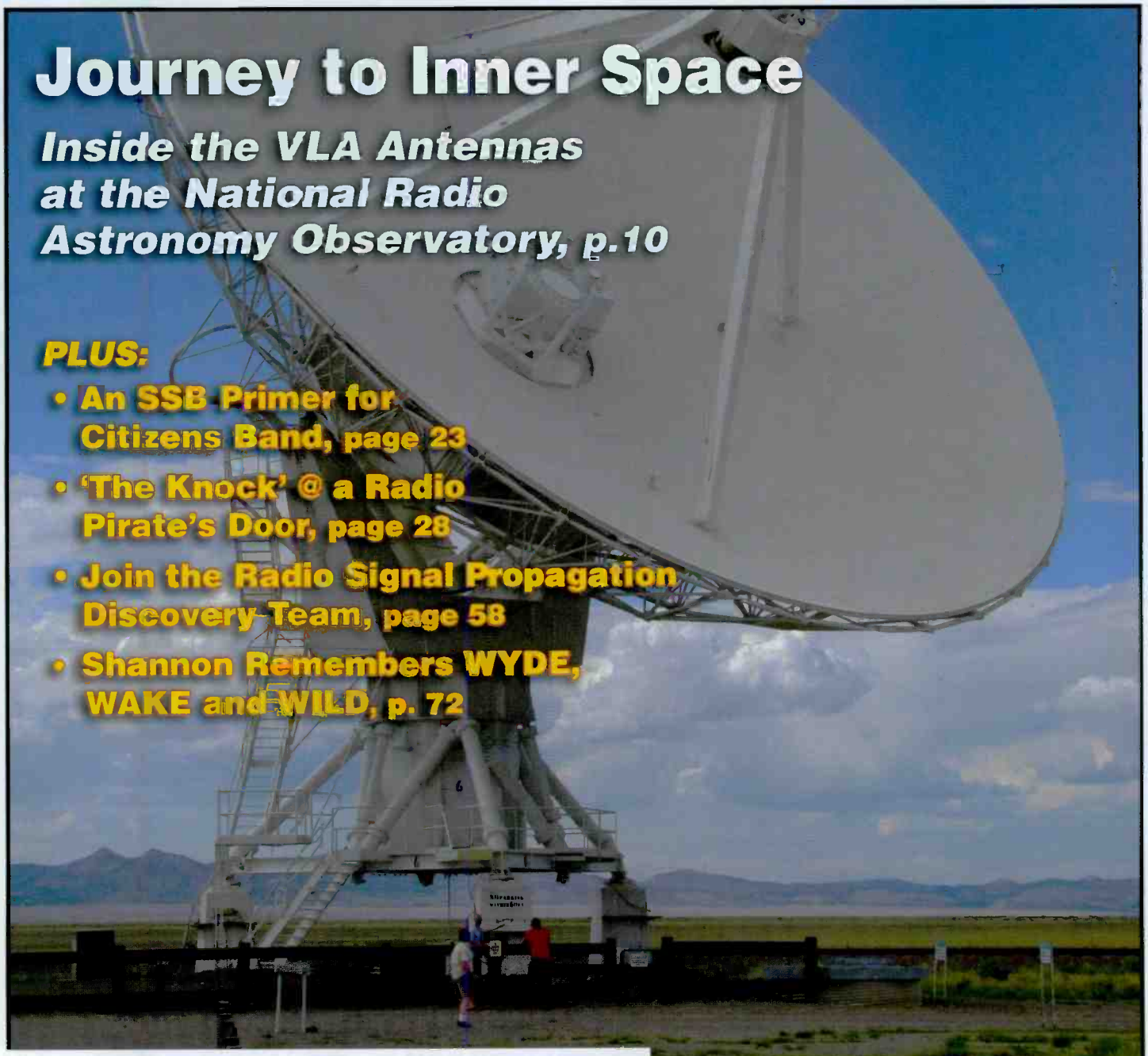
www.popular-communications.com

POPULAR COMMUNICATIONS

OCTOBER 2013

Lithium Iron Batteries • SWLing • 'SOS' History • Aviation • Crossed Field Antennas



Journey to Inner Space

Inside the VLA Antennas at the National Radio Astronomy Observatory, p.10

PLUS:

- **An SSB Primer for Citizens Band, page 23**
- **'The Knock' @ a Radio Pirate's Door, page 28**
- **Join the Radio Signal Propagation Discovery Team, page 58**
- **Shannon Remembers WYDE, WAKE and WILD, p. 72**

$6.99US/CAN

10

0 74820 08228 7

Join Us for Pop'Comm's Live Internet Chat, Sunday, October 20

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

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.

Spanning the World . . .

Great Reading for the Radio Amateur

Print or Digital... Your Choice*

(WorldRadio offered only in digital format)*

Visit Us at www.cqcomm.com

CQ Amateur Radio

For 68 years the reading choice of active hams. Clearly written and aimed at involving you, the reader...whether it's a story of operating from some exotic location, an article to deepen your understanding of ham radio science and technology, or a fun-to-build project that will have practical use in your ham shack

Popular Communications

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

CQ VHF

This quarterly magazine is the only publication in the USA devoted solely to amateur radio operating and technology above 50 MHz.

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.

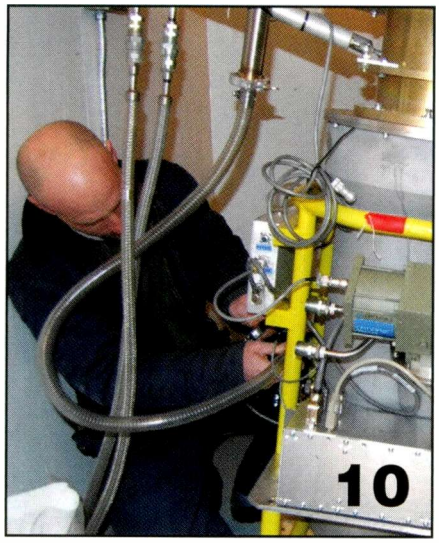
Be Sure To Visit Our On-Line Store!
http://store.cq-amateur-radio.com

CQ Communications, Inc.
25 Newbridge Road • Hicksville, NY 11801
Phone: 516-681-2922
www.cqcomm.com

POPULAR COMMUNICATIONS

CONTENTS

OCTOBER 2013
VOLUME 32, NUMBER 2



FEATURES

10 **A Journey to Inner Space @ the National Radio Astronomy Observatory**
Perspective from a Man Who Has Been Doing the Dishes for Almost 40 Years
by Paul Harden, NA5N

17 **All Charged Up: Check Off One Year of 12-Volt Success**
DaySaver's 2-Pound, 14-aH, Lithium-Iron Battery is Still Going Strong
by Gordon West, WPC6NOA/WB6NOA

20 **From the Pages of Morse History, SOS — From Beginning to End**
by R.B. Sturtevant, KPC7RBS/AD7IL

FEATURED COLUMNS

23 **CB and More**
An SSB-CB Primer from the Renowned 'Dr. Sickles'
by Cory GB Sickles, WPC2CS/WA3UVV

28 **COPS**
'The Knock' at Radio Ronin Shortwave's Door
by Steven Handler, WPC9JXK

58 **The Propagation Corner**
Join the Radio Signal Propagation Discovery Team
by Tomas Hood, WPC7USA/NW7US

72 **Shannon's Broadcast Classics**
When Radio Was WYDE aWAKE, and WILD
by Shannon Huniwell, WPC2HUN

ON THE COVER

Since 1977, Paul Harden, NA5N, has designed, built, and tested microwave up- and down-converters at the National Radio Astronomy Observatory in Socorro, New Mexico — and knows its Very Large Array (VLA) antennas inside and out. This month, he takes readers on a journey to the *inner space* of these giant dish antennas — featured in the 1997 movie hit "*Contact,*" starring Jodie Foster, "W9GFO." How are VLAs built? How do they work? What does it take to maintain and update them? With almost 40 years of experience at NRAO, Harden fills us in, page 10. (*Photography by Cap'n Refsmmat via Wikimedia Commons*)

COLUMNS

8 **Horizons**
A Changing Print World in a Hyper Computer Age
by Rob de Santos, K8RKD

34 **Broadcast Technology**
The Crossed Field Antenna: An Enigma Wrapped in a Riddle
by Bruce A. Conti, WPC1CAT

40 **World Band Tuning Tips**
World News, Commentary, Music, Sports, And Drama At Your Fingertips

42 **Ham Discoveries**
PCs and the Amateur Radio Station — Front and Center
by Kirk A. Kleinschmidt, KPCØZZZ/NTØZ

46 **Plane Sense**
Dialing in Dulles, Where Sheer Volume Is a VHF Scanner's Delight
by Bill Hoefer, KPC4KGC/KG4KGC

52 **Monitoring**
The Hallicrafters SX-25 'Super Defiant,' And Other Monitoring Memories
by Richard Fisher, KPC6PC

54 **Monitor of the Month**
In Memoriam: Don Jensen, WPC9EZ, Kenosha, Wisconsin
by Richard Fisher, KPC6PC

57 **Power Up**
New, Interesting and Useful Communications Products
by Jason Feldman, WPC2COD

65 **Global Information Guide**
WYFR: A Shortwave Giant Leaves the Airwaves
by Gerry L. Dexter, WPC9GLD

80 **The Loose Connection**
Two Decades Later, He's Back in the Saddle Again
by Bill Price, N3AVY

DEPARTMENTS

4 **Tuning In**
An Editorial

5 **Newsworthy**
Unwired, InfoCentral, And Washington Beat

53 **Spurious Signals**

71 **Reader Survey**

Tap into secret Shortwave Signals

Turn mysterious signals into exciting text messages with the MFJ MultiReader™!

MFJ-462B **$199.95**

Plug this self-contained MFJ *Multi-Reader™* into your shortwave receiver's earphone jack.

Then *watch* mysterious chirps, whistles and buzzing sounds of RTTY, ASCII, CW and AMTOR (FEC) turn into exciting text messages as they scroll across an easy-to-read LCD display.

You'll *read* interesting commercial, military, diplomatic, weather, aeronautical, maritime and amateur traffic . . .

Eavesdrop on the World

Eavesdrop on the world's press agencies transmitting *unedited* late breaking news in English -- China News in Taiwan, Tanjug Press in Serbia, Iraqui News in Iraq -- all on RTTY.

Copy RTTY weather stations from Antarctica, Mali, Congo and many others. Listen to military RTTY passing traffic from Panama, Cyprus, Peru, Capetown, London and others. Listen to hams, diplomatic, research, commercial and maritime RTTY.

Listen to maritime users, diplomats and amateurs send and receive *error-free* messages using various forms of TOR (Telex-Over-Radio).

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime -- all over the world -- Australia, Russia, Japan, etc.

Monitor any station 24 hours a day by printing transmissions. Printer cable, **MFJ-5412, $11.95.**

Save several pages of text in memory for later reading or review.

High Performance Modem

MFJ's high performance *PhaseLockLoop™* modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference -- greatly improves copy on CW and other modes.

Easy to use, tune and read

It's easy to use -- just push a button to select modes and features from a menu.

It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

It's easy to read -- front-mounted 2 line 16 character LCD display has contrast adjustment.

Copies most standard shifts and speeds. Has MFJ *AutoTrak™* Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312D AC adapter, $15.95. 5¼Wx2⅜Hx5¼D inches.

WiFi Yagi Antenna -- 15 dBi 16-elements extends range

MFJ-1800 **$29.95**

16-element, 15 dBi WiFi Yagi antenna greatly extends range of 802.11b/g, 2.4 GHz WiFi signals. 32 times stronger than isotopic radiator. Turns slow/no connection WiFi into fast, solid connection. Highly directional -- minimizes interference.

N-female connector. Tripod screw-mount. Wall and desk/shelf mounts. Use vertically/horizontally. 18Wx2¾Hx1¼D inches. 2.9 ounces.

MFJ-5606SR, $24.95. Cable connects MFJ-1800/WiFi antennas to computer. Reverse-SMA male to N-male, 6 ft. RG-174.

MFJ-5606TR, $24.95. Same as MFJ-5606SR but Reverse-TNC male to N-male.

Super Active Antenna

MFJ-1024 **$159.95**

"World Radio TV Handbook" says MFJ-1024 is a *"first-rate easy-to-operate active antenna ...quiet... excellent dynamic range... good gain... low noise... broad frequency coverage."* Mount it outdoors away from elec- trical noise for maximum signal, mini- mum noise. Covers 50 KHz-30 MHz. Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and auxilary or active antenna. 6x3x5 in. Remote has 54" whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, $15.95.

Indoor Active Antenna

MFJ-1020C **$99.95**

Rival outside long wires with this *tuned* indoor active antenna. *"World Radio TV Handbook"* says MFJ-1020C is a *"fine value... fair price... best offering to date... performs very well indeed."*

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as a preselector with external antenna. Covers 0.3-30 MHz. Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, $15.95.

Compact Active Antenna

MFJ-1022 **$69.95**

Plug this *compact* MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz to 200 MHz including low, medium, shortwave and VHF bands. Detachable 20" telescoping antenna. 9V battery or 110 VAC MFJ-1312B, $15.95. 3⅛x1¼x4 in.

Eliminate power line noise!

MFJ-1026 **$199.95**

Completely eliminate power line noise, lightning crashes and interference *before they get into your receiver!* Works on all modes -- SSB, AM, CW, FM, data -- and on all shortwave bands. Plugs between main external antenna and receiver. Built-in active antenna picks up power line noise and cancels undesirable noise from main antenna. Also makes excellent active antenna.

MFJ Antenna Matcher

MFJ-959C **$119.95**

Matches your antenna to your receiver so you get maximum signal and minimum loss.

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, $15.95.

High-Gain Preselector

MFJ-1045C **$89.95**

High-gain, high-Q receiver preseletor covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Push buttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18 VDC or 110 VAC with MFJ-1312, $15.95.

Dual Tunable Audio Filter

MFJ-752D **$119.95**

Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Plugs between radio and speaker or phones. 10x2x6 inches.

MFJ Shortwave Headphones

MFJ-392B **$24.95**

Perfect for shortwave radio listening for all modes -- SSB, FM, AM, data and CW. Superb padded headband and *ear cushioned* design makes listening extremely comfortable as you listen to stations all over the world! High-performance driver unit reproduces enhanced communication sound. Weighs 8 ounces, 9 ft. cord. Handles 450 mW. Frequency response is 100-24,000 Hz.

High-Q Passive Preselector

MFJ-956 **$69.95**

High-Q passive LC preselector boosts your favorite stations while rejecting images, intermod and phantom signals. 1.5-30 MHz. Preselector bypass and receiver grounded positions. Tiny 2x3x4 in.

Super Passive Preselector

MFJ-1046 **$119.95**

Improves any receiver! Suppresses strong out-of-band signals that cause intermod, blocking, cross modulation and phantom signals. Unique Hi-Q series tuned circuit adds super sharp front-end selectivity with excellent stopband attenuation and very low passband attenuation and very low passband loss. Air variable capacitor with vernier. 1.6-33 MHz.

MFJ Shortwave Speaker

MFJ-281 **$12.95**

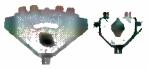
This MFJ *ClearTone™* restores the broadcast quality sound of shortwave listening. Makes copying easier, enhances speech, improves intelligibility, reduces noise, static, hum. 3 in. speaker handles 8 Watts. 8 Ohm impedance. 6 foot cord.

MFJ All Band Doublet

MFJ-1777 **$59.95**

102 ft. all band doublet covers .5 to 60 MHz. Super strong custom fiberglass center insulator provides stress relief for ladder line (100 ft.). Authentic *glazed ceramic* end insulators and heavy duty 14 gauge 7-strand copper wire.

MFJ Antenna Switches



MFJ-1704 **$79.95** MFJ-1702C **$39.95**

MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection. Good to 500 MHz. 60 dB isolation at 30 MHz. **MFJ-1702C** for 2 antennas.

Morse Code Reader

MFJ-461 **$89.95**

Place this pocket-sized MFJ Morse Code Reader near your receiver's speaker. Then watch CW turn into solid text messages on LCD. Eavesdrop on Morse Code QSOs from hams all over the world!

MFJ 24/12 Hour Station Clock

MFJ-108B, $21.95. Dual 24/12 hour clock. Read UTC/local time *at-a-glance*. High-contrast 5/8" LCD, brushed aluminum frame. Batteries included. 4½Wx1Dx2H inches.

Dealer/Catalog/Manuals

Visit: http://www.mfjenterprises.com or call toll-free 800-647-1800

• 1 Year *No Matter What™* warranty • 30 day money back guarantee (less s/h) on orders direct from MFJ

MFJ ENTERPRISES, INC.
300 Industrial Pk Rd, Starkville, MS 39759 **PH:** (662) 323-5869
Tech Help: (662) 323-0549
FAX:(662)323-6551 8-4:30 CST, Mon.-Fri. ***Add shipping.***

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

Ryan Archer, KPC6KPH, Classic Electronics
Bruce A. Conti, AM/FM Broadcasts
Rob de Santos, Trends In Technology
Gerry L. Dexter, Shortwave Broadcast
Steven Handler, WPC9JXK, Pirate Radio
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
Cory Sickles, WPC2CS, CB and More
Bob Sturtevant, AD7IL, Puzzles And Trivia
Jason Togyer, KB3CNM, Cartoons
Gordon West, WB6NOA, General Radio Comm.

BUSINESS STAFF

Richard A. Ross, K2MGA, Publisher
Charlie Payne, Advertising Director
Emily Leary, Sales Coordinator
Sal Del Grosso, Accounting Manager
Doris Watts, Accounting Department

CIRCULATION STAFF

Melissa Gilligan, Operations Manager
Cheryl DiLorenzo, Customer Service Manager
Michelle DiLorenzo, 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. 32, No. 2 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>

A CB 'Coffee Break' of Worldwide Proportion

With the ongoing success of the *Pop'Comm Monitoring Station* program, the CQ Communications headquarters team has been kicking around the idea of establishing a parallel community especially for Citizens Band operators.

The response to *Pop'Comm's CB and More,* written monthly by longtime CBer and radio amateur Cory Sickles, WA3UVV, has blown us away.

It's clear that many of you like a monthly column devoted primarily to Citizens Band and are active on the channels now, or are eager to re-activate, remembering all the fun you had. Some of your memories stretch to the early years of CB in the late 1940s and '50s. Others were part of the CB craze of the '70s with *"Smokey and the Bandit"* and C.W. McCall's *"Convoy."* Still others are new to 27 MHz and are enjoying CB for the first time.

Now, mind you, we've just started chewing on these ideas, but out of the box, we were thinking we'd:

- Build an online and on-air community for CBers — open to operators from around the world — with *Pop'Comm* as its home.
- Create a new system of *Pop'Comm*-assigned CB operator identification signs — similar in concept to the four-letter by four-number callsigns the FCC issued into the 1980s — and we'd assign them to each operator joining the *Pop'Comm* CB community.
- Make available colorful certificates of registration to every operator receiving a callsign.
- Maintain an online database of those CB callsigns, including the name and location of every holder.
- Give readers regular coverage in *Pop'Comm* reporting the activities of this new CB community.
- Sponsor regular on-the-air contests and operating events for *Pop'Comm* CBers.
- Create a *Pop'Comm CB Code of Conduct* to encourage good operating practices across all Citizens Band channels.
- Host a monthly online roundtable for discussion of technical and operating issues relevant to *Pop'Comm* CBers.

As we work more on the details of these ideas, we'd like your thoughts. Please take a few minutes to complete our online questionnaire: **The *Pop'Comm* CB Survey is at** <http://svy.mk/15ltzku>.

Your answers, comments, and suggestions will help guide us in further developing these concepts — *ones, frankly, we find quite exciting.* We hope you do, too.

Thanks in advance for your feedback and we'll keep you updated via *Pop'Comm,* Facebook, and Twitter as these ideas take form.

'War of the Worlds:' We Won!

As Bruce A. Conti, WPC1CAT, notes in *Broadcast History* on page 34, this is the 75th anniversary of the historic *"War of the Worlds"* broadcast of Halloween 1938 when Orson Welles and the Mercury Theater took broadcast drama to levels never seen before — or since. It is a reminder of the remarkable power of this wonderful broadcast medium called radio and our responsibilities to nurture and use it wisely, even all these years later.

Despite what we might hear or read, *the reports of radio's death have been greatly exaggerated,* to spin Mark Twain's famous quote. If "War of the Worlds" was a popularity contest instead of an invasion from Mars, radio certainly won back then. To keep winning, we must let shortwave, AM, and FM broadcasters know how much we appreciate and value them, and that the dollars invested to keep them on the air are well spent. It's an uphill battle, but it's a war we've *got* to win.

Pop'Comm-WRO Live Online Chat, October 20

Don't miss this month's *Pop'Comm-WRO* Live Online Chat beginning at 8 p.m. Eastern time on Sunday, October 20. We'll invite participants to give the group updates on their monitoring or amateur radio band activities and promise to keep things casual, fun, and laid back. *Everyone is welcome.*

At chat time go to <http://worldradioonline.blogspot.com>, check in and get in on an hour of fun. See you there!

– Richard Fisher, KPC6PC

The Weirder Side of Wireless, and Beyond

Compiled by Richard Fisher, KPC6PC

Oh, the Humanity! Should've Listened to Leroy

In *Lassie-esque* fashion, it seems Leroy the Dog was the only one who sensed impending disaster when a team of stout-hearted men tried to safely drop a tower with a 6-element TH6DXX beam aboard to the ground.

We won't spoil the story, but suffice to say, not much DX will be worked with this beam anytime soon. Watch the story unfold on YouTube in the tragedy titled "*'Dropping-Tower' Strap Breaks with TH6DXX — Cuts Like a Knife*" <http://bit.ly/145ypQG>, **Photo A**.

*(**NOTE:** To our knowledge, neither K-9s nor humans were harmed in the making of this picture. – KPC6PC)*

Photo A. This visual could accurately be titled *"Seconds from Disaster."* Link to the video <http://bit.ly/145ypQG>, and listen as Leroy the Dog tries desperately to warn the crew that dropping a TH6DXX beam atop a lofty tower should be left to experts. *(**CAUTION:** Language used in this incident may be offensive to some viewers. Discretion is advised. – KPC6PC) (Internet screen grab)*

'Art Bell's Dark Matter' — He's Back, Sirius-ly!

Art Bell, radio's master of the *para-para-paranormal* and all things on the fringe, returned to the airwaves last month on Sirius XM Radio.

Art Bell's Dark Matter gets into UFOs, ghosts, near-death experiences, and weird aspects of science — *the usual Bell household dinnertime conversation.*

Scott Greenstein, SiriusXM president and head honcho of content, said in July the show would be "uncensored, unrestricted, uncluttered, and utterly unique."

At press time, the show was scheduled weeknights from 10 p.m. to 1 a.m. ET on SiriusXM's Channel, No. 104.

He hasn't been on the air since Halloween 2010," the AP story said. Halloween? Coincidence, or ...? *(**FULL STORY:** <http://bit.ly/16O7Z4E>. – KPC6PC)*

Aussie Beer Fridge Knocks Out Mobile Phone Network

The *Herald Sun* in Melbourne, Australia, reports that "radio frequency interference (RFI) from a refrigerator played havoc with a mobile phone network." *Ohhhhhhh, baby!*

"Veteran black-spot detector Greg Halley said a crew using special *'Mr. Yagi'* antennas — named after their Japanese creator — tracked the interference to the address," the story said. *(**NOTE:** Honest, we're not making this up. – KPC6PC)*

"Wangaratta resident Craig Reynolds said he was shocked his beer fridge could wield such power. They say the fridge caused interference to the 850-MHz mobile data network across several neighborhoods of the town." *(**FULL STORY:** <http://bit.ly/16fdt8C>. – KPC6PC)*

2 People, 2 Frequencies, 2 Words: 'Frenzy' and 'Panic'

The South African Radio League reports that a discussion on an amateur radio repeater about tests on 472 kHz — asking other amateurs to listen and give reports — caused "a frenzy and panic" because "the tests could cause an aircraft to crash."

