your day — and your vacation or business trip.

Critical Precautions

- Make *absolutely sure* your battery cannot short out no matter where you place it in the car.

Photo F. Once you're on *terra firma*, it's a snap to re-assemble the Outbacker antenna for some rental car amateur radio or monitoring fun.

Photo G. The Diamond K-400 antenna mount can slip over a rental car's trunk lid with ease.

Photo H. This MFJ Enterprises impedance matching bridge is used at WB6NOA/M on 40 and 20 meters to achieve a low SWR with no other tuner needed.

- When you plug into the rental car 12-volt socket accessory, make sure the male plug is not energized. You can accidentally pop a fuse if you misalign the plug-in technique.
- Once it is plugged in and well seated, then hook it to your charged battery.
- Always unplug your portable battery at the end of your operating session. Sometimes a turned-off vehicle can slowly drain your portable battery pack.

Let's Go!

So, forget about having your gear confiscated — even that sealed battery. Instead, go to the TSA website and print its rules, just in case you need to prove a point. Having a copy of your state destination's distracted driving laws would not be a bad idea, either.

Good DX on your next adventure with a rental car!

– WPC6NOA

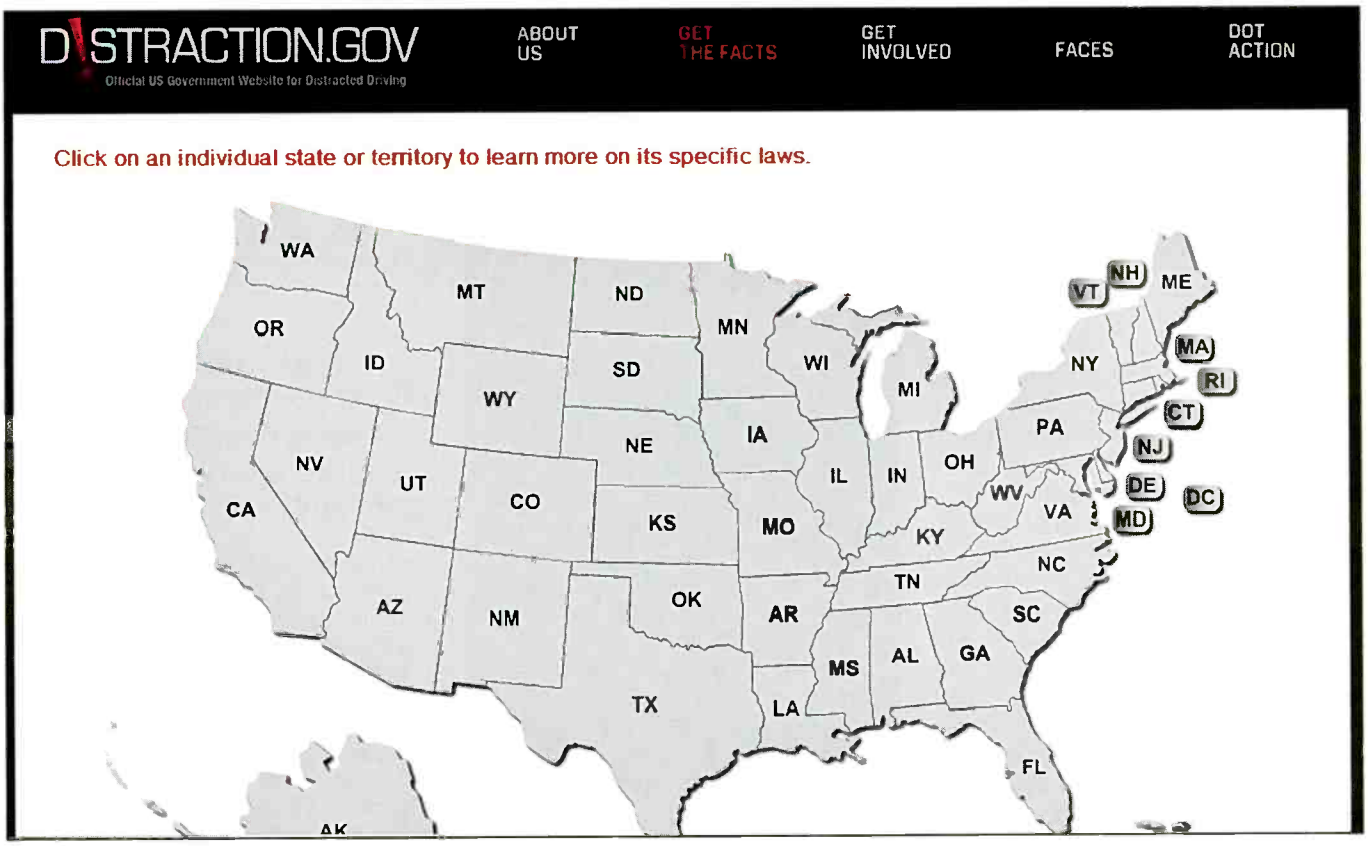


Photo I. For a state-to-state breakdown of distracted driving rules specific to where you're going, visit D!STRACTION.gov, <http://1.usa.gov/UX3R0A>. *(Internet screen grab)*

In Review: The DaySaver Lightweight Lithium Iron Phosphate Battery

By Gordon West, WPC6NOA/WB6NOA

My mobile 12-volt buffer-battery of choice has been the DaySaver PS-98, a heavyweight, 5-pound, sealed lead-acid battery, rated at more than 10.5 ampere hours.

The company has a 7-amp-hour lead-acid battery, as well. Both batteries use absorbent glass mat/no-spill technology.

Power is provided via both a cigarette lighter socket, as well as a pair of Anderson power pole connectors. All connections are live and fuse protected.

The newest DaySaver battery uses Lithium Iron Phosphate technology, cutting the weight down to just about a pound for a 14-amp-hour capacity buffer battery system, capable of 2,000 charges, and environmentally friendly with no lead or cobalt.

"This new battery is as safe as an AA rated alkaline you might buy at a corner convenience store," according to DaySaver. "This new Lithium Iron Phosphate technology can be safely charged with voltage up to 14.5 volts, but as with *any* type of battery, *never overcharge* to the point you dramatically shorten battery life."

DaySaver attributes negative comments on "lithium" batteries to the pre-ignition possibility which can occur when Lithium ION batteries discharge too rapidly, and the cobalt cathode heats to the point of flame ignition. The company assures that the Lithium Iron Phosphate battery is encased in a nearly-indestructible carbon fiber case. Further, a rugged external leather case adds more shock protection.

According to Shorai Corporation in Sunnyvale, California — maker of Lithium Iron batteries in China — 12.9 volts "resting" is the level to start giving this battery a slow 1-ampere recharge. Also, pure resistive applications, such as an FM transmitter pulling 2 amp-hours, may pull the battery down to a recharge needed level twice as fast as the 14-amp-hour rating.

But on SSB with a 100-watt transmitter intermittently pulling 12 to 15 amperes, even a half hour of SSB operation showed the battery performing well, just on its own.

As a lightweight rental car *buffer* battery, with an additional 5-amp series fuse in the cigarette lighter connection, it makes it an ideal traveling companion — but a pricey one. Its $340 price tag includes the smart AC charger.

***(INFORMATION:** Visit <http://www.DaySaver.com>.)*

Photo J. The new DaySaver lightweight Lithium Iron Phosphate battery, seen in the foreground, is half the size of the lead-acid battery to the rear — and one-fifth the weight. Yet, the two batteries have the same capacity. *(Courtesy of WPC6NOA)*

BCB DXing From Prince Edward Island: It's Location, Location, Location

More Than 60 Countries Were Logged, and Many More May Be Hiding in SDR Recordings

by Bruce A. Conti, WPC1CAT
<contiba@gmail.com>

Prince Edward Island DXpedition
Howe Bay (46°19'N 62°22'W)
October 28 – November 2, 2012

It might seem rather counter-intuitive to travel north for better medium-wave signals from the south, but that's what four AM broadcast DXers including myself had in mind for a DXpedition to Prince Edward Island, Canada.

The position of the auroral dome over northern latitudes helps to subdue higher angle skywave from the U.S., which opens the path for low angle signals farther south. The more easterly location of Prince Edward Island helps too, as it allowed for the setup of antennas to null the RF-congested U.S. northeast corridor while still aiming in a southerly direction.

Whether it was by design or dumb luck, the plan worked. Brent Taylor, an island resident and the chief organizer of the DXpedition, picks up the story from here:

"Bruce Conti, Niel Wolfish, Nick Hall-Patch and I joined up at a rented cottage in Howe Bay, Eglington, near Souris on the eastern end of the island," said Brent VY2HF. "We were looking for southern water path exposure in the hope of

"The position of the auroral dome over northern latitudes helps subdue higher-angle skywave from the U.S., opening the path for low angle signals farther south."

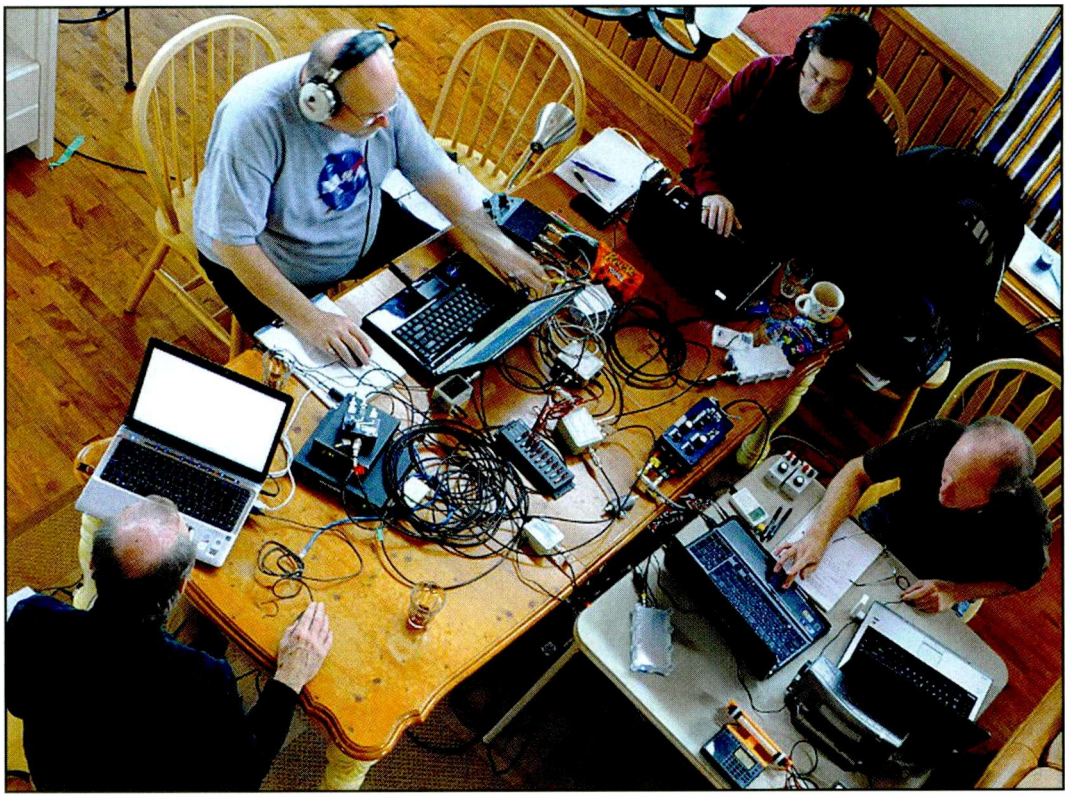


Photo A. From left, Nick Hall-Patch, Brent Taylor, Niel Wolfish, and Bruce Conti ready for some serious AM broadcast band DXing on a remarkable trip to Prince Edward Island, Canada.

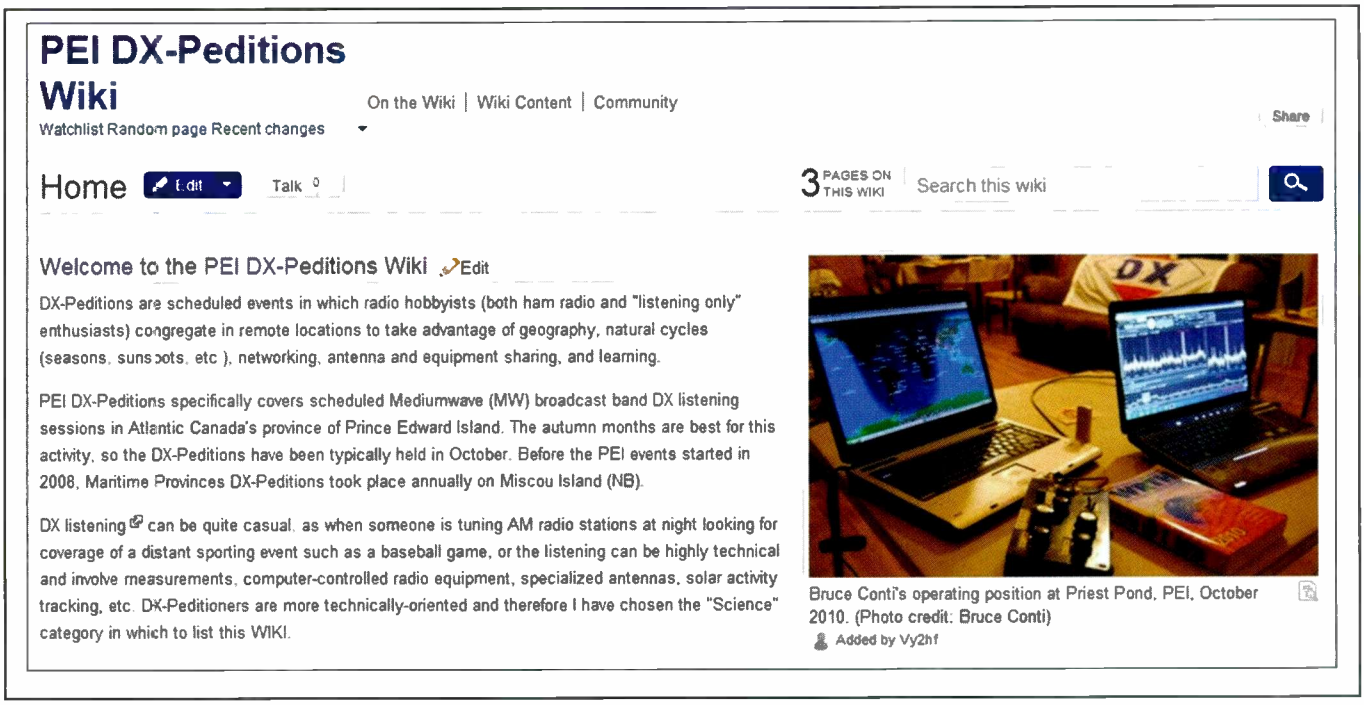


Photo B. The DXpedition group has put together a Web page chronicling the planning of its eastern Canadian monitoring adventure, <http://bit.ly/10cIlFk>. *(Internet screen grab)*

snagging some South Americans, **Photo A**. Our DXpedition planning page appears at: <http://bit.ly/10cIlFk>, **Photo B**.

"Bruce used crossed phased variably-terminated bi-directional Delta loop antennas. The other three of us had a large corner fed loop with a variable termination and a FLG-100 amplifier, as well as a smaller ALA-100M in a Delta configuration, optimized for the Far East and Brazil, **Photo C**.

"All antennas delivered very well, **Photo D**. As a group, we logged more than 60 countries, on all five major continents, and we may find many more from our SDR recordings in the coming months. There may be more as I 'DX' the SDR .WAV files in airports on my travels, weekends, at work when it's quiet — who knows. SDR capturing and recording has enabled me to DX anywhere, any time," **Photo E**.

"Being an apartment dweller in a big city with a whole slew of powerful local stations nearby, this location was ideal," said Niel Wolfish, DXpeditioner from Toronto. "This was the first time I had ever been on a DXpedition where the non-DX related reading material never got touched. Any down time from the radio was easily spent reviewing recordings from the previous evening and morning. I may be reviewing recordings for the rest of the winter."

"I'm still recovering from this very interesting DXpedition, and it wasn't just the transcontinental jet lag," said DXpeditioner Nick Hall-Patch after returning home to the Pacific coast. "Although I've occasionally heard trans-Atlantic stations from the Canadian West Coast, and listened from coastal Massachusetts while visiting there for work, nothing had quite prepared me for the onslaught of trans-Atlantic stations each evening at Howe Bay. There were times, when — sleep deprived as I was — I had the delusion that I was DXing from somewhere not too far from Spain, or [the] south coast of Ireland maybe. The first couple of days, Brent was amused to see me grinning from ear to ear while DXing, just flabbergasted at the overabundance before me.

"The Howe Bay site was to be optimal for deep South Americans, and it was that, and the trans-Atlantic signals were the heart of the expedition for me, while the morning of hearing Asiatic stations was icing on the cake, **Photo F**. And this was all done without Beverage antennas.

"Both the corner-fed loop and the ALA-100 Figure-8 loop were set up to null pretty much the entire U.S. eastern seaboard, and were very effective at that, while allowing Europe, the Middle East, east Asia, South America, Africa, and Australia to come through. Well, Australia was just a couple of tempting carriers, but the potential is there."

DX Fishbarrel

During the DXpedition, a live "DX fishbarrel" of signals being received was made available on the Internet. The DX Fishbarrel is a homebrewed software program developed by Nick Hall-Patch, **Photo G**, who describes its usefulness:

"It graphically displays signal strengths (or more accurately, signal to noise ratios) from each of the 9-kHz transoceanic channels from 153 to 1701 kHz about once every 20 seconds, using an RFSpace SDR-14 and a computer," said Nick.

"In addition, it can send an averaged snapshot of this display to the web about once a minute, to warn others of an opening. A DXer or two on the West Coast enjoyed our trans-Atlantic DXing vicariously by monitoring the DX Fishbarrel on the web.

"The 'fishbarrel' refers to the expression 'shooting fish in a barrel,' as you can use the display to pounce on the DX when it appears rather than when you stumble upon it. However at Howe Bay, the overall constant strength of the trans-Atlantic signals meant that the display usually looked like a well-lit Christmas tree, so its greatest use was for our single morning of Asiatic signals which mostly faded up for a moment or two at best, and could easily be missed.

Photo C. Niel Wolfish, Nick Hall-Patch, and Brent Taylor raise a Delta antenna on a 32-foot telescopic mast.

"It was also useful to find the first trans-Atlantic signals fading in before local sunset."

AM Broadcast DX Logs

The only disappointment of the DXpedition, if any, was the relatively poor deep European and Middle Eastern path reception. Prime targets 1071 India, widely reported by European and Canadian Maritime DXers only a month earlier, and 1296 Afghanistan, were not heard. Ukraine signals were also missing in action. Otherwise, reception was beyond expectations by all accounts, as the following selected logs demonstrate, **Photo H**. All times are UTC.

Trans-Atlantic DX

531 Jil FM, F'kirina Wilaya d'Oum El Bouaghi, Algeria, at 0300 excellent; Middle Eastern vocal set to Michael Jackson sample, canned Jil FM ID and jingle. At 0559 good; marching band national anthem and news parallel 549 kHz. Listen to a short audio clip of 549 kHz at <http://bit.ly/WjXDmZ>.

567 BSKSA Radio Quran, Saudi Arabia, at 0015 fair; Koranic recitation, then talk parallel 999 kHz.

585 RNE1 Madrid, Spain, at 0200 good; time marker, "Las tres, las dos en Canarias," into news, "Radio Nacional de España, informativos."

612 SNRT Sebaa-Aioun, Morocco, at 0459 good; choral national anthem, brief announcement, and Koranic recitations.

639 Cesk_ rozhlas, Liblice & Svinov, Czech Republic, at 2059 over/under co-channel Spain; oldies-style rock vocal, Cesk_rozhlas ID into news by woman parallel 954 kHz.

639 RNE1 La Coruña et al., Spain, at 0600 fair in 640 CBN Newfoundland splatter; "En Radio Nacional, El Día Menos Pensado con Manolo H. H.," parallel 621 kHz.

675 Radio Maria, Lopik, Netherlands, at 2300 good; Radio Maria ID with what sounded like contact info, then another ID and church bells on the hour.

693 BBC Radio 5, Droitwich et al., United Kingdom, at 2100 good, synchro echo; Five Live Sports talk about Premier League, promo for interview with Tom Brady (of the New England Patriots) in the next hour.

702 RMC-Info, Le Col de La Madonne, France, at 2200 good; time marker, ID, and Radio Chine International in French.

711.11 SNRT Laayoune, Western Sahara, at 0100 a loud het against 711 France; nothing readable with this off-frequency signal at the same level as France but poorly modulated.

738 RNE1 Barcelona, Spain, at 0300 good; time marker, "Las cuatros, las tres en Canarias," and "Radio Nacional de España, informativos."

747 Radio 5 Nostalgia, Zeewolde, Netherlands, at 0002 fair; spoken and then choral ID into a French pop song. Thanks to Fredrik Dourén, Paul Logan, and Max van Arnhem at RealDX for help with the ID.

765 IRIB Radio Iran, Chahbahar, Iran, at 2300 over/under co-channel Saudi Arabia; string music and vocal parallel 1503 kHz.

765 BSKSA Radio Quran, Saudi Arabia, at 0015 fair; Koranic recitations, then talk in Arabic parallel 999 kHz.

792 SER Sevilla, Spain, at 0159 good; promo, "Todo en la información, todas las noticias . . . en Cadena Ser punto com," time marker, "Cadena Ser, servicios informativos."

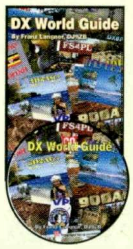
810 BBC Radio Scotland, Scotland, at 2300 faded up over co-channel CJVA with names of British soldiers killed in Afghanistan, ID as "BBC Radio Scotland," time check as 11 p.m. and news.

810 SER Radio Madrid, Madrid, Spain, at 0300 excellent; "Radio Madrid," then "Todos

Winter Finds at the CQ Store

FREE shipping on orders of $100 or more!

DX World Guide



by Franz Langner, DJ9ZB

This 384-page DXer's guide-book is the first edition using color throughout and the first to be entirely in English.

Includes info on well over 300 DX entities. Geographical info, WAZ and ITU zones, ITU callsign allocations, amateur prefixes and more!.

6 X 9 Paperback $42.95
***New!* CD Version $22.95**
Buy both for only $60.95

HEATHKIT

A Guide to the Amateur Radio Products
by Chuck Penson, WA7ZZE

Back by popular demand!

This 328-page Second Edition is a must-have for collectors and Ham history buffs alike.

Order No. HEATH $32.95

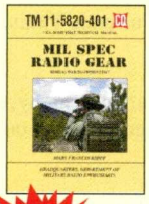
Mouse Code

by Joel Thurtell, K8PSV

A great book for the kids in your life! When humans start plowing up North Field and cutting down trees, two field mice (re-)invent radio to warn the animals of danger, using a form of Morse code that can only be called... Mouse Code!

Order No. Mouse $12.95

MIL SPEC Radio Gear



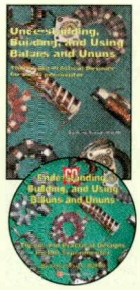
Korean to Present Day
by Mark Francis, KIØPF

Detailed write-ups for many familiar sets: PRC-25/-77, RT-68, PRC-1099, GRC-106, GRR-5, R-392 and more. Over 230 pages of ops, mods, and maintenance tips 200+ illustrations.

Sale!

Order No. MILSPEC ~~$27.95~~ $15

Understanding, Building & Using Baluns & Ununs

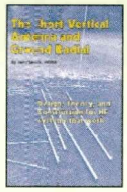


by Jerry Sevick, W2FMI

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

8.5 X 11 Paperback $19.95
***New!* CD Version $14.95**
Buy both for only $29.95

The Short Vertical Antenna and Ground Radial



by Sevick, W2FMI

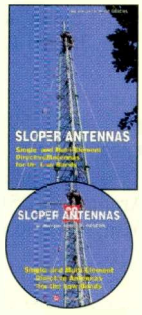
This small but solid guide walks you through the design and installation of inexpensive, yet effective short HF vertical antennas. With antenna restrictions becoming a problem, it could keep you on the air!

6 x 9 Paperback $10.00

Sloper Antennas

By Juergen A. Weigl, OE5CWL

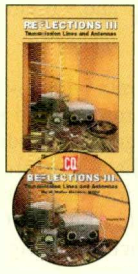
Single- and Multi-Element Directive Antennas for the Low Bands



With calculations and practical experience, this book shows which basi concepts have to be considered for sloper antennas for the low bands.

6 X 9 Paperback $24.95
***New!* CD Version $18.95**
Buy both for only $36.95

Reflections III

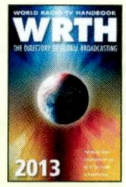


by Walter Maxwell, W2DU

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!

8.5 X 11 Paperback $39.95
***New!* CD Version $29.95**
Buy both for only $59.95

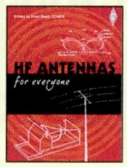
2013 World Radio TV Handbook



The most up-to-date info on mediumwave, shortwave, FM broadcasts and broadcasters. Articles, reviews of the latest equipment, maps, and more. Due in mid-Dec. You will not be charged until it ships!

Order No. WRTH $35.00

HF Antennas for Everyone

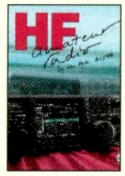


Edited by Giles Rad, G1MFG RSGB

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

Order: RSHFAE $27.95

HF Amateur Radio



RSGB 2007 Second Edition

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

Collins Radio Repair & Tune-Up DVD Guides

From Hi-Res Communications, Inc., these well-produced, authoritative DVDs cover all the most common repair and tune-up subjects on these classic radios. It's like having an experienced professional right next to you!

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

Collins 75S-3/32S-3
2disc set, 226 minutes
Order No. C-75S
$89.95

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

Shipping & Handling: U.S. add $7 for the first item, $3.50 for the second and $2 for each add'l 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. Buy Both=single item!

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

***Call:* 1-800-853-9797 • *Fax:* 516-681-2926 • *website:* http://store.cq-amateur-radio.com**

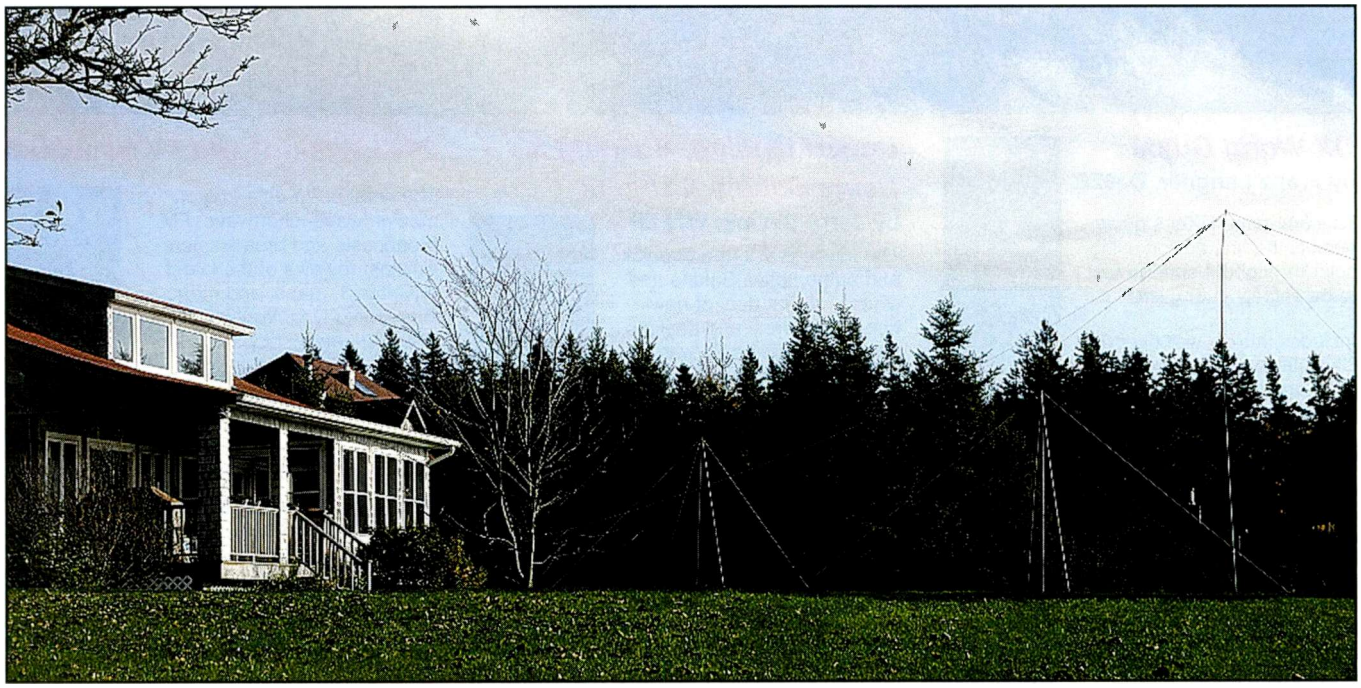


Photo D. The DXpedition cottage at Howe Bay with antennas deployed.

. . . en Cadena Ser," time marker, "Cadena Ser, servicios informativos" and Spain/Canaries time checks into news.

819 ERTU Batrah, Egypt, at 2100 fair; Big Ben chimes and anthem into news.

837 IRIB Radio Iran, Isfahan, Iran, at 2300 under co-channel Canaries/Spain; string music and vocal parallel 1503 kHz.

864 Radio Free Europe/Radio Liberty, Gavar, Armenia, at 0157 over/under co-channel Egypt; "Radio Free Europe, Radio Liberty, Gavar" and beep repeating every five seconds.

864 France Bleu, Villebon-sur-Yvette, France, at 2259 good; France Bleu 107.1 and "Radio 107.1" ID's in French.

882 BSKSA Radio Quran, Dammam, Saudi Arabia, at 2055 poor, under co-channel BBC Radio Wales and COPE Spain; Koranic singing parallel 1512 kHz.

882 BBC Radio Wales, Washford, United Kingdom, at 2059 good with synchro echo; weather and traffic report, "On FM, AM, online, TV, and digital radio, this is BBC Radio Wales," and 9 o'clock time check into news.

900 Rai Radiouno, Milano, Italy, at 2200 in mix with co-channel Spain; data (sounds like fast Morse code), time marker, and Rai ID. Feedback from Vittoria DeTomasi, "Rai time signal is encoded with a proprietary format designed by the Italian meteorological laboratory <http://www.inrim.it> described for example here: <http://1.usa.gov/QYDpCr>; (in Italian): <http://bit.ly/TfCY6a>. While it might sound like fast Morse code, it's actually a digital signal. You can hear a sample here: <http://bit.ly/UJ4iG1>. It can be decoded using Multipsk software, <http://bit.ly/UT8eEg>.

909 Radio Cluj, Jucu, Romania, at 0300 under co-channel BBC5; solemn vocal parallel 1593 kHz.

909 BBC Radio 5, United Kingdom, at 2200 excellent, synchro echo; "This is BBC Radio Five Live" and the news at 10, parallel 693 kHz.

917 Radio Gotel, Yola, Nigeria, at 0103 often a carrier here, but slight traces of talk, put a big het on 918 kHz.

918 Radio Inter, Ctra Humera, Spain, at 0300 good despite het from 917 Nigeria; "Descubre la Inter, más info," into a Donna Summer disco song. At 0600 fair; time marker, "Son las siete en la mañana, las seis en Canarias," into news with orchestra fanfare, "a Radio Inter."

945 Gold, Bexhill, England, at 0050 "I Am a Rock" by Simon & Garfunkel and The Zombies "She's Not There" heard under co-channel France. Songs matched webstream.

954 Cesk_ rozhlas, Czech Republic, at 2100 fair; Cesk_ rozhlas ID into news by woman. At 2219 mixing with co-channel Spain.

963 Radio 86, Pori, Finland, at 0300 good; open carrier leading up to the hour, then fanfare and Radio Kitaya ID.

963 Radio Tunisia Cultural, Tunis, Tunisia, at 2300 fair; choral national anthem.

972 NDR Info, Hamburg, Germany, at 0200 good; "ARD Infonacht, nachrichten." At 2300 good, over co-channel Spain; "NDR Info, nachrichten."

999 VOR Maiac, Moldova, at 2200 over/under co-channel Spain; time marker, "Golos Rossii, novosti" and news.

999 COPE Madrid, Spain, at 0200 good; distinctive time marker set to music, "Las tres, las dos en Canarias," and news, "Ultima hora, Cadena Cope, estar informado." 2159 "Cope Madrid" ID.

1008 Punto Radio, Las Palmas, Canary Islands, at 0300 fair; Punto Radio ID and "Abellán en Punto" program.

1008 GrootNieuwsRadio, Zeewolde, Netherlands, at 2100

over/under co-channel Canaries and Spain; TransWorld Radio contact info.

1026 SER Radio Jerez, Jerez de la Frontera, Spain, at 2159 good; "Radio Jerez, Cadena Ser . . . " with Cadena Ser jingle leading up to network time marker on the hour.

1035 Star FM, Belmonte, Portugal, at 0301 good; Marvin Gaye "Heard It Through the Grapevine," Star FM ID and jingle.

1044 SNRT Sebaa-Aioun, Morocco, at 0000 good, over co-channel SER Spain; choral national anthem.

1062 Rai Radiouno, Italy, at 2100 good, synchro echo; talk in Italian with classical music interludes through the hour. 2259 sign-off with orchestral anthem, then test tones with clock ticking between tones. Listen to a short audio clip at <http://bit.ly/UWjVzL>.

1071 BSKSA Bisha, Saudi Arabia, at 0000 announcer with Middle Eastern music bed, signature musical intro to news, delayed but still unequivocal parallel with 1521 kHz.

1088 Radio Nacional, Mulenvos, Angola, at 2108 strong carrier but only faint audio in splatter from 1089 UK; the only listed station on this frequency.

1089 TalkSport, United Kingdom, at 2000 fair; "On DAB digital radio and 1089 and 1053 AM, TalkSport" into news, parallel 1053 kHz. 2358 over unidentified Koran; Weekend Sport Breakfast promo.

1116 SER Radio Pontevedra, Spain, at 0059 good; "Radio Pontevedra, onda media y FM."

1134 Hrvatske Radio, Zadar, Croatia, at 1935 good; news/talk in Croatian, then sports commentary, parallel 3985 kHz.

1143 AFN Germany, at 0050 over/under co-channel Spain and bubble jammer; '80s hits "Let's Dance" by David Bowie, "White Horse" by Laid Back.

1161 Mid-Delta Radio, Tanta, Egypt, at 2200 fair; sign-off with instrumental anthem followed by a brief test tone.

1170 Radio Slovenija/Capodistria, Beli Kriz, Slovenia, at 2140 fair to good; punk/alternative rock music, Iron Maiden "Strange World" then chamber orchestra instrumental leading up to break on the hour with Radio Capodistria ID.

1170 Radio Sawa, Al Dhabiya, United Arab Emirates, at 2200 over/under Slovenia; "Gangham Style" by PSY parallel 1431 kHz.

1215 TransWorld Radio, at 2200 under co-channel Absolute Radio with presumed VOR Kaliningrad; one cycle of TWR interval signal. No het heard or signal observed on spectrum analyzer from off-frequency Albania. Without a TWR outlet listed on 1215 kHz, Mauno Ritola at RealDX suggests, "ICM/Luxembourg effect from TWR via Gavar carried by Kaliningrad."

1251 Radio Libya, Tripoli, Libya, at 2200 fair; "Radio Libya" with upbeat Middle Eastern music bed.

1251 Radio 5 Nostalgia, Hulsberg, Netherlands, at 0159 fair; "Radio 5, Nostalgia" jingle and brief instrumental bumper up to time signal and dry read of news by a woman.

1296 COPE Valencia, Spain, at 2259 good; "valencia punto com" promo, "93.4 FM y 1296 onda media, Cope Valencia."

1296 Radio XL, Langley Mill, United Kingdom, at 2100 good; "On 1296 AM, this is Radio XL. From the Sun News Center at 9 . . ."

1323 VOR Wachenbrunn, Germany, at 1915 fair; French program. At 2100 good; "Golos Rossii, novosti." At 0500 excellent; "The Voice of Russia is broadcasting 24/7 to the whole world on AM, and you can hear us in London on digital radio."

1341 BBC Radio Ulster, Lisnagarvey, Northern Ireland, at 2200 fair; "On 92 and 95 FM, and 1341 medium wave, this is BBC Radio Ulster" into news.

1368 Challenger Radio, Villa Estense, Italy, at 2100 under co-channel Manx Radio; sign-off announcement in English, "This is IRRS . . . in Milano signing off," and "Va, pensiero" choral music. Thanks to Günter Lorenz at RealDX for help with the ID.

1394.85 TWR Fllakë, Albania, at 1917 good; repeating TWR interval signal until start of programming at 1925 UTC. One of the first trans-Atlantic signals of the afternoon to deliver audio, almost two hours before local sunset at the DXpedition site.

1395 Radio Seagull, Harlingen, Netherlands, at 0500 poor/fair; fading up with rock music, DJ, "on Radio Seagull," and woman with news in English.

1404 France Bleu, Ajaccio, Corsica, at 2200 fair to good, over/under co-channel France Info; pop song, "France Bleu" choral jingle, and straight into news in French. After the news, a quick promo for the morning show "France Bleu Matin."

1431 Radio Sawa, Arta, Djibouti, at 2138 good; Sawa ID and jingle. 2200 good with "Gangham Style" parallel 1170 kHz.

1431 VOR Wilsdruff, Germany, at 2100 fair; "Golos Rossii, Voice of Russia," time marker, "Golos Rossii, novosti."

1440 RTL Marnach, Luxembourg, at 2200 good, over WRED; "This program is brought to you by Radio 86 in cooperation with RTL Luxembourg and China Radio International. For more information, please visit our home page, <http://www.radio86.com>."

This Month in Broadcast History

75 Years Ago (1938): Paramount Pictures released W.C. Fields' "The Big Broadcast of 1938" featuring Bob Hope and his signature song "Thanks for the Memories."

Photo A. Listen to Paul & Paula — a.k.a. Ray Hildebrand and Jill Jackson — sing their No. 1 1963 hit, "Hey Paula" at <http://bit.ly/QuZsRw>. *(Internet screen grab from YouTube video)*

50 Years Ago (1963): "Hey Paula" by Paul & Paula, **Photo A**, was number one on the 1360 WSAI Cincinnati Fabulous Forty music survey.

25 Years Ago (1988): The National Radio Club published a complete list of daytime-only AM radio stations given the go-ahead by the FCC to operate full time at low power, some with as little as 4 watts nighttime authorization. Some stations declined to begin 24-hour service because the assigned night power was too low.

– Bruce A. Conti, WPC1CAT

Photo E. This DXpedition was decidedly high-tech. All DXers were using laptop computers with software defined radio (SDR) receivers for monitoring the AM broadcast band.

1449 BSKSA Saudi Arabia, at 2100 under co-channel Libya; brief music, time marker and fanfare into news, clearly parallel 1521 kHz.

1458 Sunrise Radio, Brookmans Park, United Kingdom, at 0300 good; "This is Sunrise Radio, news on the hour every hour," and Sunrise Radio jingles.

1467 TWR Roumoules, France, at 2300 excellent; one cycle of TWR interval signal, then signal was cut momentarily for antenna pattern change, returning with "Hour of Decision" in English.

1485 SER Spain, at 2049 noted "The Good, The Bad and The Ugly" whistling and "Taps" sound effects in the soccer game that is on all the other channels. When Real Madrid scored to go up 2-0 over Mallorca, they had "GOL GOL GOL" in Morse code playing over the announcer screaming.

1511.93 ERA Chania, Greece, at 2010 music parallel 1494 kHz. Measured 1511.933 kHz causing a low-level rumbling het against measured 1511.991 Saudi Arabia. At 2030 now 15-db better than Saudi Arabia.

1521 BSKSA Duba, Saudi Arabia, at 1914 fair; woman in Arabic parallel 9555 and 9870 kHz. No East Coast DXpedition is complete without this. A massive signal by 2000 UTC.

1530 VOA Pinhiera, São Tome, at 0259 good; signing on with Yankee Doodle interval signal and Daybreak Africa from the Voice of America. At 2200 excellent: "This is the Voice of America, Washington DC, signing off. For information regarding the times and frequencies of VOA programs, write to Program Schedules, Voice of America, Washington DC 20547, or you may get a schedule from the nearest American cultural center or United States Information Service in your country."

1539 Radio Aap Ki Dunyaa, Al Dhabiya, United Arab Emirates, at 2100 good, over co-channel SER Spain; VOA news in English.

1550 RASD Rabouni, Algeria, at 2135 excellent; rustic African vocal. Measured slightly off-frequency at 1550.027 kHz.

1566 TWR Parakou, Benin, at 2110 fair to poor, with male and female announcers in French, and definite religious talk, about the afterlife, etc. The only French-speaker on this frequency at this time and better on the African-favored antenna. Finally, ID in French with website and frequency at 2156, followed by brief woodwind interlude.

1584 SER Radio Gandía, Spain, at 2259 fair; promo, "Radio Gandía . . . Gandía," and local ID, "Radio Gandía, Cadena Ser," then time marker and El Larguero program.

1593 România Actualitati, Ion Korvinn, Romania, at 0146 music

Photo F. A beautiful sunrise over Howe Bay greets weary DXpeditioners after receiving early morning Asiatic signals.

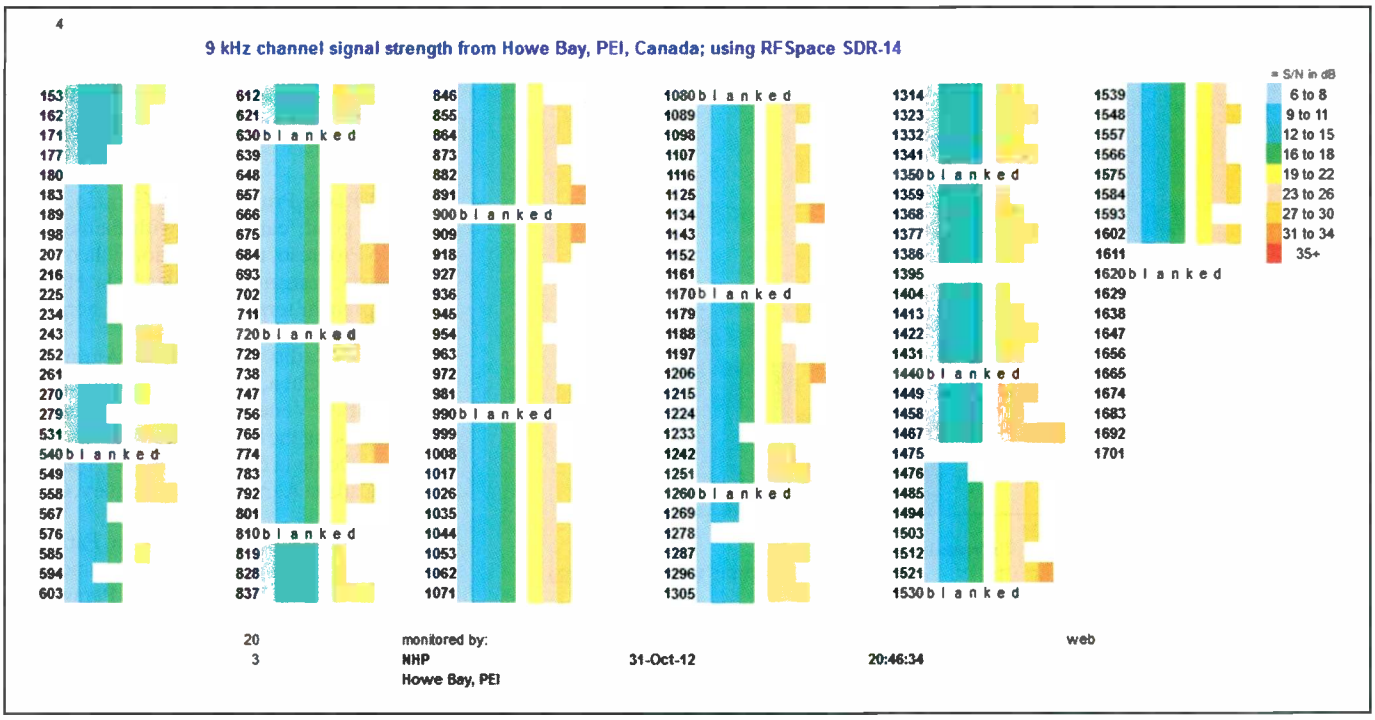


Photo G. The homebrew "DX Fishbarrel" tool developed by Nick Hall-Patch monitors transoceanic 9-kHz channels across the AM broadcast band.

by Billy Joel and Robbie Williams. ID and time pips at hourtop into newscast by man. Parallel to 1179 kHz.

1602 Radio Vitoria, Spain, at 2200 good over co-channel SER Spain; Radio Vitoria jingle, time marker, "Radio Euskadi, servicios informativos."

Pan-American DX

530 Radio Rebelde, Guantánamo, Cuba, at 0900 fair; canned ID with organ theme, "Rebelde la Habana, emisora de la revolución," and time check, **Photo I**.

550 YVKE Mundial, Caracas, Venezuela, at 0900 good; ve promo, "Radio Mundial, la radio del poder popular," and llanera music.

560 Voice of Guyana, Georgetown, Guyana, at 0800 good; signing on, "Good morning everyone, this is the Voice of Guyana, the National Communications Network Incorporated beginning its transmission for today . . . The National Communications Network Incorporated has its studios at Broadcasting House on Fifth Avenue, Georgetown. Voice of Guyana transmits on 560 kilohertz on the medium wave band, 102.5 megahertz on the FM band, and 3.29 megahertz . . . " Listen to audio clip at <http://www.bamlog.com/guyana.mp3>.

570 Radio Reloj, Santa Clara, Cuba, at 0600 good; beep, man: "Radio Reloj, dos de la madrugada," woman: "Radio Reloj, desde la Habana, Cuba." RR Morse code every minute and clock ticking in background.

600 WYEL Mayagüez, Puerto Rico, at 0300 over co-channel Radio Rebelde Cuba; wkaq580.com promo, multi-station ID, "WKAQ 580 AM San Juan, WUKQ 1420 AM Ponce, WYEL 600 AM Mayagüez."

610 Radio Nacional, Uribia, Colombia, at 0600 three mentions of "Radio Nacional" with two-note "bip" sounders, and about 20 seconds later "Radio Nacional de Colombia."

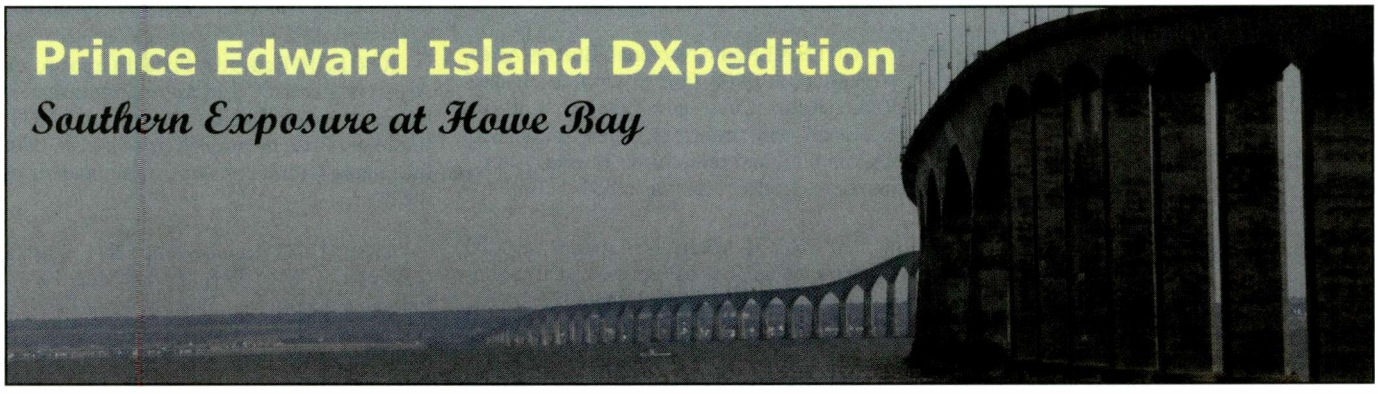


Photo H. This scene captures the beauty of the region where Howe Bay meets the ionosophere — a very nice combination for AM broadcast band DXing.

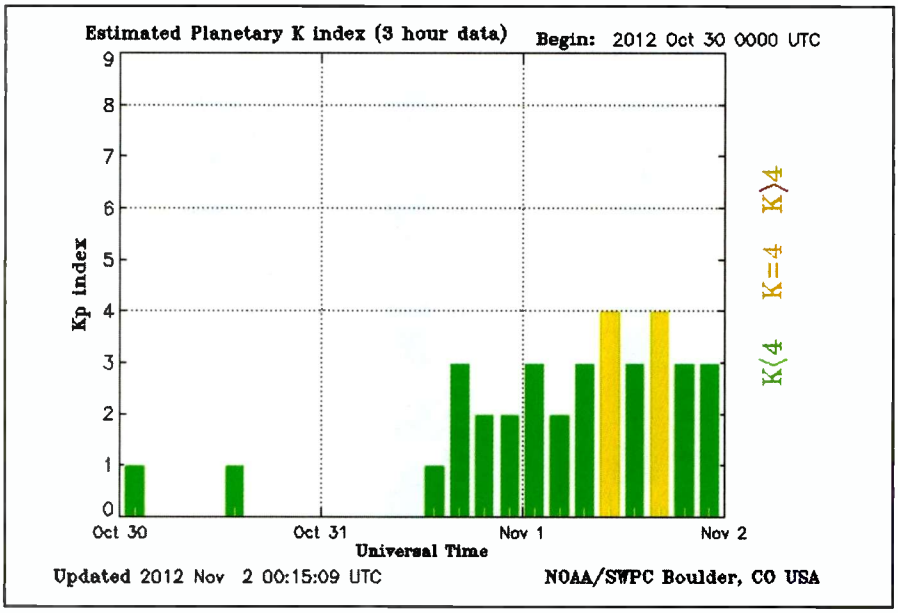


Photo I. The K-index became active enough during the DXpedition to enhance tropical reception without disrupting transoceanic signals.

640 Radio Guadeloupe, Pointe-à-Pitre, Guadeloupe, at 0901 over/under co-channel Radio Progreso Cuba and CBN Newfoundland; telephone talk in French, Radio Guadeloupe jingle and "Le journal" news.

640 YVQO Puerto La Cruz, Venezuela, at 1000 good; "Unión Radio 1090" and "Deportes Unión Radio" promos.

670 YVLL Radio Rumbos, Caracas, Venezuela, at 0900 good; "Escuchas Radio Rumbos, la emisora de Venezuela," and disclaimer into paid program.

700 LV3 Radio Córdoba, Argentina, at 0300 choral national anthem rising to good level through Latin American jumble of co-channel signals.

750 YVKS Caracas, Venezuela, at 1000 good; "Radio Caracas Radio, 750 AM." At 2359 under CBGY; RCR deportes sports commentary.

760 WORA Mayagüez, Puerto Rico, at 0901 good; "NotiUno en la mañana," and ID, "WUNO 630 San Juan, WPRP 910 Ponce, WORA 760 Mayagüez, WCMN 1280 Arecibo, y WNEL 1430 Caguas." Listen to an audio clip at <http://www.bamlog.com/wora.mp3>.

780 ZBVI Tortola, British Virgin Islands, at 0200 over/under co-channel YVMN; sign-off announcement, hymn and national anthem.

780 YVMN Radio Coro, Venezuela, at 0158 fair; promo with patrimonio de la comunidad slogan. 0902 excellent; jingle, "Radio Coro 780," and time check, "Cuatro, treinte dos minutos."

800 PJB Radio Transmundial, Kralendijk, Bonaire, at 0159 – Good; Radio Transmundial contact info, "... aquí en Radio Transmundial, 800 AM, Bonaire, Antillas Holandesas," then bilingual English/Spanish program. Listen to audio clip at <http://www.bamlog.com/bonaire.mp3>. At 0800 fair; Portuguese program with Transmundial info. At 0900 signal cut briefly for apparent antenna pattern change, returned loud and clear with beginning of Spanish program.

820 TBN Radio Paradise, Charlestown, St. Kitts & Nevis, at 0159 good; TV audio with TBN lifetime charitable gift annuity ad, "You're watching TBN, part of the Trinity Broadcasting family of networks."

860 VON Bath Village, St. Kitts & Nevis, at 0959 fair; instrumental national anthem, "With all the power from the tower, this is the powerhouse of the eastern Caribbean, VON radio from the Federation of St. Kitts and Nevis."

870 LRA1 Radio Nacional, Buenos Aires, Argentina, at 0400 fair, in with co-channel Radio Reloj Cuba and others; "Emisora Nacional" and "informas," then time check, "Ahora uno, uno minutos en Buenos Aires," into news stories with music beds between.

900 CBC St. Michael, Barbados, at 0900 over co-channel Radio Progreso Cuba; national anthem, then "CBC news at five" beginning with item about Barbados health minister.

900 ZYI533 O Liberal CBN, Belem, Brazil, at 2300 good despite lightning crashes; ID with website address, slogan, "Rádio CBN, a rádio que toca notícias." Listen to audio clip at <http://www.bamlog.com/900brazil.mp3>. Feedback from Henrik Klemetz regarding the audio clip; "The ID is the last thing to be heard on the clip. Prior to that they appear to mention CNM and their email address."

900 Radio Progreso, San Germán, Cuba, at 0900 good; canned ID with theme song, "Radio Progreso, cadena nacional, la onda de la alegría, transmitiendo desde la Habana, Cuba, premier territorio libre en América."

910 Radio Cadena Agramonte, Camagüey, Cuba, at 0300 under co-channel unidentified Venezuela baseball; ascending tones marking the hour, canned ID with theme music, "Desde la cuna de el mayor, transmite Radio Cadena Agramonte, Camagüey, Cuba."

920 Radio Nacional, Asuncion, Paraguay, at 0118 a lengthy station ID and promo mentioning that they have news and Paraguayan music. ID is "Radio Nacional, La Radio Pública." Co-channel interference from CKNX and others.

940 ZYJ453 Super Rede, Rio de Janeiro, Brazil, at 2200 fair; promo, "La super rede, boa vontade de rádio" with jingle into soft vocal. Listen to an audio clip at <http://www.bamlog.com/superrede.mp3>.

940.2 HJGB Radio Calima, Cali, Colombia, at 0900 het party with 939.88 XEQ and 939.998 CJGX. At 1000 choral national anthem, NBC-like chimes and "Radio Calima 940 AM" promo/ID's. Off-frequency at 940.2 kHz producing loud het against 940 WIPR.

970 WSTX Christianstad, U.S. Virgin Islands, at 0945 excellent, fading to fair, with "Abide with Me" choral hymn totally dominating, then Christian talk in Caribbean-accented English by a male. Checked WSTX web stream at <http://www.wstxam.com> and it was a match.

980 ZYH707 Radio Nacional, Brasilia, Brazil, at 2300 good while tuned to low side to avoid 981 Algeria interference; "Radio Nacional de Brasilia . . . Nacional Informa."

1030 LS10 Radio del Plata, Buenos Aires, Argentina, at 0300 fair; talk in Spanish continuing through time pips on the hour, 0301 Radio del Plata mentioned by talk host. 0600 fair; again with talk through time marker on the hour.

1070 HJCG Radio Santa Fe, Bogotá, Colombia, at 0101 fair; "Radio Santa Fe . . . todos los deportes . . . Radio Santa Fe 1070 AM." 0300 fair; promo/ID string, "Radio Santa Fe en Bogotá."

1070 WMIA Arecibo, Puerto Rico, at 0000 fair; "... por escuchar WMIA Radio Arecibo, Arecibo, Puerto Rico."

1090 WGOD St. Thomas, U.S. Virgin Islands, at 1000 fair; "WGOD St. Thomas, United States Virgin Islands, 98 FM, 1090 AM . . ." and SRN news.

1130 YVRL Radio Ideal, Maiquetía, Venezuela, at 2228 good with WBBR nulled; romantic ballads, promo, "La mejor música . . . Radio Ideal . . ." and ID, "La combinación ideal para su vida, Radio Ideal, 1130 AM, las 24 horas del día, sintonisa con la vida."

1140 Radio Surco, Morón, Cuba, at 0300 under co-channel CBI; familiar canned ID with theme music, "Sintonise CMIP Radio Surco, desde Ciego de Avila, capital de la locución cubana."

1150 LT9 Radio Brigadier López, Santa Fé, Argentina, at 0900 fair; "En transmición, LT9 Radio Brigadier López . . . (AM and FM frequencies) Santa Fé." Listen to an audio clip at <http://www.bamlog.com/brigadier.mp3>.

1150.16 OAU7K Juliaca, Peru, at 0859 het against 1150.0 LT9 Argentina, measured 1150.16 kHz. Henrik Klemetz suggests Peru, "The suspected one here is a real gem, Radio Frontera, in Juliaca, Peru, heard twice in Finland, on Jan. 31, 2011 and exactly one year afterwards, both times at 0815 UTC. I was involved in unraveling this one."

1160 Caribbean Radio Lighthouse, St. John's, Antigua, at 0000 over/under co-channel VSB3 Bermuda; "Caribbean Radio Lighthouse . . . 1160 AM," and Prophecy for the Day program.

1160 VSB3 Hamilton, Bermuda, at 0900 good; BBC World Service promos, time marker and promo for author interview into news. At 1000 excellent: World Update from the BBC.

1190 LRA15 Radio America, San Miguel de Tucumán, Argentina, at 0300 fair; national anthem. At 0800 brief strong fade in; ad string with websites ending "punto com punto ar." From an audio clip posted on RealDX. Chuck Hutton identified Republica de Aca — a comedy club in Buenos Aires, and Roy Amotos identified <http://www.rubengaitan.com.ar> and <http://www.republicadeaca.com.ar> websites.

1190 WBMJ San Juan, Puerto Rico, at 0859 fair; "At the Rock Radio Network, we're bringing you the Word day and night, 1190 WBMJ San Juan, 1370 WIVV Vieques, and 1060 WCGB Juana Díaz."

1210 WHOY Radio Hoy, Salinas, Puerto Rico, at 1000 fair; "WHOY Salinas, Puerto Rico, Radio Hoy, la señal activa."

1220 ZYJ458 Radio Globo, Rio de Janeiro, Brazil, at 0200 good; "Radio Globo, noticias" in Portuguese. At 2159 good; talk in Portuguese with Radio Globo mentions, long jingle through the hour.

1280 VSB2 Hamilton, Bermuda, at 1000 good, over co-channel WCMN Puerto Rico; "BBN from WYFQ FM Wadesboro" and SRN news.

1290 YVLF Radio Puerto Cabello, Venezuela, at 1001 heard, "En corrida Santa Cruz, escucha de primier . . . Radio Puerto Cabello" and time check, "Las cinco triente y uno minutos."

1380 YVNG Ondas del Mar, Puerto Cabello, Venezuela, at 0959 good; "Ondas del Mar 1380" and time check with slogan, tropical music.

1400 Harbour Light Radio, Carriacou, Grenada, at 0100 fair; reading from the Bible, then time check, "The time is 9 o'clock," into "Word to the World" which matches online program schedule at <http://www.harbourlightradio.org>.

1630 Radio Melody, San José, Argentina, at 0800 tropical music, announcement in Spanish, sounded like mention of Buenos Aires. Off-frequency at 1629.835 kHz, easily separated from 1629.997 signal which was likely another from Argentina. Per Henrik Klemetz at RealDX, "I am positive that this is Radio Melody relaying Cadena 3 (Córdoba) and you are hearing the off cue for their nightly program between midnight and 0500 local time."

Trans-Pacific DX

774 JOUB Akita, Japan, at 0955 good audio with talk in Japanese.

945 CNR Jiahoe, China, at 1000 weak pips on the hour, and a woman reading news. Checked again and better audio at 1019 UTC.

972 HLCA Dangjin, South Korea, at 0953 apparent interview, then at 1000 caught time pips (three short and one long), then faded up with Korean version of "Blowing in the Wind" and a man in Korean.

1206 Yanbian RGD, Yanji, China, at 0952 pulsed up to readability. However, the strongest signal on the channel by 20dB was on 1205.961 kHz, and the nearest to that frequency on the offset list is this one, so a strong tentative.

1521 CRI/Radio Kitaya, Hutubi, China, at 0000 previous to the hour, oriental stringed music leading up to the chimes and fanfare on the hour, followed by a lady in Russian. Fair strength, usually under Saudi Arabia running the news. Thanks to Sylvain Naud for noting his reception of this in Quebec at this time.

1557 Family Radio, Kouhu, Taiwan, at 0953 too weak for language identification, then faded down, 0955 violin music faded up. Taiwan is the most common station on this channel on the West Coast, and the mwoffsets list has them at 1556.997 in July 2012. But I measured this at 1556.9990 kHz, so not really sure, but don't know what else it might be. Later measurement on the Pacific coast of a station on 1557 playing liturgical organ music is indeed 1556.9990 kHz.

Contributors

- Bruce A. Conti, WPC1CAT: WiNRADiO Excalibur, MWDX-5 phasing unit, 30-meter base x 10-meter-tall variable termination Delta antennas northeast and southeast.
- Nick Hall-Patch: RFSpace NetSDR, plus SDR-14 for driving the DX Fishbarrel program, variable termination corner fed loop with FLG-100 amplifier, ALA-100M Delta.
- Brent Taylor, VY2HF: RFSpace SDR-IQ, variable termination corner fed loop with FLG-100 amplifier, ALA-100M Delta.
- Niel Wolfish: WiNRADiO Excalibur, variable termination corner fed loop with FLG-100 amplifier, ALA-100M Delta.

Epilogue

As Brent noted, this is only the beginning as we DXers continue to dig through SDR RF spectrum captures for additional signals.

SDR technology allows for recording or "capturing" of RF spectrum to computer files that can be replayed and demodulated at any time. Therefore, DX activity could easily continue for several months after the antennas and receivers are long gone from Howe Bay.

For example, a three-minute Excalibur SDR RF spectrum capture of the entire medium wave broadcast band, representing over 200 transoceanic and continental channels per capture, adds up to over 600 minutes or 10 hours of listening per capture. With 50 captures to review at a couple hours a day pace, it would take well over 250 days to listen to it all!

The DXpedition crew acknowledges the following resources for providing assistance and information to help with identification of radio stations:

- Euro-African Medium Wave Guide (EMWG), compiled by Herman Boel <http://www.emwg.info>
- Toda la información de las emisoras de A.M. de la Argentina <http://www.amplitudmodulada.com.ar>
- Emissoras Brasileiras de Ondas Médias, <http://www.ondascurtas.com/listaom>
- 2009 CTOM Cuba list compiled by Mauricio Molano 2011 <http://usuarios.iponet.es/mmolano/CUBA-plan-ENG.pdf>
- MW Offsets Database, compiled by Günter Lorenz <http://www.myradiobase.de/mediumwave/mwoffset.txt>
- NRC AM Radio Log, <http://www.nrcdxas.org>
- World Radio TV Handbook (WRTH), <http://www.wrth.com>
- RealDX Yahoo Group

73 and Good DX!

Pop'Comm February 2013 Reader Survey

Your feedback is important to us at *Pop'Comm*. It helps guide us to make the magazine even more valuable to you each month.

Please take a few minutes to fill out this month's Reader Survey Card and circle the appropriate numbers corresponding to the questions below. We'll pick a respondent at random for a year's free subscription or an extension of an existing subscription as thanks for your participation — so don't forget to fill in your mailing address and other contact information.

We encourage your comments and suggestions in the space provided, as well. Thank you.

Last, but not least: You can now take this survey online. See details below.

There is a high level of concern in the amateur radio community about the need for attracting young people to become hams. Should there be a similar concern in the monitoring community?

Yes 1
No 2
I'm not sure 3

If there were a *Recruit the Youth* initiative in the monitoring community, what areas do you believe would be most useful in attracting young people? (Choose all that apply.)

Shortwave listening 4
Public service scanning (police, fire, ambulance, and so on) 5
Civil aviation monitoring (private) 6
Commercial aviation monitoring 7
Military aviation and installation monitoring 8
Utility station monitoring 9
Online SWLing via streaming audio 10
Online monitoring via remote, software-defined radio 11
Amateur radio monitoring (HF, VHF, UHF+ bands) 12
Monitoring via smartphone and similar applications 13
AM and FM DXing 14
Monitoring digital communications 15
VLF monitoring, including aircraft beacon DXing 16

Which format of *Pop'Comm* do you think would be most attractive to young readers?

Print edition only 17
Digital edition only 18
Both print and digital 19

What is the best way to reach out to young people to make them aware of our expansive communications hobby and growing monitoring community? (Use the comment line.)

Take This Reader Survey Online

You can now participate in this reader survey via the Internet. Simply go to *Pop'Comm On the Web*: <http://www.popcommmagazine.blogspot.com/> and click the link to the *Pop'Comm February 2013 Reader Survey*. It's quick and easy.

The Envelope, Please . . .

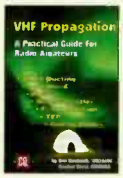
For participating in the *Pop'Comm Readership Survey,* the winner of a free subscription or extension is **Doug Neller, KPC9VFI,** of **Altamont, Illinois**. In August 2012's survey we asked a series of questions dealing with monitoring the amateur radio bands.

In one we asked: *"If the Pop'Comm Monitoring Station program offered an award for confirming reception of amateur radio stations from, say, 10 states, would you be interested in going for it?"* Doug's reply was emphatic: "Of course! I am licensed radio amateur KC9VFI. My *Pop'Comm Monitoring Station* ID sign is KPC9VFI."

By the way, KPC9VFI took the August 2012 Reader Survey online. Way to go, Doug! – *Richard Fisher, KPC6PC/KI6SN*

Winter Finds at the CQ Store

FREE shipping on orders of $100 or more!



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!

6 X 9 Paperback $15.95

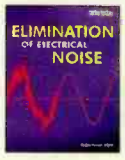
Technical Topics Scrapbook- All 50 yrs

by Pat Hawker, G3VA
176 pages plus CD

All the words, pictures and line drawings from columns as they appeared. CD contains PDFs of pages arranged in annual collections from 1958 to 2008. Book reproduces pages from 2005 - 2008 as they originally appeared.

Order: RSTT50 $29.50

Elimination of Electrical Noise



From 30kHz to 30MHz
by Don Pinnock, G3HVA
64 pages

If you suffer from electrical noise problem Don's experiences and advice may provide solutions. Details various types of noise, how it's generated and how best to deal with it.

Order: RSEEN $16.50

Homebrew Cookbook

by Eamon Skelton, EI9GQ

Starts with the very basics of homebrew and progresses to advanced topics. It will have you itching to dust off your soldering iron!

Order: RSHC $23.95

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.

6 X 9 Paperback $17.95

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.

8.5 X 11 Paperback $19.95
***New!* CD Version $14.95**
Buy both for only $29.95

The Quad Antenna

by Bob Haviland, W4MB

Comprehensive guide to the construction, design and performance of Quad Antennas. General Concepts, Circular-Loop & Arrays, Rectangular & Square Loops, Multi-Element Quads and more!

8.5 X 11 Paperback $19.95
***New!* CD Version $14.95**
Buy both for only $29.95

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!

8.5 X 11 Paperback $19.95
***New!* CD Version $14.95**
Buy both for only $29.95

RSGB Prefix Guide *10th Edition*

by Fred Handscombe, G4BWP
80 pages

Fully updated- it provides the latest and most comprehensive list of the world's amateur radio prefixes and addition information covering references for continent, CQ Zone, DXCC, OIOTA, ITU Zone, Latitude & Longitude and much more. The very latest DXCC information is included.

Order: RSPXG $19.50

Lew McCoy on Antennas

by Lew McCoy, W1ICP

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

8.5 X 11 Paperback $19.95
***New!* CD Version $14.95**
Buy both for only $29.95

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!

8.5 X 11 Paperback $39.95
***New!* CD Version $29.95**
Buy both for only $59.95

International QRP Collection

Edited by Dobbs, G3RJV & Telenius-Lowe, 9M6DXX

The authors scoured the world for the best and have compiled them into this great scrapbook. Largest section of this 176-page collection is devoted to construction.

Order: RSIQC $23.95

"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~~ $16.00

CQ HF Specialty Pak
1 DVD contains 2 programs:
Getting Started in DXing
Getting Started in Contesting
Order HFDVD ~~$24.95~~ $16.00

CQ VHF Specialty Pak
1 DVD contains 3 programs:
Getting Started in Satellites
Getting Started in VHF
Getting Started in Packet
Order VHFDVD ~~$24.95~~ $16.00

Any 2 Paks only $30.00 3 Paks only $42.00

Shipping & Handling: U.S. add $7 for the first item, $3.50 for the second and $2 for each add'l 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. Buy Both=single item!

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

***Call:* 1-800-853-9797 • *Fax:* 516-681-2926 • *website:* http://store.cq-amateur-radio.com**

Scanning the Skies Via the 'Centers' of Attention

By Bill Hoefer,
KPC4KGC/WPE4JZZ/
KG4KGC
<flacap388@gmail.com>

In our quest to better understand what we hear on our scanners when tuned into aviation communications, this month we finish off our series with the largest segment of the air traffic control system in the United States — the Air Route Traffic Control Center, **Photo A**.

For short, we refer to them as *centers*, and there are 20, **Photo B**:

- Albuquerque (ZAB)
- Atlanta (ZTL)
- Boston (ZBV)
- Chicago (ZAU)
- Cleveland (ZOB)
- Denver (ZDV)
- Fort Worth (ZFW)
- Houston (ZHU)
- Indianapolis (ZID)
- Jacksonville (ZJX)
- Kansas City (ZKC)
- Los Angeles (ZLA)
- Memphis (ZME)
- Miami (ZMA)
- Minneapolis (ZMP)
- New York (ZNY)
- Oakland (ZOA)
- Salt Lake City (ZLC)
- Seattle (ZSE)
- Washington (ZDC)

"The majority of Air Route Traffic Control Center work deals with en-route flights. These people must choreograph a three-dimensional ballet."

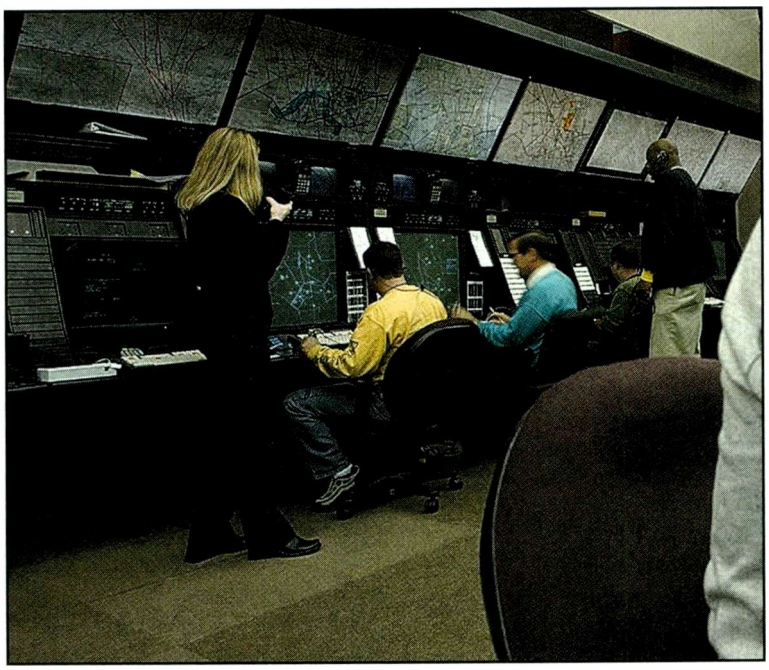


Photo A. "As you can see," notes KPC4KGC about Air Route Traffic Control Center (ARTCC) controllers, "these people must choreograph a three-dimensional ballet." *(Images courtesy of KPC4KGC)*

There are also centers in Anchorage (ZAN) and Honolulu (ZHN) with combined centers and approaches called CERAPs, in Guam (ZUA) and San Juan (ZSU).

In September and October 2012's *Plane Sense*, I discussed the first two aspects of controlling — Flight Service and Control Towers. *(**SEE:** "Flight Service: A Vital Aviation Communications Link," September, page 24; and "Keeping Things in Control 'In' the Air and 'On' the Air," October, page 46. – KPC4KGC)* In January, the column focused on "Understanding the Chatter of 'Approach Control'" on Page 46.

So, What Does a 'Center' Do?

Basically a center covers the airspace — with certain exceptions — not covered by the towers or approach controls, up to and including 60,000 feet above sea level (FL 600, *flight level six zero zero*). Few aircraft can fly at that altitude. They're primarily military and a few business jets. In addition the Virgin Galactic aircraft will well exceed FL 600. Obviously the chance of a midair collision at those altitudes is almost zero.

Aircraft flying under the watchful eyes of the centers may be flying under both visual (VFR) or instrument (IFR) flight rules up to 17,999 feet.

All aircraft from FL 180 to FL 600 (18,000 to 60,000 feet above sea level) *must* fly under instrument flight rules. A flight plan will be filed by flight service, Direct User Access Terminal Service, ForeFlight, airline dispatches, military base operations, and so on. *(**SEE:** Plane Sense, September 2012 Pop'Comm. – KPC4KGC)*

These flight plans are transmitted to the appropriate control towers, approach controls, and to the centers, if necessary.