Someone tuned to the conversation did not listen carefully and interpreted the discussion as being about tests on *4720 kHz* — an aircraft band. He warned the person on the repeater that the tests could cause a plane crash. "The discussion went back and forth, but the two parties did not realize that they were talking about different frequencies," SARL reported.

So a letter went off to ICASA — regulator of South Africa communications — "warning of the imminent danger." Long story short: *Oops. Big misunderstanding.*

"The moral of the story," SARL noted, "is to listen and get the facts before you act and get everyone in a frenzy." *(**FULL STORY:** <http://bit.ly/14oBuOy>. – KPC6PC)*

Ladies Offering 'Commercial Company' via CB Do 'Perp Walk'

Ladies of the night, offering company of a "commercial" nature via CB to truckers at southwest Indiana truck stops, learned the hard way that Smokey was 10-8* and listening in.

Police and truckers told The Indy Channel's *Call 6 Investigators* that prostitutes typically refer to themselves as "commercial company" on CB radio.

"It doesn't fool us to hear them call prostitution some other kind of word," said one undercover officer with the Indianapolis, Indiana Metropolitan Police Department Vice Squad.

An example of the drill: On Citizens Band, a lady named Sadie — age 26 — offers her "commercial company" *(wink)* on the truckers' channel for a price. She arranges to meet a driver who would flash his turn signal when she arrived. The "trucker" then signals officers and it's, *Book 'er, Dano!* *(**FULL STORY:** <http://bit.ly/16feopv>. – KPC6PC)*

– * *10-8: In Service, Subject to Call, Ready to Stamp Out "commercial company"*

Octobers Contributors . . .

Items for October's "Unwired" were gathered from sources including toysitaI via YouTube, Associated Press, The (Melbourne, Australia) Herald Sun, South Africa Radio League, rtv6/The Indy Channel, and other published reports. – KPC6PC

Communications News, Trends and Short Takes

Compiled by
Richard Fisher, KPC6PC

Spain's CBers Celebrate 30 Years on 11 Meters

For three days in early August, Spanish Citizens Band operators celebrated the 30th anniversary of the adoption of the nation's wireless regulations allowing them to be on the air.

Special event stations AM1CB, AM2CB, AM3CB, AM4CB, AM5CB, AM6CB, AM7CB, AM8CB, and AM9CB were activated under the sponsorship of Liga Española de Asociaciones C.B. y Radioaficionados, Federació Catalana de C.B. 27 MHz, and Federación Digital EA. *(**IN DEPTH:** For more information about the event and the special QSL card, visit: <http://bit.ly/1cdtrGB>. – KPC6PC)*

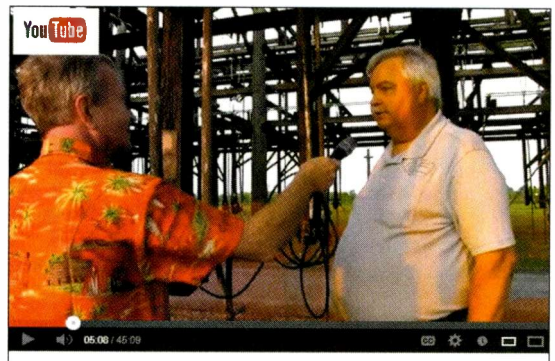
History on the Air: The Shortwave Radio Audio Archive

More than 80 recordings of historic and significant shortwave radio broadcasts — both vintage and contemporary — have been posted on the Internet by SWL expert Thomas Witherspoon, host of *The SWLing Post* <http://bit.ly/19zv68p>.

"Many of you probably already know that I believe archiving our shortwave radio broadcasts is vital now. Many broadcasters are leaving the air, and many target areas are being removed altogether," Witherspoon notes. "Meanwhile, over the past two years there have been new broadcasters coming on the air, often doing test transmissions before beginning broadcasting in earnest. These, too, are significant in radio history."

Already in the archive are recordings of: Radio Bulgaria (now silent), Radio Netherlands Worldwide, The BBC special broadcast of the Diamond Jubilee, "and a very interesting Vatican Radio broadcast announcing the selection of the new Pope," Witherspoon said. "The goal of this site is for shortwave radio enthusiasts to have a place to store, archive, and share their radio recordings with the world."

*(**LISTEN:** To the growing catalog of recordings on "The Shortwave Radio Audio Archive" at <http://shortwavearchive.com>. – KPC6PC)*



Voice of America Museum Special

VOA MUSEUM: ON TOUR: *AmateurLogic.TV's* George Thomas interviews Dave Snyder, a 14-year veteran of the Voice of America's former Bethany Relay Station, now The National VOA Museum of Broadcasting. In this scene during the 45-minute video, they are standing near the shortwave station's massive — and remarkable — antenna switching matrix, built in 1944. *(**COME ALONG:** Join the tour at <http://bit.ly/1edABqY>. **VISIT:** The National VOA Museum website at <http://www.voamuseum.org>. – KPC6PC) (Internet screen grab)*

Cue the Harpist: Remote Alaska HAARP Site Shuts Down

The High Frequency Active Auroral Research Program (HAARP) in Gakona, Alaska has closed down, program manager Dr. James Keeney announced.

The sprawling 35-acre ionospheric research facility was shuttered in early May, and its remote site has been abandoned. "It comes down to money," Keeney said. "We don't have any."

*(**FLASHBACK:** Read the 2007 announcement of the Gakona site's opening at <http://bit.ly/14HtuRG>. – KPC6PC)*

Radio Sri Lanka Nixes Use of Hams' 7190 kHz

The Sri Lanka Broadcasting Corporation (SLBC) ceased use of the amateur radio frequency 7190 kHz on May 31.

"The old timers may remember that at one time Sri Lanka Broadcasting Corporation was the most powerful station in Asia and very popular in India," said Jose Jacob, VU2JOS, of the National Institute of Amateur Radio in Hyderabad, India, "and this 7190 kHz was their best frequency for listeners in South India ... 7100 to 7200 kHz was issued to broadcasting stations in Region III until a few years back and then re-issued to radio amateurs," he said.

As of June 1, the schedule of SLBC to India is:

- 11095 kHz, 0645-0743 IST (Bengali/Tamil/Hindi)
- 9770 kHz, 0745-0900 IST (English)
- 9770 kHz, 1645-1745 IST 9770 (Malayalam, others)

Univision Radio Personality Leaves the Air – Abruptly

Eddie "Piolin" Sotelo's abrupt departure from the syndicated *"Piolin por la Mañana"* morning show in July "came after a co-host accused him of sexual harassment," according to the *Los Angeles Times*.

Alberto "Beto" Cortez alleges Sotelo was "physically, sexually, and emotionally harassing" him for three years. Sotelo's attorney, Jeffrey Spitz, said the allegations were false and motivated by money, the paper reported.

Sotelo and Cortez had an estimated 4 million listeners across the country. The show was syndicated by Univision Radio.

October's Contributors

Sources for information in this month's InfoCentral include Southgate ARC News, The SWLing Post, ARRL, VU2JOS, AmateurLogic.TV, Los Angeles Times, and Billboard magazine.

Capitol Hill And FCC Actions Affecting Communications

Compiled by Richard Fisher, KPC6PC

Nominee for FCC Chair OK'd By Senate Commerce Committee

President Barack Obama's nominee for chairman of the Federal Communications Commission received the approval of the Senate Commerce Committee, bringing Tom Wheeler a step closer to confirmation.

Reuters has reported that some Republicans on the committee wanted to hold up the nomination of a new Democrat to head the FCC until the President also named a Republican to fill the remaining vacancy on the five-member commission. Wheeler was accepted by voice vote July 30. It was expected that Wheeler, a communications industry insider and former lobbyist, would be confirmed by the full Senate after Congress returns from an August recess. Congressional staff member Michael O'Rielly is said to be the likely Republican nominee for the FCC. Wheeler would replace former FCC Chairman Julius Genachowski.

FEMA Approves Omnilert as IPAWS Alert Originator for EAS

The Federal Emergency Management Agency (FEMA) has approved Omnilert LLC products as IPAWS alert originators. FEMA-approved organizations can now access the Integrated Public Alert and Warning System (IPAWS) through Omnilert's *e2Campus* and *Amerilert* to broadcast alerts over the Emergency Alert System (EAS), Wireless Emergency Alert (WEA), and other systems, "in addition to the client's own subscriber base and endpoints within their Omnilert account," the corporation noted.

Earlier this year, Omnilert successfully demonstrated use of the Common Alerting Protocol (CAP) to interface with IPAWS and now "full access to the IPAWS-OPEN Test Environment to further support interoperable software development."

Washington D.C. Affiliate Echoes NPR's Stance on Indecency

Washington D.C.'s WAMU told the FCC it supports National Public Radio's position on indecency broadcast standards calling for the Commission to get "tough on radio stations only in 'egregious' instances (ergo, an "egregious cases" policy), not just when anybody goes off for a second or two in a moment of passion."

Writing that "WAMU does not typically broadcast content which would subject it to particularly harsh indecency scrutiny by the Commission, it is nonetheless burdened by overly vigorous enforcement of indecency regulations," a statement from the station said. "WAMU ... does deal with important issues which can give rise to difficult, often heated, discussions. Particularly in the case of live news affairs programming, but also in discussion programming, WAMU cannot control every word uttered within range of its microphones."

Similar comments have been submitted to the FCC by WBUR in Boston and College Broadcasters Inc. *(**IN DEPTH:** Read the full story at <http://bit.ly/1egH3NK>. – KPC6PC)*

Commission Grants Ka-Band Licenses for Airline Internet Service

The FCC has given a Blanket License Radio Station Authorization for Ka-band aeronautical earth stations to ViaSat Inc., providing regulatory approval for airborne Ka-band services over all 50 U.S. states. "This is the first license of its kind in the world," said Mark Dankberg, ViaSat chairman and CEO. The Ka band is 26.5 to 40 GHz.

"*ViaSat Exede In The Air* is designed to improve in-flight broadband service by providing enough bandwidth for every passenger on the plane to enjoy high-speed Internet," according to a company statement. "The FCC approval is another step toward the launch of that service, expected this fall, on the U.S. fleets of JetBlue Airways and one other major airline."

About 400 aircraft are already under contract to receive the service. "The 15-year, renewable license permits operation of the ViaSat Mantarray, low-profile airborne antenna on the ViaSat Ka-band satellite fleet of ViaSat-1, WildBlue-1, and Anik-F2." *(**IN DEPTH:** Read the full story at <http://bit.ly/13HK5F0>. – KPC6PC)*

Texas Stations Settle Dispute with FCC Over Cigarette Advertising

A dispute over cigarette advertising pitting the FCC against two El Paso, Texas radio stations now owned by Townsquare Media is being settled to the tune of $15,000.

The Commission alleged KLAQ-FM and KROD-AM "dropped the word *cigarette* in 2010 from a sponsor called 'The Cigarette Outlet' to get around the federal ban on cigarette advertising on radio and TV." Regent Broadcasting was owner of the stations at the time the advertisement ran.

"Regent had argued it wasn't necessary to include the full advertiser's name in the spots; it felt the sponsor was obvious because the ads included Outlet's address, directions, and phone number," a Web report noted, "The Enforcement Bureau disagreed."

"Townsquare Media will pay a 'voluntary contribution' to the U.S. Treasury within 30 days, admit no wrongdoing and create a process at the El Paso cluster to ensure all future spots meet the sponsorship identification rules," story said. *(**IN DEPTH:** Read the full story at <http://bit.ly/1cw7hhm>.*

This Month's Contributors . . .

Sources for information in October's Washington Beat include Reuters, PR News Wire, Omnilert, RadioSurvivor.com, IT Business Net, PR Newswire, Radio World, and other published reports. – KPC6PC

A Changing Print World in a Hyper Computer Age

By Rob de Santos, K8RKD
email: <commhorizons@gmail.com>
Twitter: <@shuttleman58>

"If you want magazines like Popular Communications to continue, you have to support it with subscriptions and by patronizing advertisers."

Next to speech, the oldest form of communication is the one I use here, the printed word. It was the first "transformative" communications change. The print world is under a transformation of its own now.

When I was a young boy, my father worked in the printing trade. I can remember him telling anyone who would listen how the newspaper industry was about to change, as computers took over the traditional typesetting and layout functions.

In those days, newspapers had entire floors of hot-type machines with typesetters sitting at keyboards turning every letter of every word of every article into a "slug" used to do the layout of a newspaper. This was the most significant change in how printing had changed since Gutenberg printed his first bible five centuries earlier.

I don't think many of his co-workers took him seriously. It was merely the beginning of what the computer was going to do to the print trade.

Few readers under the age of 40 can remember a time when you did your writing on a mechanical typewriter rather than a computer of some kind. These days, I know writers who actually speak their material and except for an occasional correction, never even touch a keyboard. We have come a long way.

What is changing now isn't just the production of printed material but the sales and distribution, and it is causing havoc in books, newspapers, and more. We've seen a series of changes beginning with magazines — such as *Popular Communications* — providing electronic, or digital, editions. Many digital editions are literal reproductions of the print magazine but can be navigated with the native tools of the tablet, computer, or smartphone.

By contrast, most newspapers have content on the Web with one or more formats from simply using the text and fitting it to a Web page to "e-papers" with electronic editions via smartphones, tablets, and more — and in formats more adapted to the medium.

The challenge, of course, is placement of advertising. In most cases, the advertising from the newspaper shows up in a different way, for some publications if at all, in the electronic version. Sales of electronic editions have had an uphill battle to profitability, with only a handful of exceptions.

In newspapers, for every reader who moves to the electronic side, revenue is lost. The impact has been the gradual disappearance of many dailies entirely, or reduction in their frequency to a few times per week. Overall, newspaper advertising has declined to less than half of what it was only a decade ago. Subscriber numbers have shrunk even while Internet use has continued to climb, with some newspapers having 10 to 100 times as many readers online as pay for a printed copy.

In the book world, the computer world has revolutionized sales with the growth of Amazon and many other new and used book services. The corner bookstore continues to struggle with survival and thousands have closed in the past decade. However, the sales of e-books have proven slow to take off. Early on, the quality of the electronic versions was an issue as was the lack of dedicated "e-readers." The latter seems largely solved with many good e-readers on the market and the quality has improved. The biggest issue now seems to be cost.

With electronic versions still costing more than many used hard copies of the same book and often nearly as much as a printed copy, consumers have been slow to purchase e-books. Momentum has grown gradually and Amazon recently reported electronic sales have exceeded hard copy sales for the first time.

Where are we going? It doesn't take a genius to see that computers will continue to change the way printed material is created, distributed, and sold. We will see changes in the consumption of printed material. Will the printed book disappear? Probably not, at least not for a *very long* time.

As a way to spread ideas, the printed page has survived for centuries and historical material will not be completely converted to electronic form for a very long time — if ever. New material may well be electronic and never exist in a hard copy.

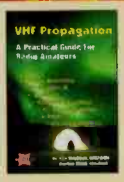
In the case of newspapers, the situation is much less clear. Given the transitory nature of daily news, it is quite likely that printed newspapers will eventually become rare. It's difficult to see an economic model that keeps it alive.

Magazines are facing an equally difficult future. It goes without saying that if you want magazines like *Popular Communications* to continue, you have to support them with subscriptions and by patronizing advertisers.

Have something to say to me in print or text? I try to answer every message I receive. Send me your thoughts and reactions using the method that works best for you. Postal service, email and more are open to you. Until next month. – K8RKD

Fall Frenzy

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!

Order VHF PROP $15.95

Nifty E-Z Guide to PSK1 Operation

by Bernie Lafreniere, N6FN

Using this very popular DigiPan software as a basis, a detailed step-by-step approach is used for configuring your interface hardware, software and computer system for PSK1 operation.

Order PSK1 $12.95

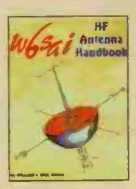
The NEW Shortwave Propagation Handbook

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.

Order SWP $19.95

W6SAI HF Antenna Handbook



by Bill Orr, W6SAI

W6SAI was known for his easy-to-understand writing style. In keeping with this tradition, this book is a thoroughly readable text for any antenna enthusiast, jam-packed with dozens of inexpensive, practical antenna projects that work!

Order HFANT $19.95

33 Simple Weekend Projects

by Dave Ingram, K4TWJ

Do-it-yourself electronics projects from the most basic to the fairly sophisticated. Practical tips and techniques on creating your own projects.

Order 33PROJ $17.95

Understanding, Building & Using Baluns & Ununs

by Sevick, W2FMI

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

Order 2BU $19.95

The Short Vertical Antenna and Ground Radial

by Sevick, W2FMI

Small but solid guide walks you through the design and installation of inexpensive, yet effective short HF vertical antennas.

Order SVERT $10.00

Sloper Antennas

By Weigl, OE5CWL

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

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

Order SLOPER $24.95

Vertical Antenna Handbook

by Paul Lee, N6PL

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

Order No. VAH $17.95

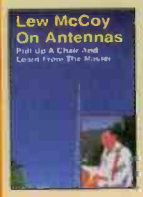
Reflections III

by Walter Maxwell, W2DU

Includes all the information in Reflections I & II and much, much more! This fully revised and updated, this 424-page, third edition is truly a must have!

Order REFLEC $39.95

McCoy on Antennas



by Lew McCoy, W1ICP

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

Order MCCOY $19.95

HamRadio Anthologies

~~$19.95~~ **$16 ea.**

Buy all 4 for only $60

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

Homebrewing Techniques *Order AHOME*
Test Eqpt & Repair Techniques *Order ATEST*
Antennas - 1968 - 1972 *Order ANTS1*
Antennas - 1973 - 1975 *Order ANTS 2*
All 4 for $60 *Order ASET*

The Quad Antenna

by Bob Haviland, W4MB

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

Order QUAD $19.95

"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**

Photo A. The "D" array at the National Radio Astronomy Observatory in Socorro, New Mexico, was designed to be a compact arrangement of antennas for the largest field of view. Here, the antennas are "stowed" — or "parked" — pointing straight up. *(Photography by NA5N)*

A Journey to Inner Space @ the National Radio Astronomy Observatory

Perspective from a Man Who Has Been Doing the Dishes for Almost 40 Years

Story and photography by Paul Harden, NA5N

The millions of people who have seen the movie *"Contact"* or have been to the National Radio Astronomy Observatory (NRAO) look in awe at the Very Large Array (VLA) dish antennas and wonder, perhaps, *"how do they make those things and how do they work?"*

For the past 36 years at the NRAO in Socorro, New Mexico, I have spent a lot of time crawling around these massive, wondrous arrays. Since 1977 I have designed, built, and tested microwave up- and down-converters for VLAs with intermediate frequencies of 1-40 GHz to 8-12 GHz.

So, just how are radio telescope antennas built, painted? And once finished, what exactly do they do?

Well, although VLA designs differ from site to site, I can answer with some authority in regard to the arrays at NRAO.

First, Let's Dish About Dishes and 'Contact'

You are certainly familiar with dish antennas, like the ones used to capture TV signals from orbiting satellites. We see them on roofs and balconies all over town these days. And, of course, you've seen the giant dishes used with radio telescopes, such

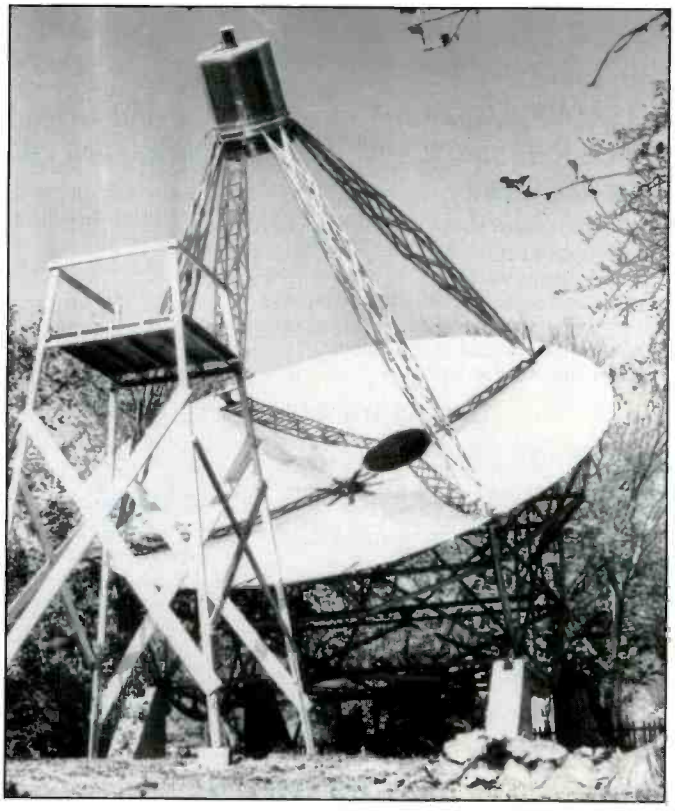


Photo B. The late Grote Reber, W9GFZ, designed and built the world's first dish antenna in his backyard in Wheaton, Illinois in 1937. The call letters are now assigned to the NRAO Amateur Radio Club in Socorro in Reber's honor. *(Courtesy of NA5N)*

Since 1977, Paul Harden, NA5N, has designed, built, and tested microwave up- and down-converters at NRAO — and knows its Very Large Array antennas inside and out

as the often-photographed array at Aercibo Observatory in Puerto Rico.

They look into space and provide high directivity — *a small field of view*. NRAO's VLAs are fully steerable, and have significant gain by concentrating the signals from a large collecting area — the dish — to a much smaller area — the actual receiving *antenna* or microwave *feed horn*, **Photo A**.

Did you know that the dish antenna was invented by a communications hobbyist? A radio amateur? Grote Reber designed and built the world's first dish antenna in his backyard in Wheaton, Illinois in 1937, **Photo B**.

The late American astronomer, astrophysicist, cosmologist, and author Carl Sagan used Grote's W9GFZ as "Ellie's" amateur radio call letters in his epic book *"Contact"* to honor Grote's invention of the dish antenna and as the first radio astronomer.

When the movie version of the book was filmed at NRAO — with Jodie Foster at the VLA — the producer changed the call to W9GFO. Our VLA team asked him why. It was because he didn't like the "Z" or *zed* sound, he told us.

*(**WATCH:** The "Contact" movie trailer at <http://bit.ly/1cjPpGh>, **Photo C**. And, **GUESS WHO:** To see who holds W9GFZ today, link to <http://www.QRZ.com/db/W9GFZ>. – NA5N)*

Photo C. This scene from the 1997 movie thriller *"Contact"* — featuring Oscar-winning actor Jodie Foster — was filmed at the VLA array at the National Radio Astronomy Observatory. *(**WATCH:** The "Contact" trailer at <http://bit.ly/1cjPpGh>.) (Internet screen grab)*

A Photographic Tour

In many of the pictures accompanying this story you can see the curvature of each dish and the extensive backup structure that supports the dish panels.

The dish panels are made of solid aluminum that has been spot welded onto frames for stiffness. Panels are different sizes, but basically trapezoidal or pie shaped ranging from about 3 to 6 feet wide and 18 to 20 feet long. They fit together like a puzzle to form a continuous smooth surface.

There is very little distance between panels — about 1/4-inch maximum, to allow for expansion caused by the region's varying temperatures. The height of each panel is independently adjusted to form the smoothest possible surface, verified periodically by theodolites <http://bit.ly/13vgD4P>, lasers, and far-field illumination <http://1.usa.gov/1bFlt9P>.

Upward from the dish are the four "quadrapod" legs that hold up the apex structure. Just under the apex — where

Photo D. Most of the electronics is housed in the Vertex Room, which is behind the large white panels under the dish, creating a temperature-controlled and RFI-tight environment.

Photo E. The L-band (1-2 GHz) receiver, left, is mounted to the end of the feed horn. The LO (local oscillator) synthesizers, up/down converters, IF amplifiers, fiber optics, and so on, are in the two gray cabinets.

Photo F. Uncovered for the whole world to see is the LO/IF and front-end rack — just part of a mass of electronics required for VLA-supported research at NROA.

the four legs come together — is the movable sub-reflector. Signals collected on the dish — 88 feet in diameter, or about one-half acre — are directed to the sub-reflector, which concentrates the signals into a narrow "pencil beam." The signals are then directed back to the center of the dish where the eight feed horns for the eight receivers are located.

The sub-reflector moves up and down to "focus" the pencil beam right at the receiver input, and it rotates to squirt the pencil beam into the proper feed horn. The little white stick at the very top is the lightning arrestor.

The large white panels under the dish are the walls to the "Vertex Room," **Photo D**, which houses most of the electronics in a temperature-controlled and RFI-tight environment. A little left of center in the picture is the S-band (2-4 GHz) cryogenically-cooled receiver — that's 15K or -433° Fahrenheit.

The L-band (1-2 GHz) cryo-cooled receiver is at left of **Photo E**, mounted to the end of the feed horn. The two gray cabinets contain the LO (local oscillator) synthesizers, up/down converters, IF amplifiers, fiber optics, and so on. For a closer look at the LO/IF and front end rack, *with their clothes off,* see **Photo F**. The ladder leads to "the loft" or receiver room, **Photo G**. They cover the Ku, K, Q, and Ka bands — 12-52 GHz — and each is cryogenically cooled. The receivers are mounted to the ends of the feed horns, which stick out into the center of the dish. *(**NOTE:** Not shown in **Photo G** are the C-band (4-8 GHz) and X-band (8-12 GHz) cryo-receivers which are in the loft, as well. – NA5N)*

In a closer look at the L-band receiver, **Photo H**, the large gray cylinder is the Dewar, or vacuum flask. Inside it is 50K and 15K cryo-stages for keeping the low-noise amplifiers (LNAs) and other RF components cold for about an 18K noise temperature. That's a noise figure of about 0.2dB and less than 1dB above the minus 174 dBm theoretical "minimum discernable signal." *(**MORE:** A gallery of "front end" lab receivers can be viewed at <http://bit.ly/17Re3KR>. – NA5N)*

Into the NARO VLA Thicket

Our observatory dishes do not actually focus the radiation (collected signal) to a point, but instead to an image focal plane. The focal point of the dish is about 2.5 feet above the sub-reflector at the desired band.

If the focal point was on the sub-reflector, signals would reflect or disperse in all directions. Instead, signals strike the sub-reflector below the focal point, forming a small circle on the curved surface. This is what "focuses" the signal into the narrow pencil beam of RF energy bounced back to the dish center and feed horns.

And in case you're wondering: Yes, it can get pretty hot up there. The main dish panels are aluminum, painted with a spe-

Photo G. The "loft," housing Ku, K, Q and Ka band receivers covering 12-52 GHz, is accessed via ladder.

Photo H. Members of the VLA team connect the vacuum lines and the liquid helium cryo-lines. The unit operates at a near vacuum.

cial paint that reduces light reflection. Still, some of the solar heat bounces and radiates to the sub-reflector and heats it up.

The sub-reflector is made of a special fiberglass for minimum thermal contraction and distortion, then a layer of paint reflective to RF, then covered with another coat of white reduced-reflective paint.

Inside each feed horn there is an assembly called the "thermal transition." It is in a vacuum to isolate the ambient temperature of the feed horn and window from the cryogenically-cooled insides of the receiver. This minimizes the thermal heating of the dish (and incoming signals) from the cold receivers.

The circular feed horn-to-square

Photo I. Ropes hold up the 74-MHz (4-band) antennas. "These are good old-fashioned dipoles, also arranged to provide the two orthogonal polarizations and in the same orientation as the P-band," writes NA5N.

Photo J. A closer view of the 74-MHz dipoles also shows the balun box. The team is about ready to raise the dipole with the ropes.

waveguide transition and phase shifter is also inside the thermal gap. After that is the OMT (orthogonal mode transducer) that splits left-hand circular polarization (LCP) from the right-hand circular polarization (RCP) of the incoming signals. Much science is contained in the circular polarization of the astronomical signals. ***(IN DEPTH:** Get more information on the thermal gaps and a gallery of pictures at <http://bit.ly/1bFueki>. – NA5N)*

The metal "cross" sticking down from the sub-reflector, **Photo I**, are the P-band (230-470 MHz) dipoles. The cross forms two linear polarized (not circular polarized) signals 90 degrees apart. The dipole does not move with the sub-reflector. When observing at P-band, the sub-reflector is raised to its highest position to serve as a focused virtual ground plane.

Below that, in **Photo I**, you will see another cross made of white rope. These ropes are holding up the 74-MHz (4-band) dipoles, **Photo J**. These are good old fashioned dipoles, also arranged to provide the two orthogonal polarizations and in the same orientation as the P-band dipoles. *(**IN DEPTH**: For more on polarization, visit <http://bit.ly/1e8moeT>. – KPC6PC)*

Photo J also shows three of the feed horns at the center of the dish on the left. The funny-looking things pointed at the feed horns are the feed heaters that keep frost from developing on the feed windows during cold weather. Signals at 10 GHz just don't go through frost very well.

The fellow in the yellow hardhat is also a radio amateur. He's our RFI engineer, and that's why his hardhat has a line through a circled RFI — meaning "no Radio Frequency Interference."

The sub-reflector serves as a virtual ground for the 7-MHz dipoles, as well. The dipole elements are stainless steel rods screwed into the balun box in the center. Inside are 1.5:1 balun transformers to convert the 73 ohms of a dipole to 50 ohms to reduce the antenna temperature going to the LNAs.

The low-band receiver is mounted above the sub-reflector inside the apex structure. It is not cryo-cooled but at ambient temperature. With the 4- and P-band receiver and feeds at the apex, this is known as a "prime focus" receiver, **Photo K**.

NA5N's Labor of Love

The low-band system and new low-band receiver design has been the project I've been working on for the past two-plus years. All 28 antennas now have the new low-band receiver and, as of this writing, we're about a month away from commissioning.

The P-band dipole is permanent. But the 74-MHz dipoles are raised only as part of an observing program, as the obstruction to the sub-reflector reduces the antenna efficiency at the microwave frequencies.

By the way, with the VLA dish and the dipole arrangements, this *kluge arrangement* provides 32-35dB of gain at 74 MHz. P-band is used for observing high red-shift objects, black holes, our galactic center, and so on, while 74 MHz is used for some solar work and ionospheric studies.

There is a plan to devise a permanent 74-MHz dipole — *probably my next project* — for continuous 74-MHz ionospheric observing. This will be used to make real-time 3-D images of the D, E,

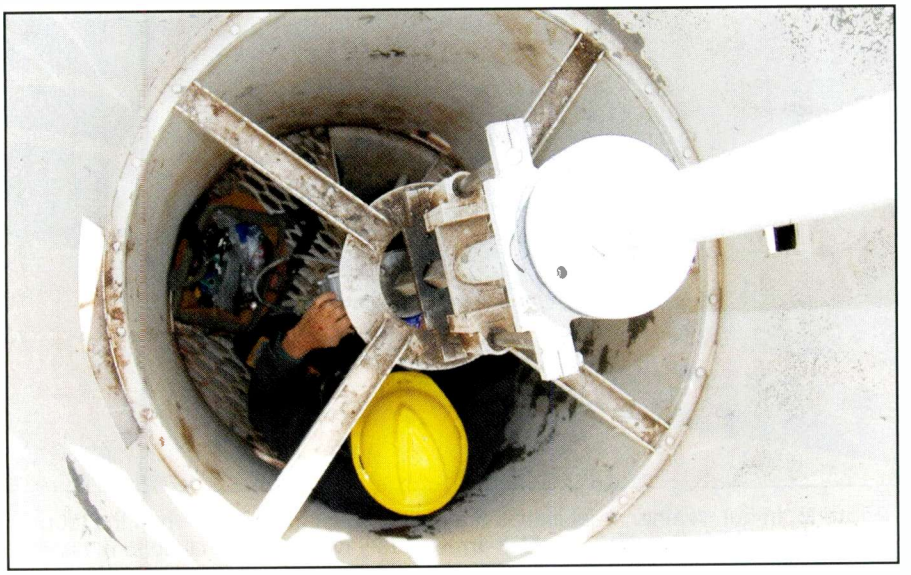


Photo K. One of the low-band receivers is installed inside the "barrel" that supports the sub-reflector.

and F layers. (***MORE:*** *Low-band photographs and information can be found at <http://bit.ly/1e8owTW>. – NA5N)*

Back Into the Thicket

The "field of view" of the VLA is variable, down to a fraction of an arc second. In one observing mode, the antennas are pointed to the source, then momentarily stopped to let the astronomical source "drift" through the beam. While this is going on, the receivers bounce between the received signal and a calibrated noise source 10 times a second.

Total power of the received signal (Trx) is subtracted from the signal-plus-noise source power (Trx+Tcal) to calculate sky and antenna temperature, receiver gains, and so on. This is then subtracted from the total power to derive the absolute temperature of the source in the beam. Total power (analog RF) is then sampled into digital, then a fast fourier transform <http://bit.ly/18PamKg> performed to derive the frequency components — the "U-V" plane. This becomes a single pixel. This is repeated hundreds-of-thousands of times to produce an image of the observed object, **Photo L**.

I've been asked: "Is a lot of the surface area of the dish actually mesh, designed with spacing that will still reflect waves? Or maybe it is support for the solid part of the dish, or used for reduced weight?"

Well, some radio telescopes do use a mesh surface — like the original Arecibo in Puerto Rico — to save weight and cost. However, this limits the upper frequency performance and efficiency of the dish, as the size of the mesh must be smaller than the wavelength. Dish efficiency is much lower since the temperature of the ground (about 290K) leaks through the mesh, kind of defeating the point of building a 20K receiver. Most mesh antennas are used in the 1-4 GHz range and seldom higher in frequency.

As previously noted, the VLA dish is a solid surface made of solid panels and is fairly efficient to about 60-GHz W band, for which we haven't yet built receivers.

About that White Paint

Fellow radio amateur and paint guru Stan Voynick, WB7RPG, in looking at NRAO's VLAs noted that "that's your special white paint. Notice how it looks bright white from almost any angle? It is designed to reflect the maximum amount of the solar radiation, but if we 'zoom in' close enough, we would find that it essentially has a very rough surface, so that the IR (infrared) and visible reflections are going off at all different angles. Thus they don't all get focused along the same paths as the desired signals."

Stan is absolutely right. It is kind of a latex paint. If you rub it, you'll get a white chalk on your fingers. Or if you bang your head on a dish support beam, you'll have a white streak across your forehead. *You can probably guess how I know that! Hardhats only go so far.*

The paint also looks like it has sand in it to give it a semi-rough texture, just as Stan described.

Coping With Temperature Differentiation

During the day, the entire VLA antenna heats up and expands, causing some distortion to the dish surface and subreflector. Every few minutes, or at the beginning of a source change, the antennas are pointed to a nearby calibrator star, a "point source" (no structure can be resolved) for which antenna pointing and

Photo L. The "A" array is extensive, using all 13 miles of the track on each of the three arms for the largest baseline for arc-second resolution.

sub-reflector focusing and antenna pointing is rechecked and adjusted if needed. Then a few seconds later, the antenna returns to the source being observed. This actually happens all the time, *day and night. (**TODAY'S WX:** To see the range of temperatures today in Socorro, New Mexico, visit AccuWeather.com at <http://bit.ly/13vCAAM>. – NA5N)*

Survival Strategies

Referring again to **Photo A**, we see the position of the antennas when *not* observing. The huge counter weights under the dish keep the antenna in this position in the event of loss of electrical power for the drive motors, high winds, and so on. This is also the position of the antennas that allows people to climb the ladders to get to the electronic Vertex Room, climb into the dish, or up to the apex to perform maintenance.

But here's the point of **Photo A**: In spite of the care taken to properly reflect visible light and solar heat, I can tell you, it still gets *dang hot* inside that dish, **Photo M**.

With the dish pointed straight up, if it's anywhere from about 10 a.m. to about 2 to 3 p.m. in the afternoon, that sun is right on top of your head, forming a giant solar furnace inside the dish with all that white paint.

Photo M. In hot weather, heat issues are multiplied exponentially when the team is wearing the required overalls and fall-arrest safety harnesses to climb to the apex.

The depth of the dish also keeps out any breeze. If you stand on the feed horn structure right under the sub-reflector, you can feel the radiated heat rise about 10 degrees Fahrenheit instantly. You find yourself moving to the shadows when at all possible, **Photo N**.

I took this picture from above the sub-reflector at the apex looking down into the dish with a little zoom, making the dish look closer than it is. It's about a 40-foot drop.

When I took that photograph, co-worker Craig, on the right is urging me to *jump!* I think Dan, on the left, is waiting for the splat. Fortunately, we've never had a fall accident on a VLA antenna. The company joke is if you fall from an antenna, you're fired before you hit the ground. The picture also shows a few of the dish panels and how they fit together.

Finis ...

I hope this journey into the inner space of the VLA dishes at NRAO has been as fascinating to you as it has been for me — for the past 36 years! – NA5N.

Photo N. "I can tell you, it gets *dang hot* inside that dish," writes NA5N, prompting workers to move into the precious-little shade there whenever possible.

All Charged Up: Check Off One Year of 12-Volt Success

DaySaver's 2-Pound, 14-aH, Lithium-Iron Battery is Still Going Strong

By Gordon West, WB6NOA/WPC6NOA

All good field radio operators have a portable 12-volt battery system. *At least they should.*

In the past, the sealed lead acid (SLA) battery, commonly found in burglar alarm systems, has served communications hobbyists well. I get about three years of performance from an SLA before its capability begins to decline.

Hams *know* it's ready for replacement when a freshly-charged alarm battery can no longer support a 40-watt, dual-band mobile transceiver for even a *brief* full-power transmission.

The SLA alarm system battery is also a *heavyweight!* For every amp hour (aH) of capacity, it weighs a pound.

Last year, a small company — DaySaver — said it had the answer to the *heavyweight blues*, citing a new technology called the lithium-*iron* phosphate battery, **Photo A**.

"This month we're back for a one-year update: this fabulous and safe battery continues to perform as well as when I received it a year ago. No flames, no failures."

I told them I didn't need a lithium battery that *might* go up in flames at the next ARRL Field Day. "It's lithium *iron,* not lithium *ion!* they said.

DaySaver has imported this technology <http://bit.ly/11qlJCL> **Photo B**, and building a leather protective case, **Photo C**, with built-in Cooper Bussman, circuit breakers, Anderson power poles, and a cigarette lighter socket, all intended for the communications hobbyist — especially the radio amateur, **Photos D** and **E**.

Hummmm. Would I be interested in trying one of their 14-aH, 12-volt, lithium-iron phosphate batteries?

When DaySaver said this 14-aH battery weighed only 2 pounds — *well, that was the clincher.* And if this sounds vaguely familiar, it's because this drama played out *last summer.*

This month we're back for a one-year update: this fabulous and *safe* battery continues to perform as well as when I received it a year ago. *No flames, no failures.*

Photo A. The DaySaver Lithium-Iron Phosphate battery, shown powering this 100-watt output HF radio, gets good numbers from Gordo's monitoring volt and amp meter. *(Photography courtesy of WPC6NOA)*

Go Ahead: Do Some Homework

Simply Google™ lithium-iron phosphate on the Internet and read about this exciting new technology to your heart's content. Quickly being adapted for the RC model industry, motorized bicycle use, motorcycles, and golf carts, it has now arrived in the communications hobbyist market.

Lithium-iron phosphate chemistry is considered much safer than other forms of lithium compounds — such as the lithium-ion found in cellphones and computers. While all battery chemistries may go into meltdown when overcharged or overly discharged, lithium-*iron* phosphate is much less volatile. The internal circuit breakers that DaySaver adds to its package further protect a battery from receiving too much charge or discharge.

And how's this for eco-friendly: You can grind up an expired lithium-iron phosphate battery and use it as plant food. *(**DINNERTIME DRAMA:** "Yum. These tomatoes from our garden have a particular kick to them, don't they, dear? – KPC6PC)*

Life Expectancy (The Battery's, Not Yours)

I've been assured by the folks at DaySaver that this new battery technol-

Photo B. For more details on the DaySaver Lithium-Iron Phosphate battery, visit the company's website at <http://bit.ly/11qlJCL>. *(Internet screen grab)*

Photo C. The protective case includes circuit breakers plus a tough exterior enclosure to keep the Lithium-Iron Phosphate battery happy.

ogy can take up to 1,500 cycles and should last for years. The package includes its own smart battery charger and the built-in technology knows exactly when to stop refreshing when the battery is fully charged.

Best of all, for ham radio applications, 14-aH at just 2 pounds makes this battery *great* for radio adventures in the field. We went all day at the 2013 ARRL Field Day on 6 meters, calling CQ at 100 watts out, and the battery did great.

This battery is super for powering an antenna analyzer on the roof when tuning up your tri-band trap beam. With two sets of output Anderson connectors it ran the Yaesu FT-817 plus the MFJ SWR analyzer quite nicely in its 2-pound pack.

On the Road Again

When renting a vehicle for a hamfest afar, I always bring along my 100-watt-output ICOM 706, plus an Outbacker antenna for HF and a small dual-band magnetic mobile for VHF and UHF.

I have a fused double-male, curly-cord, 12-volt accessory plug where one end goes in the car outlet and the other end goes to *a buffer battery*. The rig then plugs into the buffer battery, and the 15 amps on voice peaks are easily buffered from the car circuitry. The buffer battery then simply receives a trickle charge when I switch to receive.

In the past, my buffer battery was an original DaySaver sealed lead acid (SLA) 10-pound warrior. Now I'm down to *2 pounds,* with the same amp-hour capacity. *(**VISUAL A:** Gordo is flexing his biceps like Charles Atlas. – KPC6PC)*

If you want to homebrew your go-kit with the new lithium-iron system, the Internet provides a host of sources for the imported battery at about $200 (plus shipping) for a 15-aH pack. You supply the connections, circuit breakers, protective case, and work with the importer or exporter if the unit does not come up to specifications.

Photo D. On the side of the DaySaver pack are a pair of Anderson connectors and an accessory socket for charging of pulling current from the battery.

On the other hand, the more expensive lithium-iron phosphate battery setup from DaySaver — $300 for the 2-pound, 14-aH unit — *includes* the pair of Anderson power pole connectors, 12-volt cigarette lighter socket, tough leather protective case, and the *very smart* AC battery charger.

"Our company is based on offering *rugged* battery packs encased in carbon fiber 'leather' to provide cushioning if Gordo's pack falls off the roof to the bricks below!" DaySaver's Bruce Jahn said. *(**VISUAL B:** Gordo smiles from the roof because he knows the DaySaver lithium-iron battery pack "ain't afraid of no stinkin' bricks!" – KPC6PC)*

"Our lithium-iron phosphate batteries are as safe as AA alkaline batteries. There is no 'lithium' worry about pre-ignition as (is often the case with) a lithium-*ion* battery when discharged too rapidly," Jahn said, "... when the cobalt cathode heats up to the point of ignition."

*(**IN THE NEWS:** If lithium-ion batteries conger a vision of the Boeing 787*

Dreamliner passenger jet, there's a good reason. Fires aboard this new aircraft have been linked to lithium-ion batteries, ***Photo F****, used in the aircraft's systems.* ***REMEMBER:*** *With the DaySaver, we're talking about the lithium-iron battery — a completely different animal. – WPC6NOA)*

DaySaver has been providing the surveyor market with this type of technology for several years. A big advantage is that the battery can be recharged safely, at any time with the company's charger — which is included. Built-in circuitry will keep it perfectly topped off.

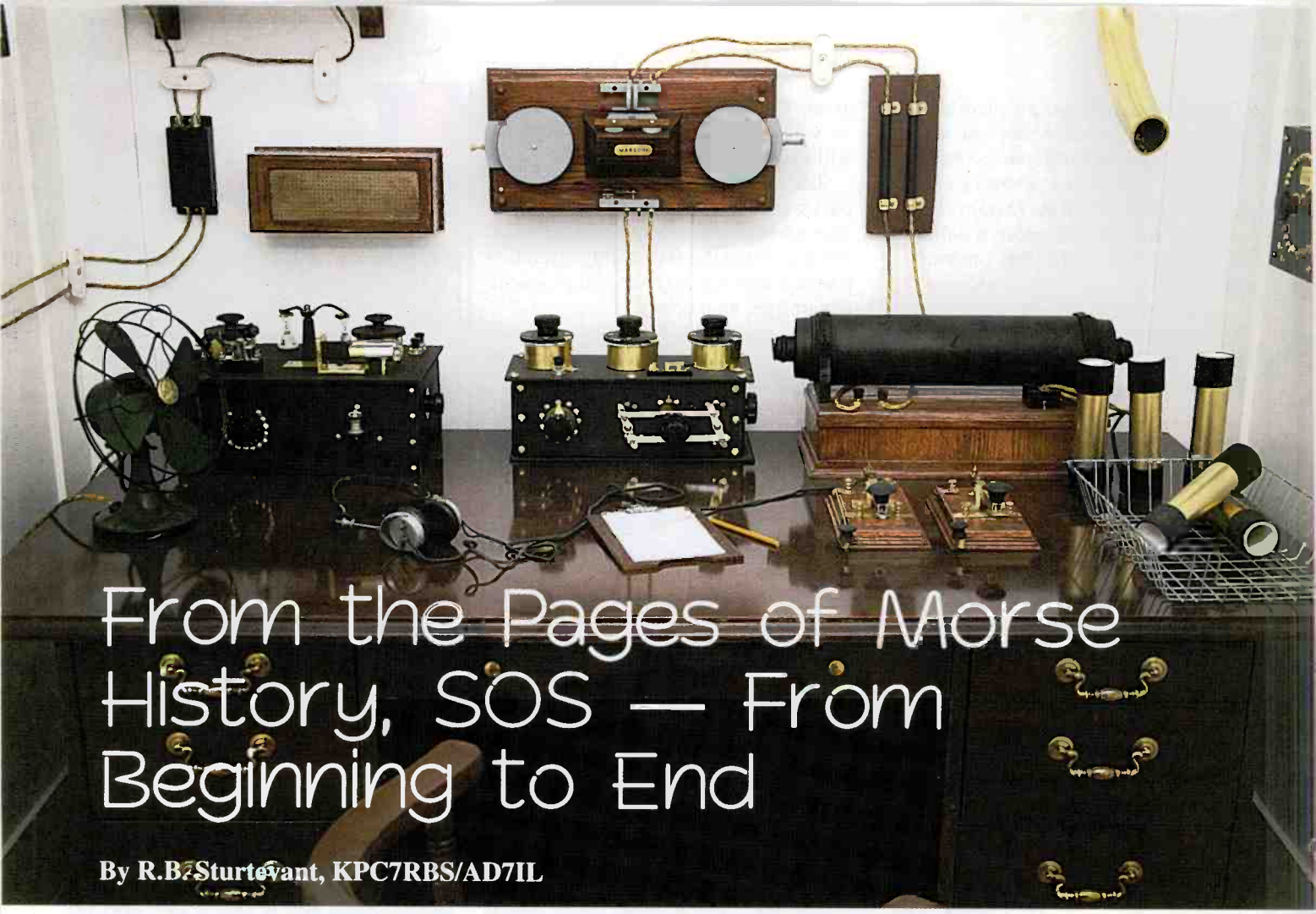
Jahn indicates, as well, that his battery packs accept a quick recharging, even after a few minutes of roof antenna work. This sure beats the days of lugging around a sealed lead acid unit weighing close to a pound per amp hour.

This delightful 2-pound treasure is going *everywhere* with me in year two, **Photo G**.