The majority of center work deals with en-route flights. Some centers may do some approach control work, **Photo C**. For example,

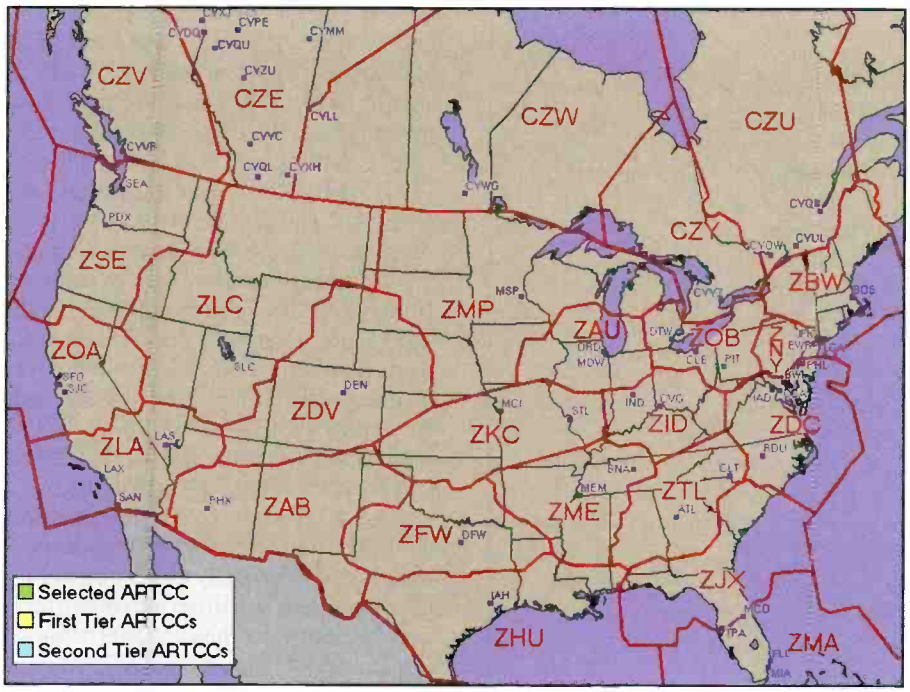


Photo B. In addition to the centers shown on this map, there are centers in Anchorage (ZAN) and Honolulu (ZHN), as well, with combined centers and approaches called CERAPs in Guam (ZUA) and San Juan (ZSU).

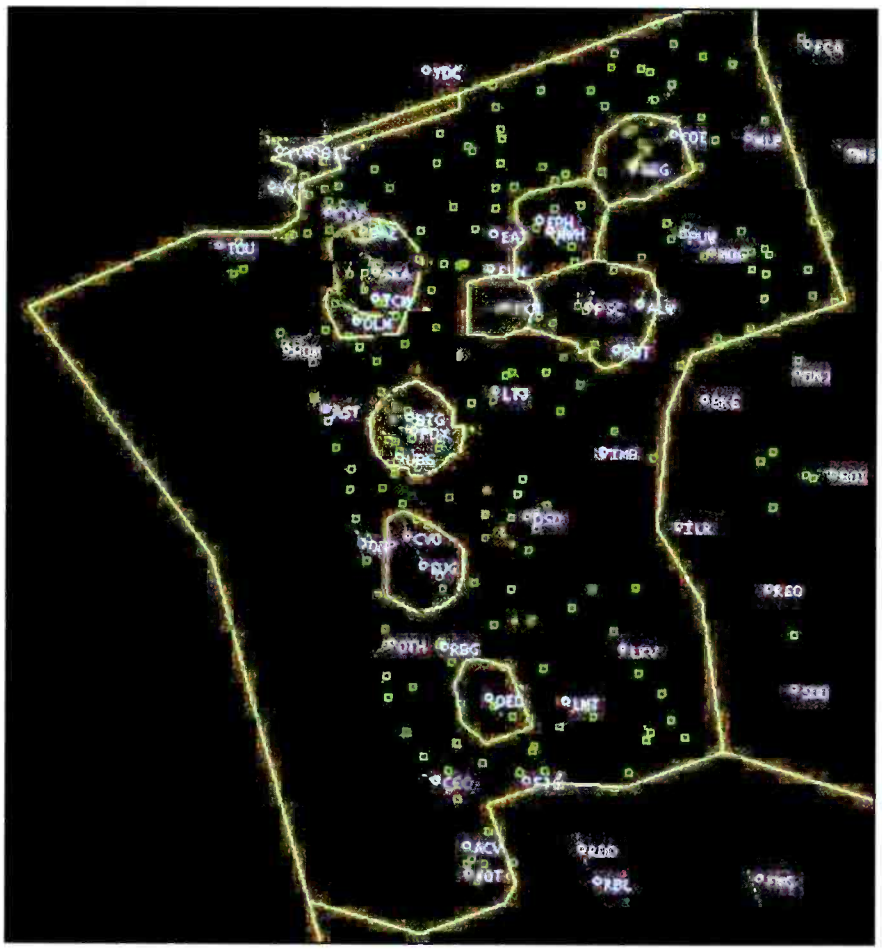


Photo C. Here's a map of Seattle Center airspace (ZSE) with approach controls depicted.

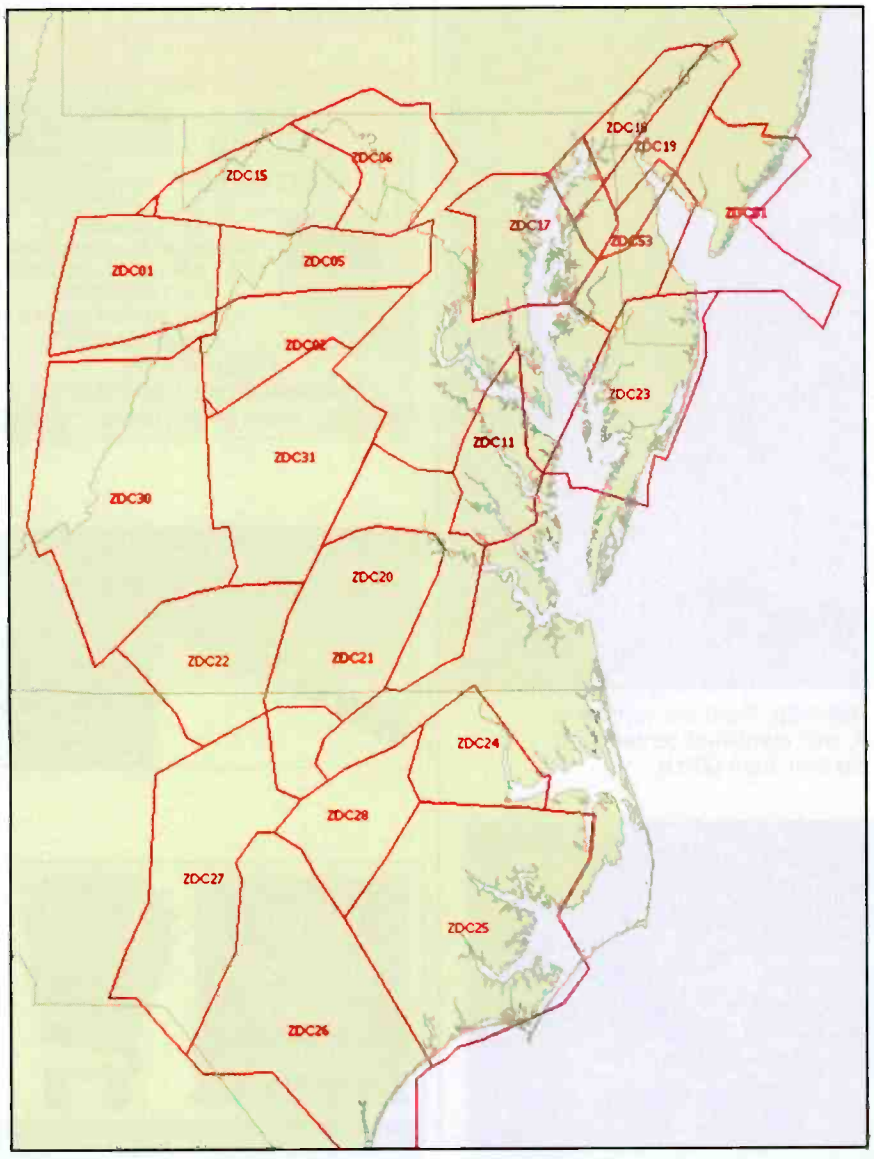


Photo D. Washington Center low sectors are outlined on this map.

Vero Beach (KVRB) Florida is under the control of Miami Center (KZMA), and Albany (KABY) Georgia under that of Jacksonville Center (KZJX).

These, however, are exceptions to the rule. The centers utilize the same standards of separation that the approach controls use, but since aircraft flying at the upper altitudes are, for the most part, somewhat similar in performance, controllers may not have to scramble as much to keep aircraft separated as for those flying at lower altitudes.

Finding Their Way

While many aircraft still fly on the Victor airways up to 17,000 feet <http://bit.ly/XZgLMk>, and the Jet airways at and above 18,000 feet, <http://bit.ly/10mncHR>, more and more pilots choose to utilize their GPS to fly point to point.

Until the advent of GPS, most aircraft utilized the VORs and VORTACs <http://bit.ly/T1jnmD> to place pilots on specific routes depicted on en-route charts. *(**NOTE:** These routes still exist and will for the foreseeable future. – KPC4KGC).*

Some aircraft used a system called Long Range Area Navigation, or LORAN to get point to point. Some even used a system called Inertial Navigation, <http://bit.ly/UT11Ki>. While LORAN still exists, <http://bit.ly/NF6Sxd>, few use it. I haven't dealt with anyone using Inertial Navigation in years.

In recent years, as GPS becomes more and more prevalent and more accurate in civilian-use aircraft, separation is, believe it or not, eased. Until a few years ago aircraft flying under IFR would be able to have 1,000 feet of vertical separation. That is up to FL 230 (23,000 feet). Above that it was 2,000 feet — FL 250, FL 270, FL 290, and so on. That has been rescinded and it has allowed for more planes to be in the same general airspace.

Of course, there *have* to be exceptions. If there is a "heavy" aircraft flying in the mix, there must be 2,000 feet beneath them if an aircraft is flying within 10 to 20 miles behind them. Heavy jets include Boeing 707/720, 747, 757, 767, 777, 787, KC135/35R, Lockheed L1011, C5A/B, C117, Airbus 340, 360, and so on.

The FAA and ICAO (International Civil Aviation Organization) add aircraft as necessary. Basically a heavy bird is *any* airplane with a "certified maximum take-off weight of more than 255,000 pounds." Some aircraft, such as the 707, 757 and KC135, can fly lighter, but can weigh more than 255,000 pounds — thus the additional separation.

When *flight progress strips* print out at the towers, approaches, and centers, the type is always preceded with *H/*. For example, H/B748/Q. That's for vertical separation. In trail and lateral separation runs into a whole other area.

Assessing the Current Situation

The controllers must take into account all kinds of variables: type of aircraft, speed, distance from the radar antenna, position reference destination, known weather problems including convection and turbulence — both forecasted and reported. The bare minimum separation allowed, taking into account those last items, is what's called *1,000 and 5*. That's 1,000 feet vertically and 5 miles laterally or in trail.

When all the variables are thrown in, we can look at 2,000 feet vertical and up to 20 miles separation. This is also based on the other requirement that the controller must know the area like the back of his hand.

Their *area knowledge* may include dozens if not hundreds of airways, airway fixes, navigational aids, local terrain, airport locations, restricted and prohibited areas, presidential temporary flight restrictions, frequencies, and basic information of the adjacent sectors, **Photo D**.

As you can see, these people must choreograph a three-dimensional ballet.

Photo E. This YouTube video graphically shows how private and commercial air travel came to a halt as all-but military aircraft were immediately grounded after the terrorist attacks on September 11, 2001. Watch at <http://bit.ly/Te7V9O>. *(Internet screen grab)*

Granted, the controllers working strictly in the upper airspace may not have to deal with much in the way of departing and arriving aircraft at terminal airports, but they must be looking not just at the immediate picture, but must be thinking 5, 10, 15 minutes or more ahead to see potential conflicts and the possibility of vectoring — *or turning* — aircraft to avoid loss of separation at best or actual collisions at worst.

Hoping for the Best, Preparing for the Worst

Controllers must also be able to handle emergencies in flight — from medical loss of cabin pressure, engine failure, and the possibility of bomb threats or hijacks. All controllers — flight service, tower, approach control, and center — must constantly get updated training for emergency procedures and seasonal variances.

Training for problems with snow and ice is normally performed before the winter storms hit, while hurricane and convective activity training is usually in the early spring. The list of training is endless. Included are the updates every eight weeks when the navigational structure is tweaked. As noted in November's *Plane Sense*, the A/FD (Airport/Facility Directory) is updated every 56 days. *(SEE: "Those Little Green Books That Make Sense of It All," November 2012 Pop'Comm, page 35. – KPC4KGC)*

En-route maps are updated on the same schedule and all controllers must be familiar with their areas of responsibilities. So when you listen to any controller please take that into account. What you hear on your scanner is rarely the same that's placed in the movies and on television.

September 11, 2001 gave us a snapshot of the remarkable skill of controllers at all levels. Across the United States they ensured all non-military aircraft were safely grounded — leaving the skies clear for the military to do its job, **Photo E**, <http://bit.ly/Te7V9O>.

I've been doing this job for more than 40 years and this is the only time during my tenure that this has happened. In fact, doing my research, I realize this had never occurred before. The handbooks for air traffic control: FAAO JO 7110.10 (for flight service) and FAAO JO 7110.65 (for tower, approach, and center) had no procedures for what was done then. And yet, without clear and published procedures, all civilian and commercial aircraft were landed safely.

Those books — which we call the "point ten" and "point sixty five" — are available online for your perusal.

The handbook for tower, approach, and center can be found at: <http://1.usa.

Grab Your Scanner and Listen 'Up!'

While we're getting into *what* you'll likely be hearing, here's a little tutorial on *where* to listen.

To find aviation frequencies specific to your local airport you'll need a scanner that covers from 118.0 to 135.975 MHz.

If you'd rather listen online, you're in luck. There are many websites from which to choose. Here are a couple to get you going: <http://www.liveatc.net> and <http://www.radioreference.com>.

Often, you'll need to know the ARTCC (Air Route Traffic Control Center) code for the airport you're interested monitoring. A comprehensive list of codes for facilities around the world can be found at <http://bit.ly/MGUk8P>. Use the IATA Code (International Air Transport Association) search function to find the ARTCC code for the airport you're seeking.

Here are some basic frequencies in MHz to keep handy:

- 121.5 – Emergency (Pilot voice communications and emergency locator beacons)
- 122.750 MHz – General aviation air-to-air communications
- 123.025 MHz – Helicopter air to air communications
- 123.450 MHz – Airlines air to air communications
- Scan 122.0-123.65 – Unicom (uncontrolled airports) and air to air communications
- Scan 128.825-132.000 – For call-ahead frequencies for airlines, corporate aviation, and general aviation for fuel, parking, and other requests

An excellent source for local scanning is the FAA publication *Airport/Facility Directory (A/FD)*. There are seven green books published by the FAA covering the lower 48 states, Puerto Rico, and the U.S. Virgin Islands. There are two orange books, as well: One for Alaska and another for Hawaii.

They are published every eight weeks and while each edition updates its frequencies, there's really no need to get each one as printed. Each one currently sells for $5.30. You can get them at most airports that have pilot training. Larger airports, such as Atlanta Hartsfield, Denver International, John F. Kennedy International, and so on, don't carry them. – *KPC4KGC*

Photo F. The Uniden Bearcat 3300XLT is one of many scanners that will cover aviation frequencies spanning from 118.0 to 135.975 MHz. *(Courtesy of heb@Wikimedia Commons)*

gov/RKhJpV> while the flight service book is at: <http://1.usa.gov/TVSrFS>. A third book is called the Airman's Information Manual, or AIM. This regulation we use, but is geared more for the pilot's use. This book can be seen at: <http://1.usa.gov/S8kmnD>.

The job of the controller? "The safe, orderly, expeditious movement of air traffic."

For Your Information

Q: What's a propeller?

A: According to Wikipedia: "Aircraft propellers or airscrews convert rotary motion from piston engines or turboprops to provide propulsive force. They may be fixed or variable pitch."

However, pilots look at them differently. Propellers are primarily a fan that keeps the pilot cool. Don't believe me? Turn it off and watch the pilot sweat!

Scanning for Valentine's Sweets?

Hope you all have a very happy Valentine's Day this month — February 14, to be exact. Get your love something sweet — like a new scanner radio. That way you can share your communications obsession. It's also less fattening and won't ruin your teeth.

Wheels Down

That's it for this month. Next time we'll be focusing on Sectional and TAC Charts. Like the *Airport/Facility Directory*, they're something to spend a bit more money on, but will bring the visual airspace into perspective. As always, keep your feet on the ground, and ears to the sky. – *KPC4KGC*

By Jason Feldman, WPC2COD

Dual-Band Antenna Tuner Hits the Market

MFJ Enterprises, Inc. is showing off its new MFJ-923 VHF/UHF Dual Band Antenna Tuner, which covers the complete 144- and 440-MHz frequency ranges.

The MFJ-923 has a built-in cross-needle SWR/Wattmeter that measures SWR, forward and reflected power in two ranges: 300 or 30 watts. The MFJ-923 meter is usable for both bands 144 and 440 MHz.

It is designed to match a wide range of impedance for both mobile and base operation and has single input and output SO-239 connectors for radio and antenna connection. It handles 200 watts.

"It's the perfect match for today's dual-band radios with a combined single output and dual-band antennas," said MFJ.

The MFJ-923 has a wing nut post for ground, is housed in an all-black aluminum cabinet, and measures a compact 9.5 inches wide by 4.5 inches high by 2.25 inches deep.

MFJ-923 is protected by MFJ's *NoMatterWhat*™ one-year limited warranty that will repair or replace (at our option) your MFJ antenna tuner *no matter what* for one complete year. *(VISIT: MFJ Enterprises, Inc.'s website: <http://www.mfjenterprises.com>)*

New 10-Band Mobile Antenna Has It Covered

Now you can operate 80, 40, 30, 20, 17, 15, 12, 10, 6, and 2 meters with just one antenna, according to MFJ Enterprises Inc., with its newest MFJ-1699S/T 10-band HF/VHF Mobile Antenna.

This mobile HF/VHF vertical antenna features low SWR and can handle 200 watts of power.

Changing bands entails changing the tap on the wander-lead to the next band you want to explore and adjusting the height of the top whip, maximum height is 65 inches, and start operating.

The PL-259 or 3/8-24 threaded connector makes it easy to mount on any type of lip, trunk, magnet, or pipe type mount. It is easily collapsible for quick storage — unscrew the top whip then unscrew from the mount and store

You can choose either the MFJ-1699S with PL-259 connector or the MFJ-1699T with a 3/8-24 threaded connector.

MFJ says the MSRP of the MFJ-1699S/T is $69.95 and is protected by MFJ's *NoMatterWhat*™ one-year limited warranty. MFJ will repair or replace (at our option) your MFJ antenna *no matter what* for one complete year. *(VISIT: MFJ Enterprises, Inc.'s website: <http://www.mfjenterprises.com>)*

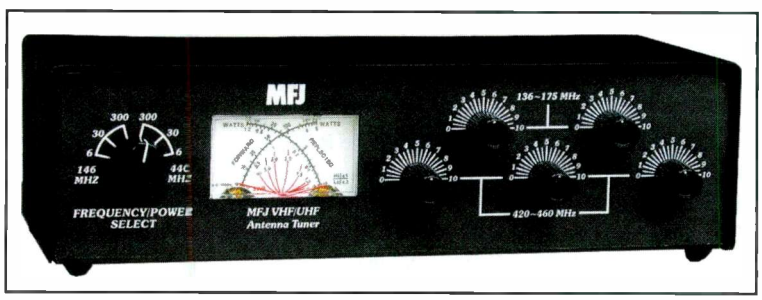


Photo A. The front face of the MFJ-923 features an analog SWR/Wattmeter with cross needles. *(Courtesy of MFJ Enterprises, Inc.)*

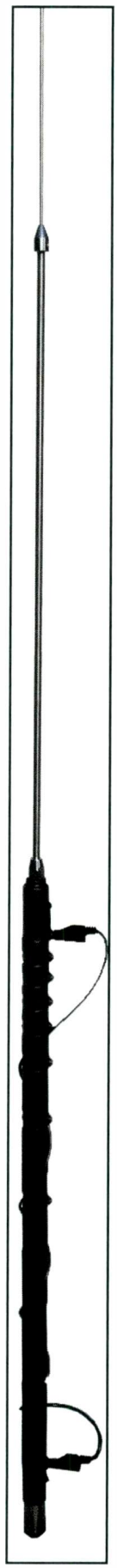


Photo B. This new 10-band, mobile antenna extends to 65 inches. *(Courtesy of MFJ Enterprises, Inc.)*

World News, Commentary, Music, Sports, And Drama At Your Fingertips

This listing is designed to help you hear more shortwave broadcasting stations. The list covers a variety of stations, including international broadcasters beaming programs to North America, others to different parts of the world, as well as local and regional shortwave stations. Many of the transmissions listed here are not in English. Your ability to receive these stations will depend on time of day, time of year, your geographic location, highly variable propagation conditions, and the receiving equipment used.

AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German). Times given are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes
TIME	FREQ	STATION	NOTES
0000	4319u	Armed Forces Network, Diego Garcia	
0000	4824	La Voz de la Selva, Peru	SS
0000	8989u	Pescador Preacher, Nicaragua	SS
0000	9745	Radio Bahrain	AA
0000	15480	Radio Cairo, Egypt	AA
0000	7365	Radio Marti, USA	SS
0000	6055	Radio Nacional Espana, Costa Rica Relay	
0000	5995	Radio Nacional Espana, Spain	SS
0000	4451	Radio Santa Ana, Bolivia	SS
0000	4775	Radio Tarma, Peru	SS
0000	15270	Radio Thailand	
0000	14950	Salem Estereo, Colombia	SS
0000	9885	Voice of America	
0000	9250	WINB, Pennsylvania	
0100	6885	Galei Zahal, Israel	HH
0100	9315	Radio Cairo, Egypt	
0100	4755	Radio Imaculada Conceicao, Brazil	PP
0100	11780	Radio Nacional Brasilia	PP
0100	5954	Radio Republica (to Cuba)	SS
0100	6135	Radio Santa Cruz, Bolivia	SS
0100	4717	Radio Yura, Bolivia	
0100	7260	Voice of Turkey	TT
0100	5110	WBCQ, Maine	
0100	5755	WTWW, Tennessee	
0100	7375	Croatian Radio	
0100	6100	International Radio of Serbia	
0200	15310	BBC Relay, Oman	
0200	6160	CKZN, Canada	
0200	11710	Radio Argentina al Exterior	EE
0200	4875	Radio Difusora Roraima, Brazil	PP
0200	4780	Radio Oriental, Ecuador	SS
0200	4930	VOA Relay, Botswana	
0200	7505	WRNO, Louisiana	
0200	6165	Zambia National Broadcasting	
0300	6145	BBC, via South Africa	
0300	6070	CFRX, Canada	
0300	11510	Denge Mesopotamia (to Iran)	Kurdish
0300	5925	Deutsche Welle, Rwanda Relay	Swahili
0300	15850	Galei Zahal, Israel	HH
0300	4915	Radio Difusora Macapa, Brazil	PP
0300	4780	Radio Djibouti	FF
0300	6185	Radio Educacion, Mexico	SS
0300	6110	Radio Fana, Ethiopia	vern
0300	6000	Radio Havana Cuba	
0300	5960	Radio Japan, via Canada	JJ
0300	5010	Radio Madagasikara, Madagascar	MM
0300	6175	Radio Nederland, Bonaire Relay	SS
0300	15720	Radio New Zealand Intenational	
0300	7200	Sudan Radio TV	AA
0300	7185	Voice of Broad Masses, Eritrea	Tigrinya
0300	5050	WWRB, Tennessee	
0400	3255	BBC, England, via South Africa	
0400	3985	Croatian Radio	Croatian
0400	6010	La Voz de su Concencia, Colombia	SS
0400	7295	Radio Algerienne, Algeria	AA
0400	9305	Radio Cairo, Egypt	AA
0400	4885	Radio Clube do Para, Brazil	PP
0400	3350	Radio Exterior Espana, Costa Rica Relay	SS
0400	7120	Radio Hargeisa, Somaliland	Somali
0400	7245	Radio Mauritanie, Muritania	AA
0400	5025	Radio Rebelde, Cuba	SS
0400	3320	Radio Sondergrense, South Africa	Afrikaans
0400	4055	Radio Verdad, Guatemala	SS/EE
0400	9870	Radio Voice of People, to Zimbabwe	EE & vern
0400	11690	Rado Okapi, Congo, via South Africa	
0400	6165	Radio Nationale Tchadienne, Chad	FF
0400	7275	RTV Tunisienne, Tunisia	AA
0400	4775	Trans World Radio, Swaziland	GG
0400	4960	VOA, Sao Tome Relay	
0400	7350	Voice of Russia	
0400	7325	Voice of Turkey	TT
0400	6175	Voice of Vietnam, via Canada	
0400	9330	WBCQ, Maine	
0400	5970	China Radio International, via Albania	CC
0500	5910	Alcaravan Radio, Colombia	SS
0500	7811u	Armed Forces Network, Florida	
0500	5875	BBC South Atlantic Relay, Ascension Is.	
0500	11815	Radio Brazil Central	PP
0500	6125	Radio Havana Cuba	SS
0500	11970	Radio Japan	
0500	5005	Radio Nacional, Equatorial Guinea	SS

UTC	Freq.	Station/Country	Notes
0500	12070	Radio Rossii, Russia	RR
0500	5950	Radio Taiwan International	CC
0500	4790	Radio Vision, Peru	SS
0500	15120	Voice of Nigeria	
0500	5890	WWCR, Tennessee	
0500	6030	Radio Marti, USA to Cuba	SS
0600	6090	Caribbean Beacon, Anguilla	
0600	6155	Radio Austria International	GG
0600	7320	Radio Rossii, Russia	RR
0600	11765	Super Radio Deus e Amor, Brazil	
0600	4840	WWCR, Tennessee	
0600	5935	WWCR, Tennessee	
0600	6180	Radio Nacional Amazonia, Brazil	PP
0700	11725	Radio New Zealand International	
0700	4755	The Cross Radio, Microneisa	
0800	4990	Radio Apinte, Suriname	DD
0800	9635	RTV Malienne, Mali	FF
0900	7325	Wontok Radio Light, Papua New Guinea	
0900	5765	Armed Forces Network, Guam	
1000	4955	Radio Cultura Amuata, Peru	SS
1000	6155	Radio Fides, Bolivia	SS
1000	4747	Radio Huanta 2000, Peru	SS
1000	4810	Radio Logos, Peru	SS
1000	3310	Radio Mosoj Chaski, Bolivia	
1100	4835	ABC Northern Territory Service, Australia	
1100	9785	China Radio International	Laotian
1100	11915	China Radio International	Mandarin
1100	11915	Family Radio, via Taiwan	II
1100	9920	Far East Broadcasting, Philippines	vern
1100	9400	Far East Broadcasting, Philippines	CC
1100	15340	HCJB Global, Australia	
1100	6080	Radio Australia	
1100	3260	Radio Madang, Papua New Guinea	Tok Pisin
1100	9595	Radio Nikkei, Japan	JJ
1100	3215	Radio West New Britain, Papua New Guinea	Tok Pisin
1100	5020	Solomon Is. Broadcasting Corporation	
1100	15180	Voice of Korea	FF
1100	9280	WWCR, Tennessee	
1100	13720	Islamic Republic of Iran Broadcasting	AA
1100	6140	Radio Australia, via Singapore	
1200	9870	All India Radio	Hindi
1200	17705	All India Radio	CC
1200	9540	China Radio International	Cantonese
1200	7355	KNLS, Alaska	
1200	6760	MND Radio, South Korea	KK
1200	9580	Radio Australia	
1200	117685	Radio Free Afghanistan, USA	Pashto
1200	6120	Radio Japan	EE/JJ
1200	9930	T8WH, Palau	
1200	7110	Thazin Radio, Myanmar	BB
1200	7225	VOA, Philippines Relay	KK
1200	11520	WEWN, Alabama	
1200	9960	Khmer Peoples Pwr Mvt, Palau to Cambodia	vern
1200	15700	Radio Pakistan	CC
1230	15105	Bangladesh Betar	
1300	15480	Polish Radio, via England	
1300	21540	Radio Kuwait	AA
1300	4750	Radio Republik Indonesia, Makassar	II
1300	9875	Trans World Radio, Guam	
1300	7295	Traxx FM, Malaysia	Malay
1300	12020	Voice of Vietnam	
1400	15505	Bangladesh Betar	Urdu
1400	11540	Radio Kuwait	AA
1400	15140	Radio Sultanate of Oman	AA
1400	6135	Shiokaze, Japan to North Korea	KK
1400	13850	Kol Israel	Farsi
1500	9655	KNLS, Alaska	
1500	11935	Radio Romania International	AA
1500	17510	Vatican Radio, via Madagascar	Tamil
1500	11850	Vatican Radio, via Uzbekistan	
1500	11600	Radio Libya	AA
1530	11945	Islamic Republic of Iran Broadcasting	
1600	17605	RTE, Ireland, via England	
1700	15325	Channel Africa, South Africa	
1700	15300	Radio France International	FF
1700	11940	Radio Romania International	
1800	15540	Radio Kuwait	AA
1800	15265	Radio Pakistan	
1900	13690	CVC-One Africa, Zambia	
1900	15385	KJES, New Mexico	
1900	15350	RTV Marocaine, Morocco	AA
1900	9635	Bible Voice Broad., England, via Germany	
2000	15190	Radio Africa, Equatorial Guinea	
2000	11870	Radio Biafra London, (to Nigeria)	
2000	11735	Radio Tanzania, Zanzibar	Swahili
2000	15185	VOA Relay, Botswana	
2000	15630	Voice of Greece	Greek
2000	9790	Radio France International	FF
2100	11750	Adventist World Radio, Guam	CC
2100	11620	All India Radio	
2100	9410	BBC Relay, Seychelles	
2100	11915	Broad. Svc. of Kingdom, Saudi Arabia	AA
2100	9870	Broad..Svc. of Kingdom, Saudi Arabia	AA
2100	11820	Broad..Svc. of Kingdom, Saudi Arabia	AA
2100	9505	CVC-One Africa, Zambia	
2100	11800	Deutsche Welle, Rwanda Relay	
2100	9375	Radio Algerienne, Algeria	AA
2100	6090	Radio Nigeria	
2200	9760	Cyprus Broadcasting Corp.	Greek
2200	9705	La Voix du Sahal, Niger	FF
2200	15345	Radio Argentina al Exterior	GG
2200	11840	Radio Havana Cuba	SS
2200	9575	Radio Medi Un, Morocco	FF
2200	9710	Radio Nacional Espana, Spain	SS
2200	13680	Radio Nacional, Venezuela, via Cuba	SS
2200	9665	Radio PMR, Moldova	RR
2200	7435	Radio Romania Interational	
2200	7255	Voice of Nigeria	
2200	9800	Voice of Russia	
2200	9480	WTWW, Tennessee	
2300	15430	Radio Free Asia, via Northern Marianas	CC
2300	15190	Radio Inconfidencia, Brazil	PP
2300	15265	Radio Japan	JJ
2300	15280	Radio Veritas Asia, Philippines	Urdu
2300	9835	HCJB Global Voice, via Germany	gg

Communications Trivia and Other Pursuits

By R.B. Sturtevant,
KPC7RBS/AD7IL

Q: Why do they call radio operators "Sparky"?

A: In organizations such as the Navy and merchant marine, tradition counts for a lot. As a result, for many jobs there are nicknames. The radio operator around the beginning of the 19th century was most likely using a spark gap transmitter, **Photo A**.

By design, an important part of the wireless circuit was a space one-half to three-quarters of an inch — the *spark gap.* When the key was depressed, a large spark jumped that space.

The key itself would throw a good-sized spark, as well. As you can imagine, great care needed to be exercised at the operating position. Danger was all around.

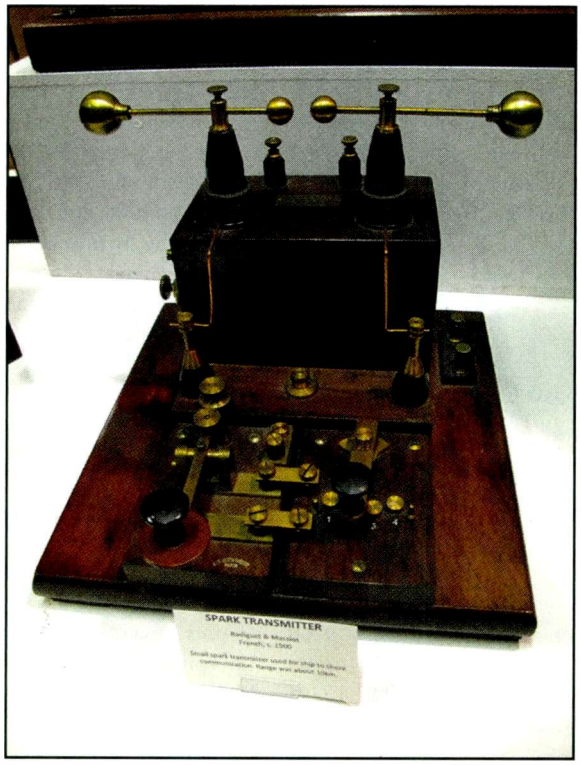


Photo A. The placard at the American Museum of Radio & Electricity in Bellingham, Washington, reads: "Spark-gap transmitter. Radiguet & Massiot, French c. 1900. Small spark transmitter used for ship to shore communication. Range was about 10 km." It consists of a Hertzian dipole antenna consisting of two brass rods with a spark gap between them, powered by high-voltage pulses from an induction coil (box in back). The telegraph key (right foreground), a switch in the coil's primary circuit, was used by the operator to switch the transmitter off and on rapidly, sending messages by telegraphy in Morse code. The length of the antenna, which functions as a half-wave dipole, determines the frequency of the waves produced; this antenna is roughly 1/2 meter long, and so would generate waves of 1 meter wavelength, with a frequency of about 300 MHz. *(Courtesy of Wikimedia Commons)*

In addition to high voltage and sparks, if the radio operator left papers scattered around, sparks could ignite them — sending outgoing messages up in smoke, and sometimes the transmitting facility, as well.

Today, with modern equipment, Internet-linked computers and teleprinters, radio room fires are extremely rare aboard ship.

But the nickname *Sparks* or *Sparky* still hangs on among the sea-going fraternity.

Q: I understand that high level diplomatic traffic was sent over commercial wireless telegraph in the pre-World War II days. Is that true?

A: True, and all the major countries were always working on the codes and ciphers of the sending countries. The Germans sent a message telling their embassy in Paris that they were about to declare war on the French in 1914. The French Intelligence Service had broken the code and got the message first.

The coded telegram was so garbled when it got to the German embassy that the ambassador had to ask for several repeats before they got the correct message. Meanwhile the French were taking action to prepare for the coming announcement.

The message from Washington D.C. to Pearl Harbor notifying the military it would be attacked arrived after the attack had started, was not coded, and not sent *Urgent.*

No wonder the government set up its own communications system during the war and afterwards.

Q: What impact did Citizens Band radio have on the amateur radio community back in the '60s?

A: For many people, the coming of CB was the gateway into getting their amateur radio license. But at first it didn't seem that way. In the beginning, many prospective radio amateurs went into CB instead. *Why?*

- CB was usually cheaper.
- Why have to learn Morse code and do all that hard work to learn a license?

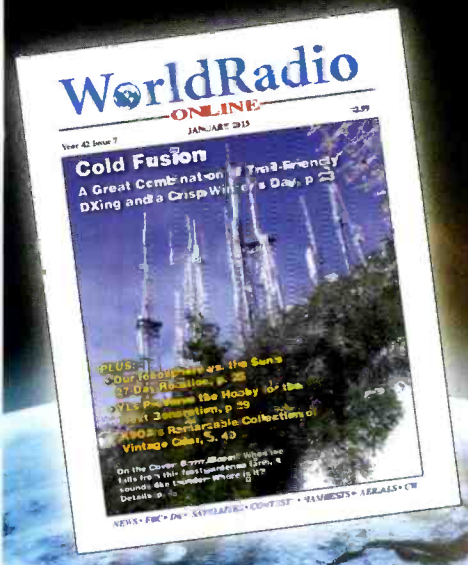
To get on the Citizens Band, all you had to do was buy a CB radio and send in the application form for a permit and you were on the air.

This led to a lot of price cutting and discounting among ham radio retailers — which hadn't happened for a long time.

It was true that a lot of the pre-CB era amateur radios were already set up for the 11-meter band. It had been taken away from the radio amateurs and given to the CBers. Rumors of the demise of amateur radio began to emerge.