Photo E. It might be hard to imagine, but it's true: the DaySaver lithium-iron phosphate battery provides 14-aH of 12-volt DC power, yet weighs only two pounds. *Wow!*

Photo F. This picture, provided to National Public Radio by the Japan Transport Safety Board, shows the distorted main lithium-ion battery and its lid, left, of the All Nippon Airways Boeing 787, which made an emergency landing earlier this year in Japan. At right is the battery in normal condition. DaySaver uses lithium-*iron* batteries — a newer and *much safer* technology. *(Internet screen grab <http://bit.ly/12z63A2>)*

Photo G. The Emergency Communications Gordo Roller Bag is now 15 pounds lighter with the lithium-iron phosphate battery from DaySaver — offering 14-aH of run time at just 2 pounds.



From the Pages of Morse History, SOS — From Beginning to End

By R.B. Sturtevant, KPC7RBS/AD7IL

So, who sent the first SOS and how did it become the "official" distress signal, anyway? **Photo A.**

As early as 1872, the Society of Telegraph Engineers discussed in its official journal the need for developing a system between ships and shore stations in time of emergency. At that time, ships were forced to rely on flags in daylight and cannons, bombs, rockets, whistles, or sirens at night or in fog.

Everyone acknowledged this was unsatisfactory because it was extremely short range and only called attention to the ship — failing to specify the nature of the emergency.

Radio history, as is often the case, is a little mushy. But the first ship to transmit an *SOS* distress call *appears to have been* the Cunard liner *Slavonia* on June 10, 1909, as reported in the September 1910 edition of *Modern Electrics*, **Photo B**.

The first *recorded* use of *SOS* as a distress signal was by the steamer *SS Arapahoe* on August 11, 1909. The signal was received at Hatteras, North Carolina by the United Wireless Telegraph Company and forwarded to the steamer company's offices <http://bit.ly/13szfU8>.

As you'll see, though, it was a long, arduous journey to reach international agreement on the use of *SOS* as the universally accepted distress call.

Hertz, Marconi, and an Atmosphere of Distress

In the late 1880's, Heinrich Hertz demonstrated the ability to transmit and receive "Hertzian waves" over short distances.

Photo A. While the passenger liner *Titanic* was not the first ship to send a distress signal, it is certainly one of the most famous. The radio operators aboard sent both *SOS* and *CQD*, abiding by guidelines under both its British flag and Marconi Company. Pictured is a re-creation of the *Titanic's* radio room. *(Courtesy of Wikimedia Commons)*

In 1891 *The Electrician* magazine predicted that Hertz's discovery would lead to improvements in distress signaling. It is interesting to note that Marconi said no mention was ever made of the use of Hertzian waves in the scientific press until after his 1894 experiments. *Was that Marconi egotism or sloppy research?*

Marconi did arrange for the first ship-to-shore wireless demonstration between the South Foreland Lighthouse and the *East Goodwin* lightship — a distance of 12 miles. The experiment was a rousing success, **Photos C, D, E**, and **F**. It was a good thing, too. In the coming months there was real-life need for distress signaling, with the *East Goodwin* in the thick of things.

- In January 1899, heavy seas tore away part of the *East Goodwin's* bulwarks in a storm. Wireless was used to notify Trinity House where the Marconi Company had its chief listening station.
- In March 1899 the use of radio for preserving life at sea occurred when the German ship *Elbe* ran aground

"The German government, in a frenzy of Teutonic efficiency, established its own procedures for making and answering maritime distress calls: SOS."

on the Goodwin Sands in a dense fog. The *East Goodwin* lightship sent a message to summon the *Ramsgate* lifeboat.

- In April 1899 the first use of radio in a maritime collision was recorded when the steamship *Matthews* ran into the *East Goodwin* lightship, which called for lifeboats to rescue the passengers and crew of the *Matthews*.

On all these occasions, however, the *East Goodwin* simply called her regular shore station using routine procedures. Local records don't give much detail about these events — so much so that some historians believe they may have been Marconi publicity stunts and *never really happened.* More than 100 years later, as you can imagine, the truth is hard to come by.

- On January 1, 1901, the steamship *Princess Clementine* reported that a wooden bark named *Medora* was waterlogged and summoned assistance.
- On December 18, 1903 the steamship *Kroonland* of the Red Star Line became disabled and used her radio to contact Crookhaven Shore Station.

But *still* nobody had established procedures for making distress calls. The calls for help were handled as routine radio traffic.

On January 7, 1904, the Marconi Company, which was supplying shipping companies with both equipment and operators, issued *Circular No. 57,* stipulating that ships in distress and requiring assistance of any kind would use the distress call *CQD* to set their message apart from regular traffic. *CQ* was the Marconi Company's call for "All Stations Attention." Adding the *D* simply meant it was a "Distress All Call," and needed the ship captain's authorization before being transmitted.

The German government, in a frenzy of Teutonic efficiency, established its own procedures for making and answering maritime distress calls.

The ship in distress would send in Morse *di-di-dit-dah-dah-dah-di-di-dit.* That's *SOS*, with no breaks between the letters. It would be repeated until a shore station sent out a long dash — *dahhhhhhhhhhh* — which meant all stations should stop sending. Primitive equipment being used at the time could jam the signal of the ship in distress.

The shore station would then send an emergency inquiry, *di-di-dit-dah-dah-dah-dit.* That's *SOE,* again with no breaks between letters. The ship calling in the distress would then answer *HIER* (here) followed by its callsign or the ship's name. *(**NOTE:** Many ships at this time were not assigned callsigns. – KPC7RBS)*

Included in the message, as well, would be the nature of the emergency, assistance requested, and the ship's location. The shore station would then direct nearby ships or shore facilities in giving aid to the stricken vessel. All other stations were expected to stay off the air until the emergency was over. This was established by the Berlin Radiotelegraph Convention of 1906, but was binding only on German flagships. Marconi operators continued using *CQD* — just as before.

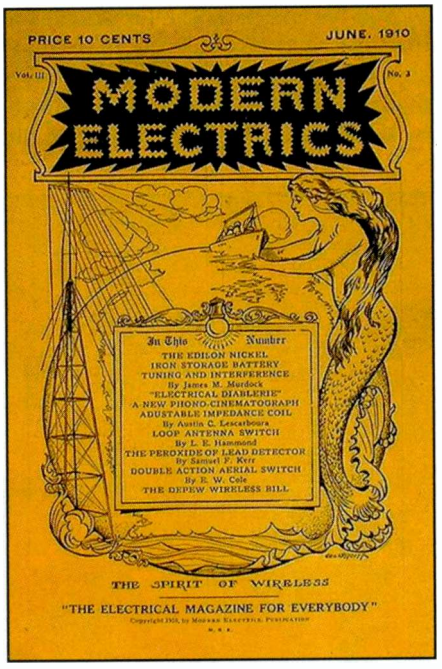


Photo B. *Modern Electrics,* published by Hugo Gernsback from August 1908 to December 1913, announced in its September 1910 edition that an *SOS* was sent by the Cunard liner *Slavonia* on June 10, 1909 — appearing to be the first occurrence of the distress call's use. *(Courtesy of Wikimedia Commons)*

In 1912 the London Radiotelegraphic Convention adopted the German *SOS* as the standard for all international distress calls. The reason is interesting:

Ships were required to carry only one radio operator who could not be expected to stand watch 24 hours a day for the duration of the voyage. *SOS* was distinctive enough that, when sent repeatedly, a semi-trained crew member could be expected to hear it, recognize its importance, and summon the radio operator to answer the call. This convention also set the official international call for attention without distress as *CQ.*

For many years to come, both *CQD* and *SOS* distress signals were picked up by intrepid radio monitors. In fact, when the *Titanic* tragically hit an iceberg, both *SOS* and *CQD* were sent because the operators were on a British ship but working for the Marconi Company. As the Marconi Company lost much of its prominence, so did *CQD*. Ultimately, it was dropped altogether.

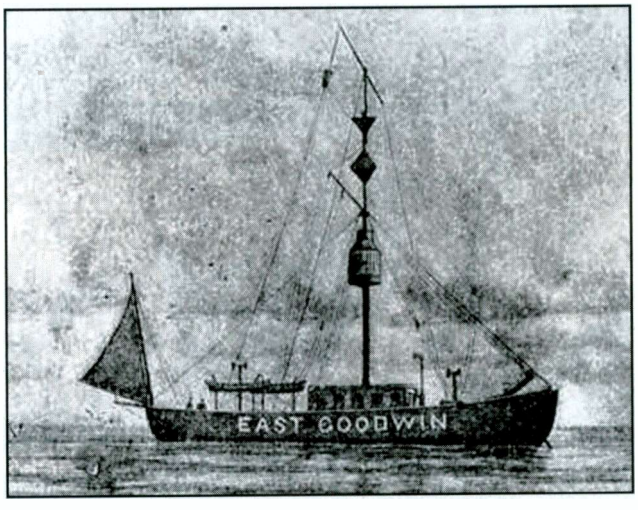


Photo C. *East Goodwin* lightship was called to duty during Marconi's experiments with sending distress signals from vessels at sea. *(Courtesy of Marconi Corporation)*

SOS became the sole international distress call, and probably the only Morse signal that most people knew. Ultimately, though, Morse began to be overshadowed by single sideband, microwave, satellite uplinks, data transmissions, and a host of other modes of communication.

So the Morse *SOS* simply wasn't being used by much of anyone anywhere. But with *SOS* still on the books as an accepted distress call, all maritime operators had to be able to send and receive in Morse.

With limited-to-no use, it was decided that *SOS* would be dropped as a distress call. The moment set for its official demise was midnight GMT on January 1, 1998. Forty-five minutes before midnight, a Morse distress signal was picked up by the British Coast Guard station at Falmouth.

The message was originally thought to be an "end of the era" hoax. But, indeed, the ship *MV Oak* was in distress 790 miles west of Ireland while sailing from Canada to Liverpool.

Upon arrival at the ship's location, the Coast Guard found the 13,000-ton, Bahamas-registered ship had been hit by storm-force winds, the cargo of wood had shifted and the vessel had been without power since the day before.

MV Oak had a 40-degree list and the captain and crew had taken to lifeboats and were awaiting rescue.

It was no hoax, but it was the last official maritime *SOS* signal sent by a vessel in distress.

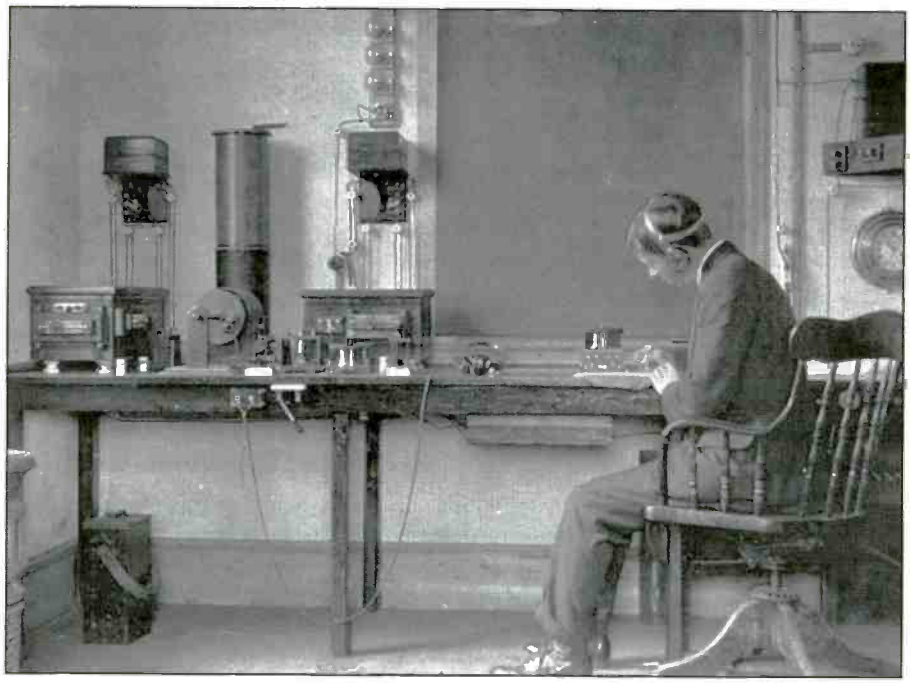


Photo D. Donald Manson, an employee of the Marconi Company, sits at the South Foreland Light House radio operating position in a picture showing the type of equipment used at the time of Marconi's distress signal tests. *(Courtesy of Marconi Corporation)*

Photo E. The South Foreland Light House sits majestically above the White Cliffs of Dover. *(Courtesy of Wikimedia Commons)*

Photo F. This wireless station is similar to the one aboard the *East Goodwin* lightship, which is believed to have been the first vessel to have wireless permanently installed onboard. *(Courtesy of Marconi Company)*

An SSB-CB Primer from the Renowned 'Dr. Sickles'

By Cory GB Sickles,
WPC2CS/WA3UVV
<wa3uvv@gmail.com>

"If you are getting enjoyment out of Citizens Band AM and want to graduate to something more, I think SSB is worth the bit of extra expense."

While still in high school I worked part-time at the local RadioShack®. It was fun, helped me pay for ham radio, fast cars, and other interests that a teenage boy has. Although I came into the job knowing a lot about electronics, I soon learned all sorts of "undiscovered knowledge" when it came to pushing electrons around.

At least once a week, a customer would "educate" me about something. For example:

- Thinner wire has less resistance
- Big microphone cable works better for low-frequency bass boosting
- Zinc-carbon batteries are just as good as alkaline, so why pay more?

These and other *"amazing facts"* were part of life behind the counter. I was once assured that someone's brother-in-law knew all about CB radio, 'cause he fixed jeeps in the Army. *Ohhhh-kaaaay,* how can you argue with that? Or for that matter, anything said by a guy trying to impress his wife/girlfriend with cash in his hand?

Needless to say, a certain young man held his deep knowledge of electronics in high regard, with a certain amount — *often an excess* — of arrogance about it. However, as I was paid mostly on commission, I did quickly learn to shut up, smile, and take the money. Everyone was happy that way.

'Dr. Sickles' @ RadioShack®

If someone asked a question though, I was only too happy to give a solid and detailed explanation in the answer. Sometimes, it was akin to showing someone how to build a clock, when all they wanted to know was the time. This is effectively what happened one evening when two friends walked in, each wanting to buy a complete CB station package. One of them asked how single sideband worked, so *"Dr. Sickles"* put on his white lab coat and began the lecture.

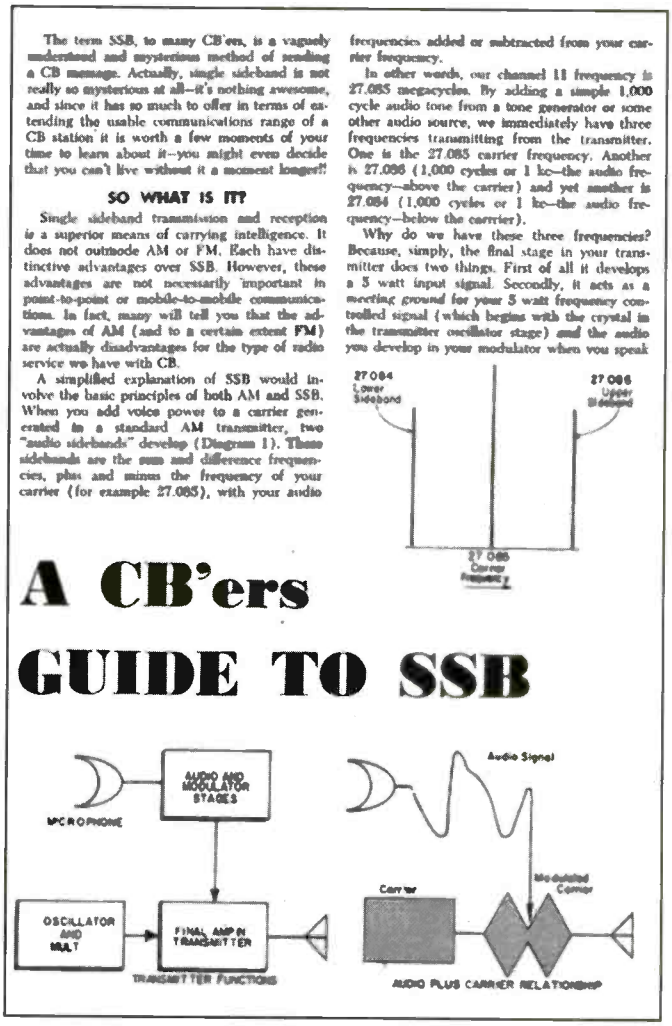
For the better part of an hour, I explained in great detail — *with diagrams, mind you* — the concept of carrier suppression, filtering, phasing, signal recovery, and just about everything a design engineer might want to know about SSB. I only stopped talking to get a drink, because my throat was dry.

At that point, one of them looked at Jim, another salesman some 15 years my senior, and asked him *"Do you know how sideband really works?"* Good ol' Jimmy, who'd been listening in, replied, "Well, he's given you the technical explanation, but in short, upper sideband speeds up your voice and lower sideband slows it down."

Before I could say anything else or form an appropriate facial reaction, the statement *"Oh, why didn't you just say that?"* was uttered and the two guys quickly made it clear they wanted to each buy the top-of-the-line SSB transceiver, best antenna, cable, power supply, and all the gold-standard accoutrements to round it out — *from Jim* — the guy who obviously knew more than me.

I calmly walked to the back of the store, out into the alcove facing the mall parking lot and let

Photo A. Here's an up-close-and-personal front panel view of a classic Kraco Super Deluxe AM/SSB Base Station Model 2556 — a popular transceiver from the early days of CB SSB.
(Courtesy of Wikimedia Commons)



The term SSB, to many CB'ers, is a vaguely understood and mysterious method of sending a CB message. Actually, single sideband is not really so mysterious at all—it's nothing awesome, and since it has so much to offer in terms of extending the usable communications range of a CB station it is worth a few moments of your time to learn about it—you might even decide that you can't live without it a moment longer!!

SO WHAT IS IT?

Single sideband transmission and reception *is* a superior means of carrying intelligence. It does not outmode AM or FM. Each have distinctive advantages over SSB. However, these advantages are not necessarily important in point-to-point or mobile-to-mobile communications. In fact, many will tell you that the advantages of AM (and to a certain extent FM) are actually disadvantages for the type of radio service we have with CB.

A simplified explanation of SSB would involve the basic principles of both AM and SSB. When you add voice power to a carrier generated in a standard AM transmitter, two "audio sidebands" develop (Diagram 1). These sidebands are the sum and difference frequencies, plus and minus the frequency of your carrier (for example 27.085), with your audio frequencies added or subtracted from your carrier frequency.

In other words, our channel 11 frequency is 27.085 megacycles. By adding a simple 1,000 cycle audio tone from a tone generator or some other audio source, we immediately have three frequencies transmitting from the transmitter. One is the 27.085 carrier frequency. Another is 27.086 (1,000 cycles or 1 kc—the audio frequency—above the carrier) and yet another is 27.084 (1,000 cycles or 1 kc—the audio frequency—below the carrier).

Why do we have these three frequencies? Because, simply, the final stage in your transmitter does two things. First of all it develops a 5 watt input signal. Secondly, it acts as a *meeting ground for your* 5 watt frequency controlled signal (which begins with the crystal in the transmitter oscillator stage) *and* the audio you develop in your modulator when you speak

A CB'ers GUIDE TO SSB

Photo B. The December 1970 edition of the now defunct *S-9* magazine pounced on the burgeoning CB craze with a tutorial on SSB and its advantages — much like *"Dr. Sickles"* did one night at RadioShack®. *(Courtesy of S9 magazine)*

out a sustained primal scream that set off car alarms en masse and caused deer in the woods six miles away to stop grazing and raise their little white tails with fear.

I learned some important lessons that night. In fact, it opened my eyes. No longer was I going to blatantly share that level of knowledge with the masses. While I never offered Jim's twisted explanation of "undiscovered knowledge," I did learn to condense the answer into something vague. If the customer wanted to know more, I'd offer a little more, and so on. But I never went blindly from *"Zero to EE"* again.

The Real Deal About SSB on CB

There's a lot of tech talk I could give about SSB vs. AM, but instead, let's keep it light and talk about the fun you can have with the mode, plus the differences in operation, **Photo A**. *(**ADVISORY:** If reader emails indicate the desire for a condensed technical treatment, then I'll delve into that in a future column. – WPC2CS)*

Listen to a crowded CB channel on AM and you'll hear the heterodyning of RF carriers in the noise. *(**IN DEPTH:** What is heterodyning? Link to <http://bit.ly/1aMSgG7>. – WPC2CS)*

With SSB, **Photos B** and **C**, the carrier is only present when someone is talking or otherwise modulating the signal. So, while there may be some interference, it's not as noticeable and it's not there all the time. It's actually possible to discern one conversation among several — much like a cocktail party. Try *that* with AM.

The Typical SSB CBer

Another thing that makes a crowded channel sound different is *manners*. By and large, SSB operators behave in a more mature and patient manner than the oft-noticed "push and shove" that's found with AM on CB, especially when trying to contact a

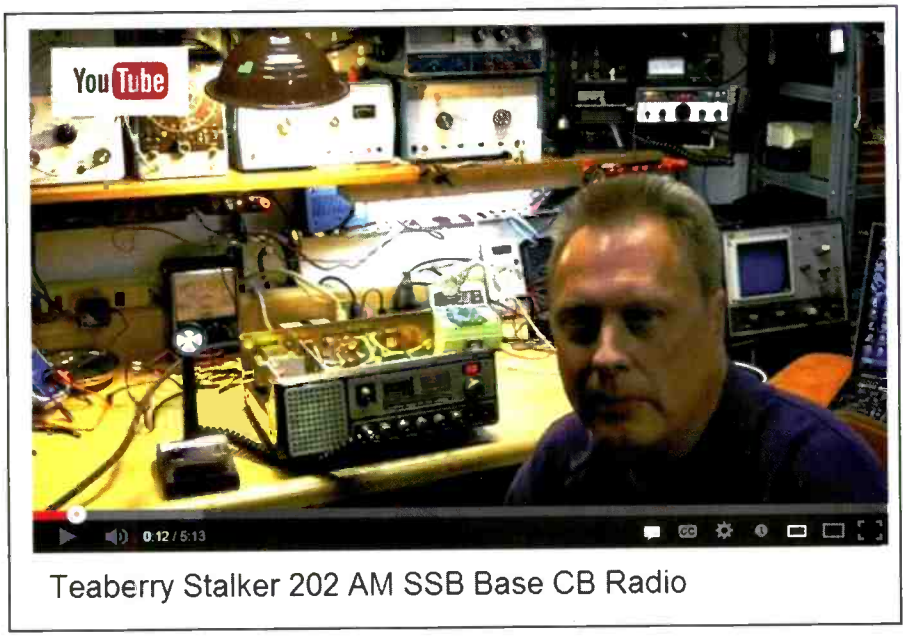


Photo C. Take a video tour and listen in on CB SSB operation with Larry Shaunce, WDØAKX, of Albert Lea, Minnesota and his Teaberry Stalker 202 AM/SSB CB base unit transceiver. *(Internet screen grab <http://bit.ly/15QKY10>)*

Photo D. Watch and listen to this YouTube video showing how a Hy-Gain "Super Penetrator" SPT-500 handles gusty winds blowing off Lake Michigan at *<http://bit.ly/16j7BuL>. (Internet screen grab)*

Driving the CB Channels with a Double-Wide Load

If you think of a CB channel as a two-lane highway, the use of SSB allows you to use either the left lane (USB) or right lane (LSB). With properly-functioning modern equipment, you can pass traffic — *conversations* — simultaneously on both, without interference, **Photo E**.

AM, on the other hand, is more akin to an oversized, double-wide load. It travels taking up both lanes and is less efficient from a standpoint of traffic flow.

By being able to use both "lanes," this is how 40 channels becomes thought of as 80, although in practicality, SSB isn't used *by convention* on all channels. Also, if there's a strong AM signal on a channel, forget about using SSB. The constant tone of the AM signal's carrier can make you manic – although an outboard DSP filter can help eliminate that tone and heterodynes.

Marketing people who "twist the math" and offer radios labeled as "120 channels" are blowing smoke — and definitely inhaling. – *WPC2CS*

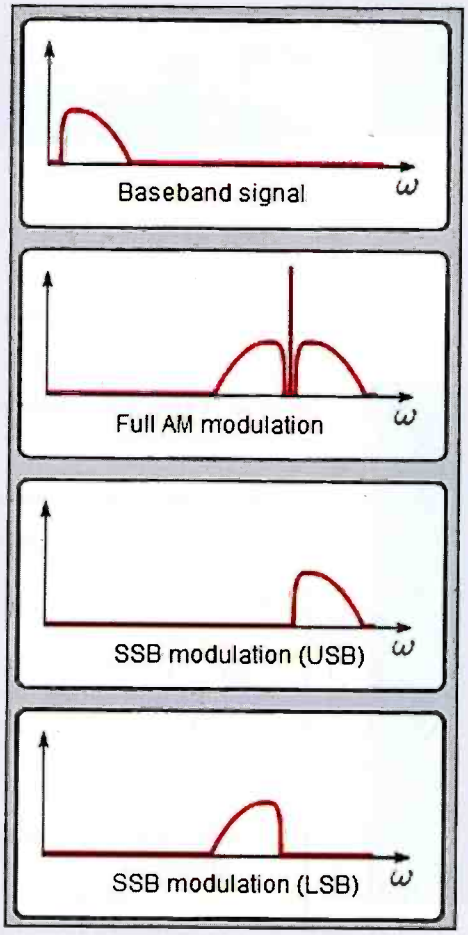


Photo E. This drawing illustrates the differences in the amount of frequency spectrum used by AM vs. USB/LSB signals on Citizen Band channels.
(Courtesy of Wikimedia Commons)

station that's farther away than you can normally reach — also known as *"working DX."* I've even heard some loosely structured nets — *ala* ham radio — where one station coordinates calls between the desired station and those wishing to work it.

Identification is a different matter, as well. In lieu of handles — those creative fake names that so many make up for their on-air persona — SSB ops use numbers. The numbers themselves are self-assigned, although there are some groups that dole out the numbers in order to make them a bit more unique and — of course — position themselves as the "official" source.

As you might imagine, you will hear more than one "412," "007," "2020," and "Triple 7." What seems to work to keep them semi-unique is to listen for a while in your area and pick a number you haven't heard before. I wonder if there might be a better idea?

Another difference is that 10-codes are *DIS*couraged and Q-signals — lifted from amateur radio — are *EN*couraged. *(**MORE:** See the accompanying "Q-Signals on CB? Hummmmm ..." – WPC2CS).*

Even more importantly, "normal" voices — as you would use in most any conversation — are the standard. With lower noise in the receiver, better manners and more adult behavior, the whole communications experience is really quite nice.

'Power Here is 12-Watts PEP'

The increased talk power of SSB, expressed as 12-watt peak envelope power, (PEP), lower noise, and seemingly better receivers does encourage one to talk beyond that magic 250 kilometers — 155.343 miles. You *have* sent your petition to the FCC to have that changed, haven't you?

All of that also encourages the use of the power levels you are allowed. In ham radio circles the use of lower power is known as QRP. Officially, it's 5-watts output-and-below — or 10-watts PEP on voice. It is absolutely amazing just *how effective* low power can be and how much more rewarding such contacts are. Trust me, there's no good reason to spend money on a poorly-designed, illegal amplifier and there's no faster way to get yourself in expensive trouble with the FCC. So be happy with what you have and use the money to improve your antenna system and microphone.

SSB-CB Talk Power

SSB *does* give you more "talk power," as it eliminates the power wasted with a constant carrier and only produces RF energy along with the audio — *your voice* — modulating it.

Although an AM signal typically has both the positive and negative-going sidebands, the "single" in single sideband means only one of the sidebands is used. Thus, your 40-channel transceiver is now capable of 80, since the upper and lower sidebands can somewhat coexist on the same center frequency. Marketing types refer to "120 channel" capabilities, but practicality rules that out. *(**MORE:** If you dare, take a look at the accompanying piece headlined "Driving the CB Channels with a Double-Wide Load." – WPC2CS)*

Is SSB for You?

The bottom line is this: SSB operation gives your CB hobby enjoyment an extra "bump." The rigs are a bit more expensive than AM-only units, but if you are getting some enjoyment out of communicating and want to graduate to something more, I think it's worth the price difference. At the end of the day,

you're still making contacts and some new friends while having fun talking on the radio.

CB Base Antenna: MFJ-Hy-Gain 'Super Penetrator' in Review

In closing, I've contacted some equipment manufacturers in hopes of getting some products to review to better inform you of what's out there and how well it all works.

MFJ Enterprises has been the first to respond positively, with some recent packages. It is a well-known and highly respected name in the amateur radio and SWL communities. MFJ also owns several other long-standing brands, like Cushcraft and Hy-Gain.

A number of you have asked about CB base antennas, so I'm particularly excited about the Hy-Gain "Super Penetrator" SPT-500 MFJ sent. I'll be mounting this 5/8-wave vertical on the garage and trying it out long term to see how well it performs.

*(**SNEAK PREVIEW:** Watch an SPT-500 weather 40-50 mph wind gusts whipping off Lake Michigan in this YouTube video <http://bit.ly/16j7BuL>, **Photo D**. – WPC2CS)*

Stay tuned for an update on that and some thoughts on the myriad station accessories they offer, as well. – *WPC2CS*

Q Signals on CB? Hummmmmmm ...

In the early era of amateur radio, a means of abbreviating common phrases was desired. Over time, a set of *Q signals* were developed. This cut down on the time it took to send common sentences and questions.

For example, *"QTH Pittsburgh" means "My location is Pittsburgh."* See how much more efficient that is? If you add a question mark, "QTH?" becomes "what is your location?" Back then, CW or Morse Code was *the* mode of communications, but Q signals can be somewhat useful on voice, as well.

Here are a few of the more common Q signals and their meaning:

QRM: Your transmission is being interfered with
QRN: I am troubled by static
QRX: Stand by
QRT: Stop transmitting (also used when you are going off the air)
QSL: I acknowledge receipt (Much like "10-4")
QSO: I can communicate with (fill in the person's name)
QSY: Change channel

Some are used in other forms. QSO is often what a two-way contact is called. QRM and QRN are commonly used as nouns — *"Lots of QRN on this channel."* Sometimes you'll hear *"I'm back at the home QTH."*

While they save time for CW, they don't always do much for voice. Saying *"QTH Pittsburgh"* vs. *"I'm in Pittsburgh"* takes about the same amount of time. *But, **Photo F**, when in Rome.*

*(**YOUR FEEDBACK:** What do you think about encouraging the use of Q-signals on Citizens Band? Please let "CB and More" know. Write: <WA3UVV@gmail.com>. – WPC2CS.)*

Photo F. As the cover of January 1979's *S9* magazine intoned, on CB, "SSB: Everybody's Doin' It!" *(Courtesy of S9 magazine)*

'The Knock' at Radio Ronin Shortwave's Door

By Steven Handler, WPC9JXK
<stevenhandler-popcomm@yahoo.com>

"In pirate radio language, the term 'The Knock' is a euphemism for a visit from the FCC. As might be imagined, that visit to Radio Ronin delayed this story"

In the 18th century, pirates sailing the oceans faced capture, torture, and death. Today's radio pirates face risks, as well, but the penalties are less draconian.

In March, I began reporting a piece about the pirate station Radio Ronin Shortwave. During the interviews, conducted by email, Radio Ronin's operator used the *nom-de-plume* "Henry Sheppard." I had no idea of his (or her) true identity. The article came to an abrupt halt when "Mr. Sheppard" informed me that he had received "The Knock."

In pirate radio language, the term "The Knock" is a euphemism for a visit from the FCC. As might be imagined, that visit delayed this story.

During the interview hiatus, I learned that "Henry Sheppard" was actually noted pirate radio researcher Mike Rohde. *I was stunned.* I had no idea Mike was behind the Radio Ronin broadcasts. During the summer, we resumed the interview process, focusing not only on the original questions and answers, but on the impact of the FCC's closure of the station.

The Interview: Radio Ronin Q&As

[Handler] *First, the obvious question: what motivated you to become a shortwave pirate broadcaster?*

[Rohde-Radio Ronin] After being an SWL for many years I became interested in listening to shortwave pirates. After a time, I became friendly with several active pirates while still interested in the listening side only. Then one day I got an email from one of these pirates that said he had just sent me a package in the mail.

When the package arrived it contained a home-built shortwave transmitter. My pirate friend told me that he thought I should — or wanted to — become a pirate, although I had never really thought about it.

So, being intrigued by the proposition and inclined to technically oriented hobbies, I set

Photo A. This Radio Ronin Shortwave QSL card depicts the landing of the Mongol Hoards on the beach near the RRS transmitter site. *(Courtesy of Radio Ronin)*

Photo B. A custom QSL card was issued verifying the reception of Captain Morgan and commemorating the initial broadcast of Radio Ronin Shortwave's *"Fat Man"* transmitter. *(Courtesy of Radio Ronin)*

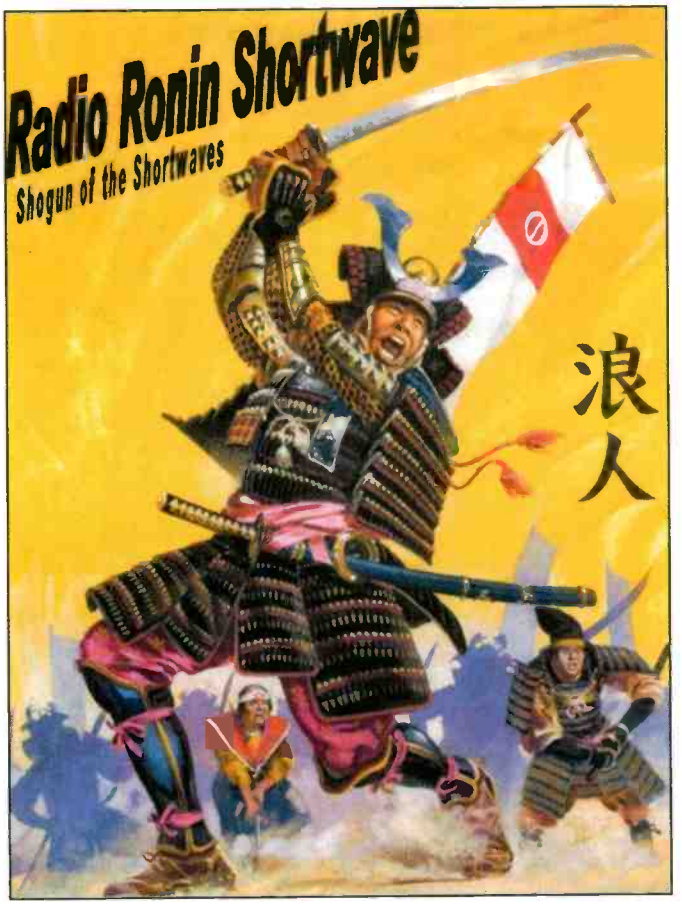


Photo C. Here is QSL card No. 7 in the Radio Ronin series. *(Courtesy of Radio Ronin)*

forth to learn what I could and have fun doing it. My first broadcast was in November 2009. And I have been having fun ever since. Far from being an expert in the technical aspects of audio production and transmitter theory etc., I have been learning as I go, sometimes with help from some good friends.

[Handler] *When you started Radio Ronin did you have any specific goals for the station?*

[Rohde-Radio Ronin] For the most part ... my goal was to learn some new stuff, have fun, and hope to entertain in the process.

[Handler] *Did you accomplish those goals during your days as a pirate broadcaster?*

[Rohde-Radio Ronin] I believe so. I certainly had fun and learned new things. It appears that for many people, I have been providing worthwhile entertainment and gained the appreciation and respect of some.

After my shutdown it became apparent that there was more appreciation and respect out there for Radio Ronin than I would have hoped for. So, all in all we had fun and we did entertain our listeners. In the end, from our primary transmitting location Radio Ronin was heard in nine countries and 35 states. From locations other [than] the primary transmitting location, the count totals 22 countries. Relays would add to this count.

[Handler] *I understand that Radio Ronin started out with a very low-powered transmitter. At some point you upgraded to more powerful transmitters. Could you please share a few details about the progression of transmitters from the beginning to the end of your broadcasts?*

[Rohde-Radio Ronin] The transmitter that was mailed to me was a small, less-than-10-watt rig. It is a simple, but quite operational transmitter. In fact, it could almost win a contest for transmitters with the least number of components. This transmitter is known as *"Pee Wee."* Later I bought another small, but well-designed-and-built transmitter with an output of approximately 10 watts. This transmitter became known as *"Pee Wee's Brother."*

Later, with a desire for a bit more power I bought a classic vacuum tube boat anchor transmitter. This transmitter is known as the *"Fat Man."* [It] is a nice radio but not always the most reliable. Finally, I bought a solid-state transmitter, which has all of the reliability and advantages of modern technology. This transmitter is known as the *"Smart Boy."* In most cases, [it] was the standard transmitter in the end, **Photo B**.

[Handler] *In Japan, the word Ronin goes back to Feudal times. It signifies a samurai who had no lord or master due to the death of the master or being discharged by the master. According to the Code of the Samurai, upon the loss of a master, the Samurai was supposed to commit suicide. Those Samurai who failed to honor the code were seen with great dishonor by the other Samurai. So, my question is, why did you choose to name your station, Radio Ronin, and what does the name signify to you?*

[Rohde-Radio Ronin] Your definition of "Ronin" in general is correct, although through the age of the Samurai (nearly 700 years) the meaning of Ronin and how they were looked upon by Japanese society varied greatly. The same applies to Samurai in general.

There were times when the Bushido Shoshinshu (the code of the samurai) was honored and there were times when some Samurai and Ronin were little more than bandits, highwaymen, or mercenaries. The most popular story about Ronin is the story of the revenge of the "47 Ronin" <http://bit.ly/13fYvN8>. The

Photo D. Images chosen for Radio Ronin Shortwave QSL cards are anything but passive. *(Courtesy of Radio Ronin)*

graves of these samurai are still maintained and are considered a national shrine. Every December 14 these heroes of Japanese culture are honored during a national holiday.

As for why I chose that name, let me first say that in creating a pirate radio identity you want it to be a unique concept that you can build a persona around. There are other factors to consider, but those are probably the most important. The identity of Radio Ronin or Ronin fits the criteria as described here. In general, Ronin is a cultural military figure who tries to live by a certain code of honor — and, by the way, this one loves to rock and roll.

[Handler] *What was the most memorable moment you have had during your Radio Ronin broadcasts?*

[Rohde-Radio Ronin] This usually hinges around the successful roll out of new equipment. The first broadcasts with the *"Fat Man"* and the *"Smart Boy"* come to mind.

[Handler] *Although many shortwave stations use an interval signal to precede their broadcast, very few pirate stations have adopted this procedure. Yet Radio Ronin was heard transmitting what sounds like an interval signal. It was heard beginning about three minutes prior to the commencement of your broadcast.*

The Radio Ronin interval signal consisted of the repetition for about three minutes of what sounded like a Japanese musical score about 13 seconds in length, followed by five seconds. I did not recognize the music. Is this an original composition for Radio Ronin or is there a name to the musical tune/score that you use for an interval signal?

[Rohde-Radio Ronin] This is a piece of music for which I bought the usage rights. To my knowledge it has no name. I have also been known to use the first couple of bars of the Stones *"Satisfaction,"* as well, <http://bit.ly/17FYwgW>.

[Handler] *Why did you break the pirate tradition of "instant on" broadcasting and use the interval signal to precede your broadcast?*

Photo E. Swordsmen are depicted in silhouette in this QSL card of the Ronin Radio Shortwave series. *(Courtesy of Radio Ronin)*

[Rohde-Radio Ronin] Pirates using interval signals is not unprecedented. Two that come to mind in recent times are MAC and The Crystal Ship. In my case the concept of the interval signal is partly a carryover from my SWL listening. I always liked that concept — among my favorites: Radio Nederland and RSA. *(**LISTEN:** To RNW's interval signal at <http://bit.ly/13HOdZJ> and RSA's at <http://bit.ly/167eEsG>. – WPC9JXK)*

Often if I am setting up for a program of, let's say, rock and roll. I like the first sound track to have some shock effect. In my mind having someone tune into the interval signal and be there for the transition from that last interval cycle into silence and then into a tune that snaps your head up and conveys some energy is a great way to start a show.

[Handler] *Radio Ronin has traditionally been a good verifier of reception reports. I have one of your QSL cards from Series 7. It is quite artistic and a beautiful oriental drawing of a Ronin on the front of the card. Is this card one in a series that you have issued — and if so, does each card have a drawing on the obverse?*

[Rohde-Radio Ronin] Yes, we have issued numerous series of cards. We are about to release series No. 10. Often when a series is completed, that series is retired and not issued again. All of our cards have graphics on both sides. We try to respond to all correct reception reports with a mailed QSL card, although from time to time we might send an e-QSL. *(**SEE:** Radio Ronin Shortwave's variety of SWL reception QSL cards in **Photos A** through **E**. – WPC9JXK)*

[Handler] *Is there significance to the drawing used on your QSL cards?*

[Rohde-Radio Ronin] Again it is about persona. We pride ourselves in sending out unique and high-quality QSL cards. It is important to us to send QSLs. It is our way of showing our appreciation to our listeners and their efforts to listen to our programming and reporting our signal.

We generally look for a cool graphic design related to the samurai culture or history. It is our intention to do our best to create a small handheld work of art for our listeners to enjoy.

[Handler] *In early April, several days after having completed our original interview, you received a visit from the FCC. I understand that your "pirate broadcasting days" are over. Do you have any regrets and what do you miss?*

[Rohde-Radio Ronin] I don't really have many regrets. And

the truth be told, I would probably do almost everything the same way a second time. As I am still producing programs for relays and for myself for transmission from outside of the U.S. I am still getting my fix in the area of program production.

As I usually have a lengthy drive home from work, making the drive in nice summer weather was always a trigger for me to fire up when I got home. Of course, I have to resist that urge now.

Thank you for the opportunity to tell my story. Again, my thanks to all of the pirate DXers out there! Long live free radio.

[Handler] Now that your days as a pirate broadcaster are over, is there anything else that you would like to tell the readers of Popular Communications about Radio Ronin Shortwave or Pirate broadcasting?

[Rohde-Radio Ronin] I want all of my listeners to know that I appreciate them and would like to thank everyone for their support of Radio Ronin Shortwave and the pirate radio community!

Without the listeners there would not be much point in doing all the work that we do — even if we are having fun while we do it. *Long Live Free Radio!* For the most part, my day-to-day pirate radio activities are over. However, I have, and will, continue to maintain the Radio Ronin brand by broadcasting programs into the United States from other locations.

Additionally there has been a good deal of interest in relaying Radio Ronin programming. So, I continue to produce programs when I am in the mood and distribute them to relay stations in both North America and Europe.

With Appreciation to Radio Ronin Shortwave

I want to thank Mike Rohde for his generosity in expending the time and effort over the many months it took to complete this interview. – WPC9JXK

Got the Time?

Tired of the stodgy time stations broadcasting beeps and tones? Then tune in to SRC10 and SIP15, at 10 and 15 MHz respectively — the Associazione Italcable's time signal broadcasts. Not only can you hear time pips and announcements, but a variety of music. That's right, music on a time signal station. ***(LISTEN:*** *To Associazione Italcable's time signal on 10 MHz at <http://bit.ly/17G0LRg>,* ***Photo F.*** *– WPC9JXK)*

I discovered SRC10 by accident, looking for WWV on 10 MHz. Since then, I have also heard its SIP15's 15-MHz broadcast.

Photo F. An Associazione Amici di Italcable time station 10-MHz broadcast can be heard clearly in this YouTube video <http://bit.ly/17G0LRg>. *(Internet screen grab)*

For North American listeners, WWV and WWVH's strong signals may limit your ability to hear Associazione Italcable's time signal broadcasts. Depending on your location, I suggest trying in the late afternoons between 2200-2400 GMT or mid-evenings between 0300 and 0500 GMT. If you have no luck during these times, experiment with other times of day and night.

The mixture of time pips and music is quite intriguing. At the top of each minute there was a short voice time announcement in Italian followed by music which lasted until about until 52 seconds after the minute. This was followed by several seconds of a digital signal.

At 55 seconds after the minute, I heard a series of six time pips ending at the top of the minute. This pattern was repeated over and over each minute. A station identification, also in Italian, was heard each quarter hour. The musical selection being played during each segment varied. My favorite was a rousing version of Wagner's *Ride of the Valkyries* <http://bit.ly/1bmfGFS>.

The Italian language website <http://www.associazioneitalcable.it> of the Associazione Amici di Italcable, or *Association of Friends of Italcable*, mentions both frequencies and callsigns, SRC10 for the 10-MHz frequency and SRC15 for the 15.0 MHz. The website also lists the stations as being located in Grid Square JN53DV in Italy, **Photo G**, located near Viareggio, a city next to the Mediterranean sea in Italy's Tuscany Region.

A station spokesperson informed me that the time signal's license holder is

Photo G. The Associazione Amici di Italcable time station is located in Maidenhead Grid Square JN53DV, circled here in red, near Viareggio, a city along the Mediterranean in Italy's Tuscany Region. *(Internet screen grab)*

"Associazione Italcable" and it is licensed by the Ministry of National Telecommunications. He indicated it uses a 90-watt transmitter operating on AM (USB — upper sideband — compatible, partially suppressed carrier) with an inverted "V" half-wave antenna. He also said there are 59 musical selections aired each hour which are randomly chosen from about 500 selections the station has available. For what it's worth, I tried listening both in AM and USB and found USB had a more pleasing sound.

The station verifies reception reports, **Photo H**. I received a beautiful full-color, postcard-sized QSL for an email report sent to <info@associazioneitalcable.it>, **Photos H** and **I**. Postal service users might also try the station's postal address: Via del Borgo, 6 - 55049 Viareggio (LU) Italy.

Perhaps WWV and WWVH will take notice of this time signal station and start to air some American Jazz music along with their time pips.

North American Pirate Station Loggings

Note that all days and times are in UTC (GMT) and all frequencies are in kHz.