In time, unlicensed CB operators turned it into a medium in which poor operating practice, on-air fights and obscenities were everywhere. Most people who wanted to talk civilly were more comfortable getting their amateur radio license. The trend ultimately reversed itself.

A World of Great Reading for the Radio Amateur...



Print or Digital... Your Choice*

Visit Us at www.cqcomm.com

CQ Amateur Radio

For 67 years *CQ* has been the reading choice for active hams. The independent choice of independent thinkers in 167 countries throughout the world.

Popular Communications

Covers the entire range of the radio hobby from Shortwave listening to scanner monitoring and everything in between.

World Radio Online

The first major amateur radio publication delivered solely in digital format. A fun, fast read that covers all aspects of amateur radio from the human side.

CQ VHF

The only publication in the USA devoted solely to amateur radio operating and technology above 50 MHz.

Be Sure To Visit Our On-Line Store!
http://store.cq-amateur-radio.com

CQ Communications, Inc.
25 Newbridge Road • Hicksville, NY 11801
Phone: 516-681-2922
Fax: 516-681-2926

(WorldRadio offered only in digital format)*

The Hunt for a Good Deal: Buying Radio Gear When Money is Tight

by Kirk Kleinschmidt,
NTØZ, KPCØZZZ
<kirk@cloudnet.com>

With disposable income on the wane for many people in such a challenging economy, it's more important than ever for radio amateurs, SWLers, and scanner listeners to be smart shoppers when they're on the hunt for new gear.

Once you've made a decision about *what* to buy — that's a *whole 'nother topic*, and an important one — *where* and *how* to buy remain as the $64,000 question. *(**NOTE:** Ah, if we only had that budget to play with! – NTØZ.)*

To further complicate things, because ham gear is quite specialized and you can't buy it at Target or Wal-Mart, the reseller you choose and its after-sales support can be critically important.

Photo A. Along the now long-gone Radio Row in New York City, a crowd listens outside a radio shop at Greenwich and Dey streets on November 22, 1963, clamoring for news on the assassination of President Kennedy. *(Courtesy of Library of Congress)*

"Now that the Internet is ubiquitous and buyers from everywhere have access to nearly every global market, the purchasing landscape has changed dramatically."

Now that the Internet is ubiquitous and buyers from everywhere have access to nearly every global market, the purchasing landscape has changed dramatically.

Japan, for example, is a relatively small country that's well-stocked with radio amateurs and ham radio equipment stores. The United States, though, with a similar ham population but a much larger geographic area, has only a few actual, factual ham stores.

New York City's once-fabled Radio Row, **Photo A**, is long gone, as are most family-run stores around the country. Most local shops have long since dried up or have been consolidated into larger consortiums.

If you're very lucky, a local radio shop can provide new and used gear, service, support, and advice. You can chat with staffers, pick up insider equipment tips, and twiddle the knobs of the demonstration sets. Dealers know that local buyers often become repeat customers. And repeat customers aren't always concerned with finding the lowest prices — an important fact in any economy.

Now that my nearest ham store is 100 miles away, which is not too bad compared to most non-urban areas, my days in Connecticut almost seem like a dream! I lived only a mile or so from Lentini Communications. I see from the company's website, however, some things have changed. It moved from a small shop in downtown Newington, right down the street from ARRL Headquarters, to somewhere in Berlin, a few miles away and into a much larger facility. Thankfully, it's still there! *(**NOTE:** If you visit, be sure to say "Berlin" with a sharp emphasis on the "Bur," with the "lin" added as almost an afterthought. Whatever you do, don't say it like the name of the German city with an emphasis on the "lin," or the locals will give you a stern look! – NTØZ.)*

If you're out in the boonies, however, a round trip to the nearest radio store may take a day or more. No matter how good the service, "buying local" isn't always an option. Whatever your rea-

sons, whatever your situation, buying your next rig over the telephone, via the Internet, or at a hamfest may be your best, or only, option.

Investigate Thoroughly

After you've narrowed down your equipment choices, it's time to research potential dealers and sellers. Price, policies, and procedures may make a difference in your situation. Some dealers take trade-ins. Some offer generous return policies and some accept certain credit cards that others don't.

After you've compiled a list of dealers from, say, magazine ads, the Internet, fellow hams, and so on, check company websites to initially investigate prices, trade-ins, service, shipping, et al. Most, or all policies are typically listed there in black and white. If you need clarification, feel free to ask specific questions on the phone, but try not to use the toll-free sales lines for inquiries that don't involve placing or following up on existing orders. Your long-distance calls are probably free nowadays, but inbound 800 numbers usually cost significant amounts of money.

Be sure to take notes during your inquiries. If you don't, you'll find it's easy to get things mixed up.

If the sales person seems rushed, rude, bored, or otherwise unfriendly, consider moving on — *unless you made them that way!* Some dealers welcome reasonable trades, while others are interested only in late model radios or don't accept trades at all. If you can fund your purchase in its entirety, consider selling your rig yourself. You'll almost certainly get more money for it.

Direct sales is a growing trend, and some manufacturers — for example, Elecraft, Ten-Tec, and others — sell factory-direct only, so be sure to check them out online. Ham stores may only have used gear from such manufacturers, if any at all.

Shipping charges should be fairly similar among dealers, with free shipping offered as an occasional marketing incentive. Some dealers "leverage" their low equipment prices with higher-than-necessary shipping charges — mostly, but not exclusively, eBay sellers. If a vendor's shipping charges seem out of line, be extra careful. It could be a sign that something else is "wrong."

The list of ham radio stores and manufacturers at <http://ac6v.com/stores.htm> is reasonably up to date. But, remember: This kind of resource information is changing all of the time.

Craigslist, eBay, and Other Online Outlets

Dealers aside, private sellers on eBay, Craigslist, and other online sources are selling more radio gear than ever, **Photo B**. Buying from non-local individuals adds an extra element of risk when compared to buying from established dealers. So take steps to protect yourself.

Most online sales sites such as eBay offer information about a seller's history and reliability. On eBay this is called a *feedback profile.*

As you can imagine, the closer to "100 percent positive," the better. A user who sells stuff that isn't as described, takes forever to ship, or doesn't package stuff well, will have a feedback rating that's commensurate with his past performance.

The best sellers have a 100 percent positive feedback rating. Keeping that high rating is important for sellers because it helps buyers make purchasing decisions. I won't do business with a seller who has an eBay feedback score of less than 99.6 percent positive. That might seem like a needlessly high standard, but my experience since 1998 has shown that sellers with scores much lower than that tend to be problematic.

Most eBay purchases are handled via online payment processor PayPal <http://www.PayPal.com> which is owned by eBay. You can purchase items through PayPal via a major credit card without having a PayPal account, but if you make regular purchases on eBay and elsewhere, a PayPal account is probably in your future.

PayPal and eBay have made steady improvements aimed at protecting crooked buyers and crooked sellers from affecting the vast majority of eBay users who are on the straight and narrow.

PayPal and eBay fees — charged to sellers only — can total 10 to 15 percent of the transaction price, so not every seller accepts PayPal. Some *old-timers* prefer money orders or personal checks, which work just fine as long as everyone's on the up and up. If not, it's a lot more difficult to resolve "issues." *Caveat emptor! Buyer beware.*

Online classifieds may offer better "bargain potential" because there are fewer competing buyers. But they carry the greatest potential risk! Popular outlets include Craigslist <http://www.craigslist.com>; eHam.net <http://www.eham.net/classifieds>; and Swap.QTH.com, <http://www.swap.qth.com>. Each site has lots of buyers and sellers, and I suspect most transactions go through without a hitch. The fact that each site has sections where disgruntled buyers can report unscrupulous sellers to other users, however, is a clear indication that not every transaction complies with the *Golden Rule.*

Many non-eBay sellers accept PayPal, which lets buyers pay with credit cards. But some prefer postal money orders or certified checks. There is some protection against fraudulent sellers with the latter payment methods — but not much. Getting your money back may involve convincing far-away law enforcement authorities to help you. You'll probably have to travel there in person, hire local lawyers, and so on. The bad guys know this, and that's why they choose to rip people off in this manner.

Shopping Tips

Before signing on the dotted line, make sure you and the seller agree on the

Photo B. I had been trying to decide between an AADE L/C meter kit and an inexpensive eBay knock-off clone when I found this high-end Sencore LC53 L/C meter on Craigslist — an unexpected alternative. I bought the LC53 and a pile of '70s and '80s Sencore and B&K NTSC test-pattern generators and tube, transistor, and CRT testers, from a seller in a very small town — and for a very small price. The seller's father used to run a TV repair shop, and the stuff had been sitting idle in the eight years since his passing. New problem: The LC53, with original test leads, manuals, and accessories — like the one pictured — can fetch nearly $400 on eBay! That's the equivalent of four AADE meters, or 10 clones. *(Courtesy of NTØZ/KPCØZZZ)*

make, model, price, included parts and accessories, sales tax, shipping fees, warranties, and return policies.

If you're buying retail, don't be reluctant to ask the sales representative to repeat everything back to you or have a copy of the deal faxed or emailed to you before making your purchase. Doing so will minimize your risks and maximize your chances of getting exactly what you want at the agreed-upon price.

Make sure you understand exactly which cables, brackets, adapters and accessories are included before finalizing the deal. The profit margin on the radios themselves is one thing, but sales of accessories are what bolster the bottom line.

Prepare in advance by keeping an accurate paper trail of all correspondence, receipts, warranties, invoices, and so on. As soon as trouble rears its ugly head, put everything in writing, including statements made during phone conversations, and send a copy to the vendor.

When talking to sales representatives and technicians, be sure to write down names, times, and a summary of the conversation. This is a bit tedious, but it can save you a lot of money and heartache if a deal goes bad.

The generous return policies we used to enjoy have now in some cases dwindled to a week or two — or maybe nothing at all. Make sure you're happy with whatever policy your dealer has in place, because it's not reasonable to negotiate that detail "after the fact." Most factory-direct sellers offer 30-day return policies to incentivize "sight unseen" sales, but even they sometimes charge restocking fees or don't pay return shipping.

If you decide to take advantage of your dealer's return policy by returning your newly purchased rig within the specified period, you'll likely be charged a restocking fee since the equipment can't be resold as new. Restocking fees can range from 0

to 20 percent of the purchase price. Although there is no standard for restocking fees, be sure you're happy with yours before you buy.

Most of us can handle only basic repairs, so be sure you know exactly who will perform warranty service and repairs should your new rig need service. Will the dealer's in-house technicians perform the service or will the unit have to be sent to the factory? If your rig is dead on arrival, will you receive a new radio, a "factory refurbished unit," or will you have to wait weeks while "major surgery" takes place?

According to FTC guidelines, items you buy online or via telephone must be shipped to you within 30 days of the date originally agreed upon. If the vendor can't deliver — for whatever reason — you must be notified. Even if you agree to the delay, you reserve the right to cancel your order at any time, even after consenting to the delayed delivery schedule.

Always try to purchase ham gear with a credit card, whether direct or via PayPal. Don't use checks and don't use cash. Credit cards give you a significant advantage in dealing with fraud or wayward vendors. Most credit card issuers allow users 45-60 days to challenge a "deal gone bad." To qualify for that support, keep meticulous records and receipts.

If you're purchasing from private sellers, do your best to make sure they're packing your stuff in accordance to UPS or U.S. Postal Service guidelines. The last batch of radio gear I bought on eBay arrived in a sturdy, well-sealed box. Unfortunately, the heavy, sharp-cornered items inside, which weren't adequately protected, became battering rams, damaging or destroying most of the contents. Ouch! I was issued a prompt refund, but it was still a sad day to see previously nice vintage gear all mangled.

Buying ham gear online — especially from non-dealers — can get "exciting," and accidents do happen, but if you prepare thoroughly, get stuff in writing and pay appropriately, you can find great gear at great prices and protect yourself in the process.

Navigating the Feeding Frenzies

From time to time, madness grips the retail and online retail landscape. I'm thinking of such events as Black Friday and Cyber Monday, when throngs of bargain shoppers battle for deals at big-box retailers nationwide — even before the Thanksgiving turkey has settled into their bellies. It's 10 months away, but something to factor into your buying strategies.

*(**NOTE:** In truth, "Black Friday" is now "Black Wednesday," and "Cyber Monday"— the traditional "Black Friday" for online retailers — is now "Black November Through the First Week of January." – NTØZ.)*

Well, even though I'm a bargain-hunter from way back, I'm mostly thankful that, because the market for amateur radio, SWL, and scanning equipment makes up only a tiny percentage of global retail sales, much of the seasonal madness doesn't affect us.

However, the amateur radio shack or monitoring station items that are fully involved in such shopping crazes are computers and computer goodies. And if you are so inclined you can brave the masses and make your deals.

If not, don't worry: It's *always* Black Friday at some high-volume resellers such as Newegg.com, Frys, Micro Center, and so on. Just watch for the email sales flyers and you'll probably find what you want.

Stark Reality

Although women's shoes and American-made pickup trucks sport huge mark-ups, there isn't nearly as much wiggle room when it comes to radios. Accessories have a bit more pricing flexibility, but overall volume generally precludes massive price differences between resellers.

Pride, Persistence, and Propaganda

Remembering When the Foxhole Radio Went to War

By R.B. Sturtevant, KPC7RBS/AD7IL

"Like most crystal-style receivers, only the strongest stations came in. But they were a lot better than no radio at all. . "

Foxhole radios were a genuine GI invention. They were never authorized to be used. Their parts were scrounged, stolen, or "liberated" from sources best not disclosed. There was no "official design" or schematic published anywhere and their very existence was often kept secret. As crude as these little radios were, U.S. GI monitoring stations were among the most active anywhere during World War II.

Having a Foxhole radio put you in immediate contact with the enemies' political propaganda organization but nobody at any command level seemed to care. So naturally everyone seemed to have one.

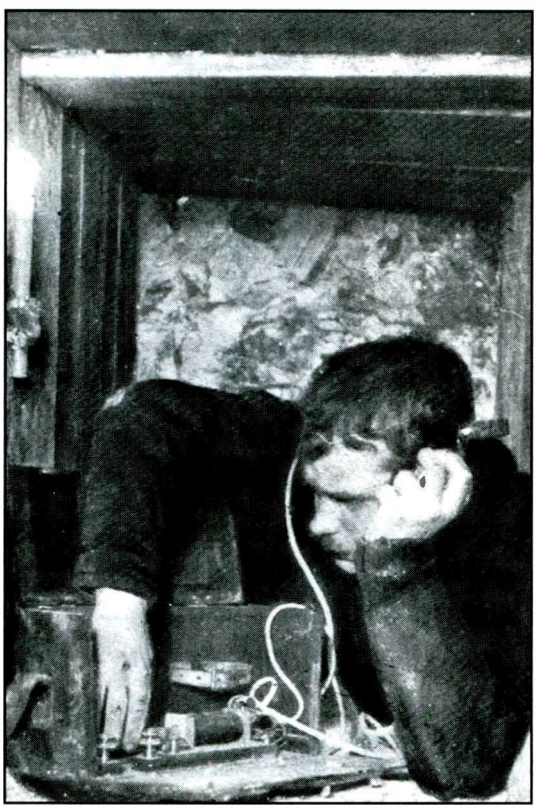


Photo A. A soldier listens to a simple radio receiver by candle light during World War I in 1914. Crudely made Foxhole radios and crystal sets were often the only connection service members had with the outside world. *(Courtesy of Wikimedia Commons)*

Building, rebuilding, and improving them was a major topic of conversation among those in the know during the war, **Photo A**.

Foxhole radios came out of the shadows about the time American forces landed at Anzio, Italy, on January 22, 1944, **Photo B**, when the radios attracted enough attention to have their presence recorded.

Coming of Age During World War II

Early iterations of the Foxhole radio were used in World War I. But the generation that grew up between the two world wars had become quite adept at building crystal sets as kids. When these boys wound up as soldiers during World War II, it seemed natural to build simple radios again to provide themselves with news and entertainment on the field of battle. *(**NOTE:** British troops were actively discouraged from building any recognizable radio. It was feared by British brass that such a device found on a captured soldier would result in summary execution by the enemy. – KPC7RBS)*

One of the things that most veterans will admit is that the average GI is a natural scrounger. GIs, as a group, can overcome almost any problem or supply any need. It is basic to the nature of the creature.

The one technical problem that the ingenious soldiers couldn't handle was the absence of galena crystals in and around the battlefields of the war. Another thing not found in your average battlefield is electrical outlets to plug in regular table model radios.

Necessity and the Mother of Invention

Batteries for civilian radios were also hard to find. But crystal sets don't need power. Someone came up with a truly original solution to the lack of galena:

- Take a large safety pin and fold over the top catch 90 degrees.

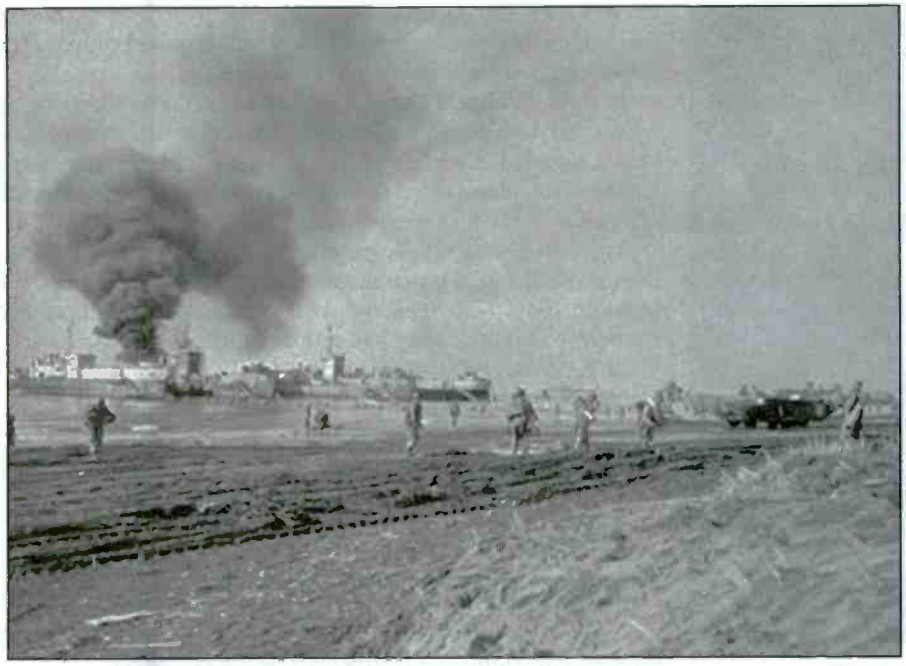


Photo B. Featured in a book titled "Fifth Army Anti-aircraft Artillery: Salerno to Florence," U.S. forces land on the beach at Anzio in January 1944. The book was prepared by the Anti-aircraft Artillery Section, Fifth Army. *(Courtesy of Wikimedia Commons)*

- Secure the head of the pin to the wooden base of the set.
- Take a short stub of pencil and expose the lead.
- Put the pencil stub on the pointed end of the safety pin.

The tip of the pencil lead was then placed on a blue razor blade, preferably one with rust on it. A blued hacksaw blade would work, as well, but rust makes the detector work best.

Ingenuity Over Circumstances

The rest of the Foxhole radio is standard crystal radio building which most of the guys who wanted radios were already familiar with. The exact details of the construction and the schematics were as varied as the men who built them and the situations in which they found themselves, **Photo C**.

Headphones, for example, were often scrounged or traded for. Tank crews, famous for their scrounging abilities, were often good for a pair of headphones. Sometimes the wire from one side of the headphones was cannibalized and used for the radio. This left the other side for listening.

Originality and ingenuity were the order of the day. Foxhole radios became a source of pride. Improvisation was a must. But, in time, with rebuilding and refinement, they usually worked. The one standard part that everyone used was the ground. Almost everyone used a bayonet stuck into the soil with a ground wire attached just below the hilt.

The sets were hard to tune. They couldn't pick up every station, like most crystal-style receivers — only the strongest ones. But it was a lot better than no radio at all and a triumph of ingenuity over circumstances.

Propaganda and 'Charlie and His Orchestra'

Well, when GIs got their Foxhole radio working, what did they listen to? Simple: the enemy.

There was, of course, the U.S.-transmitted Armed Forces Radio Service, but it was not always the strongest signal. During the day it was Radio Roma for those on the Anzio beachheads. At night Radio Berlin was often the station coming through.

But here comes the real twist of the tale:

The Nazi's, who controlled European broadcasting, thought jazz and swing music was "degenerative art" and unfit for "good German" ears. Hitler himself had declared it so. Jazz, in particular, reminded the Germans of the humiliation of African troops in the French Army assigned to oversee the armistice after World War I.

In 1933, when Hitler came to power,

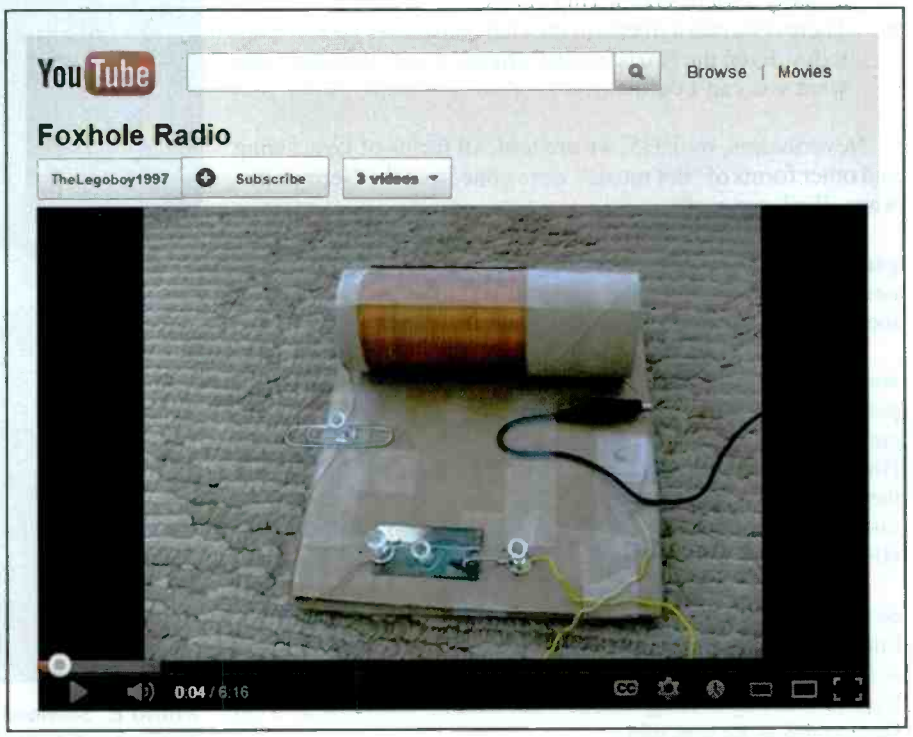


Photo C. Take a tour of the circuitry and construction of a Foxhole radio. Several easy-to-find parts are all that are needed to put together a working radio powered by the radio frequency energy in the air. ***(WATCH:** The video is on YouTube at <http://bit.ly/V4ylxN>. – KPC6PC) (Internet screen grab)*

Photo D. British Prime Minister Winston Churchill — a frequent object of German propaganda songs and narratives — waves to crowds in Whitehall on the day he broadcast to the nation that the war with Germany had been won. *(Courtesy of Wikimedia Commons)*

the Nazi broadcast authority banned such music. It took them two more years to accomplish this goal.

There were two reasons:

- A lot of people flouted the government ban. There were actually a lot of jazz-loving Nazis.
- There is no real agreement on what constitutes jazz — even today. Even the Nazis couldn't figure it out. You can't ban what you can't define.

Nevertheless, by 1935, we are told, all forms of jazz, swing and other forms of "hot music" were gone from the German airways. *Well, not really.*

The Nazi government was conducting widespread propaganda broadcasts to the whole world. Everybody, it was thought, needed to know about the gains of National Socialism and inevitable victory of Nazi arms.

Nazi Propaganda Minister Joseph Goebbels felt that the best way to get this message out was by radio. While the German people were listening to Wagner, ersatz folk songs, and *oompah bands,* the rest of the world wanted jazz and swing. Even Hitler realized that to reach this worldwide audience and woo them to the Nazi cause, there would have to be "appropriate music" to do so. This led to the formation of "Charlie and His Orchestra."

Yes, Hitler had his own jazz band. Lutz Templin was selected to head up this propaganda orchestra. A saxophonist and violinist, Templin did not have a Party membership card or seem to have any strong political beliefs of any kind. He didn't even have any strong feelings about what kind of music he played. He just did as he was told.

What he played wasn't even real "hot" music. Most was patterned after Paul Whiteman's symphonic jazz. At the microphone was Charlie Schwedler, the band's vocalist and front man. He was a smooth opportunist, as well, happy to lend his talents and personality to whatever message was required of him. The major emphasis was on the political message.

In 1940, "Political Cabaret" appeared on the airwaves being beamed to America from Germany. Later that year the program was changed to "Charlie and His Orchestra." Propaganda music had been broadcast since the early days of the war after the fall of France and before the beginning of the Battle of Britain.

The music was simply popular or famous tunes with anti-Semitic or defeatist lyrics substituted for the actual words. The popular song *The Sheik of Araby* was announced as Mr. Churchill's favorite song and propagandized as:

"I'm afraid of Germany,
Her planes are beating me.
At night, when I should sleep,
Into the bunker I creep.
Although I'm England's leading man,
I'm led to the cellar by ten.
A leader in the cellar each night,
That's the only damn way I can fight."

***(IN DEPTH:** Learn more about the classic "Sheik of Araby" at <http://bit.ly/ShS5et>. **LISTEN:** To vocalist Peter Dawson's rendition at <http://bit.ly/10S3qUU> – KPC7RBS)*

The music was always familiar but the words were always rewritten into Nazi propaganda. *Lord Haw Haw,* **Photo E**, and *Axis Sally* were also on the air and helped to fill out the format for Radio Berlin. These programs were never taken very seriously by the GIs. But like Japan's *Tokyo Rose*, the broadcasts provided a bit of needed relief from *the real war* that was all too near.

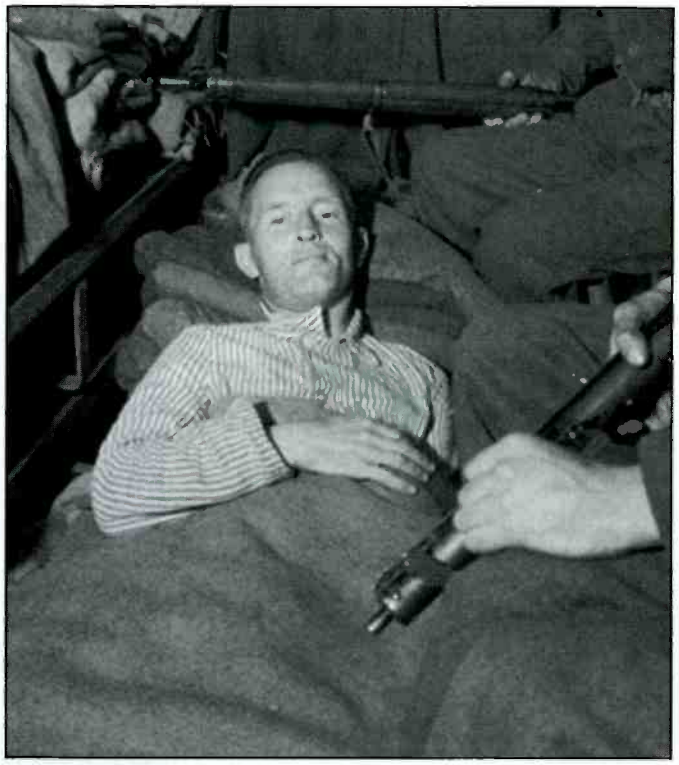


Photo E. Silenced and under arrest, William Joyce, who to wartime radio listeners was Nazi propagandist *Lord Haw-Haw,* lies in an ambulance under armed guard before being taken from British Second Army Headquarters to a hospital. *(Courtesy of Wikimedia Commons)*

Winter Finds at the CQ Store

FREE shipping on orders of $100 or more!

Valves Revisited

A Guide to Thermionics

By Bengt Grahn, SMØYZI
272 pages

Provides the basics of how valves work to how to build your own. Details their use in amplifiers, receivers, power supplies signal generator and much more!

Order No. RSVR $32.50

Homebrew Cookbook

By Eamon Skelton, EI9GQ

Starts with the very basics of homebrew and progresses to advanced topics. It will have you itching to dust off your soldering iron!

Order: RSHC $23.95

Computers in Amateur Radio

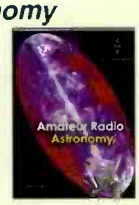
By Steve White, G3ZVW
208 pages

A practical guide to a wide range of amateur radio topics. Software definded radio (SDR), Datamodes, modelling for antennas, propagation and even terrrain for HF, D-Star and APRS. CD packed with logging, contests, mapping, morse code training, APRS, RTTY, SSTV and more.

Order: RSCAR $32.50

Amateur Radio Astronomy

Second Edition
By John Fielding, ZS5JF
384 pages



Covers in depth the subject of receiving radio signals from outer space. A practical reference for the application of radio technology in this fascinating topic.

Order: RSARA $32.50

The Amateur Radio Operators Manual

Edited by Giles Rad, G1MFG

With more than twenty-five new contributors, this 7th Edition has lots of new material. Whether you're new to the hobby, or an established amateur this book is a goldmine of useful and practical info.

Order: RSRAOM $28.95

RSGB Prefix Guide 10th Edition

By Fred Handscombe, G4BWP
80 pages

Fully updated- it provides the latest and most comprehensive list of the world's amateur radio prefixes and addition information covering references for continent, CQ Zone, DXCC, OIOTA, ITU Zone, Latitude & Longitude and much more. The very latest DXCC information is included with an unprecedented five new DXCC entities being added and two deleted.

Order: RSPXG $19.50

Technical Topics Scrapbook- All 50 yrs

By Pat Hawker, G3VA
176 pages plus CD

All the words, pictures and line drawings from columns as they appeared. CD contains PDFs of pages arranged in annual collections from 1958 to 2008. Book reproduces pages from 2005 - 2008.

Order: RSTT50 $29.50

International QRP Collection

Edited by Dobbs, G3RJV & Telenius-Lowe, 9M6DXX

The authors scoured the world for the best and have compiled them into this great scrapbook. Largest section of this 176-page collection is devoted to construction.

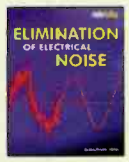
Order: RSIQC $23.95

Antenna Topics

By Pat Hawker, G3VA
2002 Edition, 384 pages

This book is a goldmine of info and ideas on antennas. Pat Hawker has been writing his "Technical Topics" column in Radcom since 1958 and in this time has produced much excellent work. Carefully indexed this book is not only a great reference work but also a history of over forty years of antenna design.

Order: RSAT $33.00



Elimination of Electrical Noise

From 30kHz to 30MHz
By Don Pinnock, G3HVA
64 pages

If you suffer from electrical noise problem Don's experiences and advice may provide solutions. Details various types of noise, how it's generated and how best to deal with it.

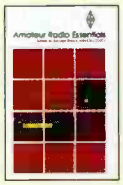
Order: RSEEN $16.50

HF Antennas for All Locations

By Les Moxon, G6XNRSGB,
2nd Edition, 322 pages

Details the design and construction of hundreds of amateur antennas. No matter what your location you'll find at least one antenna in this collection that will work for you!

Order: RSHFAAL $33.50



Amateur Radio Essentials

Edited by George Brown, M5ACN
288 pages

Everything from Rho to Radiation Resistance, Filtering to Fractal Aerials, Solar Indices to Spurious Signals. Divided into six broad sections covering a huge range of material. Beginners will find basic info about most of the things that matter and old hands will find data that other textbooks often do not include.

Order: RSARE $30.50

Weekend Projects for the Radio Amateur

By George Brown, MW5ACN
224 pages

Packed with over sixty articles covering a wide variety of projects.Two main parts - Build It Yourself (aerials, general and station accessories) and Reference (packed with articles to maximize the hobby).

Order: RSWP $27.50

RF Design Basics

By John Fielding, ZS5JF
192 pages

Aimed at those who wish to design and build their own RF equipment. Written for the average radio amateur, an accessible and useful reference work for everyone interested in RF design.

Order: RSDB $33.50

Radio Nature

By Renato Romeno, IK1QFK
256 pages

Nature has spoken through radio signals since the origins of the Universe. A fascinating look at these signals, a guide to receiving and analyzing them.

Order: RSRN $32.50

Shipping & Handling: U.S. add $7 for the first item, $3.50 for the second and $2 for each add'l 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. Buy Both=single item!

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

Call: 1-800-853-9797 • Fax: 516-681-2926 • website: http://store.cq-amateur-radio.com

KPCØUFO, Pueblo, Colorado

Featured on Discovery Channel's 'America's Most Secret: Structures'

Mike Coletta, KPCØUFO, has taken monitoring to a whole new level from his Colorado listening post. So much so that he caught the attention of the staff of "America's Most Secret: Structures," on cable TV's Discovery Channel, <http://dsc.discovery.com>.

As an avid monitor of the U.S. Air Force's Space Fence, tracking all manner of space debris and orbiting space objects, Coletta was prominently featured in a segment of the show last November. On YouTube, take a look at the gear at his listening post, as well as the array of homemade antennas KPCØUFO uses in his wide-ranging monitoring activities.

Coletta's segment begins at the 37-minute, 15-second point of the Discovery Channel show, which can be viewed at <http://bit.ly/T7t031>, ***Photo A****.*

Meantime, please send us a photograph of your listening post and tell us about your monitoring experience. We'd be happy to feature you as a Pop'Comm Monitor of the Month. Write to Pop'Comm Monitor of the Month at: <PopCommMonitor@gmail.com>. *– Richard Fisher, KPC6PC*

By Mike Coletta,
KPCØUFO/KGØUFO

"I monitor satellites and other objects passing through the Air Force Space Fence using a homebrew Yagi antenna and an AOR all-mode receiver."

I first got interested in monitoring radio frequencies at age 13 when my parents bought me a one-channel walkie-talkie. The radio was a silver and black Sears brand which ran on one 9-volt battery and had CB channel 11 installed. I would listen to conversations day and night.

My dad then bought me a transistor radio that had police band coverage. It was one you had to manually tune, so I would have to turn the knob to listen to the different police stations in the area. I kept a log of where on the dial each department was found.

Crystal-controlled scanners hit the market and I put in a request via a Christmas list. My first was an eight-channel model. As years went by, more and better models came out. As I got older, and got

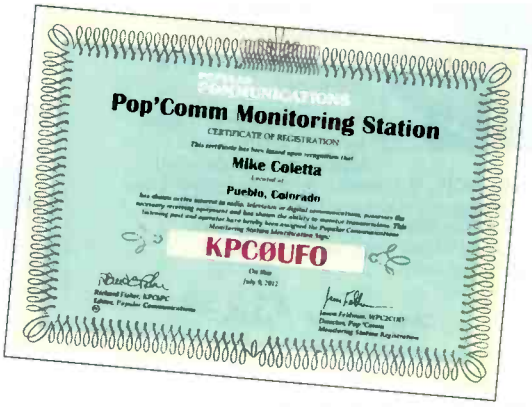


Photo A. Mike Coletta, KPCØUFO, was a major player in a recent episode of "America's Most Secret: Structures" on cable's The Discovery Channel. As an avid monitor of the U.S. Air Force's Space Fence using simple radios and antennas, Coletta caught the eye of the program's staff and appears at the 37-minute, 15-second point of the show. Watch the program on YouTube at <http://bit.ly/T7t031>. *(Internet screen grab)*

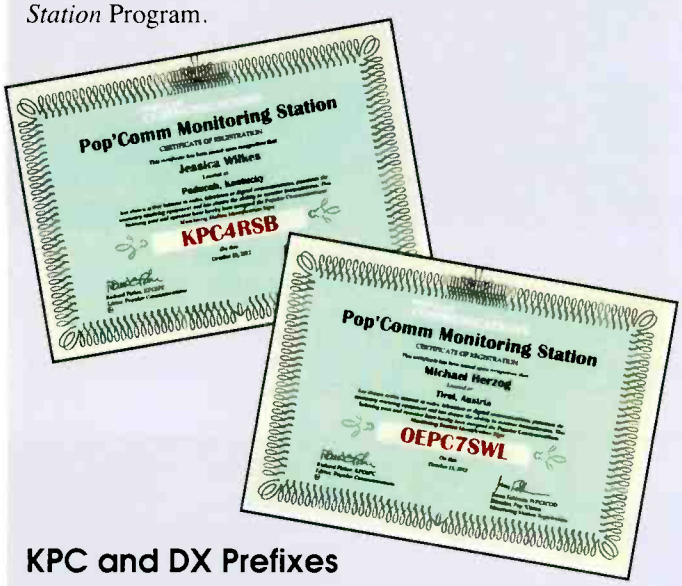
Photo B. An impressive collection of receivers and transceivers populate the listening post of KPCØUFO. From EmComm and railroad monitoring to SWLing and keeping an ear and eye to the USAF Space Fence, Mike Coletta loves the thrill of the chase — and he chases them all. *(Photography courtesy of KPCØUFO)*

Photo C. Scanners at KPCØUFO include: A Pro 34, Pro 46, Pro 91, and a Uniden Trunktracker IV, sitting atop a GE® Searcher — an old tunable four-channel scanner which included the commercial AM and FM bands, <http://bit.ly/UYVcp3>. An AOR AR 8200 hand-held receiver sits on the desk to the right of the Searcher.