Captain Morgan Shortwave on 6925 AM. Sign on at 0342 until 0424 sign off on Sunday. Program of mainly blues vocals with frequent IDs and email address <captainmorganshortave@gmail.com>. Fair to good signal. (D'Angelo-PA)

Captain Morgan Shortwave on 6925 AM 0155-0210+ on Wednesday. Tunes by Snooky Pryor, Big Joe and The Dynaflows, etc. Pirate Zone IDs. SIO: 232. (Lobdell-MA)

El Pescador Preacher on 8989 USB and believed to be from Nicaragua. From 0006-0012 on Sunday. Male announcer with Spanish talk until ended transmission. Poor to fair. (D'Angelo-PA)

KBOX on 6950.65 AM 0116 on Monday with rock tune, strange banter between two or more people. Poor/static. (Hassig-IL)

KBOX on 6950 AM 0124 to 0149 sign off on Monday with

Photo H. Reception verification of the Associazione Amici di Italcable time station was honored with this handsome QSL received at WPC9JXK. *(Courtesy of Associazione Amici di Italcable)*

music by Outkast, Beatles, Regina Spector. IDs by YL announcer. SIO: 343. (Lobdell-MA)

Left Lane Radio on 6925 from 0100 to 0108 sign off on Saturday. Male announcer with several IDs and email address <leftlaneradio@gmail.com>, short Soviet era style music segments before closing with slow scan sounds. Fair. (D'Angelo-PA)

Northwoods Radio on 6935usb at 0116 on Saturday "broadcasting freedom from the Great Lakes," played selections from a Detroit rock group called Death, DJ=Jack Pine Savage, at 0148 a Pink Floyd tune. <northwoodsradio@gmail.com>. Fair. (Hassig-IL)

Radio Free Whatever on 6925 AM at 0132 on Wednesday, hear bits of audio poking above noise, sounds like punk and heavy metal rock, at 0213 Johnny Cash: "I walk the line," music weak but heard clear ID, <dickweeddj@gmail.com>. Poor/Static. Also heard 0252-0534 on Wednesday with two DJ's, B52's "Roam," other tunes I cant ID, reggae music, Ramones, occasional other station under them. Poor/Static. Also heard 0025 on Monday with pop/rock, got end of program, Poor/static. All three loggings are from: (Hassig-IL)

Radio Free Whatever on 6925 AM, 0146-0255+ on Sunday. Dick Weed playing tunes, says his assistant Stephen wants to be a bass player. Music by Lily Allen, The Killers, Spineshank. SIO: 333 and also on 6925 AM 2253-2357 on Sunday with DJs Dick Weed and assistant Stephen playing tunes by The Cure, Stone Temple Pilots, Offspring, etc. IDs and occasional chatter by DJs. SIO: 343. Both loggings from: (Lobdell-MA)

Rave On Radio on 6925usb 0100-0137 on Friday sign on with Grateful Dead, Jefferson Airplane "Volunteers of America," Neil Young's "Rockin' in the Free World," <raveonradio@gmail.com>. (Hassig-IL)

*(**SEE:** The September '13 issue of Pop'Comm's COPS column for a Rave on Radio interview. –WPC9JXK)*

Red Mercury Labs on 6925 USB 0245-0259 on Tuesday with ID, talk "I hope everybody is having a good time," then into "Everybody Knows" by Leonard Cohen. Talk about free speech. SIO: 232. (Lobdell-MA)

RTN on 6940 AM 0454 on Friday. Originally signed on 6924.6 AM causing QRM to RFW *[Radio Free Whatever]* then switched to 6940, pop/rock from '70s thru '90s etc. Poor to very weak some static. (Hassig-IL)

The Crystal Ship *on* 6950.65 AM 0158 to 0333 on Thursday *[broadcast on a National Holiday]* with patriotic rock ballad, Johnny Cash with story of old man on bench talking about flag, Sousa march, Yankee Doodle, speech by JFK about "we hold these truths etc.," Jefferson Airplane "Volunteers of America," Woody Guthrie "This Land is Your Land," Sousa march, J. Horton "Battle of New Orleans," song "Sky Pilot," the marches of the five services (Air Force, Army, Navy, Marines, and Coast Guard), early '60s tune "Soldier Boy," song "Green Berets," Johnny Cash "Ballad of Ira Hayes," <tcsshortwave@gmail.com>. Fair, some static. (Hassig-IL)

Unidentified on 6925 AM from 0344 to 0400 sign off on Sunday. Seemed to be parody ad, music fanfare followed by Dean Martin "In the Misty Moonlight" and "Teenager in Love." More talk but deteriorating rapidly. Either closed down or lost in the noise. Poor overall. (D'Angelo-PA)

WAZU on 6925.4 AM 0305 on Saturday, pop music, dedicated tune to Ed Snowden. (Hassig-IL)

XFM on 6950 AM 0138 on Friday with Hendrix's national anthem at Woodstock, song "American Pie," <xfmshortwave@gmail.com> Fair to Poor. (Hassig-IL)

Euro Pirate Station Loggings

Note that all days and times are in UTC (GMT) and all frequencies are in kHz.

NMD Holland on 6305 AM, 2348-2351+ on Saturday with program of pop tunes, talk by DJ in EE with greetings to listeners in North America, ID, and email as <nmdradio@hotmail.com>. SIO: 333. The next day received nice full data eQSL from Station Op Fritz. (Lobdell-MA)

Radio Trans Europe Holland on 6920 AM 2355-0023+ began on Saturday and into Sunday. Op chatting, IDs, music by Shocking Blue, Pussycat, Bots. SIO: 232. (Lobdell-MA)

Summerfest Radio on 6260 AM 0223-0345+ on Sunday. UNID Relay of English special event FM station for the Haddamham Beer Festival. Mostly U.S. and English oldies. AD groups, IDs as Summerfest Radio, 87.9 FM SIO: 343. (Lobdell-MA)

Clandestine and Opposition Station Loggings

Note that all days and times are in UTC (GMT) and all frequencies are in kHz.

Radio Salaam Watandara on 11545 via Tiganesti, Romania targeting Afghanistan from 0351 to 0400 sign off Sunday. Male announcer with talk in Pashto language followed by a woman announcer with apparently ID and closedown announcements. Poor to fair. (D'Angelo-PA)

Firedrake (Jamming station originating in China) on 13795 at 1238 with musical jamming of Radio Free Asia's Tibetan language broadcast (not heard). Firedrake just barely audible. (Anonymous Contributor)

Spy and Numbers Station Loggings

Note that all days and times are in UTC (GMT). All frequencies are in kHz. Unless otherwise noted, all station designators use the Enigma2000 numbering convention.

HM-01 on 5855 at 0529 on Monday with a strong signal. (Julian-CA) *(**NOTE:** Cuba's 0500 broadcast often also uses this frequency on Wed/Fri/Sun – WPC9JXK)*

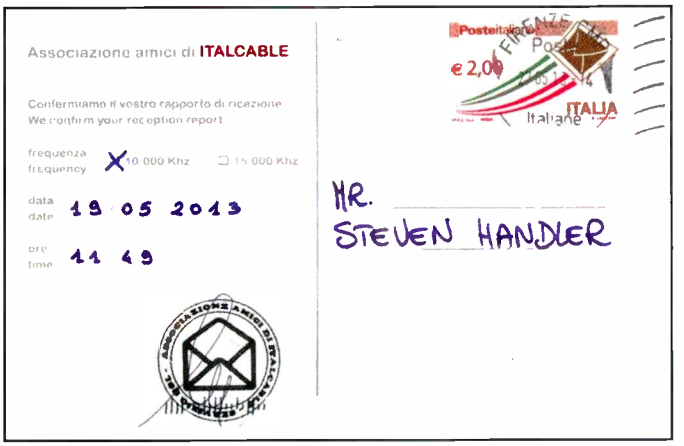


Photo I. Steve Handler, WPC9JXK's, reception of Associazione Amici di Italcable on May 19 was verified on the flip-side of the station's QSL. *(Courtesy of Associazione Amici di Italcable)*

HM-01 on 5855 at 0522 on Friday. (Julian-CA)

HM-01 on 9065 at 0803 on Monday with a strong signal. (Julian-CA) *(**NOTE:** Cuba's 0800 broadcast often also uses this frequency on Wed/Fri/Sun – WPC9JXK)*

HM-01 on 9330 at 0657 on Monday with a strong signal. (Julian-CA) *(**NOTE:** Cuba's 0700 broadcast as well as HM-01's other broadcasts often starts early or late. – WPC9JXK)*

HM-01 on 10345 at 0646 on Monday with a strong signal, stopped transmission at 0655. (Julian-CA)

HM-01 14375 at 0503 on Tuesday with a weak but readable signal. (Julian-CA)

HM-01 14375 at 0502 on Tuesday. The transmission started at 0502 and lasted until 0700. Signal level was 5-10 db above the noise floor with fading into the noise floor. (Julian-CA)

S11a "Cherta" 11581 USB at 1020 to 1022 on Friday. Female mechanical synthesized voice in Russian like language. (Anonymous Contributor-via Web SDR Netherlands)

S28 "The Buzzer" 4625 listening in USB 2030 to 2035 on Saturday. S28 averaged between 21 and 22 buzzing bursts per minute. (Anonymous Contributor-via Web SDR Netherlands) *(**NOTE:** Broadcast appears to be of Russian origin – WPC9JXK)*

XPA 10943 USB at 1730 to 1745 on Thursday. Polytone broadcast beginning with two tones alternating followed by multiple polytones. (Anonymous Contributor-via Web SDR Netherlands) *(**NOTE:** Broadcast appears to be of Russian origin – WPC9JXK)*

October's COPS Contributors

I wish to thank this month's loggings contributors: Richard D'Angelo-Pennsylvania; William Hassig-Illinois; Larry Julian-California; Chris Lobdell-Massachusetts; and Anonymous Contributor.

It's a Wrap

Thank you for reading this month's COPS column. If you would like to contribute Clandestine, Opposition, Pirate, Spy, or Numbers station loggings for possible inclusion in this column, please send them to me at <stevenhandler-popcomm@yahoo.com>. Until next month, good listening.

– Steve Handler, WPC9JXK

The Crossed Field Antenna: An Enigma Wrapped in a Riddle

By Bruce A. Conti, WPC1CAT

"Nearly 30 years since conception, the scientists associated with CFA development are still trying to make a case for the design."

It was 1999 when Dr. Maurice Hately, GM3HAT; Dr. Brian Stewart; and Egyptian student Fathl Kabbary of Glasgow Caledonian University in Scotland, along with officials from the Egyptian Radio and TV Union, introduced the revolutionary crossed field antenna (CFA) for AM broadcast transmitters at the National Association of Broadcasters annual trade show.

It represented the culmination of work started in 1985 by Hately and Kabbary at the university through amateur radio contacts using a CFA. Now nearly 30 years since conception and after a number of false starts, the scientists associated with CFA development are still trying to make a case for the design.

The CFA's Potential

The CFA holds a promise of enhanced ground wave performance while reducing sky wave radiation — a primary source of interference between AM broadcast band radio stations at night. More importantly, the designers have claimed that a CFA can be as small as 1/50th of the operating wavelength, yet deliver performance better than, or equivalent to that of a quarter-wavelength-tall antenna tower, thus reducing the amount of real estate required for an antenna site and reducing visibility versus a tall tower.

The CFA operates over a wide bandwidth, as well, due to its wavelength independency, so frequency changes can be accomplished without modifications to the physical dimensions of the antenna, and the greater bandwidth provides for improved analog audio fidelity and in-band digital applications.

Egypt became the first nation to adopt CFA technology beginning in 1994, **Photo A**. AM radio stations on 603, 864, 882, 1161, and 1197 kHz in Egypt were outfitted with CFAs transmitting as much as 100 kilowatts of power. Australia, Brazil, China, England, Germany, Italy, and now the U.S. have experimented with CFAs, but only the CFAs in Egypt and possibly one in China remain in service.

The WGFP Experiment

Most recently a CFA was installed at the transmitter site of 940 WGFP in Webster, Massachusetts, **Photo B**. The FCC granted WGFP a special temporary authority (STA) under "emergency circumstances" to transmit from a long-wire antenna, so its tower could be dismantled to make room for installation of a CFA operating under experimental license WX1CFA. The first WGFP STA was granted in March 2012, and then another STA was granted in March this year. The current STA expires this month.

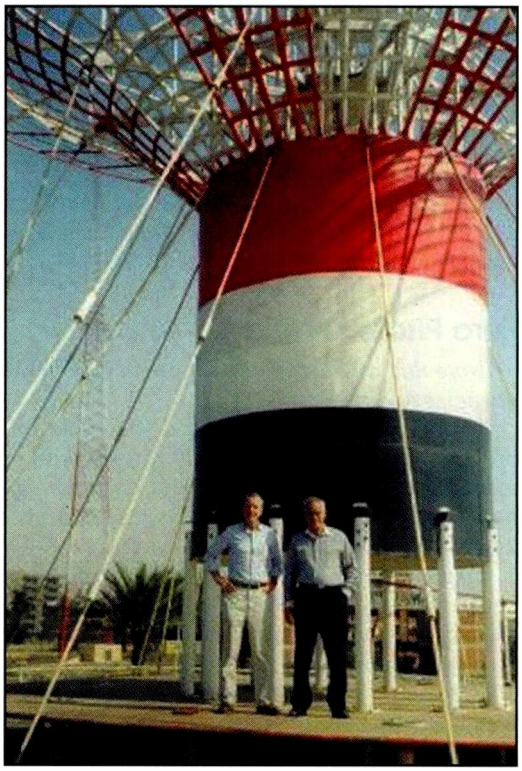


Photo A. Robert Richer of Crossed Field Antennas Ltd. and Mahmoud Khattab of the Egyptian Radio and Television Union pose at the base of an Egyptian CFA installation. *(Courtesy of Håkan Widenstedt)*

According to the STA, "the WGFP antenna site is shared with the site granted for the experimental test authorization of Crossed Field Antennas, Ltd., file number BPEX-20120103AED and callsign WX1CFA. Due to property limitations, the WGFP tower must be temporarily dismantled to facilitate the construction and testing of the crossed field antenna. In order to enable WGFP to continue to operate, a long wire antenna will be constructed on the site. Power and hours of operation will be

Photo B. Cool Country 940 WGFP is also the site of experimental station WX3CFA where CFA testing is underway. *(WPC1CAT photo)*

maintained in accordance with the specifications of the WGFP station license. Depending on site conditions, the length of the long wire antenna will be 150 to 200 feet," **Photos C, D**, and **E**.

Crossed Field Antennas Ltd. applied for an experimental license to test CFA model MK II with 100 watts of power on 1630 kHz using a Yaesu FT-757GX transmitter, **Photo F**. A license for daytime-only operation of experimental station WX1CFA was granted in January 2012. The WGFP antenna tower was dismantled after the STA was granted in March. WGFP began transmitting from a long wire strung between the transmitter building and trees along the edge of the property. A CFA antenna was constructed on a platform centered over where the WGFP antenna tower once stood, at the precise coordinates. The location may have been chosen both to take advantage of the existing ground plane of the WGFP antenna and for comparison to WGFP performance data.

WX1CFA: Cloaked in Mystery

It's unknown if the WX1CFA experimental station in Webster was ever operational. Per the construction permit, the date of required completion of construction was January 11, 2013, upon which the permit would be forfeited if the sta-

Photo C. The far end of the long wire antenna being used to transmit the signal of WGFP is visible while a CFA is under test. *(WPC1CAT photo)*

Photo D. Here's a picture of the CFA installed at the WGFP transmitter site. *(WPC1CAT photo)*

tion was not ready for operation. A visit to the WGFP/WX1CFA site over the summer found the property overgrown with vegetation. WGFP was still transmitting from the long wire antenna. It appeared nobody had been to the site for several weeks, if not months. Was the experiment abandoned?

Well, reports earlier this year from two independent sources, the National Radio Club's *DX News* magazine, and AMANDX <http://bit.ly/14CU2tn> indicated the WX1CFA city of license had moved to Lakeside, New Jersey, for CFA testing on 1630, 1640, and 1720 kHz.

FCC CDBS public access files for facility ID 190131 confirmed the change. An experimental broadcast station construction permit was granted to Crossed Field Antennas Ltd. in January for WX1CFA in New Jersey under file number BPEX-20121228AIY. It specifies daytime-only operation with 100 watts at 1630 kHz from the community of Lawnside using a Yaesu FT-757GX transmitter and CFA model MK II antenna — the same as installed at the WGFP Webster site.

Meanwhile, in June of this year, notification of construction completion and commencement of broadcasting at the Webster, Massachusetts, CFA site was received by the FCC under file number BPEX-20130402ACY for an experimental station with the callsign WX3CFA operated by Worldwide Antenna Systems, LLC.

Quoting the notification letter written by a representative of Worldwide Antenna Systems: "As required by the terms of the

This Month in Broadcast History

Jimmy Gilmer and The Fireballs Sugar Shack

75 Years Ago (1938): The Mercury Radio Theater presentation of "War of the Worlds" by Orson Welles panicked the nation.

50 Years Ago (1963): "Sugar Shack" by Jimmy Gilmer and the Fireballs was the sweetest of the Top 99 on "Wibbage" AM 990, WIBG Philadelphia. ***(LISTEN:** Catch the heavy bass intro of the monster Top-40 hit "Sugar Shack" at <http://bit.ly/1bcLaOP>, **Photo A.** – WPC1CAT.)* Today listeners can hear the oldies again on 94.3 WIBG FM Ocean City, New Jersey, and WIBG.fm online <http://wibg.fm>.

25 Years Ago (1988): Radio New York International briefly returned to the airwaves on 1620 kHz for an encore broadcast from pirate radio ship *Sarah* anchored offshore of New York City.

Unlike a year earlier when *Sarah* was boarded by federal authorities with its operators placed under arrest and equipment destroyed, this time the broadcast ended by order of the Coast Guard without a fight. Meanwhile on the legal side, the FCC proposed allowing the daytime-only AM radio stations recently given low-power nighttime authorization to construct separate nighttime transmitter sites for improved coverage, waiving the minimum power requirement for new facilities. And the WNBC callsign was retired on 660 kHz in New York City, replaced by WFAN sports radio.

– WPC1CAT

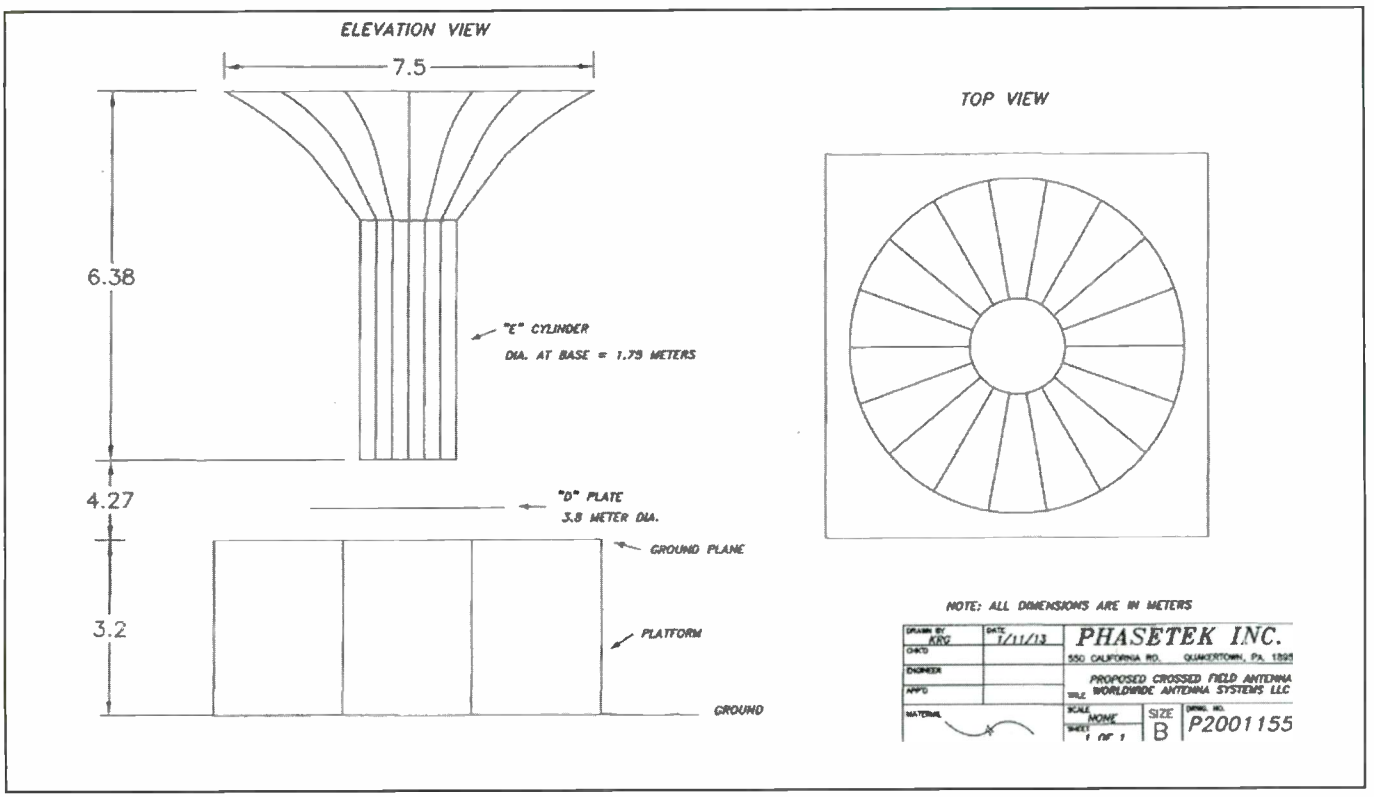


Photo E. A mechanical drawing of the CFA on the WGFP site shows the overall dimensions of the antenna. It was submitted with the FCC application for experimental broadcast station WX3CFA. *(FCC CDBS Public Files)*

above-referenced Experimental Broadcast Station Construction Permit, I am hereby providing the requisite notification that the construction authorized by the construction permit has been completed and operations of the authorized facilities have commenced. The requisite application for license is being prepared and will be timely filed."

So at least on paper, the Webster CFA site is still alive. The application and subsequent construction permit granted in May for WX3CFA both list the use of a Nautel J1000 transmitter limited to 100 watts daytime-only on 1630 kHz, along with the same CFA previously assigned to WX1CFA.

Physics or Phooey?

A derivation of Maxwell's equations S = E x H states that electrical vector E crossed with magnetic vector H results in poynting vector S, or a radio wave. The geometry of a CFA synthesizes the poynting vector by crossing separate in-phase sources of E and H, thus the name crossed field antenna.

Normally E and H are 90 degrees out of phase, so a phasing unit is required to get E and H in phase, considered the most complex aspect of CFA implementation. This ability to synthesize the poynting vector is at least in theory what makes antenna size and efficiency independent of wavelength.

The magic occurs in particular with the implementation of magnetic field H. It was determined that a time-varying electric field on the plates of a capacitor will create a magnetic field without an electric current. Large air dielectric capacitor plates are part of the geometric structure contained in the barrel-base of the CFA. This is in contrast to the definitive transmitting antenna that's been accepted since the days of Marconi: a conductive structure that carries a time-varying electrical current resulting in the radiation of an electromagnetic wave through the ether — a radio wave. The flared, funnel-shaped top was added to the CFA design for suppression of sky

Photo F. Designed principally for radio amateurs, a Yaesu FT-757GX was used by Crossed Field Antennas Ltd., after applying for an experimental license to test CFA model MK II with 100 watts of power on 1630 kHz. *(Courtesy of Universal Radio <http://www.universal-radio.com>)*

wave similar to the top-hat on a conventional AM broadcast antenna tower.

Experiments in Egypt

The transmitting facility on 1161 kHz in Tanta, Egypt, is often cited as an example of the efficiency that can be obtained from a small CFA antenna. This CFA is about 3 percent of a wavelength, or 8-meters tall. The wavelength of 1161 kHz is 258.4 meters.

The Tanta CFA, with 30 kilowatts of power, is claimed to have the same ground wave coverage as the standard antenna tower with 100 kilowatts that it replaced. However, the electrical size of this CFA is debated because it sits atop a copper-clad building, which essentially becomes part of the radiating antenna structure and may account for its successful operation versus poor results obtained at other sites.

Thus some observers have theorized that a CFA would perform best when installed on top of a steel building. However, such an installation would likely exceed U.S. RF exposure safety limits for people inside the building if in fact the building was energized as part of the antenna.

Others doubt the 30-kilowatt claim because the actual input power to the antenna is unspecified. Only the measured antenna output power is promulgated, thus the CFA could actually be extremely inefficient.

False Starts

The construction of a CFA at the WGFP transmitter site wouldn't be the first to have come and gone without fanfare. LBA Technology of North Carolina was to take on the first CFA testing in the U.S. back in 2000, but infighting between Hately and Kabbary regarding proprietary rights to the CFA in the U.S. may have ultimately killed the project. Kabbary claimed that his company had the exclusive worldwide distribution rights.