Photo D. Mike Coletta's amateur radios include a Kenwood TS 520S, ICOM 756 Proll (with general coverage receiver), Y aesu FT 817 (with general coverage receiver), and a Yaesu FT 2800. His amateur callsign is KGØUFO.

New Members: *Pop'Comm Monitoring Station* Program

Here are the newest station monitors granted a station identification sign, authorized to receive a Certificate of Registration and welcomed to the *Pop'Comm Monitoring Station* Program.



KPC and DX Prefixes

They are listed by name, station identification sign, and monitoring station location.

John Green, **KPC3JG**, York, PA; Jess Spry, **KPC9IIF**, Elkhart, IN; Robert Frost, **KPC1HCG**, Portland, OR; Jeff Argo, **VEPC3ON**, Aurora, Ontario, Canada; Robert Waldo, Jr., **KPC1CT**, Brookfield, CT; Billy Smart, **KPC4ZRD**, Martinsville, VA; Shane Lacaze, **KPC5EMC**, Splendora, TX; Charles Zimmer, **KPC5EN**, Eloy, AZ; Paul Wallace, **VEPC3SRI**, Langton, Ontario, Canada; Laurence Baker, **KPC7QCC**, San Angelo, TX; Stewart Wilson, **VKPC3PR**, Warrnambool, Victoria, Australia; Dan Cameron, **KPC7NE**, Whithall, MI; Nick Baga, **KPC7VWS**, Albany, OR; Mark Copeland, **KPC1RPV**, Pasadena, TX; Ken Risley, **KPCØKC**, Ballwin, MO; Michael Adams, **KPC1EN**, Poquonock, CT; Richard Bradley, **KPC1RB**, Methuen, MA; Rick Barton, **KPC7RAT**, El Mirage, AZ; Martin Kennedy, **KPC9RCC**, Wheaton, IL; Pail Ferne, **KPC9WO**, Pickering, OH; Eric MacKenzie, **VEPC1EJM**, Dartmouth, Nova Scotia, Canada; Paul Judd, **VAPC7XQ**, Maple Ridge, British Columbia, Canada; Henry Piel, **KPC1HWP**, South Grafton, MA; Craig Hall, **KPC7TKK**, Kearney, AZ; Robert Albee, **KPC1RCA**, Maynard, MA; Duane Donovan, **KPC5UTM**, Morganza, LA; Jessica Wilkes, **KPC4RSB**, Paducah, KY; Zachary Little, **KPC8IMB**, Pike County, OH; Michael Herzog, **OEPC7SWL**, Tirol, Austria; Afonzo Keunecke Mendonca, **PUPC5AKM**, Balneario Camboriu, SC, Brazil; John Erwin, **VEPC4WX**, Winnepeg, Manitoba, Canada; Michael Psara, **KPCØTVI**, St. Louis, MO; Marvin Powell, Jr., **KPC2GX**, Ravena, NY; David Walden, Sr., **KPC4DW**, Knoxville, TN; Tony Mazurek, **KPC8CDC**, Grosse Ile, MI.

WPC Prefixes

Also: John Fisher, **WPC1JMF**, North Chelmsford, MA; Charles Weeks, **WPC4TXM**, Johns Island, SC; Madison Brumbach, **WPC5MCB**, Jasper, AL; Richard Lawrenson, **WPC1QY**, Tiverton, RI; Richard Michael, **WPC4ROM**, Hartville, OH; John Miller, **WPC4KZB**, Ochlocknee, GA; Ronald Thompson, **WPC1RF**, Hardwick, VT; John Baird, **WPC1SWL**, Corpus Christi, TX; Mark Wells, **WPC4NYL**, Birmingham, AL; Kenneth Hayes, **WPC1KMH**, Pittsfield, VT; Joe Richards, **WPC8ROJ**, Charleston, WV; Robb Leamy, **WPC8OM**, Granville, OH; Michael Haman, **WPC7MJH**, Heber City, UT; James Scott, **WPC3CQ**, Hartstown, PA; Ralph Lavallee, **WPC1NH**, Francestown, NH; Lonnie Risenhoover, **WPC5LR**, Sayre, OK; Evan Newlon, **WPC5NM**, Albuquerque, NM; Steven Christian, **WPC8FWV**, Northfield, OH; Kenneth Lyons, **WPC2DGV**, Lockport, NY; Terry Smith, **WPC8EE**, Saint Joseph, MI; Dennis McCarthy, **WPC4DDM**, Hollywood, FL; Lionel Fortier, Jr., **WPC1TV**, Saint George, SC; Matthew Delaney, **WPC2NYS**, Latham, NY; William Emmerling, **WPC1XTJ**, Hugo, CO; Gary Smith, **WPC1HRP**, Southington, CT; Richard Currin, **WPC4LJM**, Johnson City, TN; Lloyd Thompson, **WPC4DR**, Lake Mary, FL; Robin Spalding, **WPC6GXS**, Berkeley, CA; Henry Brown, **WPC1EXZ**, East Falmouth, MA; Ivan Nordstrand, Jr., **WPC8IPN**, Grand Rapids, MI; Al Scheide, **WPC8AVK**, Cincinnati, OH; Horace Cooper, Sr., **WPC4UB**, Lakeland, FL; Patrick Goodrich, **WPC3PLG**, Hagerstown, MD; Dave Williams, **WPC7HF**, Stafford, VA.

For complete information on the Pop'Comm Monitoring Station Program and to join, visit Pop'Comm Monitors On the Web: <http://popcommmonitors.blogspot.com>.

– Jason Feldman, WPC2COD
Director, PCMS Registration
<PopCommMonitor@gmail.com>

Photo E. Nestled in Mike Coletta's monitoring station antenna farm is a vertically-polarized 15-element Yagi used for aviation monitoring.

a paper route, I tried to keep up with the cool new models that added better features.

When programmable scanners hit the stores, what a difference it was. Each year brought a number of new scanner models with increased capability. It was hard to keep up with having the latest and greatest, as with every new catalog came numerous upgrades. But, I did my best at affording the newest and best.

Shortwave monitoring and AM broadcast band (BCB) DXing also captured my interest, so I owned many radios that would catch those far-away signals. Back then, long wire antennas were my favorite means of capturing radio waves, as they still are today.

Today I still enjoying monitoring for emergency services, railroad, air traffic control, shortwave, and AM BCB DXing. But, I've added a new venue to the mix: space debris and orbiting space objects.

I monitor satellites and other objects passing through the Air Force Space Fence using a homebrew Yagi antenna and an AOR all-mode receiver. I also monitor meteors entering the atmosphere using a number of different receivers and antennas.

My current monitoring station, **Photos B, C,** and **D** is made up of:

- Scanners: Pro 34, Pro 46, Pro 91, Uniden Trunktracker IV, GE Searcher (old tunable 4-channel scanner and AM, FM)
- Receivers: AOR AR 8200 (all mode, wide coverage)
- Amateur radios: Kenwood TS 520S, ICOM 756 ProII (with general coverage receiver), Yaesu FT 817 (with general coverage receiver), Yaesu FT 2800
- Miscellaneous radios: GE Superadio, Sangean MS 101, Sangean SG 796
- Receiver accessories: Heathkit Active Antenna, Radio Shack DSP, Select.A.Tenna, Skytec (tuned speaker for Space Fence monitoring), Altec Lancing powered subwoofer (tuned speaker for meteor monitoring), computers and software for graphical capture of space fence objects, BW antenna tuner
- Antennas: 260-foot dipole (160-meter amateur, AM DXing, general coverage reception); 272-foot loop (80-through 6-meter amateur, and general coverage reception); three-band vertical dipole (20-, 15-, and 10-meter amateur, meteor monitoring); 15-element Yagi (aircraft monitoring), **Photo E**; Isopole vertical (2-meter amateur), multi-band scanner vertical; and a 12-element Yagi (USAF Space Fence reception), **Photo F**.

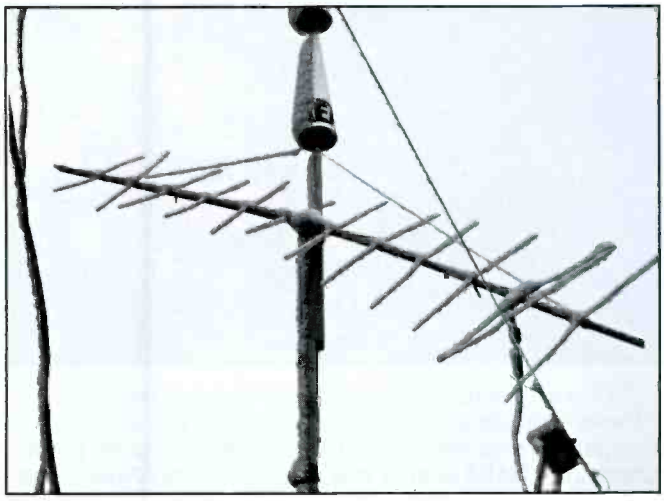


Photo F. This snow-covered 12-element Yagi at KPCØUFO is used to track space debris and orbiting objects detected by the USAF Space Fence.

NASA's Solar Fleet Peers into Coronal Cavities

by Tomas Hood, NW7US, WPC7USA
<nw7us@arrl.net>

"By understanding these aspects of coronal cavities, scientists can better understand the space weather that can disrupt radio communications"

In a dazzling display of enormous explosive energy, a massive filament of plasma explodes away from the Sun, ejected into the interplanetary space, possibly directed toward the Earth.

Readers of this column have read about such explosions, and know that these are coronal mass ejections (CMEs), **Figure 1**. A filament is a giant column of solar material that is made of gas so hot that many of the electrons have been violently forced off of the atoms, transforming the gas into a form of magnetized matter known as "plasma."

With the latest spacecraft, we have a front-row seat to watch these plasma filaments as they leap off the sun's surface, jumping and twisting. *(**WATCH:** One of these eruptions for yourself at <http://g.nw7us.us/R5YriO>. – WPC7USA.)*

"Filaments are formed in magnetic loops that hold relatively cool, dense gas suspended above the surface of the Sun," explains David Hathaway, a solar physicist at the NASA Marshall Space Flight Center. "When you look down on top of them they appear dark because the gas inside is cool compared to the hot photosphere below. But when we see a filament in profile against the dark sky it looks like a giant glowing loop — these are called prominences and they can be spectacular."

Sometimes these prominences of solar plasma escape completely into space away from the Sun's gravity. Other times, these plasma clouds fall back down under their own weight.

Researchers have noticed that sometimes prominences are an inner structure of a larger formation, appearing from the side almost as the filament inside a large light bulb. When this occurs, there is a very bright structure around and above that bulb-like formation, known as a streamer. Inside this formation is an "empty" area we call a "coronal prominence cavity."

Of course, these amazing formations are not the only structures we observe in the Sun's atmosphere — the Corona. There are many kinds of structures created by the twisting magnetic fields that shape the million-degree solar plasma, but these prominences are of specific interest to us because they can be the origin of the billion-ton coronal mass ejections that impact radio communications when

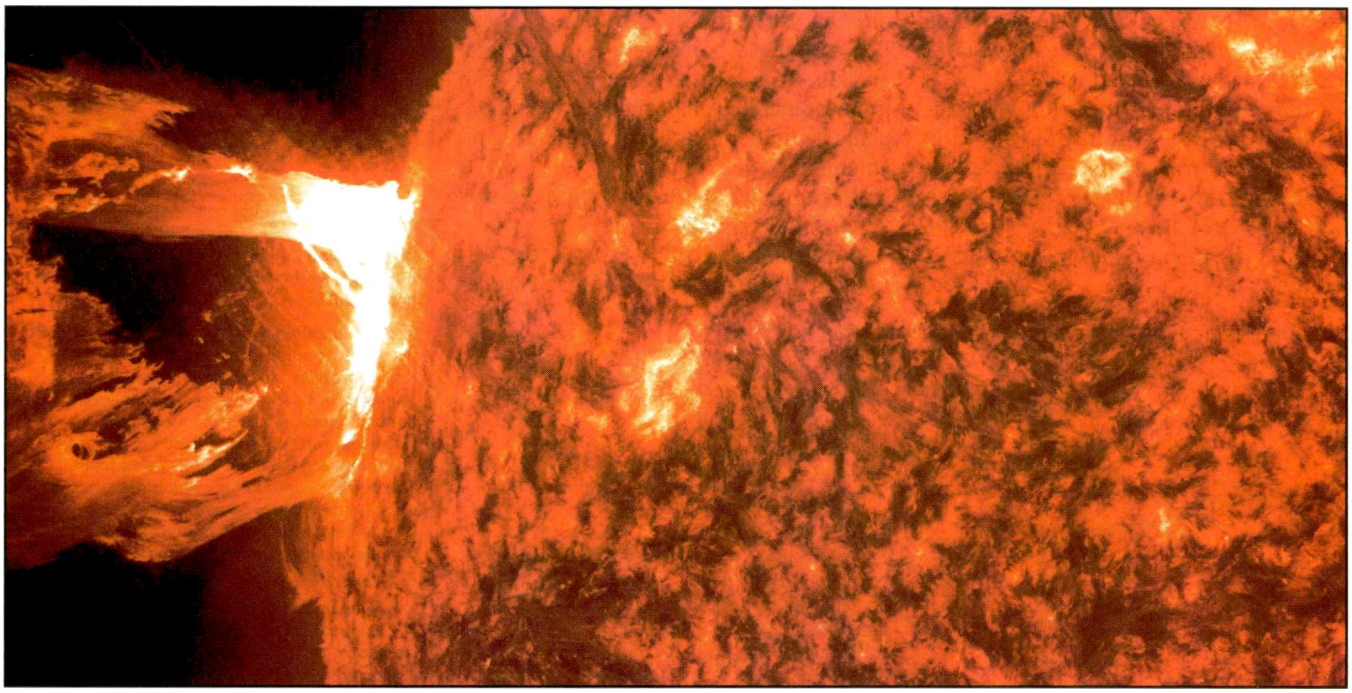


Figure 1. This massive coronal mass ejection (CME) from April 16, 2012 is an example of the giant explosions in the Sun's atmosphere, the corona, that captures the exploration of scientists. These eruptions can travel toward Earth to disrupt human technologies in space, and specifically, degrade shortwave radio propagation (while sometimes triggering Aurora, to the joy of VHFers). To better understand the forces at work, a team of researchers used NASA data to study a precursor of CMEs called "coronal cavities." *(Courtesy of NASA/Solar Dynamics Observatory)*

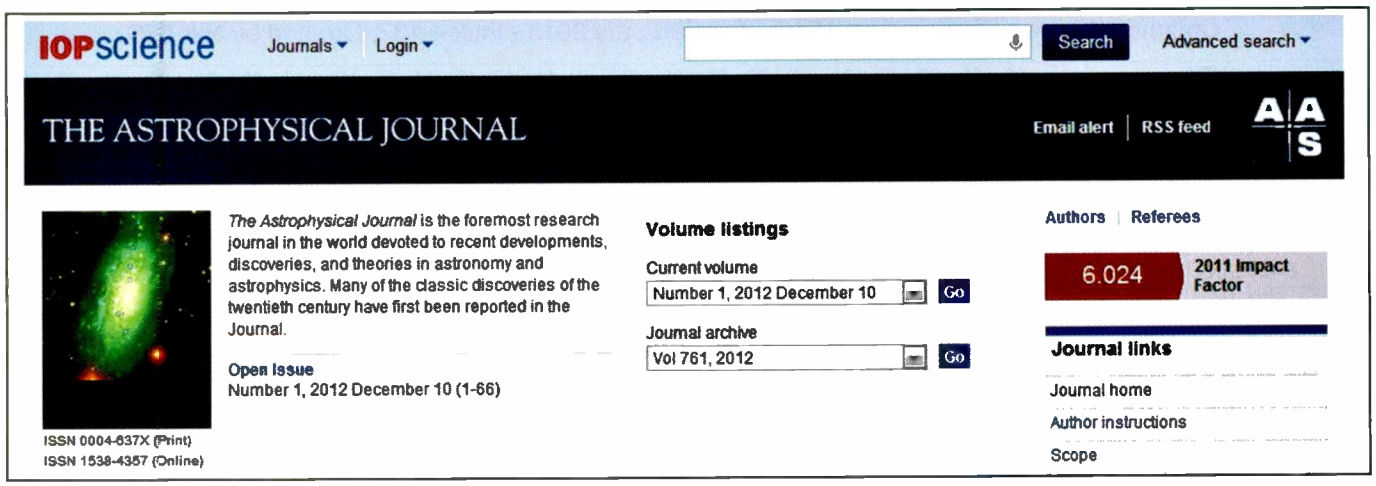


Photo A. The Internet home of *The Astrophysical Journal* can visited on the Web at <http://bit.ly/SkKhHp>. *(Internet screen grab)*

the CMEs are directed toward Earth, and when reaching Earth cause geomagnetic disturbances and storms.

"We don't really know what gets these CMEs going," said Terry Kucera, a solar scientist at NASA's Goddard Space Flight Center in Greenbelt, Maryland. "So we want to understand their structure before they even erupt, because then we might have a better clue about why it's erupting and perhaps even get some advance warning on when they will erupt." Advance notice of these events can help the radio communicator plan more effectively and execute a good working strategy for making reliable communications between stations.

Kucera and her colleagues have published a series of three papers that discusses cavity geometry, cavity density, and — in the third paper published in the September 20, 2012, issue of *The Astrophysical Journal* <http://bit.ly/TVtyYE>, **Photo A** — details on the temperatures of the coronal cavities.

The team collated and analyzed as much data as possible from a cavity that appeared over the upper left horizon of the Sun on August 9, 2007, **Figure 2**. By understanding these three aspects of the cavities — shape, density, and temperature — scientists can better understand the space weather that can disrupt technologies near Earth, as well as radio communications.

Perfect Timing

The erupting prominence of August 9 was a perfect candidate for research because its cavity lay at just the perfect angle that maximized observations of the cavity itself, as opposed to the prominence at its base or the surrounding plasma.

All three of the research papers detail how the cavity was in the shape of a croissant, with a giant inner tube of looping magnetic fields resembling a giant slinky toy. The inner tube helped to define the cavity's shape. The team explains that the cavity appears to be 30 percent less dense than the streamer surrounding it, and that the temperatures vary greatly throughout the cavity. On average, however, they range from 1.4 million to 1.7 million Celsius (2.5 to 3 million Fahrenheit), increasing with height.

Just how do you describe a cavity — a space that appears empty from our viewpoint — from 93 million miles away? "Our first objective was to completely pin down the morphology," said Sarah Gibson, a solar scientist at the High Altitude Observatory at the National Center for Atmospheric Research (NCAR) in Boulder, Colorado, who was an author on all three cavity papers. "When you see such a crisp, clean shape like this, it's not an accident. That shape is telling you something about the physics of the magnetic fields creating it, and understanding those magnetic fields can also help us understand what's at the heart of CMEs."

The team collected a lot of data, using all of the available instruments on a number of research spacecraft, giving them different and useful perspectives. By using such technology as aboard NASA's Solar Terrestrial Relations Observatory (STEREO), ESA and NASA's Solar and Heliospheric Observatory (SOHO), the JAXA/NASA mission Hinode, and NCAR's Mauna Loa Solar Observatory, just to name some of the powerful tools at their command, they were able to examine the cavity's entire trip across the face of the Sun along with the Sun's rotation.

The entire event revealed a number of significant aspects that begged analysis. For example, why was the cavity visible on the left side of the Sun but couldn't be seen as well on the right? This suggested a tunnel shape that could be viewed head-on from one perspective, but was misaligned for proper viewing from the other, a helpful discovery about the structure's orientation.

The cavity itself looked like a tunnel in an arc shape, not unlike a hollow croissant. Huge magnetic fields loop through the tunnel in enormous circles, supporting the shape. The tunnel was narrower on the ends and tall in the middle, with the entire structure draped in a sheath of dense plasma.

The paper describing this three-dimensional morphology appeared in *The Astrophysical Journal* on December 1, 2010.

The team next published its second paper that detailed their findings about the cavity's density. This research about the density and temperature took some doing because our point of view of the Sun is quite limited. While we now have the STEREO Ahead and STEREO Behind spacecraft — *(**NOTE:** We've explored these in a past edition of this column. – WPC7USA)* — that allows us a 360-degree view of the Sun, we still don't have enough instruments for intense, close-up scrutiny.

Case in point: because the Sun's Corona is partially transparent, it is difficult to discern variations of density and temperature along one's line of sight. All the radiation from a given perspective arrives at the observing instrument at the same time, with all the information from one area superimposed upon every other.

To overcome this limitation, the team came up with a variety of techniques to separate density from temperature data. By doing this, the team was able to determine that the cavity was 30 percent less dense than the surrounding streamer. This means that there is, in fact, quite a bit of material in the cavity. It sim-

Optimum Working Frequencies (MHz) - For February 2013 - Flux = 137, Created by NW7US

UTC TO/FROM US WEST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	24	22	18	14	13	13	12	12	12	11	11	11	11	11	18	22	24	25	26	27	27	27	26	26
NORTHERN SOUTH AMERICA	34	31	28	21	19	18	17	17	16	16	15	15	15	14	21	28	31	33	35	36	36	36	36	35
CENTRAL SOUTH AMERICA	33	31	27	19	18	17	17	16	16	15	15	15	15	14	24	29	31	33	34	35	35	36	36	35
SOUTHERN SOUTH AMERICA	35	34	31	26	22	21	19	18	17	17	16	16	15	15	15	26	30	32	34	35	36	36	37	36
WESTERN EUROPE	11	11	10	10	10	10	10	10	10	10	10	10	10	10	13	17	19	19	19	18	16	12	12	11
EASTERN EUROPE	10	10	10	10	10	10	10	11	10	10	10	10	10	10	10	13	12	12	12	11	10	10	10	10
EASTERN NORTH AMERICA	26	24	20	16	15	14	14	13	13	13	12	12	12	12	21	24	27	28	29	29	30	29	29	28
CENTRAL NORTH AMERICA	15	14	13	10	9	8	8	8	7	7	7	7	7	7	7	12	14	15	15	16	16	16	16	16
WESTERN NORTH AMERICA	8	8	7	7	5	4	4	4	4	4	3	3	3	3	3	4	7	7	8	8	8	9	9	8
SOUTHERN NORTH AMERICA	26	24	22	17	14	13	13	12	12	12	12	11	11	11	11	21	24	25	26	27	28	28	27	27
HAWAII	24	23	22	21	19	16	13	12	12	11	11	10	10	10	10	10	9	16	20	22	23	23	24	24
NORTHERN AFRICA	11	11	11	10	10	10	10	10	10	10	10	10	10	10	15	18	20	21	21	19	14	13	12	12
CENTRAL AFRICA	14	13	13	12	12	11	11	11	10	10	10	10	10	10	14	17	19	20	21	18	17	16	15	14
SOUTH AFRICA	24	22	17	15	14	13	13	13	12	12	12	12	12	12	20	23	25	27	27	28	28	27	27	26
MIDDLE EAST	10	10	10	10	10	11	11	11	10	10	10	10	10	10	10	16	18	18	13	12	12	11	11	11
JAPAN	23	22	22	21	19	17	13	12	12	11	11	11	10	10	10	10	10	10	10	10	10	17	20	22
CENTRAL ASIA	23	22	22	21	19	17	13	12	12	11	11	11	10	10	10	10	10	13	13	13	12	12	17	23
INDIA	17	18	18	16	14	11	11	11	10	10	10	10	10	10	10	10	10	10	10	10	10	11	15	16
THAILAND	22	22	21	20	19	16	12	12	11	11	11	10	10	10	10	10	10	14	15	14	14	13	13	13
AUSTRALIA	29	31	32	33	30	25	19	18	17	16	16	15	15	15	15	14	14	19	18	17	18	22	25	27
CHINA	19	21	21	20	18	15	12	12	11	11	11	10	10	10	10	10	10	11	10	10	10	10	10	16
SOUTH PACIFIC	34	35	35	33	29	23	21	20	18	18	17	16	16	15	15	15	18	18	19	23	26	28	30	32

UTC TO/FROM US MIDWEST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	27	24	19	18	17	16	15	14	14	13	13	13	12	20	25	28	29	30	31	31	31	31	30	29
NORTHERN SOUTH AMERICA	30	28	23	21	20	19	17	16	16	15	15	14	14	18	23	27	29	31	32	33	34	34	33	32
CENTRAL SOUTH AMERICA	32	28	23	22	20	19	18	17	16	16	15	15	15	15	24	28	30	31	33	34	35	35	36	34
SOUTHERN SOUTH AMERICA	34	32	28	25	23	21	20	19	18	17	16	16	15	17	26	29	31	32	34	35	36	36	36	36
WESTERN EUROPE	11	11	10	10	10	10	10	10	10	10	10	10	10	17	19	20	21	20	20	19	17	15	12	11
EASTERN EUROPE	10	10	10	10	10	10	10	10	10	10	10	10	10	14	17	17	16	16	15	14	12	11	11	10
EASTERN NORTH AMERICA	18	16	12	11	11	10	10	10	9	9	9	9	9	13	17	19	20	21	22	22	22	21	21	20
CENTRAL NORTH AMERICA	9	8	7	5	5	5	4	4	4	4	4	4	4	4	7	8	9	9	10	10	10	10	10	9
WESTERN NORTH AMERICA	16	15	13	11	9	8	8	8	7	7	7	7	7	7	7	12	14	15	16	16	16	17	16	16
SOUTHERN NORTH AMERICA	18	16	14	11	10	9	9	9	9	8	8	8	8	8	14	16	18	19	19	20	20	20	19	19
HAWAII	27	26	24	22	16	14	14	13	13	12	12	12	11	11	11	12	11	20	24	26	27	28	28	28
NORTHERN AFRICA	14	13	12	12	11	11	11	10	10	10	10	10	13	18	20	22	22	23	23	23	20	16	15	14
CENTRAL AFRICA	14	13	12	12	11	11	11	10	10	10	10	10	12	18	20	21	22	23	23	21	18	17	16	15
SOUTH AFRICA	25	19	18	17	17	16	16	15	15	15	14	14	20	28	31	33	35	36	36	35	35	32	29	27
MIDDLE EAST	11	10	10	10	10	10	11	10	10	10	10	10	10	16	19	20	21	20	16	13	12	12	11	11
JAPAN	22	21	20	17	13	12	12	11	11	11	10	10	10	10	10	10	10	10	10	10	10	16	19	21
CENTRAL ASIA	21	21	19	17	13	12	11	11	11	11	10	10	10	10	10	12	13	13	13	13	12	12	13	22
INDIA	13	16	15	12	11	11	11	10	10	10	10	10	10	10	14	17	16	14	11	11	11	10	10	10
THAILAND	21	20	18	15	12	12	11	11	11	10	10	10	10	10	10	15	16	15	14	14	13	13	13	13
AUSTRALIA	30	31	32	28	21	18	18	17	16	16	15	15	15	15	14	17	20	19	18	17	19	23	25	28
CHINA	18	20	18	15	12	12	11	11	11	10	10	10	10	10	10	11	11	11	10	10	10	10	10	15
SOUTH PACIFIC	35	34	32	28	23	21	20	19	18	17	16	16	15	15	15	20	19	18	21	24	27	30	32	33

UTC TO/FROM US EAST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	21	18	16	15	14	13	13	12	11	11	11	10	13	19	21	23	24	25	26	26	26	25	24	23
NORTHERN SOUTH AMERICA	27	25	23	21	19	18	17	16	15	14	13	13	14	19	23	25	27	28	29	30	30	30	30	29
CENTRAL SOUTH AMERICA	31	28	26	24	22	20	19	18	17	17	16	15	23	26	28	30	32	33	34	35	35	35	35	34
SOUTHERN SOUTH AMERICA	34	31	28	26	24	22	21	19	18	17	17	16	19	24	27	29	31	33	34	35	36	36	36	36
WESTERN EUROPE	11	10	10	10	10	10	9	9	9	9	9	15	18	20	21	21	21	21	20	19	18	15	12	11
EASTERN EUROPE	10	10	10	10	10	10	10	10	10	10	10	12	18	19	19	19	19	18	18	16	13	11	11	11
EASTERN NORTH AMERICA	8	6	5	5	5	5	4	4	4	4	4	4	5	8	9	10	10	10	11	11	10	10	10	9
CENTRAL NORTH AMERICA	19	17	12	12	11	11	10	10	10	10	9	9	9	14	18	20	21	22	23	23	23	22	22	21
WESTERN NORTH AMERICA	27	24	20	16	15	14	14	13	13	13	13	12	12	12	21	25	27	28	29	30	30	30	29	28
SOUTHERN NORTH AMERICA	21	19	14	13	13	12	11	11	11	10	10	10	10	15	20	22	23	24	25	25	25	24	24	23
HAWAII	27	25	21	16	15	15	14	13	13	13	13	12	12	12	13	13	13	22	26	28	30	30	30	29
NORTHERN AFRICA	14	13	13	13	13	12	12	12	12	12	12	21	25	27	28	29	30	29	28	25	21	16	15	15
CENTRAL AFRICA	15	15	14	14	13	13	13	13	12	12	12	21	25	27	29	29	30	29	27	24	20	19	17	16
SOUTH AFRICA	24	22	20	19	18	17	17	16	16	15	15	23	29	33	34	35	36	36	36	36	35	32	30	27
MIDDLE EAST	13	12	12	11	11	11	10	10	10	10	10	16	20	21	23	23	24	24	22	16	15	15	14	14
JAPAN	20	17	13	12	12	11	11	11	10	10	10	10	10	11	11	11	10	10	10	10	10	14	18	20
CENTRAL ASIA	19	16	12	12	11	11	11	11	10	10	10	10	10	15	14	14	13	13	13	13	12	12	12	20
INDIA	10	10	10	10	10	10	10	10	10	10	10	10	15	18	18	18	17	16	15	13	11	11	11	10
THAILAND	16	13	12	12	11	11	11	10	10	10	10	10	12	17	18	17	16	15	14	14	13	13	13	13
AUSTRALIA	30	30	25	20	18	18	17	16	16	15	15	15	15	14	24	22	20	19	18	17	20	23	26	28
CHINA	17	13	12	12	11	11	11	10	10	10	10	10	10	12	12	11	11	11	10	10	10	10	10	10
SOUTH PACIFIC	34	32	27	24	22	21	19	18	17	17	16	16	15	16	21	20	19	18	23	26	29	31	33	35

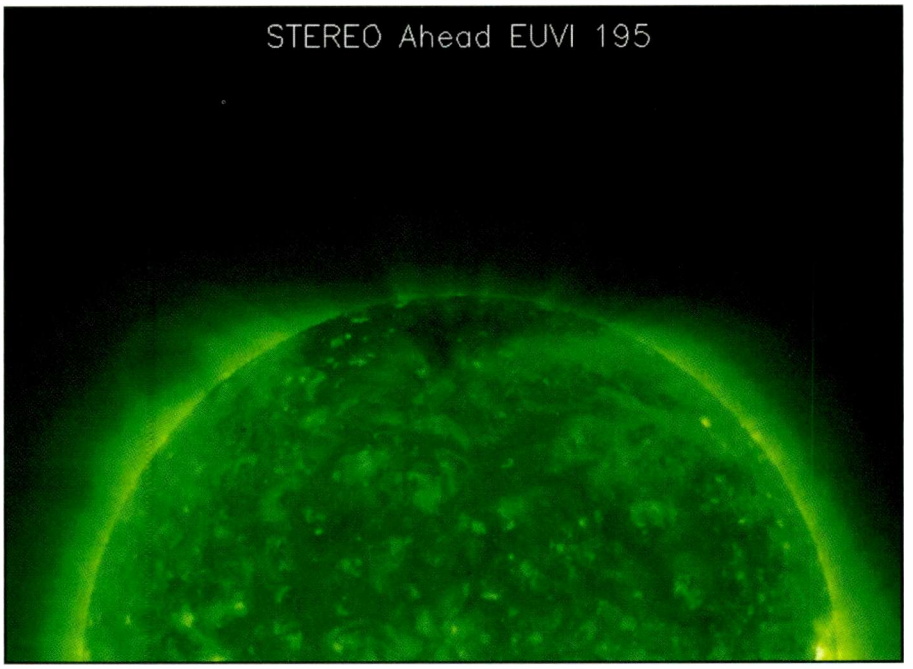


Figure 2. The faint oval hovering above the upper left limb of the Sun in this picture is known as a coronal cavity. NASA's Solar and Terrestrial Relations Observatory (STEREO) captured this image on August 9, 2007. A team of scientists extensively studied this particular cavity in order to understand more about the structure and magnetic fields in the sun's atmosphere. *(Courtesy of NASA/STEREO)*

ply appears dim to our eyes when compared with the denser, brighter areas nearby. The paper on the cavity's density appeared in *The Astrophysical Journal* on May 20, 2011.

"With the morphology and the density determined, we had found two of the main characteristics of the cavity, so next we focused on temperature," said Kucera. "And it turned out to be a much more complicated problem. We wanted to know if it was hotter or cooler than the surrounding material — the answer is that it is both." This discovery means that, on average, the cavity's internal temperature does not differ from that of the surrounding plasma, at the same relative height.

It was much more varied, with hotter and cooler areas that Kucera thinks link the much colder 10,000 degrees Celsius (17,000 degrees Fahrenheit) prominence at the bottom to the 1 million to 2 million degrees Celsius (1.8 million to 3.6 million degrees Fahrenheit) Corona at the top. Other observations of cavities show that cavity features are constantly in motion creating a complicated flow pattern that the team would like to study further.

Scientists have already begun to jump all over this new research. They are now comparing this one cavity from 2007, to other events. They are finding that most of these cavities have consistent characteristics. What is helpful is that there are newer spacecraft with advanced instrumentation that aid in further study of current events.

In 2010, NASA launched the Solar Dynamics Observatory (SDO), which we've explored in a past edition of this column. SDO's super-high-resolution instruments allow scientists to observe in finer detail the inner workings of the Sun's atmosphere.

"Our point with all of these research projects into what might seem like side streets, is ultimately to figure out the physics of magnetic fields in the corona," said Gibson. "Sometimes these cavities can be stable for days and weeks, but then suddenly erupt into a CME. We want to understand how that happens. We're accessing so much data, so it's an exciting time — with all these observations, our understanding is coming together to form a consistent story."

And, this results in better forecasting models, eventually leading to advance warning of a pending period of degraded high-frequency propagation. Readers of this column know that CMEs can create quite a strong geomagnetic storm, triggering aurora, and lowering the Maximum Usable Frequencies (MUFs) for most radio propagation paths.

Scientists and governments are keen on developing such forecasting accuracy because these geomagnetic storms could also cripple our infrastructure. Just the right CME could wipe out power grids, pipelines, and destroy satellites. With good advance warning, not only will radio communicators be able to choose effective strategies on frequency choices, but officials can shut down the power grid before the storm hits, protecting the systems from overload.

This column will continue to bring you the latest news and research results from this fascinating and practical endeavor of science. After all, we all want to communicate more effectively — getting that rare DX, or ensuring a stable emergency communications circuit out of a disaster area.

High-Frequency Propagation

From the middle of February through March and early April, typical equinoctial propagation conditions can be expected on the HF frequencies. This usually means a noticeable improvement in conditions between the northern and southern hemispheres.

Look for improvements between the United States and South America, Africa, Australasia, Antarctica, and parts of Asia. Equinoctial propagation occurs during the Spring and Fall months when the Sun is most directly overhead at the equator, producing similar ionospheric characteristics over large areas of the world. It tends to maximize during sunrise and sunset periods and over both short and long path openings.

Sunspot Cycle 24 has been quite tame compared with recent cycles. Some are speculating that we've already seen the peak of this cycle — but time will tell. How alive can the higher frequencies be with long-distance propagation? It is always a surprise to the casual amateur radio operator and SWLer when they get on a band like 10 meters during the solar minimum, and discover that there is still some life on the band, beyond short-skip distances.

This can be especially true during periods when massive sunspots occur and raise the daily 10.7-cm flux levels enough to wake up the higher frequencies. However, the low solar activity of recent months just does not support world-wide DXing on the highest HF bands for any significant length of days. The lower HF bands can become real players, though, as veteran HF operators know.

During the daylight hours, optimum DX propagation conditions are expected on frequencies near 15 MHz, with the

forecast that these will be open to all areas of the world sometime during this period, though often with moderate to strong fading. Conditions on higher portions of the shortwave spectrum may be good, too, but usually for far shorter distances than during higher peak solar cycle years.