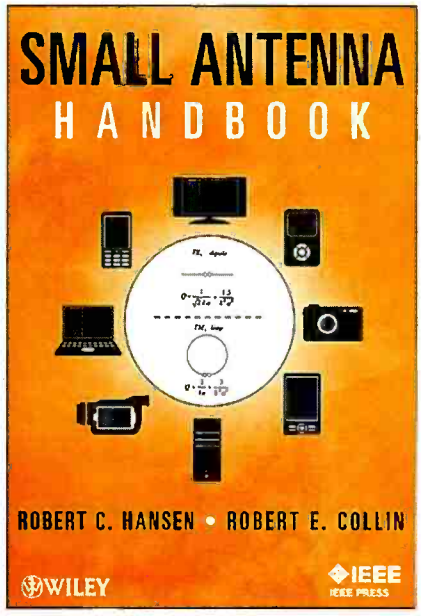


Photo G. Robert C. Hansen and Robert E. Collin, co-authors of the *Small Antenna Handbook*, classify the CFA as a "pathological antenna." *(Internet screen grab)*

CFA Internet Connections

x• The "official site for technical information about crossed field antennas by Kabbary Antenna Technology Co." is <http://www.crossedfieldantenna.com>, **Photo H**.

• Read the first WGFP STA granted by the FCC in 2012 at <http://bit.ly/14CYCYv>

• The current WGFP STA which is due to expire this month can be found at <http://bit.ly/13XUegt>

• The 2011 application for the CFA experimental license at the WGFP site is at <http://bit.ly/13AtG9l>

• The current experimental broadcast station construction permit for WX1CFA in New Jersey is at <http://bit.ly/17AXQt4>

• The construction permit for WX3CFA is at <http://bit.ly/14D0mkw>

– WPC1CAT

Photo H. The "official site for technical information about crossed field antennas by Kabbary Antenna Technology Co." can be accessed via <http://www.crossedfieldantenna.com>. *(Internet screen grab)*

Also in 2000, the installation of a long wave CFA at Isle of Man was announced, but construction was apparently subjected to endless delays by regulatory studies and expensive Kabbary Antenna Technology fees for the rights to build a CFA.

As an alternative to a 260-meter-tall tower, the CFA was to have been constructed on a platform off the coast of Ramsey to broadcast *MusicMann* radio on 279 kHz. An Isle of Man CFA has since been revived with approval albeit temporary by local government officials <http://bit.ly/13Arf6D>. Application 12/01339/B by Communication Dynamics Ltd. for erection of a crossed field radio antenna was approved in March, citing the possibility of a major innovative success and economic development. It specifies removal of the antenna upon expiration of the approval in five years.

CFA Reality Check

Perhaps it's appropriate that this CFA status report is presented on the diamond anniversary of the *War of the Worlds* broadcast. *(**IN DEPTH:** See "This Month in Broadcast History." – WPC1CAT)*

Robert C. Hansen and Robert E. Collin, co-authors of the *Small Antenna Handbook*, **Photo G**, classify the CFA as a pathological antenna: "Claims on these antennas typically have performance characteristics that violate the physics laws we work under."

Still, the theory of radio wave synthesis using a CFA remains alive as dedicated scientists and engineers continue their attempts to make it work as advertised. Unfortunately inventor Dr. Hately passed away last year, but maybe while watching from above he's eternally hopeful of renewed efforts to prove out his invention and obtain FCC certification.

*(**IN DEPTH:** Get links to official CFA documents in the factbox "CFA Internet Connections" accompanying this column. – WPC1CAT)*

Ohhhhhhh, the Drama!

The continuing saga of the CFA could easily be the subject of another Dan Brown secret society novel or a topic of discussion on the Coast-to-Coast talk radio program with George Noory. For now, keep an ear on 1630 kHz for the experimental signals from CFAs and let us know what you're hearing.

73 and Good DX! – WPC1CAT

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
0000	5580	Radio San Jose, Bolivia	SS
0000	4319u	AFN, Diego Garcia	
0000	6135	Radio Santa Cruz, Bolivia	SS
0000	9685	International Radio of Serbia	
0000	4835	Ondas del Suroriente, Peru	SS
0000	4985	Radio Brazil Central	PP
0000	4915	Radio Daqui, Brazil	PP
0000	4940	Radio San Antonio, Peru	SS
0000	4451	Radio Santa Ana, Bolivia	SS
0000	4717	Radio Yutan Aylu, Bolivia	SS
0000	4795	Radio Difusora Congohas, Brazil	PP
0100	5952	Emisora Pio XII, Bolivia	Quechua
0100	9905	Mighty KBC, Netherlands, via Nauen	
0100	11565	World Harvest Radio	
0100	11945	Radio Free Asia, via UAE	Uighur
0100	12115	Radio Free Asia. via Kuwait	Burmese
0100	5970	Radio Itatiatia, Brazil	PP
0100	15490	Radio Pakistan	
0100	9490	Radio Republica, via France	SS
0100	11905	Sri Lanka Broadcasting Corp.	Tamil
0100	5110	WBCQ, Maine	
0100	5085	WTWW, Tennessee	
0100	3185	WWRB. Tennessee	
0100	4755	Radio Imaculada, Brazil	PP
0200	6010	La Voz Concencia, Colombia	SS
0200	9760	Radio Farda, USA via Germany	Farsi
0200	4877	Radio Difusora Roraima, Brazil	PP
0300	9505	Adventist World Radio, via Austria	
0300	11740	All India Radio, via Goa	Dari
0300	6090	Amhara State Radio, Ethiopia	vernac.
0300	9820	Radio 9 de Julho, Brazil	PP
0300	7395	Radio Japan, via Madagascar	Swahili
0300	15720	Radio New Zealand International	
0300	17800	Radio Romania International	
0300	6055	Radio Rwanda	vernac.
0300	13600	Radio Sultanate of Oman	EE
0300	3320	Radio Sonder Grense, So .Africa	Afrikaans
0300	9955	WRMI, Florida	EE/SS
0300	7506	WRNO, Louisiana	
0400	9465	Vatican Radio	AA
0400	6050	HCJB, Ecuador	Quechua
0400	11930	Radio Belarus	RR
0400	11815	Radio Brazil Central	PP
0400	9705	Radio Ethiopia	Vernac.
0400	6010	Radio Mil, Mexico	SS
0400	4976	UBC Radio, Uganda	
0400	4930	VOA Relay, Botswana	
0500	6155	Radio Austria International	GG
0500	5040	Radio Havana Cuba	SS
0500	6180	Radio Nacional Amazonia, Brazil	PP
0500	7275	Radio Tunisienne, Tunisia	AA
0800	4905	Nova Radio Relogio, Brazil	PP
0800	4790	Radio Vision, Peru	SS
0900	4785	Radio Caiari, Brazil	PP
0900	5039	Radio Libertad de Junin, Peru	SS
0900	7320	Radio Rossii, Russia	RR
0900	4990	Radio Apinte, Suriname	DD
0900	13085	Voice of Mongolia	
0900	7325	Wantok Radio Light, PNG	
1000	2485	ABC No. Territory, Australia	
1000	5765	Armed Forces Network, Guam	
1000	6055	KNLS, Alaska	
1000	6550	MND Radio, South Korea	KK
1000	3330	Ondas del Huallaga, Peru	SS
1000	4805	Radio Difusora Amazonas, Brazil	PP
1000	4785	Radio Caiari, Brazil	PP
1000	4795	Radio Lipez, Bolivia	SS
1000	4910	Radio Logos, Peru	SS
1000	3310	Radio Mosoj Chaski, Bolivia	SS
1000	3375	Radio Municipal, Brazil	PP
1000	3269	Radio Symban, Australia	
1000	6600	Voice of the People, (to N. Korea)	KK

UTC	Freq.	Station/Country	Notes
1100	15410	All India Radio	Thai
1100	6195	BBC, Singapore Relay	
1100	11750	China Radio International	Mandarin
1100	4055	Radio Verdad, Guatemala	SS/EE
1100	15490	HCJB, Australia	
1100	3250	KCBS, North Korea	KK
1100	9730	Myanmar Radio	Burmese
1100	11945	Radio Veritas Asia, Philippines	Maandarin
1100	5995	Radio Australia	
1100	6150	Radio Australia	
1100	5995	Radio Australia	
1100	6090	Radio Japan	KK
1100	3260	Radio Madang, Papua New Guinea	Pidgin
1100	9850	Radio Marti, USA to Cuba	SS
1100	9700	Radio New Zealand International	
1100	4780	Radio Orientral, Ecuador	SS
1100	6105	Radio Panamericana, Bolivia	SS
1100	5952	Radio Pio XII, Bolivia	SS
1100	3205	Radio Sanduan, PNG	
1100	4475	The Cross Radio, Microneisa	
1100	9910	Trans World Radio, Guam	Mandarin
1100	11710	Voice of Korea, North Korea	FF
1100	13805	Voice of Russia	Mandarin
1100	11665	Wai FM, Malaysia	Malay
1100	7450	Xizang PBS/CNR, China	CC
1200	9870	All India Radio	Hindi
1200	17895	BSKSA, Saudi Arabia	AA
1200	11640	China National Radio (jammer)	Mandarin
1200	11935	China Radio International	RR
1200	7325	China Radio International	JJ
1200	11730	Islamic Rep. of Iran Broadcasting	Pashto
1200	7355	KNLS, Alaska	
1200	4750	Radio Republik Indonesia	II
1200	11740	Radio Japan, via Singapore	JJ
1200	7435	Voice of Vietnam	VV
1300	11605	CNR jammer, China	Mandarin
1300	15575	KBS World Radio, South Korea	
1300	9335	Radio Free Asia, via N. Marianas	Burmese
1300	12095	Radio Polonia, via Bulgaria	Russian
1300	9795	Radio Thailand	Thai
1300	9835	Sarawak FM, Malaysia	Malaysian
1300	9525	Voice of Indonesia	various
1300	11530	Voice of Russia, via Tajikistan	Hindi
1300	9930	World Havest Radio, via Palau	
1300	12160	Trans World Radio, via Uzbekistan Hindi	Hindi
1400	17705	BSKSA, Saudi Arabia	AA
1400	13850	Kol Israel	Farsi
1400	9690	Voice of Nigeria	
1400	7505	Voice of Russia	Urdu
1400	15505	Bangladesh Betar	Urdu
1500	15435	BSKSA, Saudi Arabia	AA
1500	15245	China Radio International	Mandarin
1500	15430	Radio Free Asia, USA, via N.Marianas	Mandarin
1500	15540	Radio Kuwait	
1500	15180	Radio Liberty, USA, via Germany	Tajik
1500	15320	Radio Veritas Asia, via Vatican	Tagalog
1800	17670	All India Radio	
1800	15275	DW, Germany, Rwanda Relay	Hausa
1800	17850	Radio France International	FF
1900	17795	BBC	
1900	15550	Islamic Rep. of Iran Broadcasting	Hausa
1900	15300	Radio France International	FF
1900	15630	Voice of Greece	Greek
1900	15610	WEWN, Alabama	
2000	11600	Radio Libye, Libya	AA
2000	15400	BBC, Ascension Is. Relay	
2000	17885	BBC, Ascension Is. Relay	Hausa
2000	15105	BBC, Ascension Relay	
2000	11995	Radio France International	FF
2000	15130	Radio Japan, via France	JJ
2000	11745	Radio Romania International	
2000	15140	Radio Sultanate of Oman	AA
2000	11885	VOA, Sao Tome Relay	Hausa
2000	11840	Voice of Vietnam, via Germany	VV
2000	11735	ZBC Radio, Zanzibar	Swahili
2100	11670	All India Radio	
2100	11660	China Radio International	FF
2100	17550	Radio Kuwait	AA
2100	15345	Radio Argentina al Exterior	FF
2100	11890	Radio Cairo, Egypt	
2100	9620	VOA, Sao Tome Relay	Bambara
2100	9420	Voice of Greece	Greek
2200	13362	AFN, Guam	
2200	9640	China Radio International	SS
2200	11985	Far East Broadcast, via Ascension	Pulaar
2200	11730	Radio Belarus	
2200	9965	Radio Cario, Egypt	
2200	7450	Radio Makedonias, Greece	Greek
2200	9265	WINB, Pennsylvania	
2300	9580	Africa No. One, Gabon	FF
2300	4825	La Voz de la Selva, Peru	SS
2300	8989	Pescador Preacher, Nicaragua	SS
2300	12080	Radio Australia	
2300	15480	Radio Cairo, Egypt	PP
2300	4955	Radio Cultural Amuata, Peru	SS
2300	9565	Radio Marti, USA	SS
2300	11780	Radio Nacional Amazonia, Brazil	PP
2300	6055	Radio Nacional Espana, Spain	FF
2300	9655	Radio PMR, Moldova	unid/EE
2300	9740	Radio Romania International	SS
2300	9850	Radio Tirana, Albania	Albanian
2300	4915	Radio Difusora Macapa, Brazil	PP
2300	12060	Voice of Russia	PP
2300	9665	Voz Misionaria, Brazil	PP

PCs and the Amateur Radio Station — Front and Center

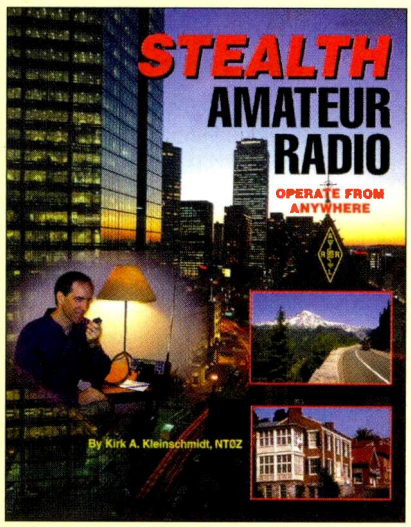
By Kirk A. Kleinschmidt, KPCØZZZ/NTØZ

"In my updated shack, a single large, high-resolution monitor will be the center of attention, with the rest of my station hardware organized around it."

I've been pointing out the irony that computers are radios and radios are computers for at least 10 years now. And there's no doubt that for mainstream hams computers have taken ham radio in new directions and to new heights. They're now completely integral to the pursuit of our hobby, even by casual hams, **Photo A**.

Typical shack PCs are used for logging, packet spotting, antenna modeling, circuit design, digital modes, rig control, Internet-connected functions too numerous to mention, testing, measuring, keying, modulating, demodulating, awards tracking, interfacing, translating, compressing, equalizing, recording, license renewal, etc. Heck, PCs can even work each other on the air if we let them.

Unlike earlier days, RAM is now cheap, as are hard drives, CPUs, and the like. Perhaps the last components to hit bargain-basement prices are large, flat-panel monitors. These, too, are now inexpensive, which prompted me to finally get a truly jumbo monitor for my own shack.



About the Writer

Since writing his first Ham Discoveries column for Pop'Comm in 1989, Kirk A. Kleinschmidt, NTØZ/KPCØZZZ, has written more than 300 columns and feature articles about amateur radio. In addition to editing "The ARRL Handbook" and serving as QST's Assistant Managing Editor, Kleinschmidt is author of "Stealth Amateur Radio," available at <http://www.stealthamateur.com>.

The Screen Right in Front of You

Like most hams, for the past 30+ years a transceiver always took center stage at my operating position. Because I needed to look at the display and fiddle with the knobs, it made sense.

When I added a desktop or a laptop computer for logging or digital-mode operating, it always sat off to the left. I needed my right hand for writing and keying (*darn, still can't key with my left hand*), but I can type passably with my left, so it works after a fashion.

Now, though, the PC is moving to center stage. Everything that happens in the shack pretty much revolves around the shack computer. It's absolutely required to run the Flex-1500 SDR but it also handles all the other stuff, too.

To honor this change in PC prominence I needed to find a reasonable way to move the monitor to center stage. For the past several years I've used two 17-inch LCDs to display as much of the action as possible. They were positioned as "left," "lefter," and "leftest."

During extended operating sessions I often got a sore neck from swiveling back and forth. *Ouch!* Setting up multiple monitors in various flavors of Windows is pretty straightforward, but dragging program windows between screens, remembering where they are spatially, and efficiently moving the mouse between them as I move back and forth between PowerSDR (radio), DM780 (PSK and RTTY), HRD (logging), N3FJP's AC Log (more logging), Firefox (Web browser), plus who knows what else, is tedious at best.

In my updated shack, a single large, high-resolution monitor will be the center of attention, with the rest of my station hardware organized around it. I'll probably have to build a new shelf/console to support the new hardware arrangement. Once that's completed I will see once and for all whether it's better — *for me*, at least — to use several small monitors or one biggie.

Screen Real Estate

I purchased a pair of 17-inch HP LCDs for $50 each on Craigslist. They're non-widescreen TN panels with fluorescent backlights and a 1280 x

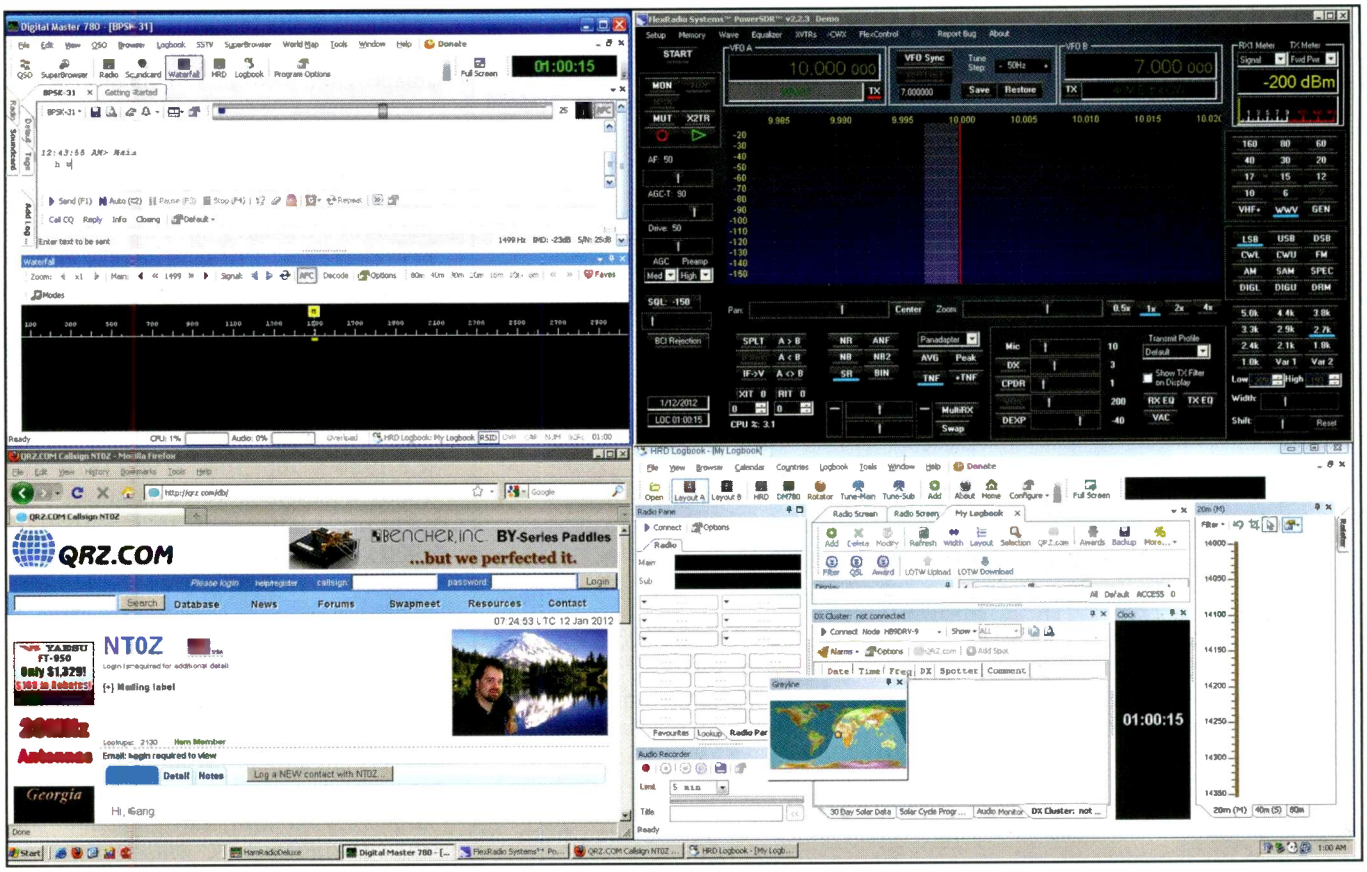


Photo A. This full-screen capture of my shack software is displayed on a 28-inch Hanns.G HZ281 LCD monitor at a resolution of 1920 x 1200 — which also looks great on 24-inch LCDs if you have excellent eyesight. Shown here, clockwise from the upper left, are DM780, PowerSDR, HRD's Logbook, and a web browser. The challenge is to make a whole lot of ham radio software usable on one center-mounted PC monitor. See text. *(Courtesy of KPCØZZZ)*

1024 max resolution (2560 x 1024 for the pair). The new monitor is a 28-inch Hanns.G — a Hannspree brand — that sells for as little as $239 at <http://www.newegg.com>. *(**IN DEPTH:** Read a review of the 28-inch Hanns.G at <http://bit.ly/12ylAzW>, **Photo B**. – KPCØZZZ)*

The biggie display also has a TN panel with fluorescent backlights, but it sports a healthy 1920 x 1200 widescreen resolution. As you can imagine, there are plusses and minuses for each approach.

Multiple monitor setups are more flexible, with panels that can be positioned here, there and everywhere, as needed. They're also really inexpensive. New 20-inch LCDs cost about $100 on sale. Craigslist and swap-meet LCDs are in the $20 to $60 range, while older CRT monitors are free for the taking. People and businesses will simply give them to you if you'll agree to haul them away.

Multi-monitor installs also require your shack PC to have multiple video cards, dual-head video cards, or both if you want three or four monitors. This isn't all that difficult with Windows, Linux or OS X, but the video cards have to *"play nice"* with each other, and newer video cards may require adapters to work with older displays, so some fiddling around may be required. Single large monitors are one-stop shopping: one display, one video card (and, unfortunately, one point of failure).

Being a value-conscious ham — *an oxymoron?* — I carefully chose the Hanns.G model based on screen size and cost. And I can still add extra monitors if necessary, although that would make my shack look like a Wall Street brokerage. *Don't laugh. It might happen.*

Modern Monitors

Modern monitors are mostly widescreen LCDs in sizes ranging from 17 to 24 inches. There are a few that are larger or smaller, but that's the sweet spot. Here are some other considerations:

Aspect ratio. CRT monitors from yesteryear and some existing LCD models have aspect ratios of 4:3. That is, the screen is four units wide by three units tall — a nearly-square rectangle. Most modern LCDs have aspect ratios of 16:9 or 16:10 — a pronounced rectangle. Many users prefer 4:3 monitors for word processing and productivity apps such as logging, and widescreen monitors for watching movies. Depending on the screen's resolution, aspect ratio differences can really help or hinder productivity. I will test this extensively during my monitor experiment.