Conditions are expected to become optimal for an hour or two after sunrise and again during the late afternoon. For short-range regional paths, 41 meters should be usable during most of the daylight hours. With increasing hours of daylight during February, expect the HF bands to remain open for an hour or so longer into the early evening than during the winter months.

Daytime conditions on the amateur 10- and 12-meter bands will be less exciting. Openings will be possible for stations in low-latitudes using north-south paths, with no openings expected into Europe and the Far East.

During the early evening hours and to as late as midnight, seven bands should be available for amateur radio DX openings: 15, 17, 20, 30, 40, 80, and 160 meters.

Fifteen and 17 meters should hold up for openings toward Central and South America and the Caribbean, the Pacific area, Far East, and parts of Asia. Better openings into many areas of the world may be possible on 20 meters during this period, with the strongest signals from southerly and westerly directions.

Good DX conditions are also forecast for 30, 40, and 80 meters for openings toward the east and the south. Openings in the same direction, but with higher noise levels and weaker signals, should also be possible on 160 meters.

Between midnight and sunrise it should be a toss-up between 20, 30, and 40 meters for DX paths. These bands should open to many areas of the world with conditions favoring openings toward the south and the west. Expect similar conditions on 80 meters, but with weaker signals and higher noise levels. Be sure to check 1.8 MHz for some unusual DX openings towards the south and the west during this period. Conditions on the bands between 160 and 20 meters are expected to peak at local sunrise.

VHF Conditions

Trans-equatorial (TE) scatter propagation tends to increase during the equinoctial period and some 6-meter openings may be possible between 7 and 10 p.m. local time. The best bet for such openings is between the southern tier states and South America for paths approximately at right angles to the equator. An occasional TE opening may also be possible on 2 meters. Unlike F_2-layer or sporadic-E openings on 6 meters, TE openings are characterized by very weak signals with considerable flutter fading.

Current Solar Cycle 24 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for October 2012 is 53. The 12-month running smoothed sunspot number centered on April 2012 is 65. The lowest daily sunspot value during October 2012 was recorded on October 7 with a count of 28. The highest daily sunspot count for October was 83 on October 15. A smoothed sunspot count of 83 is expected for February 2013.

The **Dominion Radio Astrophysical Observatory** at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 123.3 for October 2012. The 12-month smoothed 10.7-cm flux centered on April 2012 is 125.8. The predicted smoothed 10.7-cm solar flux for February 2013 is about 137, give or take about eight points.

The observed monthly mean planetary A-Index (A_p) for October 2012 is 9. The 12-month smoothed A_p index centered on April 2012 is 8.

Expect the overall geomagnetic activity to be quiet to stormy during February. Refer to the Last Minute Forecast published in *CQ* magazine or on the author's website <http://sunspotwatch.com> for the outlook on what days that this might occur.

I'd Like To Hear From You

I welcome your thoughts, questions, and experiences regarding this fascinating science of propagation. You may email me, write me a letter, or catch me on the HF amateur bands. On Twitter, please follow <@NW7US> (and if you wish to have an hourly automated update on space weather conditions and other radio propagation-related updates, follow <@hfradio-spacewx>.

I invite you to visit my online propagation resource at <http://sunspotwatch.com/>, where you can get the latest space data, forecasts, and more, all in an organized manner. If you are on Facebook, check out <http://www.facebook.com/spacewx.hfradio> and <http://www.facebook.com/NW7US>.

Speaking of Facebook: check out the *Popular Communications* fan page at <http://www.facebook.com/PopComm>. This is a great place for the magazine's community to participate and share information, tips, DX spots, and photos of your antennas, radios, or your excursions into the field with your radio gear for that DX hunting trip.

Until next month,

73, Tomas, NW7US
P.O. Box 27654
Omaha, NE 68127
<nw7us@nw7us.us>
<@NW7US>
<@hfradiospacewx>

More Gloom and Doom From the SWL News Ticker

by Gerry L. Dexter,
WPC9GLD
<gdex@wi.rr.com>

"We're still trying to find information on what will happen to the Cyprus Broadcasting Corporation, which uses the BBC relay for weekend broadcasts."

It's time now for *"Doom and Gloom"* — the bad news, brought to you by *Reality,* the cereal that leaves SWLers completely dejected.

Today's episode first takes us to the island of Cyprus where we find the British Broadcasting Corporation has announced plans to close its Middle East Relay Station at Limassol. The coming closure in April will also mean a large cutback in — of all things — the Arabic service as well as a serious reduction of English by six hours per day. The BBC assures us that Arabic will continue to be offered for listeners in Sudan. The Cyprus closing will mean, as well, the loss of 26 employee positions.

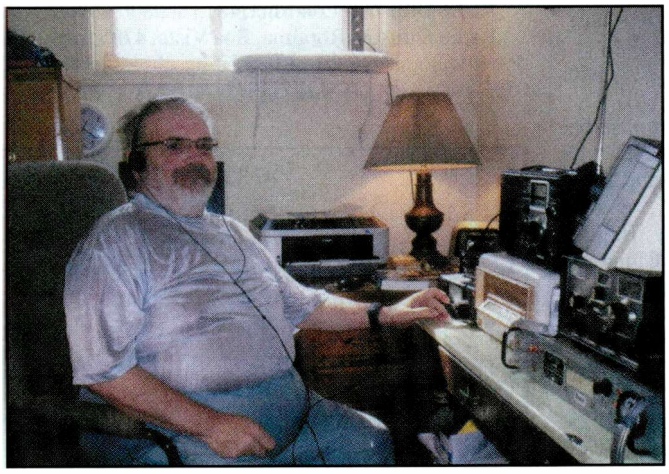
Our news sources are still trying to find information on what will happen to the Cyprus Broadcasting Corporation, which uses the BBC relay site for its weekend shortwave broadcasts.

More Dread on the Dial

As predicted some months ago, the **Bonaire relay station** operated by **Radio Nederland** and used by the station, as well as others, has aired its last program and the facility is scheduled to be torn down.

That means that international broadcasters such as **Radio Japan** have to seek other outlets for their programming. Meantime **Radio Nederland** continues in Spanish, limping along for all of 30 minutes a day via the **WHRI** transmitters in Cypress Creek, South Carolina.

In other news, the U.S.-based **Sudan Radio Service** has discontinued its use of shortwave (on 17745) transmitted through BBC-Wooferton.



Here's reporter Mark Coady in his Peterborough, Ontario, shack. Mark edits the "Listening In" column for the Ontario DX Association <http://www.odxa.on.ca>.

World DX Club's 'Contact' Ends Publication

A sad note: The World DX Club, based in England, has discontinued publishing its popular club bulletin *Contact.* Publisher Arthur Ward has given up his huge, backbreaking monthly job.

The WDXC <http://www.worlddxclub.org.uk>, however, will continue with its presence on the Web. We wish Mr. Ward well and are sorry to see the end of a great club bulletin.

The arrival of *Contact* was eagerly anticipated each month.

But On the Bright Side . . .

KBS World Radio (South Korea) will be getting two new high-power transmitters for its Kimje site, which will replace the former relays at Sackville in Canada.

HCJB Australia is welcoming a new and improved transmitting facility intended to expand its reception areas. The new site is just a couple of miles from the old one so it will likely not be differentiated from the initial Kununurra site. The site is supposed to expand and improve reception throughout the Asia and Pacific region.

The **Voice of Nigeria** is also planning to add three 250-kilowatt transmitters to its Abuja facility so that might improve what is already providing good signals from that country.

Bangladesh Betar has also added a new 250-kilowatt unit and **Radio Japan** is adding three 300-kilowatt senders at Yamata, which it hopes to have active by April.

Emerging Signals

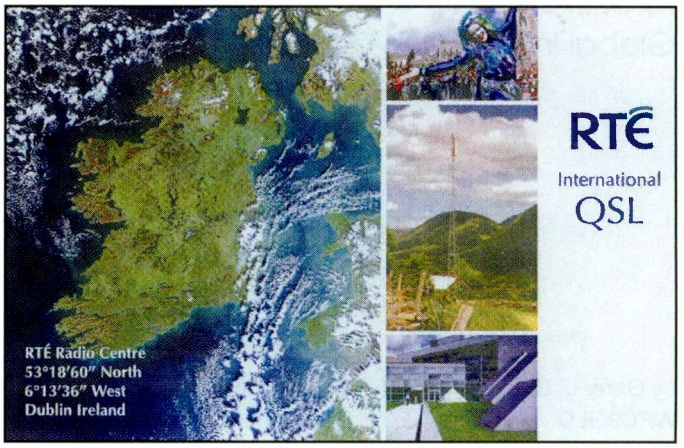
A few new or just occasionally heard stations that have been appearing of late include:

Radio Oriental, Ecuador, active in Spanish on 4781 around 2330.

Radio Fana, Ethiopia, is on 6110 around 0300 in Tigrinya.

Wontok Radio Light in Papua New Guinea on 7325 around 0900.

Here's another view of the Coady shack. He says the new room will give him more space, which inspires him to go after his ham license.



RTE (Radio Teilifie Eireann) Ireland International, broadcasting via England, recently QSL'd Rich D'Angelo for his reception on 17685.

Voice of Zimbabwe has recently re-appeared on 4828 during our mid-evening hours.

It's Your Turn

Remember, your shortwave broadcast station logs are always welcome. But *please* be sure to double or triple space between the items, list each logging according to its home country and include your last name and state abbreviation after each.

Also needed are spare QSLs or good copies you don't need returned, station schedules, brochures, pennants, station photos, and anything else you think might be of interest. And how about sending a photograph of you at your listening post? It's your turn to grace these pages!

Now, to the Logs

Here are this month's logs. All times are in UTC. Double capital letters are language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is mentioned English (EE) is assumed.

ALGERIA—Radio Algerienne, 7295 via France at 0425 with W in AA. (D'Angelo, PA)

ANGOLA—Radio Nacional Angola, 4949.7 at 0226 with W hosting a brief pop pgm, ID and news in PP at 0300. (D'Angelo, PA)

ARGENTINA—Radio Argentina al Exterior, 15345 at 2200 with IS, time pips and SS talks. (Parker, PA)

Unidentified Feeder, 13363.5 LSB at 2130 with SS p-b-p futbol coverage. I followed it until 2258. And, noted again at 2310-2355 with SS talks, promos, and talk about futbol. Also at 2215-2225 and 2245-0010 with a similar format. (Alexander, PA)

ASCENSION ISLAND—BBC-South Atlantic Relay, English Bay, 5875 at 0441 on economic growth of communities in China and 6005 at 0500 with time pips and "Good morning from Johannesburg" with news on the world's economy. Excellent after Cuba goes off at 0600. (Parker, PA) 6140 at 0324 with extensive reports on the U.S. election. Off in mid-sentence at 0359. (D'Angelo, PA)

AUSTRALIA—Radio Australia, 9660 at 0630 with an interview. (Barton, AZ) 9855 via UAE with an interview on horse racing at 2328. (Sellers, BC) 11945 with *Sports Wrap* at 0625, f/by *Album of the Week and* news at 0700. (Miller, GA) 15415-Shepparton at 0413 discussing malaria and how to protect oneself from mosquitoes. (Parker, PA)

ABC Northern Territory Service: 4910-Tennant Creek at 0810 with CODAR QRM, but improving until 0830 sign off. (Wilkner, FL)

HCJB Global, 11750 at 0800 with a religious message and music. Off at 0830. (Miller, GA)

BANGLADESH—Bangladesh Betar, 15105 at *1228-1300* on with IS, six time pips and opening EE announcements, then EE talk and Sub-continental music. Five-second test tone at sign off, 15505 at *1513-1545* with sign on in Hindi. Weak at sign on then deteriorated to barely audible level by sign off. (Alexander, PA) 1412-1430 with a nice selection of local vocals during Urdu language hosted by a female announcer (D'Angelo, PA)

BOLIVIA—Radio Mosoj Chaski, Cochabamba, 3310 at 0850 with a female in (p) Quechua. (Wilkner, FL)

Radio Santa Ana, Santa Ana del Yacuma, 4451.1 in SS at 2330-0000. (Wilkner, FL)

Radio San Miguel, Riberalta, 4699.6 at 0855 with percussion at 0855, TC by M in SS at 0920. (Wilkner, FL)

Radio San Jose, San Jose de Chiquitos, 5580.2 with M in SS and music at 2320-2357. (Wilkner FL)

BOTSWANA—VOA Relay-Mopeng Hill, 4930 at 0336 with numerous African news items. (D'Angelo, PA) 0355 on racial profiling in college admissions. (Parker, PA)

BRAZIL—(all in PP – gld)

Radio Municipal, Sao Gabriel da Cachoeira, 3375.1 at 1000 with music. (Wilkner, FL)

Radio Caiari, Porto Velho, 4785 strong at 0920. (Wilkner, FL) (p) at 0948 with rapid fire talk and vocals. (D'Angelo, PA)

Radio Difusora, Londrina, 4815 at 0800 with M talk. (Wilkner, FL)

Radio Difusora Roraima, Boa Vista, 4785 with a nice ID and close-down announcements at 0355 f/by choral anthem. (D'Angelo, PA) 0357-0405 sign off with choir NA. (Parker, PA)

Help Wanted

We believe the *Global Information Guide* — month after month — offers more logs than any other monthly SW publication! (Nearly 300 shortwave broadcast station logs were processed this month!) Why not join the fun and add your name to the list of GIG reporters? Send your logs to Gerry Dexter, Global Information Guide, 213 Forest St., Lake Geneva, WI 53147 or email them to <gdex@wi.rr.com>. See the column text for formatting suggestions.

**Not all logs submitted are used. There are usually a few which are obviously inaccurate, unclear or lack a time or frequency. Also discounted are unidentified, duplicate items (same broadcaster, same frequency, same site) and questionable logs. – WPC9GLD*

Radio Clube do Para, Belem, 4885 at 0357 with male announcer. (Parker, PA)

Radio Novo Tempo, Campo Grande, 4895 with male announcer at 0800. (Wilkner, FL)

Radio Difusora, Macapa, 4915 at 0812. (Wilkner, FL)

Radio Aparecida, Aparecida, 5035 at 0850 with male/female chats. (Wilkner, FL) 2310-2330 with inspirational music and talk, //6135, 9630 and 11855. (Alexander, PA)

Voz Missionaria, Camboriu, 5940 at 0452 with male preacher. (Parker, PA) 9665 fading in and out and peaking by 0935. (Perry, IL) 0713-0740 with inspirational music, jingles and promos. (Alexander, PA)

Radio Inconfidencia, Belo Horizonte, 6009.9 at 2235 with talk and jingles, //15190. (Alexander, PA)

Radio Marumby, Curitiba and Radio Daqui, Goiania, 6080 colliding at 0313, both audible alternately. (Parker, PA)

Super Radio Dues e Amor, 6120 at 0525 with emotional religious talk, //6070, 9565, and 11765. (Alexander, PA) 0850-0905 with religious broadcast and an impassioned preacher. (Wilkner, FL)

CHAD—Radio Nationale Tchadienne, 6165 at 2010-2129* with FF talk, Afropops and hi-life. Weak at tune in but then improved by 2100. Some days runs to as late as 2249 or 2300. Also *0454-0600 with FF talk at sign on, African hi-life, local drums at 0529. Another time until 2221 with local drums and abruptly off at 2222. (Alexander, PA)

CANADA—CFRX, Toronto, 6070 at 0307 with talk on hockey and an ad for a Mazda dealer. (Parker, PA) 1300 with news, traffic, sports, and many, many ads. (Fraser, ME) 2324 with *Here's the Thing* pgm, hosted by Alec Baldwin. (Sellers, BC)

I'll bet you recognize these two folks on the Radio Casablanca QSL received by Rich D'Angelo.

Trans World Radio's Indian office QSL'd Rich D'Angelo with this nice looking card.

CHINA—China Radio International, 7120 via Albania in SS at 2244, 7335-Shijiazhuang in SS at 2248, 9345 at 1141 in (l) Cantonese, 9760-Kashi in CC at 1213, 11640-Xi'an in (l) Mandarin at 1211, 15440 in (l) Mandarin at 1155. (Brossell, WI) 7285 via Albania at 2050 and 9570 via Cuba at 1348. (Fraser, ME) 9610-Kunming at 2355 with an interview. (Sellers, BC) 11975 via Mali at 2357 with IS and ID, then via (p) Kunming. (Parker, PA)

China Business Radio, 11610-Beijing in CC at 0405 with male/female talking. (Parker, PA)

China National Radio jammer, 9540 at 1142, apparently against Sound of Hope. (Brossell, WI) 13660 with CC talk at 2235. (Parker, PA)

COLOMBIA—Alcaravan Radio, Puerto Lleras, 5910 in SS at 0442. (Parker, PA)

CONGO (Dem. Rep.)—Radio Okapi, 11690 via Meyerton at 0403 with male announcer in FF, several jingle IDs and brief music between talks. (D'Angelo, PA)

CROATIA—Croatian Radio, 7375 via Germany in EE at 2316 with ID and EE news. (Sellers, BC)

CUBA—Radio Havana Cuba, 6165 with *DXers Unlimited* pgm at 0340 and other EE features, then news at 0400. (D'Angelo, PA)

CYPRUS—BBC-Mediterranean Relay, 9760 at *2215-2245* with usual theme music and into GG talk, //5925 and 7220; all three were good. This is Friday, Saturday, Sunday only, although it's irregular. (Alexander, PA)

DJIBOUTI—Radio Djibouti, 4780 *0259 with OC, orchestral NA, male announcer with FF opening ID and announcements, brief news and Koran recitations, f/by news. (D'Angelo, PA) *0300. (Alexander, PA)

ECUADOR—Radio El Buen Pastor, Saraguro, 4815 in SS around 1100-1115. (Wilkner, FL)

HCJB, Pichincha, 6050 with *0823 sign on, 0825 with flute and guitar, EC NA at 0827, W with opening in SS and QQ. (Perry, PA)

ENGLAND—BBC, 5790-Skelton in AA at 0437 and 12035-Middle East Relay Cyprus at 0308. (Parker, PA)

EQUATORIAL GUINEA—Radio Africa, 15190 at 1800 with US-produced EE religious pgm. Also noted to 0007 sign off and, irregularly, at 0552, as well as 0715-0730. (Alexander, PA) 1912 with usual EE religious pgms without any formal station IDs. (D'Angelo, PA)

ERITREA—Voice of the Broad Masses of Eritrea, 7185 at *0256 with IS at sign on, vernacular talk at 0301, HOA music at 0306, improving to a fair level by 0325, //9715. (Alexander, PA)

FRANCE—Radio France International, 15215 in RR at 1521. (Brossell, WI)

GABON—Africa Number One, 9580 at 2253 with M/W with pops, 2300 time pips and off, although the carrier remained on. (Sellers, BC)

GERMANY—Deutsche Welle, 9505-Rwanda Relay at *0400 with female announcer and EE news of our elections. //s 7285, 9420, and 9470, 15700 via Wooferton at 1238-1259* in FF (D'Angelo, PA) 9735-Rwanda Relay in (l) Hausa at 1845 and 11810 Rwanda in FF at 1850. (Brossell, WI) 11830 via Rwanda Relay at 2100 sign on with Middle East news. (Fraser, ME)

GREECE—Radiophonikos Stathmos Makedonias, 7450 at 2234 with male announcer in Greek hosting pgm of Greek music, female with ID and sign off at 2250. (D'Angelo, PA)

Voice of Greece, 15630 in Greek with talks and songs in Greek at 1932. (Brossell, WI) 2230. (Parker, PA)

GUAM—KTWR, 11580 at 1349 in KK per sked. (Alexander, PA)

Adventist World Radio, 15320 in EE at 2238 with female reading children's story and ID for Voice of Hope-India. (Sellers, BC)

GUATEMALA—Radio Verdad, Chiquimula, 4055 at 0424 with

In Times Past

Here's your "blast from the past" for this month:

Radio Record, Sao Paulo, Brazil, 9505 in PP at 2132 on May 12, 2008.

male announcer in SS over slow music. (Parker, PA) *0952 sign on with a six-note IS on an electronic keyboard, long choral anthem, opening multi-lingual announcement at 1001 and SS talk at 1004. (Alexander, PA)

INDIA—All India Radio, 9705 at 2257 with music and EE pgm, ID and news at 2300. (Alexander, PA) 9870-Bangaluru in Hindi at 1207, 15050 at 1205 in (l) Tamil, 15175 at 1515 in (l) Gujarati, 15410-Panaji (Goa) in (l) Thai at 1155, and 15795-Bangaluru in Mandarin at 1207. (Brossell, WI) 9870 at 1540 with drums, strings and female vocal. (Barton, AZ) 11620-Bangaluru in (p) Urdu at 0411 with "Midnight Express" type music with female vocal. Weak but in the clear. (Parker, PA)

INDONESIA—Radio Republik Indonesia, 4750-Makassar (Sulawesi) at 0950 with music. (Wilkner, FL) Heard in the 1220-1258 with male hosting pgm of II pops and vocals. Holding up until nearly 1300. (Perry, IL)

ISRAEL—Galei Zahal, 6885 at 2115 with HH talk, local pops, //15850. (Alexander, PA)

JAPAN—Radio Japan, 5960 via ex-Canada in JJ at 0454 and 11680 via Wertachtal in JJ at 0428 with jazz. (Parker, PA) 11695 via Uzbekistan at 1402 with female announcer and news in EE. (Sellers, BC) 15445 via Wertachtal with female in JJ hosting a pop pgm, including a Frank Sinatra number, ID, and closedown at 1859. (D'Angelo, PA)

KUWAIT—Radio Kuwait, 15540 at 1926 with U.S. pops. (Brossell, WI)

MADAGASCAR—Radio Madagasikara, 5010, at 0200-0250+ with inspirational music and chorals, announcements, and African hi-life at 0228. Reactivated. (Alexander, PA)

MALAYSIA—Sarawak FM, 11665 at 1342 in Bahasa Malay with pops and mentions of Malaysia and Sarawak. (Sellers, BC)

MALI—RTV Malienne, 5995 at 0750-0759* with vernacular talk, off with flute IS and FF ID announcements at 0758, 9635 at *0800 sign on with flute IS, followed by short announcement and into continuous local rustic tribal music and vernacular music at 0817. (Alexander, PA)

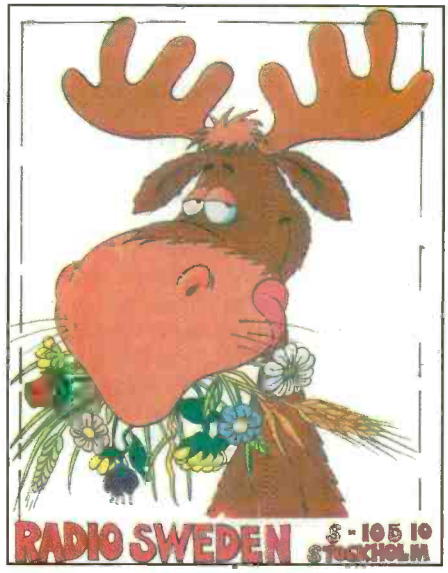
MEXICO—Radio Educacion, 6185 at 0455-0605* with local pops, ranchero style selections, and SS talk. NA at 0600 and off with local guitar at 0605. (Alexander, PA) 0548-0612* with SS radio play. Off w/out announcements or ID. Carrier was still there at 0632. (D'Angelo, PA)

MOROCCO—Radio Marocaine, 15350 with AA talks at 2012. (Brossell, WI)

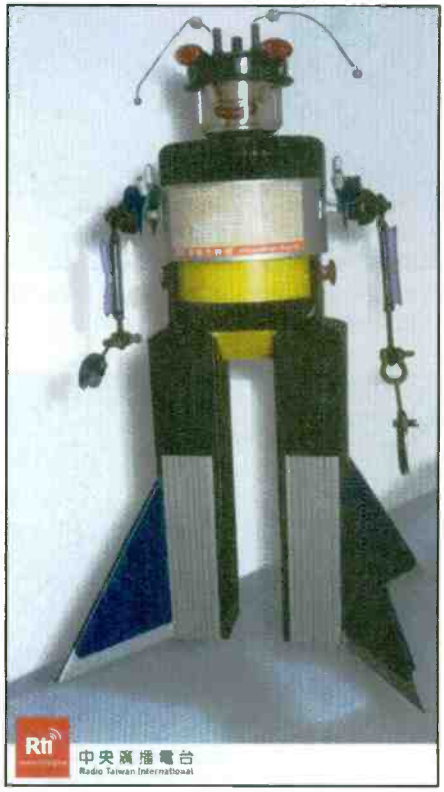
MYANMAR—Thazin Radio, 7110 at 1100-1130 with local pops and brief announcements. (Alexander, PA) 1127 with talks in BB. (Brossell, WI) 1430 at 1430 beginning EE segment with a female greeting listeners. (Sellers, BC)

NEW ZEALAND—Radio New Zealand International, 6170 at 0830 with time check, news, and a song. Also 15720 at 0306 with regional news. (Miller, GA) 9655 on hunger strikes at 1148. (Brossell, WI)

NETHERLANDS—The Mighty KBC, 9500 via Bulgaria at *0000-0200* with pop/rock, plenty of IDs, and email as <themightykbc@gmail.com>. Again at 0131-0159* saying they'd be back again next week. (D'Angelo, PA)



The reindeer on this Radio Sweden QSL looks lost and confused, probably just like any of the ex-Radio Sweden staff which may still be around.



This robot, cannibalized from an RCA vacuum tube and part of an antenna, is on display at Taiwan's National Radio Museum and is also featured on an a RTI QSL. *(Courtesy of John Miller)*

NICARAGUA—Pescador Preacher, 8989u, 2330 with mentions of Cuba, Nicaragua, and Honduras. (Wilkner, FL) 2322 with male preaching in SS. (Sellers, BC)

NIGER—La Voix du Sahel (p), 9705.4 at 2250-2259* but very weak. I was only able to catch local chants and the usual test tone at 2259. (Alexander, PA)

NIGERIA—Voice of Nigeria, 9690 at *0757 sign on with IS, talk in (l) Hausa at 0800, 15120 at *0446 sign on with IS, EE ID sequence and NA at 0555, pgm preview and news at 0501. (Alexander, PA) 0605-0630 with EE news and IDs. (Brossell, WI)

NORTH KOREA—Voice of Korea, 13760-Kujang at 2245 with chorals. (Parker, PA)

Korean Central Broadcasting, 2850 at 1120 in KK under a voice ute. (Wilkner, FL)

OPPOSITION—Democratic Voice of Burma, 7510 (nf,ex-11595) via Armenia at 2337-0030 with BB talk with many mentions of Myanmar and short breaks of music. (Alexander, PA)

Denge Mezopotamia (p) 11510 (to Iran via Bosnia-Herzegovina) at 1355 in (p) Kurdish with female and Islamic devotion. Time pips to TOH and news at 1400. (Sellers, BC) 11510, via Bulgaria at 1950 with indigenous vocals, Kurdish instrumentals, local string music, and Kurdish NA. (Alexander, PA) Via (p) Moldova at 0325 with tribal-sounding music and vernacular talk. (Parker, PA)

Radio Biafra London (to Nigeria), 11870 at 2045-2100* in vernacular and EE. Off with African music. This is on Thursdays and Saturdays only. Also 11830 at 1935-2000* a new time and frequency (ex 11870) with vernacular and EE talk. (Alexander, PA)

PALAU—World Harvest Radio with an EE sermon at 1208. (Brossell, WI)

PERU—Ondas del Huallaga, Huanuco, 3330 at 1007-1015 with male and female SS talk and music. (Wilkner, FL)

Radio Huanta 2000, Huanta, 4747 at 0920 in SS. (Wilkner, FL)

Radio Tarma, Tarma, 4775 at 0920-1000 with excellent Peruvian music. (Wilkner, FL) 1025 with OA folk music and SS announcements. (Alexander.PA)

Radio Vision, Chiclayo, 4790 at 0413 with a congregation singing hymns. (Parker, PA) 0730 with a distorted signal. (Wilkner, FL)

Radio Sicuani, Sicuani, 4826.5 at 0800. Seems to be on early regularly of late. (Wilkner, FL)

Radio Cultural Amauta, Huanta, 4955 with an abrupt 1022 opening with guitar music and female vocals. Outstanding folklorico selections. (Perry, IL)

Radio Libertad, Junin, 5039 at 1020-1040 with male in SS and music. (Wilkner, FL)

Ondas del Suroriente, Quillabamba, 5120 at 2300 with inspirational chorals. (Wilkner, FL)

Radio Bethel, Arequipa, 5921 at 2300 with M in SS but with deep fades. (Wilkner, FL)

Radio Tawantinsuyo, Cusco, 6174 at 2340-0000 with long SS talk. Using a narrow bandwidth helps. (Wilkner, FL)

PIRATES—Pirate Radio Boston, 6925 at 0148 with a rerun of the previous day's broadcast, 0215 with the 20th anniversary pgm. Went into USB mode at 0335. Gave P.O. Box 1, Belfast, NY 14711 address plus <pirateradioboston@gmail.com>. (Hassig, IL) 2111-2210* with hosts "Charlie Loudenboomer" and "Mr. Excellence." (D'Angelo, PA)

Undercover Radio, 6925 at 0230 with short broadcast by "Dr. Benway testing." Also 0320 in both USB and AM. (Hassig, IL)

Wolverine Radio, 6925u at 0105 with bluesy style music related to stormy weather conditions. (Alexander, PA) 6940 at 0200 with Halloween flavored tunes. (Hassig, IL)

WMPR, 6925 at 2150-2200 with techno pops. (Alexander, PA) 2154 with male announcer and techno selections. (D'Angelo, PA) 2334-0021 with industrial dance things. (Hassig, IL)

XFM, 6960 at 0213 saying they were using C-QUAM stereo, DJ was "Redhat" who read emails. Also 6965 at 0222. Address was given as <xfmshortwave@gmail.com>. (Hassig, IL)

Northwoods Radio, 6950u at 2335 with some British comedy tunes and spoof songs. (Hassig, IL)

A Turkish girl's folk dance group adorns this QSL from the Voice of Turkey. *(Courtesy of Paul Gager, Austria)*

A 1952 model radio made in the then Czechoslovakia is featured on this Radio Slovakia International card received by Paul Gager, Austria.

This Month's Winner

To show our appreciation for your loggings and support of this column, each month we select one "GIG" contributor to receive a free book or other prize. Readers are also invited to send in loggings, photos, copies of QSL cards and monitoring room photos to me at *Popular Communications*, "Global Information Guide," 25 Newbridge Rd., Hicksville, NY 11801, or by email to <gdex@wi.rr.com>. The email's subject line should indicate that it's for the "GIG" column. So, come on, send your contribution in today!

Rich Parker wins this month's reporting prize. Always steady with interesting and worthy logs, he'll discover dozens of juicy targets in the 2013 *World Radio TV Handbook* that he'll soon find on his radio desk. That new copy will show him when and where to tune for each of these tempting targets. I would never consider doing without my copies and neither should you. It's like an atlas or a navigation system in your car. Get your copy now from your favorite radio hobby supplier, online book dealer, or big box book store.

Red Mercury Labs, 6925u ending pgm at 0313, then talking with two other operators. <redmercurylab@yahoo.com>. (Hassig, IL)

Radio Casablanca, 6940 at 0030 with a nice pgm of big band tunes and email as <radiocasablanca@gmail.com>. (Wood, TN)

Rave On Radio, 6925u at 2310 with an SSTV signal and Stevie Wonder tunes. (Alexander, PA)

Grizzly Bear FM, 6925 at 0240 with Delta blues tunes. (Hassig, IL)

Gay Boy Radio, 6925u at 0230 with gay porn talk, a VE7 callsign, and a phone number. (Hassig, IL)

Voice of Hell, 6925 at 0028 with spooky music but muffled audio. (Hassig, IL)

Radio Free Mars, 6925 with Latin-sounding DJ and dance versions of pop songs. (Hasssig, IL)

PHILIPPINES—Far East Broadcasting Co., 9795 at 2304 in (l) Mon language with Christian songs, (Sellers, BC)

ROMANIA—Radio Romania International, 11695-Tiganesti with news at 0008. (Parker, PA) 11790 in Romanian at 1946 and 15310 also in Romanian at 1924. (Brossell, WI) 13800 at 2045 with a *Book Review*. (Fraser, ME)

RUSSIA—Voice of Russia, 7290 via Moldova at 0018 with a recipe and *News in Brief* at 0030. (Sellers, BC) 9430 via Moldova in RR at 2300 and 11500 via Tajikistan in EE at 1202. (Brossell, WI) 12155 via Armenia in SS at 0259. (Parker, PA)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 15225 with an AA call-in pgm at 1525. (Brossell, WI)

SINGAPORE—BBC Far East Relay Station, 11890 at 1417 on an ultra orthodox neighborhood in Jerusalem. (Sellers, BC) 15285 on Olympic gold medals at 1151. (Brossell, WI)

SOMALILAND—Radio Hargeisa, 7120 noted several mornings in the 1300-1400 time slot with EE programming at times. (Perry, IL) 0328 with talks in (l) Somali. (Brossell, WI) *0330 sign on with an IS, talk at 0331, Koran at 0332, talks and into HOA music at 0337, 0344-0410 tune in to talk. Local music at 0427 re-check. (Alexander, PA)

SOUTH KOREA—KBS World Radio, 9650 at 1240 with its *Learn Korean* pgm. (Fraser, ME)

SPAIN—Radio Exterior Espana, 9665 at 2055 with ID, tones and sign off. (Fraser, ME)

SUDAN—Sudan Radio TV, 7200 at 0218-0401* with local music, AA talk, wide variety of local folk, pops and HOA music. (Alexander, PA)

Radio Miraya, 11560 via Ukraine at 0355 in AA with male announcer, slow female vocal. Weak but in the clear. (Parker, PA)

SURINAME—Radio Apinte, (t) 4990 at 0314 with pgm of soft pop vocals with some EE lyrics. Male announcer in EE and Hindi. (D'Angelo, PA) 0850 with weak audio. (Wilkner, FL)

TAIWAN—Radio Taiwan International, 15485 via France at 1625 with "Feast Meets West" feature. (Barton, AZ) 15690 via France in FF at 1924. (Brossell, WI)

TANZANIA—Radio Tanzania Zanzibar, 11735 at 1515-1535 with quick fade in/out using a Sony portable at a neighbor's pier. (Wilkner, FL) 1932-2006 with male announcer in Swahili, 5+1 time pips at 2000. (D'Angelo, PA) 2015-2048 with local pops, Middle Eastern-style music, Swahili talk. They've been signing off early lately, around 2040-2050, many canned IDs in both EE and Swahili. Off at 2121* this date (Alexander, PA) 2016 with talks in (l) Swahili. (Brossell, WI)

THAILAND—Radio Thailand, 9535 (nf) at *2000-2015 with opening announcements, into GG at 2001, 9720 at 1233 with EE news ID, and travel promos. (Alexander, PA) 9890 in (l) Malay at 1200 QRM for VOA-Greenville on 9885. (Brossell, WI) 13745 (nf) at 0019-0035 with the *Morning News Hour*, promoting Asian travel and an ad for Bangkok Airways. (Alexander, PA)

TUNISIA—RT Tunisienne, 7345 in AA at 2250 and 12005 in AA at 1947. (Brossell, WI)

UNITED STATES—Voice of America, 7560-Kuwait Relay with EE lesson given by male/female at 2312. (Sellers, NC) 7205-Philippines Relay in (l) Mandarin at 2242, 11825-Philippines also in (l) Mandarin at 1241, and 15380 via Wertachtal in (l) Dari at 1535 (Brossell, WI)

Radio Free Asia, 7505 via Tajikistan in (l) Tibetan at 2252, 11785-Northern Marianas Relay in CC at 1939, 12140-Northern Marianas in (l) Khmer at 1246, and 15670 via Tajikistan in (l) Tibetan at 1202. (Brossell, WI) 11605 via Taiwan at 0007 with news in (p) VV. (Sellers, BC) 13740-Northern Marianas at 2240 in an Asian vernacular. (Parker, PA)

Radio Free Europe, 5925-Lampertheim Relay in RR at 0447 (Parker, PA)

Family Radio, 9925 via Madagascar with Bible study at 1847 and 11855 at 1943 in (l) Yoruba. (Brossell, WI)

Adventist World Radio, 6065 via Wertachtal in (p) Tigyinya at 0305. (Parker, PA) 11605 via Wertachtal in AA at 2053-2059. (D'Angelo, PA)

KJES, New Mexico, 11715 at 1405 with female leading children in recitations praising God. (Sellers, BC)

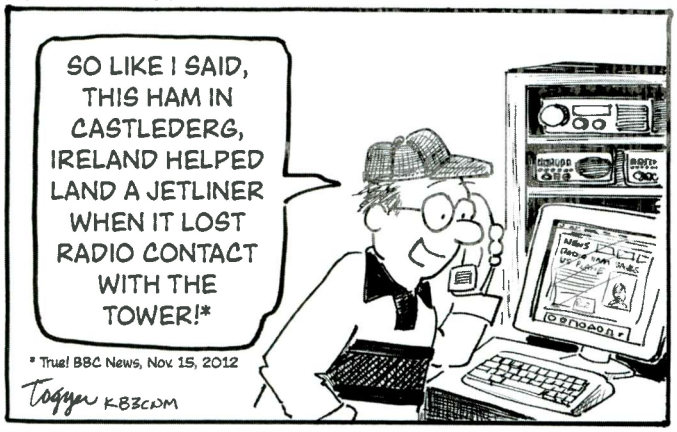
VATICAN—Radio Vaticana, 15460 via Northern Marianas in CC at 2223. (Parker, PA)

VIETNAM—Voice of Vietnam, 9840 with female announcer and news in EE at 2333. (Sellers, BC)

ZAMBIA—CVC-One Africa, 9505 at 2100 on public transportation, email address, and religious music. Male DJ in English.

That's a wrap! Sound the klaxons and offer big high fives to the following folks who came through this time: Richard Parker, Pennsburg, PA; Brian Alexander, Mechanicsburg, PA; Rich D'Angelo, Wyomissing, PA; John Miller, Ochlocknee, GA; Harold Sellers, Vernon, BC; Robert Wilkner, Pompano Beach, FL; William Hassig, Mt. Pleasant, IL; Ralph Perry Wheaton, IL; Robert Fraser, Belfast, ME; and Rick Barton, El Mirage, AZ.

SPURIOUS SIGNALS By Jason Togyer KB3CNM
popcommcomic.blogspot.com



The Imagination Station — Part II

by Shannon Huniwell,
WPC2HUN
<melodyfm@yahoo.com>

"Though they'd invested hours into the planning, Craig, Cindy, and Roger were shakily incredulous at what had just transpired. Dom was simply ecstatic."

"Well, you know," my father slowly began, "except for that classic CBS broadcast where Martians landed in New Jersey, this is probably the greatest example of radio's power of imagination!" Dad then claimed to have been in on the hoax, "just a little bit, sort of indirectly," as he'd allegedly gotten advanced word of the radio ruse from a high school classmate whose uncle reportedly golfed with the brother-in-law of a studio engineer from WOR. My guess is that he actually heard the tale from a 5-tube AM set tuned to 710 kilohertz — like so many others who listened to the Big Apple-based station's talented but quirky personality, Jean Shepherd.

Of course, my father insisted he'd not only had original inside information about the overnight WOR incident, but happened to be visiting the station when "Shep" allegedly recounted the hoax for a room full of fans and good natured members of the press. Somehow, Dad managed to jot down the radio host's recollections on a yellow legal pad which, by another convenient quirk of fate, he located after having supposedly filed it away in 1956. Feel free to picture me — red head shaking and green eyes rolling — as I transcribe into an *iPad* while my father reads from his purportedly vintage pages:

"Look, since we're all in this together, what do you say we make this a communal affair?" Jean Shepherd began musing into the WOR mic.

"You give me a title," he playfully bargained. "Suggest something good and we'll go with it . . . just call it in. And I got millions of calls. They were coming in from all over. After all, we have 50,000-watts. We were getting calls from Alaska! Finally, at 4:30 in the morning I said, 'OK, it's closed. I'm picking the title.' And some unknown guy had called in this title, *I, Libertine*. I said, 'Now that sounds like a book! *I*, comma, *Libertine*.' It could mean almost anything!

"Then I said, 'Folks, we gotta have an author because most people just say, Have you read the latest Faulkner or Jacqueline Suzanne? They make it sound like a big deal. Alright, I'll create an author' and I sat for a minute and it just hit me — the name; And I says, 'OK, the author's name is Frederick Ewing . . . Frederick Rowland Ewing. He's British. He was a Lieutenant Commander in World War II and is now a civil servant living in Rhodesia. He's married to Marjorie, a horse woman from the North Country. He is primarily known for his pre-WWII broadcasts on the Third Program of the BBC regarding 18th Century erotica. He's a scholar and *I, Libertine* is the first volume in a trilogy on 18th Century court life. And, by the way, Mr. Ewing is quite surprised at the success his book is enjoying since it was written primarily for scholars.

"Here's what we gotta do . . . Just go into your local bookstore and simply say, 'I would like a copy of *I, Libertine*.' If anyone asks you, it's printed by Excelsior Press, which, by the way, is an imprint of Cambridge University Imprint. There

Photo A. Anyone who listened to Jean Shepherd but had never seen him would probably never pick this intense — almost angry-looking — picture out of a lineup of possible faces associated with the radio personality's quintessential story teller voice. Those not able to claim membership in Shepherd's 1956-1977 WOR audience might well recognize his pleasantly mischievous sound as evidenced via narration of the classic 1983 family-favorite holiday flick, *A Christmas Story*. The fuzzy focus of Shepherd's right hand indicates a brand of motion consistent with him describing something that was erupting from his fertile imagination. Along with a microphone and a pair of modest headphones or "cans," that's the central mark of a major market broadcast talent.

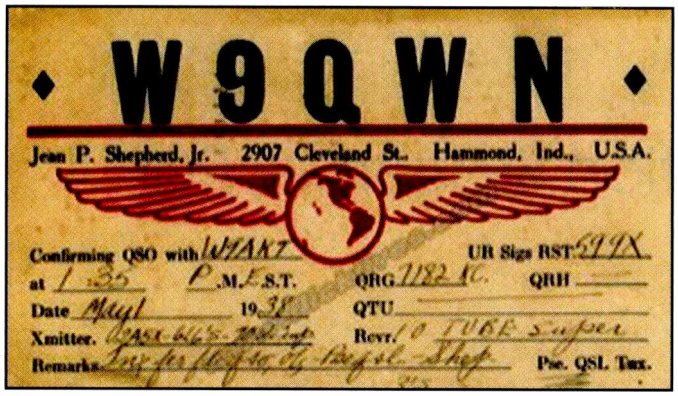


Photo B. Long before he took to the Northeastern U.S. airwaves via WOR New York's 50,000-watt transmitter, Jean Shepherd navigated the ether on the amateur spectrum. This 1938 QSL from Shepherd's boyhood Hammond, Indiana home signifies that his W9QWN was then running at 70 watts. Shepherd remained an active ham for much of his life, though often used a pseudonym handle after gaining notoriety on the broadcast band.

is not a book seller in the world who can argue with Cambridge and a British author who is married to a lady named Marjorie.' I said, 'You go in to the bookstore and don't crack a smile and ask for the book, and if the man asks who published it, say Excelsior Press.

"He'll say, 'Ah yes, I've heard of them.' He'll then take out a list and look it up and see that it is not listed. He'll turn to you and say, 'There's apparently no such book.'

"You tell him, 'Well, I'll go to another bookstore,' When the next guy comes in and asks for the book, the bookstore man will say, 'Yes, it's on order.' And when a third person comes in wanting *I, Libertine* the guy will get on his phone and call the distributor.

"After several hundred requests, the distributors will start calling *Publishers Weekly* [the industry's trade magazine]. Now remember, I say, this is a $6.95 book! [Three times the price of a typical paperback in 1956] They don't laugh at a $7 book. So get out and go. Let's see what happens.

"Every listener knew the book didn't exist. But I said, 'Give me a report on your local bookstore requests and I'll tell about them on the air to let people know what's happening.' Sure enough, a listener reports that when he asked for the Ewing book at his local store, this salesclerk with a beard looked up from behind the cash register [and pontificated] 'Yes, Ewing. It's about time the public discovered him!'

"A lady at her bridge party mentioned *I, Libertine* and instantly some of the other women began discussing it. Not only had they finished reading it, but two of them didn't like it! Anyway, I got a letter from a kid — calls and letters came in from all over the country, and some airline pilots who were overnight WOR listeners started asking for the book all over the world. Anyhow, the kid says that he wrote a college term paper entitled, *Frederick Ewing — Eclectic Historian* with footnotes and references from Ewing's earlier works and BBC broadcasts. It had a big red grade on it that said, *SUPERB RESEARCH!* He got a B+. The kid is now convinced that his whole education is probably phony!

"At the end of the sixth week, one of the New York newspapers' book supplements had a review of *I, Libertine*. Then it was banned by a very prominent church. And what do you think? At the end of the seventh week, it was on a best-seller list! Remember, this was all out in the open. All of the Night People [Shepherd's loyal WOR audience] knew it was fake. [When the Day People finally caught on] there were headlines like, *Disc Jockey Sells Non-Existent Book To Listeners*. But that wasn't it at all. My listeners," Shepherd concluded, "sold a non-existent book to the world. [The Day People] didn't want to admit that the whole thing was actually a comment on the entire structure of the official critique layer of those 10 Best lists." ***(LISTEN:*** *Jean Shepard's I, Libertine radio hoax <http://bit.ly/zDCs8V>)*

Source Check, 1-2-3 . . . Check, Check

Two days after keying Dad's Jean Shepherd saga into my tablet, I emailed the resulting file to Craig Keller. Readers remembering last month's column about a sorry little college FM station about to be silenced by uncaring school officials, will know Keller as the underclassman who, during fall 1972, walked into what he cryptically calls W***-FM looking for a chance to get on the air. His casual request was met by Dominick Dotz, a serious college senior and sole survivor of the once robust volunteer DJ crew. The guy quickly approved Keller for service and then enlisted his help in composing a spectacular swan song worthy of every pulse of RF ever associated with the 10-watt educational outlet. According to Craig Keller, Dominick Dotz used the Jean Shepherd book hoax as an exemplar of the mayhem one could inexpensively accomplish via imaginative radio.

W***-FM had been on the air for just under three years when an administrative shake-up occurred at its licensee college. The coup left the formerly traditional Judeo-Christian institution in the controlling hands of several new trustees and their openly liberal president whom they quickly appointed before any effective resistance from the few remaining old guard could be organized.

That charismatically left-leaning leader was then given carte blanche to do whatever it took to make the school attractive to the growing legion of non-churchgoers, thus being in a better position to double the enrollment within half a decade.

Dominick Dotz witnessed this plan — slowly, at first, then undeniably evident — permeate the radio station. Though none of the early W***-FM staff would've considered themselves to be religious fanatics, most felt quite comfortable hosting the station's standard programming. When Dominick Dotz returned to his beloved FM, following a semester-long hiatus necessitated by medical issues, however, only two or three "old faithfuls" were left to staff the studio. The others had either graduated or were scared-off by a pack of hippies and various ne'er-do-wells who'd invaded the once orderly place. This gang lost little time in hijacking W***-FM's format and stinking-up its studio with the smell of marijuana. Almost overnight, programming had de-evolved from a mix of about 25 percent religious/25 percent easy listening and semi-classical/50 percent adult contemporary music into a discordant mish-mash of so-called "free form radio." This, as long as the "form" con*formed* with the helter-skelter album cuts that the station's new occupiers decreed acceptable. It took Dominick Dotz a while to battle these folks, and his fight extended further than his daily two-hour pop music show having been the newly-branded station's lone holdout of "normal" radio. The disgruntled broadcaster used very basic technical prowess to drive-away the flower power people . . . He simply shut-down the little Gates transmitter and, for good measure, removed several of its tubes. Within a semester, even the highest-flying hippies realized that

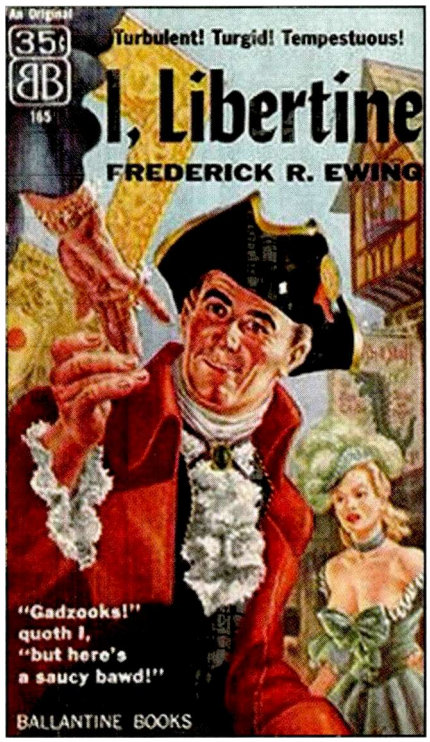
his or her hard rock records were not making it past the studio speaker. Reportedly, the last one finally exited W***-FM with the pronouncement, "Man, this scene is a royal drag!"

Peace de Resistance

The hippies and their inadvertently influential lot may have fled W***-FM, but their increasing presence was unmistakable on the rest of the campus. The college population had indeed jumped; A noticeable reality as the erstwhile conservative school began imitating the region's larger secular universities. Dominick Dotz was appalled to see pails of sand, overflowing with cigarette butts, on the front steps of every building. Other new policy included dormitory resident assistants having been advised to look the other way if noticing students drinking. Language uttered within earshot of others took on a decidedly foul routine. And drug use had risen from incredibly rare to commonplace throughout the dorms and surrounding woods. The straw that broke the camel's back, though, happened in the small chapel off the Student Union's main hallway.

Dominick Dotz had quietly gone there to pray for an ailing family member. Near its entrance posters were plastered announcing the nearby spiritual tour venues of some smiling heavyset kid dressed in an ornate Far Eastern costume. To Dotz, the sight of those plaquards and a handful of others offering free birth control, a march to save the planet, and one touting free sexual disease clinical services, gave the college's flagship building all of the qualities of an inner-city bus station. *Experience Peace & Love From Guru Maharaji Gee Bashi*, the signs read. This was but a foretaste of what awaited him inside the chapel. There, a trio of students — each apparently a follower of the teen Guru — were murmuring a monotoned mantra while sitting amidst a pile of purloined wildflowers deposited in the chapel's aisle. On the front of the modest sanctuary's pulpit was taped one of the Maharaji posters. On top of the alter, a brass globe filled with incense smokily smoldered.

Dominick Dotz returned to his room practically in tears. Only after seeking out an old W***-FM associate, a week later, did his melancholy begin lifting. Alex Girard had known Dominick Dotz since the then high school student Dom had visited the station when it was only an AM carrier current operation. It had been Alex



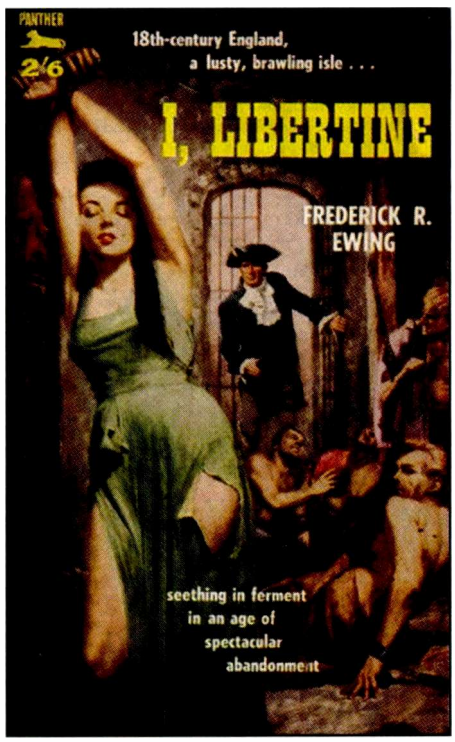


Photo C. A pair of paperback covers proving that a little imagination unleashed in a radio studio can have international ramifications. After concocting a fake book title *I, Libertine* and bogus author, Frederick R. Ewing's biography on his 1-5:30 a.m. WOR radio show, Jean Shepherd was sought out by book moguls who desperately wanted to get Ewing to sell them the publishing rights. Even though the ruse was openly admitted by Shepherd, one enterprising publisher was more than happy to commission a manuscript to go with the quirky title weeks *after* the then non-existent book had been lauded by pompous literary critics. The 1956 *Ballantine Books* version showing the bogus tale's protagonist taking the hand of some unseen but suggestively saucy lass was drawn to pass muster with the day's conservative Eisenhower-era/*Father Knows Best* media standards. The topside featuring that vulnerably larger-than-life brunette — about to be recruited by the phony author's hero — is artwork for the *Panther* edition, marketed in England for two shillings/six pence. Being an intellectual hoax, the author (actually WOR Radio DJ Jean Shepherd and an associate ghost writer) donated much of the work's profits to charity.

whom — with a nudge from the college admissions director — wrote to Dom that an FM construction permit had been secured, and suggested he decide to attend the college and join its radio club. The two remained friends after Alex completed a degree in business and became regional manager for a small chain of area motels. They'd discussed the tenuous situation at W***-FM and Alex always offered to help in any way he could. The radio buddies also talked about their favorite personality, Jean Shepherd, and that crazy book deal he *imagineered* to knock pious literary mavens off their high horses.

"Are you thinking what I'm thinking?" Alex then asked Dom. They enjoyed a good "Hey, what if?" laugh and loosely outlined a scenario similar to the Shepherd hoax; one that might allow W***-FM to rest in peace on their terms — Kind of like a captain and loyal crew scuttling their own ship so the enemy won't capture it.

The following September, Dominick Dotz inched the plan forward by hanging *Help Wanted* posters aimed at recruiting an accomplice. That's where Craig Keller entered the W***-FM picture. Mentored by Dom throughout the fall semester, Craig was fully on board with the anticipated ruse when Dom finally got his diploma in a mid-December commencement ceremony. The station's Winter 1973 broadcast schedule, completely helmed by Craig Keller, ran from 5 to 10 p.m., covered by 120 minutes of easy-listening "dinner music" tapes, and then live from seven until sign off.

Craig possessed no grand illusions that he had many listeners. In fact, after the dining hall cleared out around 6:30 each

BALLANTINE BOOKS MAKES HOAX COME TRUE

New York and other papers expose intended literary hoax by wee-hours disc jockey JEAN SHEPHERD. Non-existent novel I, LIBERTINE actually to be published in September.

from page 1 — August 1, 1956

THE WALL STREET JOURNAL

NEW YORK, WEDNESDAY, AUGUST 1, 1956

Night People's Hoax On Day People Makes Hit With Book Folks

* * *

"I, Libertine" Gets Novel Push With a Cry of Excelsior; The Author Who Never Was

By CARTER HENDERSON
Staff Reporter of THE WALL STREET JOURNAL

NEW YORK—Next month, Ballantine Books, Inc., will publish a 192-page book entitled "I, Libertine," authored by Frederick R. Ewing and described as a "turbulent, turgid, tempestuous" novel of 18th Century court life in London.

The event might well pass unnoticed but for some strange pre-publishing goings-on. Strangest of all, perhaps, is the fact that the book is a hoax—and Ballantine knows it. Not the least intriguing, however, are the characters in this weird story-behind-a-story: An all-night disk jockey with a whimsical turn of mind, a vacuous book store clerk, a publisher searching for a non-existent best seller, and the quite unsettling "Night People."

The Publishers' Lists

The tale began last April when 32-year-old Jean Shepherd, part-time philosopher, jazz musician, writer and record spinner on Station WOR, ambled into the Doubleday Book Shop on Fifth Avenue and asked the clerk for a long list containing mythical scripts of an old radio serial, "Wit and Sado." He was informed the shop had no such book and, furthermore, it did not even exist because, the clerk took pains to explain, it had not yet appeared on any publisher's list.

To Mr. Shepard, who earns his living from 1 a.m. to 6:30 a.m. by playing records and chatting about such matters as the vital role the Flexible Flyer sled has had in America's cultural renaissance and the socio-anthropological factors behind the wearing of paper hats at parties, the clerk symbolized a breed apart—the people who live by day and sleep by night.

These Day People, Mr. Shepard mused, waste their waking hours on daytime jobs where life is regimented by train schedules, office appointment pads, insistent telephones and lists of all kind. Yet oddly enough, he told his Night People audience, Day People feel superior precisely because they're so well organized.

Shaking the Faith

"What better way to restore the status quo," he suggested, "than to shake the Day People's faith in their organization. And what better place to start than with bookshop clerks whose lists make them the most organized of all?"

To get the campaign under way, Mr. Shepard called for suggestions for a fictitious book and author. He got thousands, and picked "I, Libertine," by Frederick R. Ewing. This Mr. Ewing, it was agreed, is an Oxford grad mate, a retired Royal Navy Commander and a scholar "well remembered" for his series of British Broadcasting Company talks on "Erotica of the 18th Century."

After settling on a book and author, Mr. Shepard urged his night listeners to order the volume wherever and whenever they could. It turned out that hundreds did, in libraries and bookstores here and abroad.

By late April, publisher Ian Ballantine had gotten wind of the hoax. Salesmen were bringing in tales about a novel called "I, Libertine" which buyers seemed to be crying for but which no bookseller had ever seen. Mr. Ballantine tracked "I, Libertine" to Mr. Shepard, discovered the hoax, but had an idea: Why not actually publish a book called "I, Libertine" and capitalize on the hoax?

The Great Tragedy

Mr. Ballantine's idea, though simple enough, was a startling one, for publishers consider it one of the greatest possible tragedies to print a book later discovered to be the work of a literary faker. At Simon & Schuster, Inc., faces still redden when Joan Lowell's autobiographical "Cradle of the Deep" is mentioned even though this phony tale of a young girl's spectacularly adventurous life at sea was published in 1928.

Nevertheless, Ballantine went ahead and contracted Mr. Shepard to team up with science fiction writer Theodore Sturgeon to write "I, Libertine". The book, based on the adventures of an 18th Century English duchess, will have an initial press run of 150,000 copies, Mr. Ballantine says.

There's a brief postscript in the book coming off the press September 20. It's a note by author Ewing giving special thanks to Messrs. Shepard and Sturgeon for their kind assistance and to the Night People—"whose battle cry is Excelsior, and whose humor and forbearance are really responsible for the work."

Photo D. "Disc Jockey Jean Shepherd's Non-Existent Novel Actually To Be Published," read the *Wall Street Journal* headline. The accompanying August 1, 1956 article confirmed status on a 192-page literary hoax hatched by WOR's most imaginative personality and his creative, but loosely organized legion of "Night People" listeners. The ruse was originally hatched in the spirit of *pranksterism* in order to poke fun at pompous "Day People" who organize their lives around whatever is considered trendy; those pretentiously-penned books that make the best seller lists, for example.

evening, nobody was subject to W***-FM unless they somehow knew it's dial position and sought out its little signal. Nonetheless, the rules he and Dom agreed upon called for a full disclosure of their scheme and, if possible, an enlistment into the hoax of whatever listener might actually be out there and want to play along.

Assembling A Radio Wrecking Crew

For a complete school week, at 7 p.m. on the dot, Craig Keller coaxed-on the microphone switch, summarized the Jean Shepherd fake book story, and then disclosed the following over W***-FM:

"Because our esteemed college is looking to promote anybody and anything diametrically opposed to its past values and someone or something that offends nobody except maybe traditional folk, what do you say we stage an event that highlights such a watered-down Gospel and offers nothing in particular? We'll need to come up with a plausible name for an imaginary spiritual leader, concoct an innocuous philosophy for the guy — or maybe gal — and then figure out how to generate on-air and campus community-wide publicity for an evening in . . . Let's see, which campus venue has the biggest seating capacity? Yeah, how about we plan it for Radding Gymnasium where they can pull out all of the bleachers plus fill the floor with folding chairs! Doesn't that place hold like a thousand people?

"Ah-ha! A name is coming to me . . . Yes . . . It is . . . Ralph Doyle. Wait, now. That can't be all of the identity. I mean he's got to have a fancy title. How about Spiritual Leader, Minister Reverend Ralph Doyle? Yeah, that's it! So think about what someone named Spiritual Leader, Minister Reverend Ralph Doyle might proclaim to his followers. Give me a call and let's get this thing going. Time is short." Craig said he always tagged this admonition this with the Booker T. & the M.G.'s 1969 instrumental hit, *Time Is Tight*.

A blind student, Roger Humphries, contacted Craig first. "I'm familiar with the Shepherd WOR thing and always thought it'd be fun to be involved in something like that," he pledged.

The fellow admitted to having a severe sight limitation, but was one heck of a mimic. "I can do voices and dialects that sound like almost anyone or no one in particular," he offered. Over the phone and on-air, Craig had him audition until the pair got laughing so hard, it took them five minutes to regain their collective composure and settle upon a quirky accent that skillfully melded Pakistan, India, and Mexico with a bit of eastern Long Island.

The next evening, a girl who identified herself as "Cindy with one of those *type-O'* Irish last names" called to say she wanted in on the Ralph Doyle caper. She was a commuter with a 7:30 art appreciation course on Tuesday and Thursday nights and had a habit of listening to W***-FM for a few minutes in the parking lot. "I'm always hoping beyond all hope that they'll announce over the radio that class has been cancelled," she smiled. Even Roger could see them in his mind's eye instantly bonding. Cindy's voice wore a contagious twinkle that hinted she relished a good gag. "I'm in," she promised. "You might say I am pretty skilled at disguises. If you want me to distribute the Reverend Ralph — or whatever his kooky fake name is — well, I can cover the campus as a preppie, nerd girl, or hippie. In fact," she noted, "I even have a policewoman costume left over from last Halloween; not to mention a couple of wigs from a high school play I was in."

The third participating listener was Alex Girard, the W***-FM alumnus, who still sampled the station from time to time. Dominick Dotz had given him the heads-up on the imminent Shepherd plot interpretation. Alex didn't want to "get directly involved," though figured he might provide motel stationary and perhaps an arranged ad-hoc answering service capable of convincing someone that Spiritual Leader, Minister Reverend Ralph Doyle was an actual guest there. Truly planning to appear, Dominick Dotz had already asked his employer if he could have a couple days off from his broadcast engineering duties to attend a big event sponsored by his old college FM. Meantime, Dom got briefed by Craig, whom he'd routinely call on Friday nights. "Keller, Keller, Keller . . . Minister Reverend Ralph Doyle?" he would annunciate as if to express frustration near the end of their conversations. Then, he'd pronounce, "Keller, my son, You're making me proud!"

Shortening A Long Story That's Really Fun To Tell

After their initial February hatching sessions, the W***-FM conspirators hid their activities in the plain sight of the station's on-air presence. Any individual tuning an FM radio within three or four miles of the college could have been savvy about the

Photo E. Snagged from a fascinating website highlighting the Armed Forces Vietnam Network, this is the photo that Craig Keller emailed me to represent the W***-FM studio, as he best recalled it. Because no W***-FM photos are known to exist, I'd asked our story's supporting character to find some image capturing the seedy spirit of his alma mater's doomed broadcast outlet. "Except for the fact that the pictured studio possesses legitimate, commercially-built equipment, such as a Gates *Studioette* board, CBS *Volumax/Audiomax* processors, and *TapeCaster* cart machines," he mused, "the grimy sound-proof wall tiles, ratty control room chair, and home-brew plywood desk radiate the despair one might quickly feel whenever entering the W***-FM hovel. Suffice it to say that everything at W***-FM, including the Gates turntable — our sole piece of professional gear — was either broken or sticky." Craig notes that the Armed Forces Radio Vietnam facility shown here actually appears to be nicer than the W***-FM rig. And this after the AFRV studio was the victim of several enemy rocket attacks!

strategies leading up to the early spring event featuring non-existent Minister Reverend Ralph Doyle's Spiritual Spectacular. "For crying out loud!" Craig Keller emphasizes. "The darn thing was even slated for April 1st, April Fool's Day 1973!" He and his gang were sure someone would catch on — especially since the plot got revealed every night for several months on the college's station. But nobody except the planning team was even suspicious, or tuned to W***-FM.

Roger Humphries used his cassette recorder and a host of inescapably weird voice affectations to tape a series of talks from Minister Doyle that were subsequently aired from 5 to 7 p.m. over W***-FM. None of them made much theological sense, but apparently Roger's odd dialects and his theme of "heavy peace" meant something to the surprising numbers of those in the college community who began dropping the surreptitious spiritualist's name in class discussions and dorm room bull sessions.

Roger, whom seldom spoke in public, offered Minister Doyle as an example of the quintessential "teacher, preacher, creature of the whole earth." This prompted a kid wearing a blue bandana to compliment the blind student on his "groovy insight" and suggested that Roger might be lucky enough to get cured if he were to seek him out the spiritual man during the upcoming event.

"Yes, yes, I can see it clearly now," a young woman slowly began while looking at the professor in anticipated approval. "Teacher, preacher, creature of the *whole* peaceful earth. I'm feeling that those words are genuinely profound. I feel it goes to the very core of one's being," she nodded, her rose-tinted granny glasses catching the room's fluorescent light.

Roger couldn't wait to get back to his cassette machine and phony-up a new Minister Reverend Ralph Doyle speech employing his new triple-vague identifier at least three times. To add credence to the programs, Roger generated another character, one Guru Maharaji Mulligan, who, in a kooky brogue, agreed with all of Minister Doyle's teachings and literally begged listeners to attend the April Spiritual Spectacular. "It's worth every penny of the admission," Roger as the

Celtic-sounding Guru pounded on his desk in order to achieve a tacky dose of sloppy audio emphasis. "Peace people, I just can't help believin' that the free admission will be worth every last cent of your beautiful soul," the Guru Mulligan mentioned. "But the wonderful news is: Minister Doyle's message is free. F-R-E-E! Fellow heavy peace lovers, I have a feeling that you'll agree that's true peaceful easy value. Anyway, I hope to see you there on April first, rainbow or shine!"

True to her word, Cindy clandestinely hit every campus building with the clever posters she and Craig Keller designed. The couple then typed, addressed, and mailed a copious amount of old postcards festooned with messages from Minister Reverend Doyle to so-called student leaders, the mayor, village board members in the school's town, the college's trustees, and a final barrage of the yellowed publicity to the institution's uber-tolerant president. His brand of tolerance shifted into its highest gear when receiving information with which he was in complete agreement. Cheered-on by Dominick Dotz, the W***-FM hoax team bet their proverbial farm that the college's chief limousine liberal administrator would prove to be a willing sheep for Minister Ralph Doyle's sharply diverse shearing.

Rolling A Lucky Seven With Just Ten Watts

Scuttlebutt from various sources started building by mid-March. Roger got the word from a rent-a-cop tasked with helping him navigate a major crosswalk, that Campus Security was "making plans for some big shot preacher's concert or some such happy noise." Cindy reported overhearing a classmate who worked part-time in the college president's office that the big shots would be honored to host the spiritual leader — to show how *universally-inclusive* the place had become — but were waiting to hear from Minister Doyle.

Craig relayed this signal to Dominick Dotz, who gave the *go* order for the group's coup de grace. After careful scripting, wishes for *good luck*, and strict provisos from the team not to bust out laughing, Roger was sped away by Cindy in a borrowed 1961 Falcon *Ranchero*. The two were destined for one of Alex Girard's motels on the outskirts of a major city some two hours distant. There, Roger, turned on his best Minister Doyle dialect, phoned the college's executive suite, and held a plausibly pleasant conversation that ended with a promise to the president that the eminent theologian would consult his secretary and verify a date and time for the school to host his Spiritual Spectacular.

The institution's head remarked how much he'd enjoyed the minister's diverse philosophy on broadcasts he'd heard in the school cafeteria. "Oh, that's very, very, wonderful that you choose to dine with the student body members who must look to you as a role model!" Roger as Minister Doyle pronounced sycophantically. To inject an added dose of realism to the stunt, Minister Reverend Doyle suggested that the college president should feel free to give *him* a call back, "in shall we say, about half an hour?" When the motel phone rang not long after that interval, Alex made sure that his most professional sounding front desk clerk candidly remarked on how "delightful a guest Minister Doyle has been," before she patched the school CEO's call into Roger's hideout. The brief resulting communication sealed the deal. Cindy, using motel stationary purloined from one of Alex's competitors, then composed a follow-up to the president.

"Please consider this letter as my bond indicating I shall be so very joyful to accept your invitation to offer my message of peace and universal inclusiveness at 7:00 p.m. on 1 April in your Radding Memorial Gymnasium," it stated. The conspirators decided that it should look as "normal as possible" and sans the *heavy peace* goofiness that might start looking fishy on paper.

Photo F. Only inches from the studio telephone and tucked away in a plywood cubbyhole under the W***-FM control console desk, were a stack of outdated postcards. From the looks of the foreground model's modestly full-sized, slightly front-skirted swim suit, the photo shoot was pure mid-1950s. One of the station's early volunteer student DJs (who later participated in the tiny station's finale faux) had moonlighted at the local *Holiday Inn* and appropriated the decommissioned promotional pieces for use as scrap paper suitable for jotting down song requests. Craig Keller mailed several dozen of the smiley greetings to various church and college officials. It was a convincing set up to his 1973 radio hoax. On the message side, he crafted customized cursive paragraphs inviting the recipients to attend a "monumentally mind-blowing" speech by Reverend Ralph Doyle, the non-existent theologian who bubbled up from his imagination and his mentor's desire for payback. Craig notes that his "pretty brunette, petite first generation Irish-American wife," Cynthia O'Britetly-Keller, recently unearthed the card in an old college philosophy textbook about to be "lawn-saled." They enjoyed reminiscing over it during a couple of cups of Saturday morning coffee and believe this postcard to be the only remaining tangible evidence of the Ralph Doyle incident.

Roger expressed concern that the team's nightly, post 7 p.m. ramblings on W***-FM should no longer include any mention of the Minister Doyle caper. "We're so dang close to possibly pulling this off," he asserted. "I just don't want us to blow it now." But, the rest of the tiny crew was adamant that the only real way to honorably stage such a caper would be to do it with fair warning. The fact that this obvious "documentation" routinely flowed from a facility licensed to the very people who were apparently ignoring it represented the delicious icing on the Minister Doyle Spiritually Spectacular Seminar cake. So, Roger was persuaded to continue with his fake speech tapes run during W***-FM's captive audience dinner hour.

The trio kept appearing on the station's actual post 7 p.m. airwaves, musing about the preparations being made in the Radding Gymnasium. Cindy and Roger's presence came only via phone line, as Dominick had cautioned Craig Keller not to let anyone be seen anywhere near the station. Even Craig would be a visual unknown to anyone later questioning who had been the guy on the air, as, from the start, Dom instructed him to "be very 007 about coming and going" with regard to the seedy basement studio's HQ.

Five days in advance of April 1st, Craig Keller ran Roger's

grand finale cassette. In it, Minister Doyle gave numerous pleas for "outstanding attendance" at the Spiritual Spectacular. Of course, this peacefully forceful invite was backed-up by similarly strong encouragement from Maharji Mulligan and even some candid student testimonials Roger managed to secretly snag from a couple of kids commenting on Minister Doyle in a Sociology course. The spiritual leader signed-off with the explanation that nobody would hear from him again "until [his] travels concluded on April 1."

On the evening of that last broadcast, Craig Keller also completed clearing out any hint that he'd been in the studio or that it ever had anything to do with Minister Doyle. Dom had suggested this from day one of the plot. He also prompted Craig and Cindy to don gloves and retrieve dining hall glasses along with various and sundry notebooks, textbooks, and hats from the lost and found. These were deposited around the studio just in case the Minister Doyle affair became an "incident" that College Security was charged with formally investigating. Still in gloves, Craig then took W***-FM dark, shut the studio door, and, into the chilly March night, walked casually through the library, student union, and back to his dorm room. He would be correct in believing that not a single person — other than his radio friends — had any idea, nor could care, that he'd been one of the voices on the college station.

Epilogue

Cindy felt a little scared as she realized how tough it turned out to be to find a parking space just past 7 p.m. of April 1st. Craig, who had fetched Roger about 20 minutes earlier, spotted Cindy coming through the crowd filing into Radding Gymnasium. The three simply greeted each other with expressions of surprise. Once inside the building, they estimated that 750, maybe 800 people were there. There appeared to be a whole lot of milling around. By 7:20, some nervous upperclassman from the student council looked as if his hands were glued to the podium as he clumsily addressed the crowd. Something about the college's administration trying to get in touch with Minister Reverend Ralph Doyle.

That was all that the former W***-FM group needed to hear. Still in possession of that Falcon *Ranchero*, Cindy offered it as a getaway car. She drove her co-conspirators to a nearby McDonald's where they carefully de-briefed over Cokes and 55-cent Big Macs. Dominick Dotz had arranged to rendezvous with them there. Though they'd invested hours into the planning, Craig, Cindy, and Roger were shakily incredulous at what had just transpired. Dom was simply ecstatic.

Within a week, the college president resigned "for personal reasons and to pursue other educational interests abroad." They agreed to never again mention Minister Revered Ralph Doyle or the actual callsign of W***-FM, belonging to a remarkable little "educational" station that got to teach lessons in human nature not long before it *peacefully* went the way of the FCC wind.

It should probably be disclosed that after nosing into Craig Keller's account of W***-FM, my father began recalling having previously heard the ill-fated station's story. "If that were true," Craig admitted to me, "that would make it at least the second greatest example of radio's power of imagination!"

And so ends another day of arcane broadcast history on Pop' Comm.

InfoCentral *(from page 7)*

as its trigger for a switchover — would not be reached by this time in 2013, as had been planned."

John Mottram, head of radio for the Department of Culture, Media, and Sport, said the "government remained committed to turning off the FM signal," and "an announcement about 'the direction of travel' would be made (this) year."

According to the Telegraph, "a new advertising campaign has been devised by Digital Radio UK, the industry body, in an effort to convince the public of the merits of the new system. "A lot of people still don't get it — they don't understand what digital radio offers and why it's important," said Ford Ennals, its chief executive. ***(IN DEPTH:*** *Read the full story at <http://bit.ly/ToyJnZ>.) Source: The Daily Telegraph*

BCB DX Net in India Celebrates Anniversary

The weekly Broadcast Band DX Net (BCBDX Net) operating on the 40-meter amateur band in southern India recently celebrated its 24th anniversary.

The net was started on Sunday, November 27, 1988 by radio amateurs M. Shanmughasundaram, VU2FOT; Victor Goonetilleke, 4S7VK; and Jose Jacob, VU2JOS; along with some shortwave listeners.

The net meets Sunday mornings at 0830 IST (0300 UTC) on 7085 kHz LSB, covering southern India and Sri Lanka.

"The whole concept of this net started when these hams used to meet regularly on the band and exchanged DX news at various times . . . conducted on Sunday mornings for the advantage of those who are keenly interested in broadcast band DXing. The unique thing about this net is that it has helped hams to become SWL DXers and SWLs to become hams!" *Source: Southgate ARC News*

Rare color photographs of World War II-era America — breaking the mold of the monochromatic country we are so accustomed to seeing — have been released by the U.S. Library of Congress, from archives of the Office of War Information and U.S. Farm Security Administration. This picture features a worker at Vega Aircraft Corporation in Burbank, California. Here, she checks electrical assemblies — some of which are, no doubt, wiring for aircraft communications equipment. The picture was taken by David Bransby in June 1942. To see a gallery of photographs from the collection, visit <http://huff.to/UU99UO>.
(Courtesy of the U.S. Library of Congress)

AM Fidelity and the Hammarlund HQ-100: Yes, 'Farmer Rik,' it is Possible!

By Peter Bertini, K1ZJH

"'Farmer Rik' was not happy with the poor audio fidelity and limited bandwidth of his HQ-100. Poor audio response and distortion can become very fatiguing."

"Farmer Rik" is an enthusiastic AM broadcast and shortwave surfer. He seeks out stations with interesting music programming, so how his radios sound is important to him.

Rik was less than enthused with the poor audio fidelity and the limited bandwidth he was experiencing with several of his radios. Poor audio response and distortion can become very fatiguing.

The worst offender was Rik's Hammarlund HQ-100, **Photo A**. He asked if it was possible to modify the receiver's audio stages to correct these issues.

Audio fidelity doesn't go hand in hand with selectivity, and selectivity was an advantage for hams operating in crowded bands. Higher-end communications receivers from the 1930s through the post-World War II era were designed for high-fidelity reception.

My two favorite AM band cruisers are shown in **Photo B**. The lower receiver is one of the two Hallicrafters SX-28 receivers I own. The upper receiver with the more modern design is my Hallicrafters SX-42. The SX-42 features continuous tuning through the FM band, with excellent fidelity! Both receivers used push-pull audio output stages capable of driving larger speaker systems to deliver room-filling volume!

Photo A. Here is "Farmer Rik's" HQ-100 receiver. The Auto Response circuitry is being removed to improve the radio's audio response. *(Photography courtesy of K1ZJH)*

Hammarlund Limitations

The HQ-100 and other Hammarlund receivers had a feature that tailored the audio response based on the volume setting. Hammarlund called it "Auto Response." As the volume is increased,

Photo B. Many later tube receivers used single ended audio stages. The most popular tube was a 6AQ5. These radios often have poor audio response and will only deliver about a watt of audio power. For a time during the '30s and '40s, high-end communications receivers often featured a pair of 6V6 tubes in push pull, and those sets could deliver several watts of clean audio for room filling volume using larger speakers. Two of my favorite boat anchor receivers are shown here. The lower receiver is an SX-28. The upper receiver is an SX-42. Both employ a pair of 6V6 audio tubes in push pull.

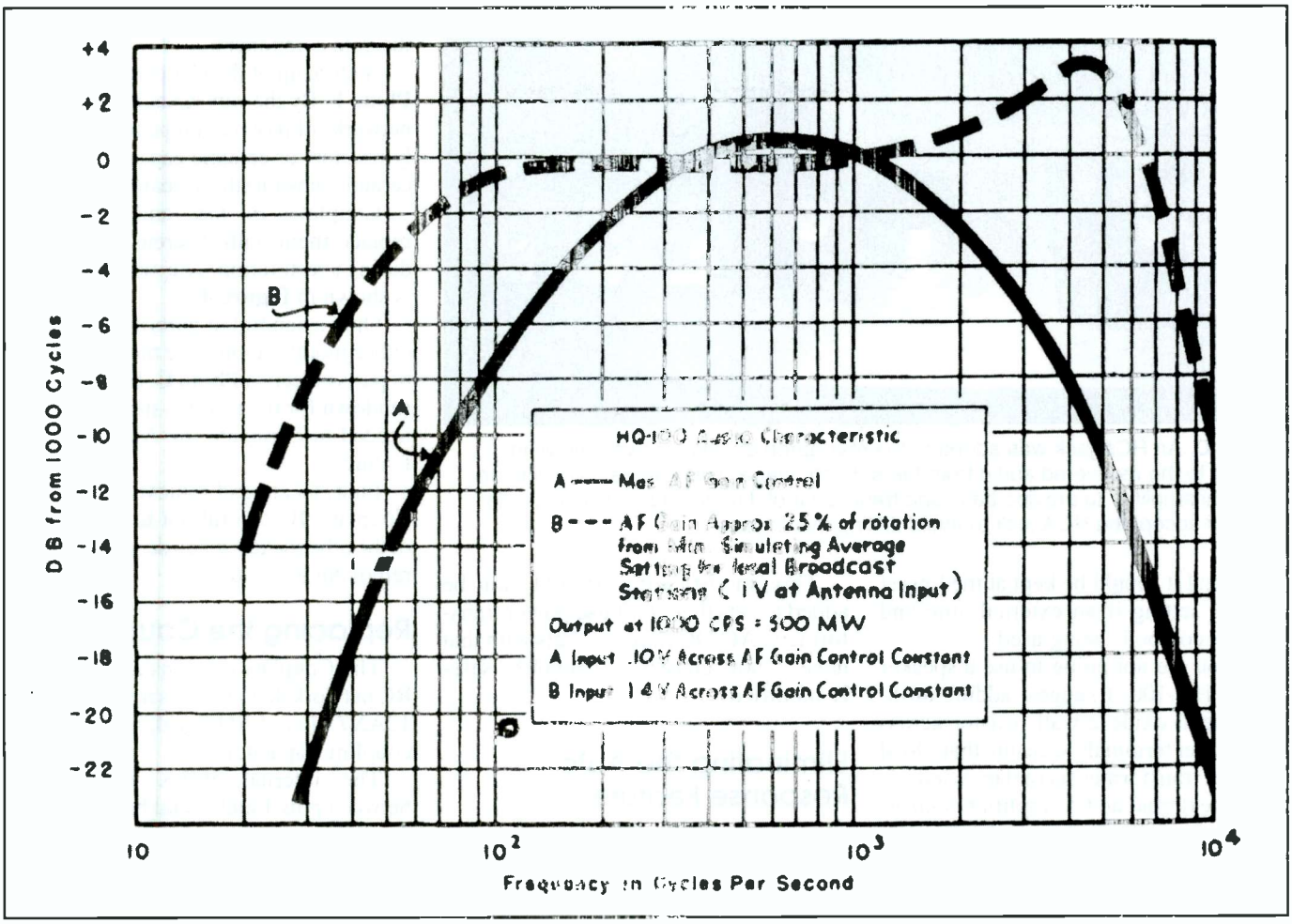


Figure 1. This scan, taken from the HQ-100 manual, shows the peaked audio response curve at higher volume settings. This curve favors voice communications, but limits fidelity. Hammarlund marketing called this feature "Auto Response."

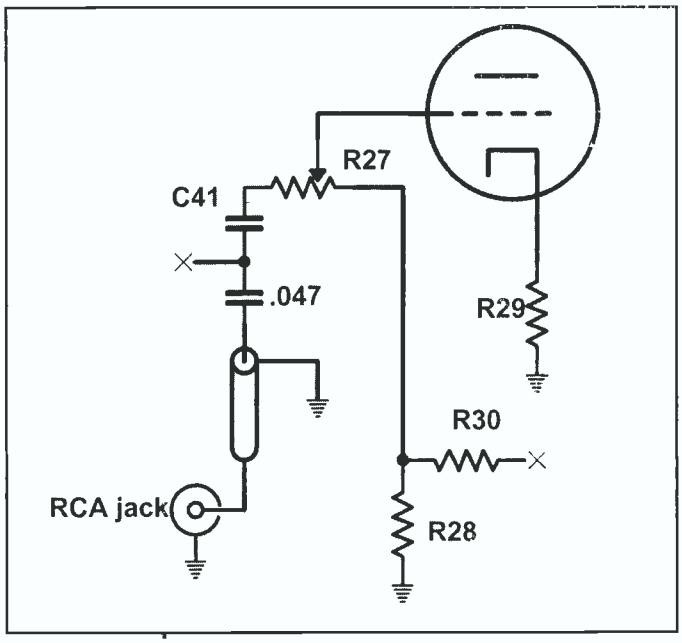


Figure 2. Adding an RCA jack to the rear apron allows access to the recovered detector audio for driving a powerful external audio amplifier for improved audio fidelity and increased volume.

the audio frequency response becomes more limited to enhance communications-type audio. This might offer some advantages for CW operators or for SSB reception, but it isn't desirable for AM! The response curve for the HQ-100 audio stages at various volume settings is shown in **Figure 1**.

This month I offer two techniques to solve these problems. First we'll look at a more universal approach that will work on many other sets.

Using an External Audio Amplifier

I've modified several of Rik's receivers so he can use them with his external Bogen amplifiers. One of his favorite amps is a P-gen DP-10. It uses two 6V6 tubes in push-pull, and the amplifier also has tone controls for the bass and treble response.

The modification is very simple! An RCA jack added to the rear panel is wired to the high side of the volume control through a 0.047-µF coupling capacitor.

A small length of RG-174 coax or shielded audio cable is used to route the audio between the volume control and RCA jack. Ground the outside shield on one end only, this avoids ground loops. I used a pre-existing hole on the rear apron to mount the jack, **Photo C**.

The internal modification can be seen in **Photo D**. This is Rik's HQ-100. **Figure 2** shows the modification. The receiver volume control only controls the external speaker used with

Photo C. An RCA jack was added to the rear apron on this receiver, allowing access to the recovered audio from the detector stage. This can be used with an external amplifier to provide bass and treble control. I try to find an existing hole that will accept the RCA jack to avoid drilling the chassis.

radio, and it should be kept at the lowest volume setting if an external amp and speaker combo is being used.

If you are not going to use a speaker on the HQ-100, I suggest adding an 8-ohm metal oxide 2-watt resistor across the speaker terminals to ensure that a load is on the transformer secondary winding.

The external audio amplifier controls the speaker volume. I use a small solid-state Bogen model GA-6A for testing in the shop, as shown in **Photo E**. A short audio cable with RCA connectors goes between the receiver and the microphone input on the Bogen amp. Unfortunately, the GA-6A lacks tone controls, so its usefulness is a bit limited other than for testing.

This modification should not be added to sets that don't use power transformers. AC/DC radios — sets with that have a "hot" chassis — cannot be safely modified.

Eliminating the Auto Response Feature

I modified Rik's HQ-100 to improve the audio response. A quick Internet search gave several good leads on how to go about doing this.

A modification by W9MDX was published on the AM Window website <http://bit.ly/10hbYV1>. Larry's approach involved replacing the Sprague Couplate. That is Part Z1, as shown in **Figure 3** — a portion of the HQ-100 schematic using discrete components.

A close up of the Couplate is shown in **Photo F**. By the way, Couplates are small networks of passive components — mostly resistors or ceramic capacitors — on a ceramic substrate that is sealed with a resin.

Couplates *do fail,* and I'll usually replace them with discrete components during a restoration. The modified circuit is shown in **Figure 4**.

Only a handful of parts are needed for either modification. The modest handful of parts is seen in **Photo G**. Here's a quick rundown for the step-by-step procedures needed to eliminate the Auto Response feature.

First, locate and remove the Sprague Couplate. Be careful not to damage any of the tube sockets when de-soldering and removing the leads.

Replacing the Couplate

The Couplate contains a very simple RC network that provides resistors for the 12AX7 plate, 6AQ5 grid, and the audio coupling capacitor.

The internal 500-K resistors — between pins 1 and 2, and between 3 and 4 for Z1 — are replaced with discrete 470-ohm, half-watt resistors. The internal 0.01-μF cap is replaced with a higher value 0.047-μF, 630-volt capacitor. This is between pin 6 of the 12AX7 and pin 1 on the 6AQ5. Notice, though, I added an additional 47-ohm resistor at this point.

The 47-ohm, half-watt resistor on the grid of the 6AQ5 (pin 1) is to prevent par-

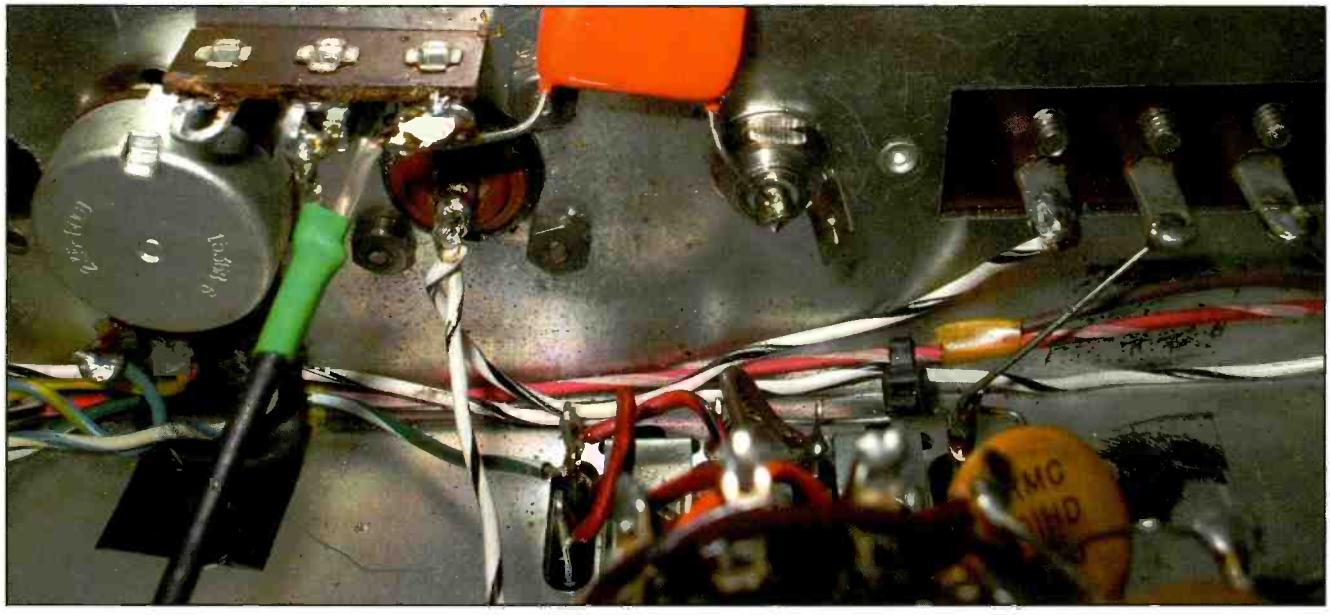


Photo D. Here's the internal wiring for the RCA jack. A shielded cable is used for the audio wiring, and a 0.047-µF capacitor provides DC isolation.

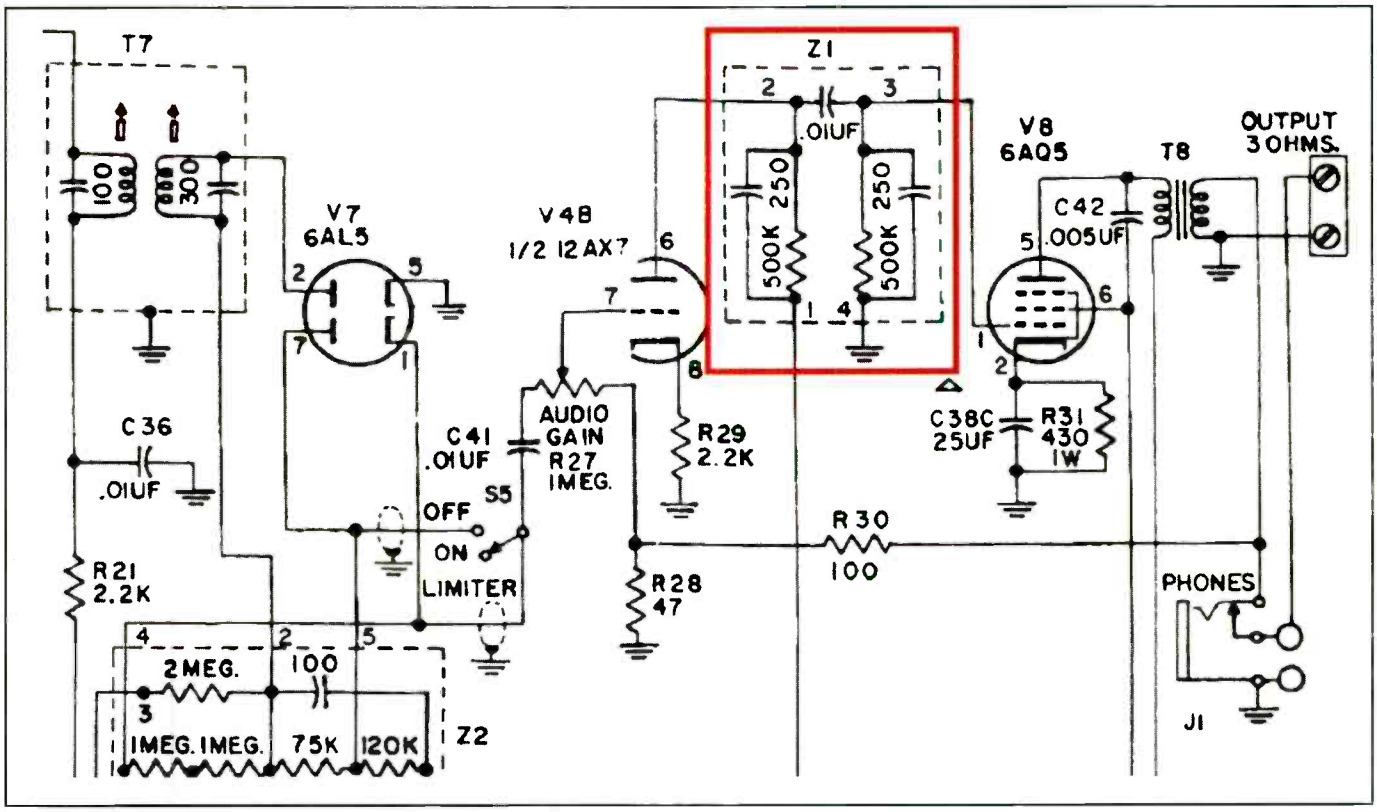


Figure 3.

asitic oscillations in the 6AQ5 stage. Eliminating the two 250-μF capacitors increases the treble response, while increasing the coupler capacitor value increases the low frequency response.

Eliminate The Auto Response Feedback

Next, locate resistor R28. This connected between the low end of the volume control pot (R27) and ground. Add a jumper across R28 so the low end of the control goes directly to chassis ground. This eliminates the Auto Response feedback path. Increasing the value of C38C from 25 μF to 100 μF will help increase the bass response. Use a 50- to 100-volt rated electrolytic capacitor for the C38C replacement.

C42 can be replaced with a 0.0022 @ 1-kV rated Mylar capacitor. I suggest placing C42 directly across the primary winding of the audio transformer. This is part T8 in the schematics. Some advocate eliminating this capacitor; but it can protect

Photo E. A small Bogen solid-state amplifier is mated to the HQ-100 for testing.

Photo F. The square module with the numerous leads is the Sprague Couplate. This contains the resistors and capacitors that provide the RC coupling between the audio stages.

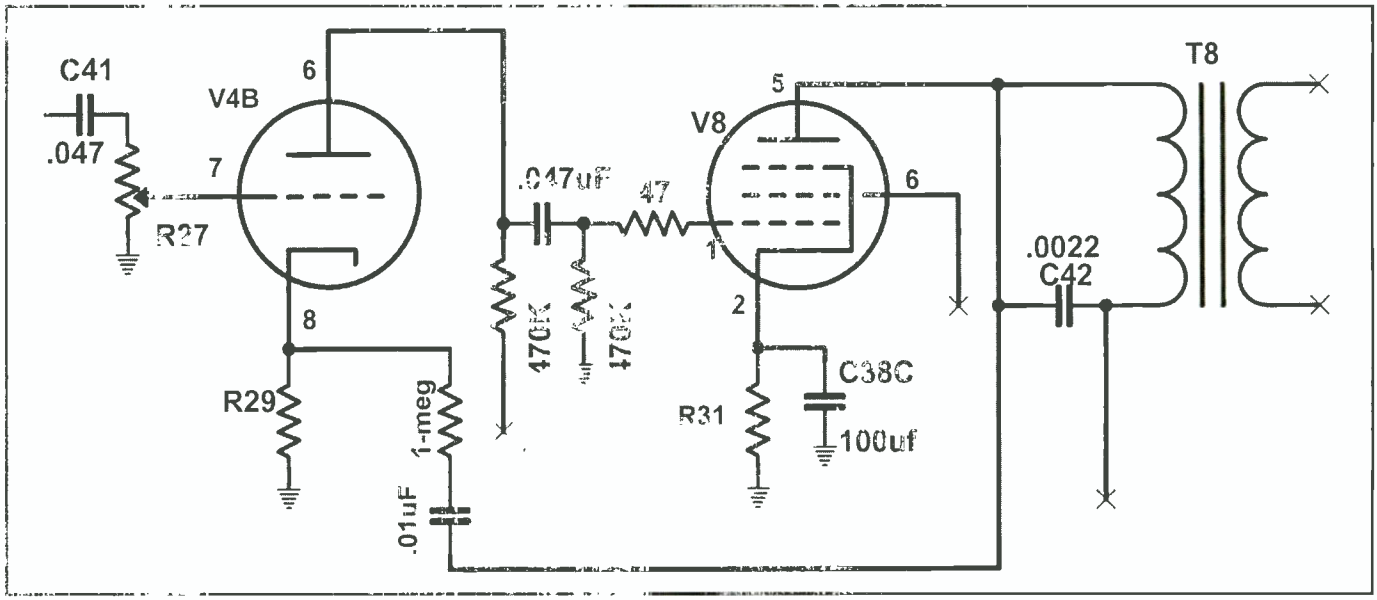


Figure 4.

the primary ing from transient voltages. This cap does affect the trel sponse.

Adding N tive Feedback

W9MDX added a feedback network betwee ate of the 6AQ5 the cathode of the 12AX7 to impro dis-tortion levels shown in **Figure 4**, the negative e dback is provided by a egohm, half-wat resistor in series with a 0.01-µF, 630 Mylar acitor placed between the plate of the 6AQ5 (pin 5) and the thode of the 12AX7 (pin 8).

What to Expect

Many rec designs do have a few inherent faults. Audio distortion at low audio frequencies can occur when audio starts to appear on the AVC bus. Increasing the bypass cap values on the AVC bus can help to some degree, but AVC response time is affected.

AM broadcast stations use audio processing that results in more constant modulation levels that are allowed to exceed 100 percent. Unfortunately many AM detectors are poorly designed and these high modulation levels result in additional distortion. These modifications will make noticeable improvements, but there are always other limitations that can limit the results.

(NOTE: Many receiver diode detectors are too heavily loaded, and modulation levels above 90 percent will show distortion. FCC regulations now allow commercial AM stations 110 percent positive modulation, and they all use heavy audio processing, so the problem is even more severe than it was back in the '30s and '40s. – K1ZJH)

Photo G. A modest handful of inexpensive parts are required to complete either modification.

This completes the modifications. Once the set passes the bench tests, it's time to place the radio back in the cabinet and to enjoy the improved fidelity on your favorite AM or shortwave stations.

Until next time, keep those soldering irons warm, and those old tubes glowing! – K1ZJH

readers' market

Advertising Rates for Readers' Mart: Non-commercial ads are 30 cents per word, including abbreviations and addresses; minimum charge $6.00 per issue. Ads from firms offering commercial products or services are $1.00 per word; minimum charge $20.00 per issue. Boldface words are $1.20 each (specify which words). Leading key words set in all caps at no additional charge. All ads *must be prepaid in full* at time of insertion; a 5% discount is offered for prepaid 6 time insertions. All ads must be typewritten double spaced.

Approval: All ad copy is subject to Publisher's approval and may be modified to eliminate references to equipment and practices which are either illegal or otherwise not within the spirit or coverage scope of the magazine.

Closing Date: The 10th day in the third month preceding date of publication. Because the advertisers and equipment contained in Readers' Market have not been investigated, the Publisher of *Popular Communications* cannot vouch for the merchandise listed therein. Direct all correspondence and ad copy to: Attention: Classified Dept., PC Readers' Market, 25 Newbridge Rd., Hicksville, NY 11801.

TWO NOVELS involving ham radio: Full Circle and Frozen in Time, by N4XX. Visit <http://www.theodore-cohen-novels.com/>

SuperBertha.com ULTIMATE LONG BOOM OWA YAGIS: Designed by WA3FET and K3LR. Scott W3TX. 814-881-9258.

OLD TIME RADIO SHOWS on CDs. The Lone Ranger; Have Gun Will Travel; Sam Spade; Johnny Dollar and more! All legal public doman programs. www.cdvdmart.com

FOR SALE - DRAKE TR-7/TR-7A/R-7/R-7A Service kit. Includes 13 Extender Boards and Digital Jumper Card. $64.95 includes postage. See http://wb4hfn.com/Services/W7AVK/tr7ext2.htm Bob W7AVK, 5581 Panorama Drive, Moses Lake, WA 98837, w7avk@arrl.net, 509-750-7589.

SuperBertha.com CUSTOM ROTATING POLES: No guy wires, entire pole rotates, stack all your antennas, rotor at ground level. 50ft to 300ft high, EIA-TIA-222-G. Starting at $37,799.00. Scott W3TX, 814-881-9258.

ADVERTISERS' INDEX

Advertiser	Page #	Website Address
AOR USA, Inc.	Cov 3	www.aorusa.com
Advanced Specialties	37	www.advancedspecialties.net
Antique Radio Classified	83	www.antiqueradio.com
C. Crane Company	19	www.ccrane.com
CQ Merchandise	25,35,55	www.cq-amateur-radio.com
CheapHam.com	47	www.CheapHam.com
Computer Aided Technologies	41	www.scancat.com
Cutting Edge	19	www.powerportstore.com
HamTestOnline	19	www.hamtestonline.com
Homeland Security	41	www.ready.gov
ICOM America, Inc.	5	www.icomamerica.com
Kenwood USA	Cov IV	www.kenwoodusa.com
MFJ Enterprises, Inc.	3	www.mfjenterprises.com
PowerPort	19	www.powerportstore.com
QCWA	37	www.qcwa.com
REACT International, Inc.	49	www.reactintl.org
Scanner Master	Cov II	www.scannermaster.com
The Xtal Society	83	www.midnightscience.com
Universal Radio	1	www.universal-radio.com
W5YI	15	www.w5yi.org
www.RFfun.com	37	www.RFfun.com

Reach this dynamic audience with your advertising message, contact Jon Kummer at 516-883-1031, or FAX 516-883-1077 e-mail: jon@cqcomm.com.

All in All, Slightly Behind the Times

by Bill Price, N3AVY
<chrodoc@gmail.com>

I remember hearing about computers back in the '80s. Someone said that if the automobile industry had kept up with the electronics industry, cars would cost $3 and get a thousand miles per gallon. I was pondering that idea as I sat in my rocker (which I'm off, now) surfing the net on my (company supplied) smart phone.

It could be a little smarter. My old (crank-style) cell phone was easy to use one handed. The smart phone is not. It's a good thing inasmuch as I can't answer or initiate calls while I'm driving. That will add some years to my life, I'm sure.

"Some of the verbal commands I utter while driving are both impossible and not something I'd want the phone to repeat at some inopportune moment."

I could teach it to respond to verbal commands. However, until I become a better person, some of the verbal commands I utter while driving are both impossible and not something I'd want the phone to repeat at some inopportune moment.

But I have a Morse code caller ID! It cost me all of 99¢. And at 20 wpm, no one I hang around with can tell who's calling — not even the *grand poobah* of the entire company (who does have a ham license.)

At the same time, I've taken advantage of a bit of naval history, which dates back to Columbus's day — the ringing of the ship's bells. Only one person in the office knows how to interpret them. I like that.

There are Morse code applications which would let me tap the screen to send code, but the touch screen has a delay (depending on the speed of the processor and how many other things are running at the time) so it's really not conducive to sending.

Back to the original point: This thing, which fits among other things in my shirt pocket, is far more powerful than (and probably beyond even the dreams of the designers who built) the UNIVAC. If I remember the blurbs from back then, it filled a room, had thousands of chattering tubes and relays, needed some really powerful cooling, and was the equivalent of a simple handheld calculator which you can find in most dollar stores today.

Some things, though, never change. As a tradeoff for compact size and small weight, the phone has limited battery capacity: 1,650mAh. A bigger — some 9 percent bigger — battery is available. A walloping 1,800-mAh version can be had for about $42 plus shipping. I think I'll wait for that movie to show up on television. Oh, I forgot. I don't have a television. *Never mind.*

Another technology update we've taken advantage of here at the Price Manse (or Spider Gulch, as we like to call it) is the modern hip replacement. I recently took the long suffering Mrs. N3AVY in for a hip replacement, which took all of an hour. Less than three hours later, she was able to take a few steps on her new bit of titanium.

We're lucky that Cowfield County is near enough to some amazing orthopedic specialists. While I'm limping around with several bad knees, ankles, and maybe hips, she climbed a flight of stairs when she came home two days after surgery. Now that she's tested the waters, I'll be looking in to having something similar.

Friend Beezer is getting more demanding with his requests for me to get on the air. A recent email read merely, *"GET ON THE AIR!"* He's so subtle. I'm lucky, though, to have four friends who would like to get me up and running on the HF bands. Norm, Beezer, David G., and another nefarious friend would together put up an antenna for me if they were near enough.

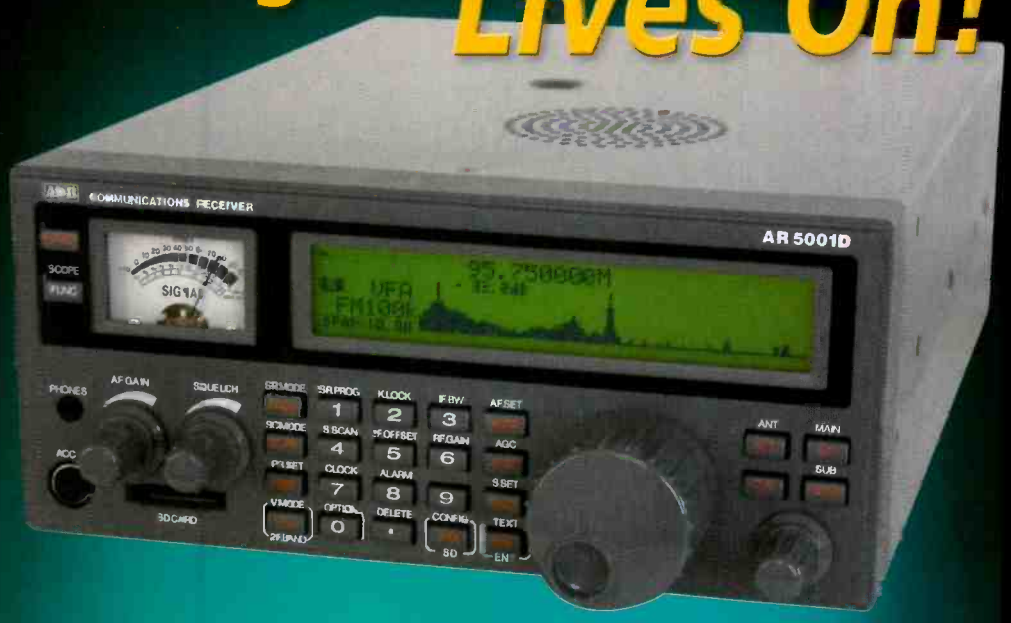
For the past six or seven days, I've had a rat loose in my bedroom. She's a lovely little rat (an agouti of the genus and species *rattus norvegicus*) whose name is Dora. And for the past week, she has been an explorer. She escaped from her cage when I left the door open, and her sister, Sophia, waited patiently in her cage until that evening so that she could tell me Dora was missing.

They hide. They don't make a sound. They don't come when you call them. An old, out-of-shape person cannot catch them. It took me four days to discover her hiding place, and another three to lure her with a chewy granola bar (with chocolate chips) so I could finally take her back to her house.

Soon, I'll be able to afford a transmitter-collar for her. I figure they'll be in the dollar store next year.

AR5001D Wide Coverage Professional Grade Communications Receiver

The Legend Lives On!



The AR5001D delivers amazing performance in terms of accuracy, sensitivity and speed.

Available in both professional and consumer versions, the AR5001D features wide frequency coverage from 40 KHz to 3.15 GHz, with no interruptions. Developed to meet the monitoring needs of security professionals and government agencies, the AR5001D can be controlled through a PC running Windows XP or higher. Up to three channels can be monitored simultaneously. Fast Fourier Transform algorithms provide a very fast and high level of signal processing, allowing the receiver to scan through large frequency segments quickly and accurately. AR5001D standard features include storage of up to 2000 frequencies, 45 MHz IF digital signal processing, direct digital sampling, a high performance analog RF front-end, a DDS local oscillator and advanced signal detection capabilities which can detect hidden transmitters. With its popular analog signal meter and large easy-to-read digital spectrum display, the AR5001D is destined to become the choice of federal, state and local law enforcement agencies, the military, emergency managers, diplomatic service, news-gathering operations, and home monitoring enthusiasts.*

Discover the next generation in AOR's legendary line of professional grade desktop communications receivers.

- Multimode receives AM, wide and narrow FM, upper and lower sideband and CW
- Up to 2000 alphanumeric memories (50 channels X 40 banks) can be stored
- Analog S-meter
- Fast Fourier Transform algorithms
- Operated by a Windows XP or higher computer through a USB interface using a provided software package that controls all of the receiver's functions
- An SD memory card port can be used to store recorded audio
- Analog composite video output connector
- CTCSS and DCS squelch operation
- Two selectable Type N antenna input ports
- Adjustable analog 45 MHz IF output with 15 MHz bandwidth
- Triple-conversion receiver exhibits excellent sensitivity
- Powered by 12 volts DC (AC Adapter included), it can be operated as a base or mobile unit
- Professional (government) version is equipped with a standard voice-inversion monitoring feature

Add to the capabilities of the AR5001D with options:

- Optional APCO-25 decoder
- Optional LAN interface unit enables control via the internet
- Optional I/Q output port allows capture of up to 1 MHz onto a computer hard drive or external storage device
- Optional AR-I/Q Windows software facilitates the easy storage and playback of transmissions captured within the selected spectrum in conventional modes, or, signals can be subjected to further analysis
- Optional GPS board can be used for an accurate time base and for time stamping digital I/Q data

AOR® *The Serious Choice in Advanced Technology Receivers*
Authority On Radio Communications
AOR U.S.A., Inc.
20655 S. Western Ave., Suite 112
Torrance, CA 90501, USA
Tel: 310-787-8615 Fax: 310-787-8619
info@aorusa.com • www.aorusa.com

**Cellular blocked for US consumer version. Unblocked version available to qualified purchasers with documentation. Specifications subject to change without notice or obligation*

EchoLink® Ready

TM-V71A

With the Kenwood TM-V71A you have a choice of where you want your speaker, on the top or or the bottom of the radio. Simply remove the faceplate and flip the main body, then reattach the face, it's that simple! Yet another Kenwood 1st, this dual band transceiver has ten dedicated EchoLink® memory channels as well as EchoLink sysop-mode operation. EchoLink connection to your PC via the optional PG-5H cable kit is easy with no expensive interface needed.

EchoLink® is a registered trademark of Synergenics, LLC. For more information please see: www.echolink.org.

Large dual-color amber or green thirteen segment LCD.

KENWOOD

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

Scan with your phone to download TM-V71A Brochure.

www.kenwoodusa.com

ISO9001 Registered

ADS#46712