Resolution. Aspect ratio broadly defines the shape of a monitor, while resolution roughly defines how much information it can display, **Photo C**. My older HP LCDs have a resolution of 1280 x 1024, which means that, in 17 diagonal inches, the screen's image is 1280 pixels from left-to-right, and 1024 pixels from top-to-bottom. This resolution is shared by most 19-inch LCDs as well, so it's important to note that, in this comparison, no additional information is being displayed on the larger monitor because the number of pixels that make up the

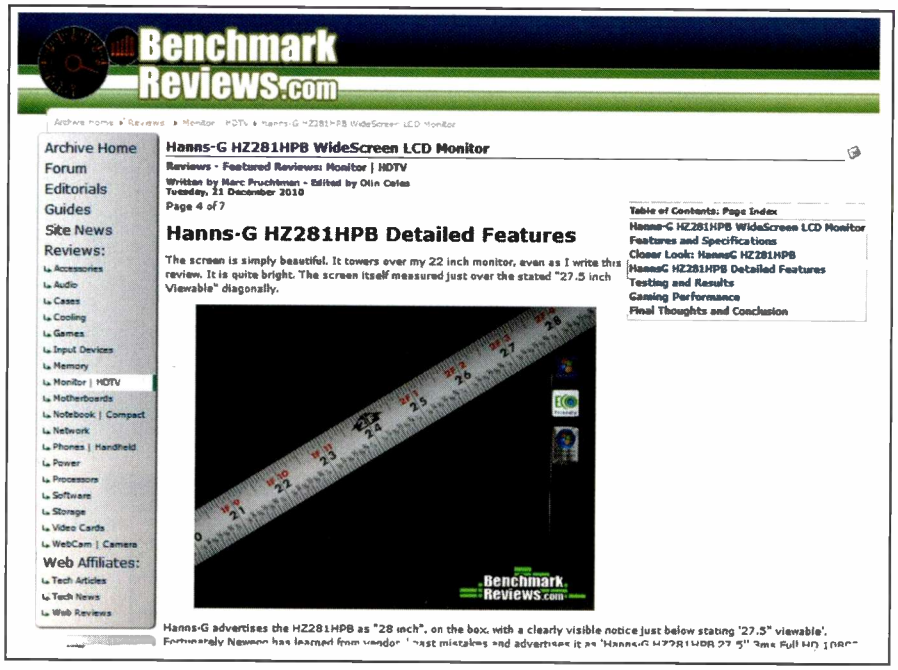


Photo B. "The new monitor is a 28-inch Hanns.G — a Hannspree brand — which sells for as little as $239," writes KPCØZZZ. It is good? *Read a review at* <http://bit.ly/12ylAzW>. *(Internet screen grab)*

image is the same. What's changed is the size of each pixel, which can affect how "sharp" we perceive the image.

If we enlarged a 1280 x 1024 image to fit on the screen at a drive-in movie theater, each pixel would be the size of a basketball, making the image appear quite fuzzy unless we're watching from 200 feet away. Similarly, some smart phones cram about the same number of pixels into 4-inch screens, making each pixel too small to see unless you're a 12-year-old kid with a magnifier. Apple calls these screens "retina displays," because the resolution is high enough — *and the screen small enough* — to produce "dot-less" images, like the retina in the human eye.

My point is, resolution without screen size is essentially meaningless. Don't be fooled. That's why large HDTVs make great gaming displays but poor text displays for PCs. They have the same number of pixels as a 20-inch display, but are two to four times the size. Big pixels equal fuzzy text.

Most 4:3 monitors use 1280 x 1024 or 1600 x 1200 pixels, although older CRT types went as low as 800 x 600 or 640 x 480. Widescreen 16:9 monitors typically use 1366 x 768, 1600 x 900 or 1920 x 1080. Widescreen 16:10 monitors typically use 1440 x 900, 1680 x 1050, or 1920 x 1200 pixels.

Because flat-panel TVs use 16:9 displays, the industry has been focusing on this aspect ratio to the potential exclusion of all others. This is unfortunate because the "extra" 120 pixels in the vertical dimension on modern jumbo screens can be very important for productivity apps, including ham radio apps. *(**NOTE:** Most large 16:9 monitors have resolutions of 1920 x 1080 pixels, while most large 16:10 models have resolutions of 1920 x 1200 pixels. – KPCØZZZ)*

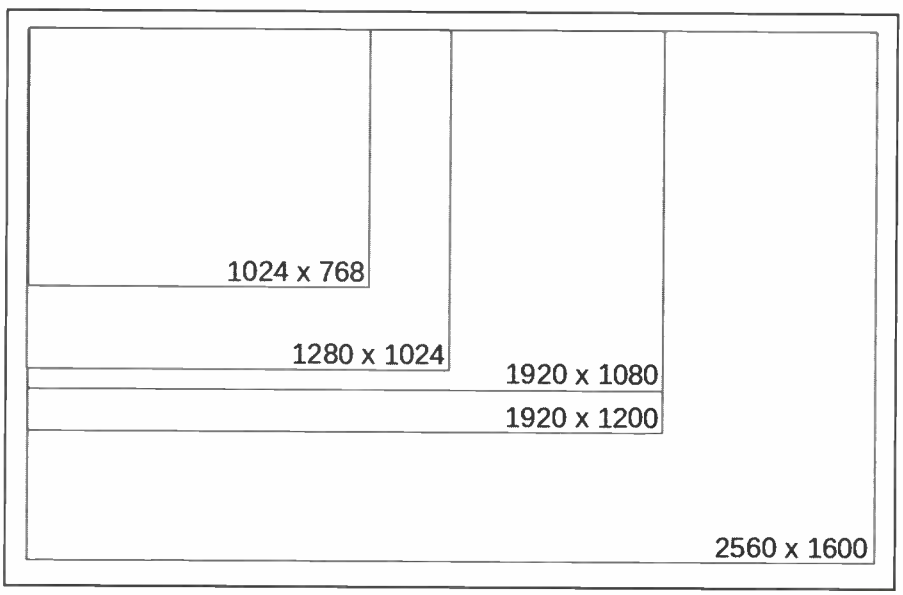


Photo C. A comparison of PC screen sizes typically used for amateur radio applications. Although most screen resolutions seem puny compared to 2560 x 1600, remember that screens of that resolution are typically 27-30 inchers. As long as you can use several at once, 17-inch monitors at 1280 x 1024 are the most affordable, costing as little as $20 each on Craigslist or at hamfests. *(Courtesy of KPCØZZZ)*

Where to Focus

Considering resolution, size, aspect ratio, price, and industry leanings, the present sweet spot in the market is a 23- to 24-inch LCD with a resolution of 1920 x 1080 (16:9). It's 16:9 and not 16:10, but with typical sale prices of $135, that's a *heckuva* deal.

Really big monitors. My 28-inch monitor is absolutely the largest size panel that can still display small text at a resolution of 1920 x 1200 pixels. Most monitors in the 27- to 30-inch range sport crazy-high resolutions of 2560 x 1600 and require powerful dual-head video cards to drive them. I want one, of course, but I just don't want to pay for one. Once $3,000 to $5,000, the most affordable "high end" monitor of its type is Dell's beautiful 30-incher, which costs about $1,100 on sale. Dell's 27-incher, with a slightly "diminished" resolution of 2560 x 1440, goes on sale for about $700, but that's still a big step above the Hanns.G's $240 price point.

If you're willing to buy a monitor on eBay, 27-inch, Korean-made "Catleap" brand monitors (2560 x 1440) are selling in the $300 to $350 range, and are well

reviewed. The downside is, they only work at their native resolution and can't downscale to accommodate lower resolutions. Still, if you have enough video horsepower to drive it, that's a potentially perfect monitor size and resolution for users who need to efficiently run multiple programs — *and who doesn't?*

Contrast ratios. Most published contrast specs for modern LCDs are incorrect or outright fabrications of the marketing department! Other than backlight choices, you can safely ignore this when purchasing.

LED vs. fluorescent backlights. LCDs don't "make their own light," so they require a "backlight" to produce a visible image. Fluorescent backlights were once dominant, but LED backlights are coming on strong.

Both work well, but the scuttlebutt suggests that LEDs don't suffer the same failure rates as fluorescents. But even if the LED backlights last forever, the screens themselves are still the same, and they still fail at the same rate. LED backlights may tend to produce a bit more contrast and a bit less RFI, but because there is a ton of other circuitry in modern displays that can get RF-noisy, that's not guaranteed.

Glossy vs. matte. Glossy screens have a mirror-like reflective surface and are easier to clean. Matte screens are much less reflective but harder to clean. Take your pick.

TN vs. IPS. Inexpensive LCDs — the kind we're mostly talking about here — are usually "TN" panels, while expensive LCDs are usually "IPS" panels. Technical details aside, TN panels are easy and inexpensive to manufacture, while IPS panels are difficult and more expensive. IPS panels offer wider viewing angles and better color fidelity. TN panels are "close enough for government work" (and most look quite nice).

Connectors. Most LCDs — even the big ones — still have 15-pin VGA connectors, but newer all-digital connectors such as DVI, Display Port, and HDMI (which were mostly created for the HDTV market but are now common in newer PCs) may soon replace them for good. Most DVI ports on PCs and video cards can also output analog VGA signals through an inexpensive adapter, but the newest DVI ports are all digital — like Display Port and HDMI. Each can offer excellent image quality, but your video sources and your monitors have to "speak" the same languages. Check things carefully before you buy.

Tidbits. Consider mounting large monitors on articulated arms to get them up off the table. This frees a lot of space underneath that can be used to store logbooks, keyboards, and so on. Some monitors have built-in speakers, but the sound quality is usually tinny, shrill, and poor. Don't touch your LCD with fingers, pens, pointers — *ever!* And be sure to cover your mouth when you sneeze or cough ***(HEALTH NOTE:*** *That's good advice even if no monitors are present. – KPCØZZZ)*

LCDs should be cleaned only with special LCD cleaning cloths and solutions. Don't even think about using household cleaners, or you'll be sorry! Most modern LCDs don't have built-in signal cables, which means you can use high-quality cables with molded-on RF chokes if necessary to knock down monitor RFI. Use snap-on ferrite chokes if necessary.

In Closing . . .

It probably won't be long until a really big monitor takes center stage in your shack. You'll see! – KPCØZZZ

Dialing In Dulles, Where Sheer Volume Is a VHF Scanner's Delight

By Bill Hoefer, KPC4KGC

"Put your scanner into band scan mode and just start copying down frequencies. You'll be surprised what you hear."

So this month's *Plane Sense* is the result of an idea that's been percolating in my head since I returned to *Pop'Comm* as *Aviation* columnist last year: How about a snapshot of Washington Dulles International Airport (KIAD)?

Dulles is the largest and busiest of the airports in the Washington, DC metro area, which includes Washington Reagan National Airport (KDCA) and Baltimore-Washington International Airport (KBWI). The average number of airline passengers visiting Dulles annually is about 22 million.

Daily, 60,000 people depart from KIAD — or IAD for short — for more than 125 destinations around the world. IAD ranks as the second-busiest airport with flights to the Middle East, **Photo A**.

Recent, rather-staggering passenger statistics are eyebrow raising when considering there was a 2.8 percent decline in the number of air travelers from 2011 to 2012.

More people depart Dulles annually for London England (990,010) and Frankfurt Germany (666,888) than those who fly to Los Angeles — the No. 1 domestic destination at 627,000.

United Airlines (UAL) is the top airline at Dulles, carrying nearly 9 million passengers from the airport in 2012. It has a major hub at IAD, **Photo B** and **C**.

Tips for Scanning Dulles and Other Airports

I'll make this one recommendation for all of you with handheld scanners, not just for Dulles, but for all major airports you may be monitoring: Don't just plug in the frequencies you find in *Plane Sense* or the A/FD or any other book, mag-

Photo A. Washington Dulles International Airport tower is an extremely busy place, with 60,000 passengers coming through the facility every day. *(Courtesy of Wikimedia Commons)*

azine, or website. Put your scanner into *band scan* mode — or however its instructions identify the scan mode — and just start copying down frequencies. You'll be surprised what you hear.

My handheld died and I haven't replaced it — yet. I remember taking it with me to Germany in 2005 and enjoyed listening to the various airline dispatches while sitting in the terminal at Frankfurt. At the time I wasn't writing for *Pop'Comm* so I didn't write them down and regret not doing that.

Of course, you can scan Dulles IAD online, as well, **Photo D**. LiveATC has coverage of airports from around the world. To scan-in on Dulles, visit <http://bit.ly/1dSTGOW>. *(**LiveATC.net:** To link to its homepage, go to <http://www.liveatc.net>. – KPC4KGC)*

A Pleasant Surprise — Dulles Style

Speaking of band scanning, I recently put my desk scanner in the scan mode and started writing down frequencies. I live

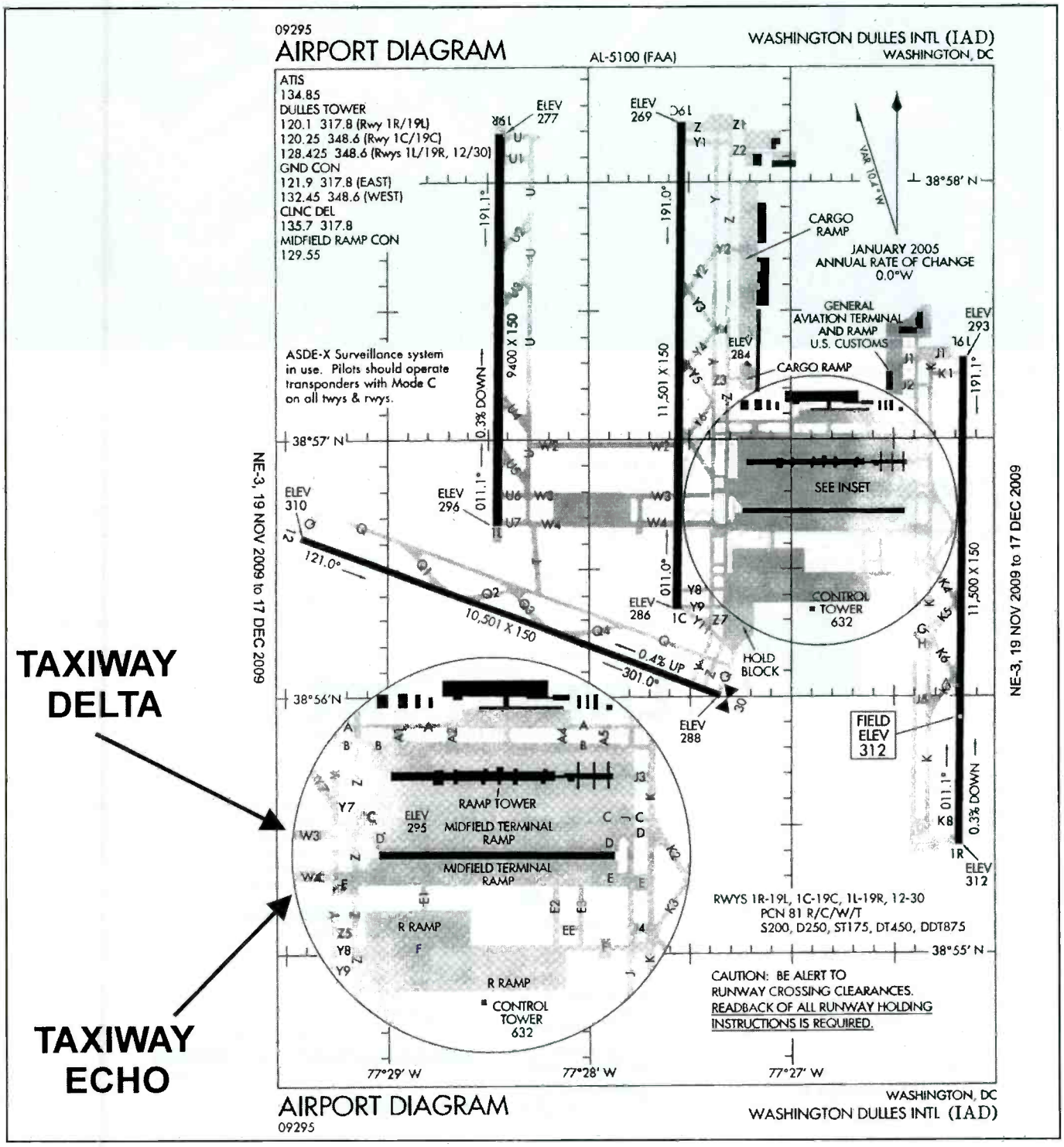


Photo B. Here is IAD's runway and facilities configuration as depicted in a copy of the frequently-updated A/FD guide familiar to so many aviation enthusiasts. *(Courtesy of Wikimedia Commons)*

Photo C. An aerial view of Washington Dulles International shows the footprint of the sprawling, and busy airport. *(Courtesy of Wikimedia Commons)*

about 50 miles west of IAD with the closest tower at Manassas, about 40 miles from here.

I thought I could only hear aircraft flying overhead to and from the Washington airports. I didn't expect to hear more than just two or three frequencies, *and just the pilots, at that.* Boy, was I wrong.

I monitored nearly 35 VHF aviation frequencies. My scanner doesn't do military. And, surprisingly, I heard controllers at both Washington and Cleveland Air Route Control Centers. What was *really amazing* was the scanning was done with the built-in whip antenna. I have yet to put up any outside antenna for my scanners or my high-frequency Yaesu ham radio. I've been look-

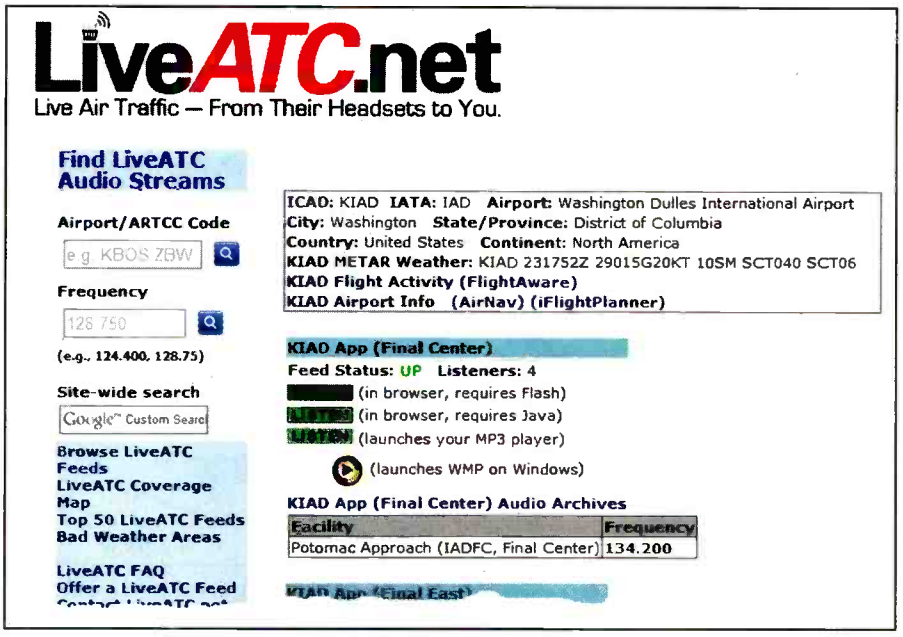


Photo D. LiveATC.net is an online source for scanning activities at Washington Dulles International Airport. Visit: <http://bit.ly/1dSTGOW>. *(Internet screen grab)*

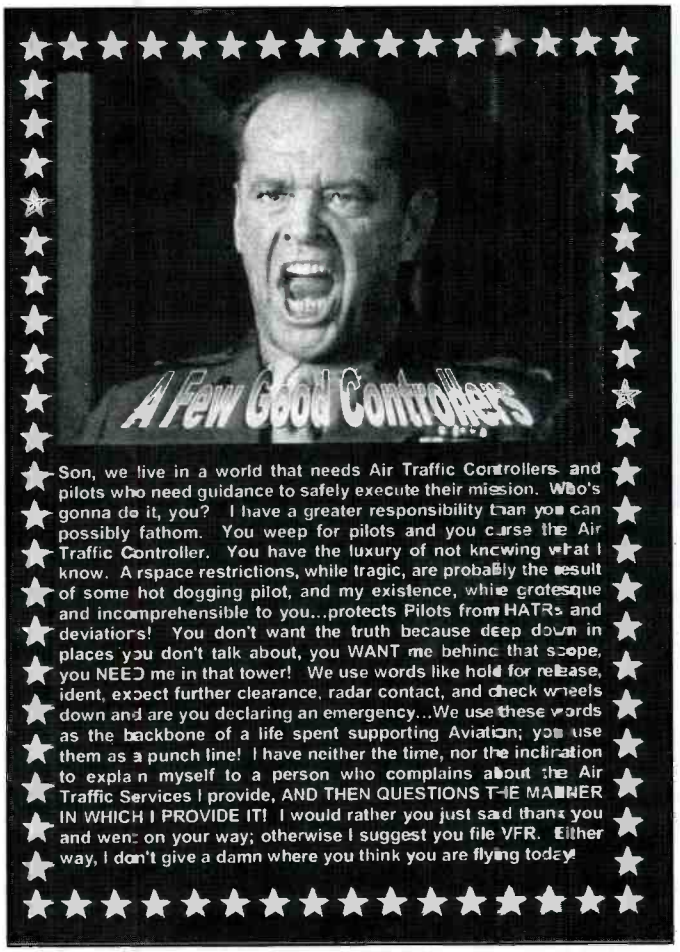


Photo E. With apologies to Col. Nathan Jessup from the 1992 hit film "A Few Good Men," here is "A Few Good Controllers," dialogue that could have taken place had the movie trial been about the challenges of air traffic control. *(Courtesy of KPC4KGC)*

ing at a couple of ARRL antenna books for ideas. I know of the universal discone antennas sold by AES <http://bit.ly/132ee6n>, and RadioShack® <http://bit.ly/17BfMUw>.

***(SEEKING YOUR HELP:** I had a RadioShack® unit in my attic in St. Petersburg, Florida and it worked wonderfully, in spite of covering a wide range of frequencies. But I'm considering assembling three different band-specific antennas: for my 2-meter ham radio, the aviation frequencies, and perhaps even one for local FM and HD FM for my stereo. I don't claim to be an expert here so I'm looking for your input. Readers? A little help here. – KPC4KGC)*

Other Pursuits

Readers from the first incarnation of my column before my return to *Pop'Comm* in 2012 may remember my nitpicking — read that: *verbally destroying* — movies that include inaccurate depictions of aviation.

In the accompanying **Photo E** you'll find a retooling of the *"You Can't Handle The Truth"* speech by Col. Nathan R. Jessup (Jack Nicholson) in the 1992 film *"A Few Good Men."* I got this from a friend of a friend of a friend. ***(NOTE:** No, it's the real thing here. – KPC4KGC)*

It's an excellent paraphrase and any pilot who reads this will empathize — I hope — with what Colonel Jessup says. ***(WATCH***

Grab Your Scanner and Listen 'Up!'

While we're getting into *what* you'll likely be hearing, here's a 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 is 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 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 G. Sun Air International is one of a slew of airlines flying in and out of Washington Dulles International Airport on a daily basis. See the accompanying factbox headlined *"Airlines Serving Dulles"* for a full rundown. *(Courtesy of Wikimedia Commons)*

Few Good Man ' You Can't Handle the Truth ' Courtroom Scene

Photo F. Readers should use discretion in linking to this YouTube video replay of the explosive "You Can't Handle the Truth" scene from 1992's "A Few Good Men." It contains adult language and may not be suitable for some viewers. *(Internet screen grab)*

and LISTEN: *To Jack Nicholson and Tom Cruise go head-to-head in the "truth telling" courtroom scene from "A Few Good Men," **Photo F**, <http://bit.ly/17BqEBQ>. (**CAUTION:** This clip contains strong adult language that some readers may find offense. Discretion is advised. – KPC6PC)*

Ideas Percolating

A spin-off hobby I enjoy is combining monitoring with hiking. I finally found the Linden VORTAC while hiking in the Shenandoah National Park recently. And it wasn't on the Appalachian Trail. *I'm surprised.* The combination is interesting enough to me to make me suspect it might be interesting to you, as well. Look for an upcoming piece on monitoring and hiking.

Since my non communication hobbies vary, I try to see how to integrate them. I have a 1970 VW Kafer Cabriolet (Beetle convertible) at my home in St. Petersburg. I'm in the midst of a resto-custom project with the car that may wrap nicely into a story that includes my high school, amateur radio, and scanning experiences — all from *KPC4KGC days gone by.*

And speaking of resto-custom projects, I'm doing one on a 1993 Schwinn Super Sport touring bicycle that will be carrying a decent 2-meter transceiver that I'll be using while riding one of the U.S. bike routes or the Natchez Trace Parkway — once I retire in a couple of years.

Plane Sense: Behind the Scenes

I've been asked how I come up with the topics for *Plane Sense* each month. To be honest *I am clueless.* At least that's what my children and grandchildren have been calling me for some time.

My creative writing class in high school — long before personal computers — was a disaster, to say the least. And I wasn't all that impressive in my speech class in my freshman (and only) year in college. I've gone through enough ribbons on my old Remington Rand boat-anchor-masquerading-as-a-typewriter, <http://bit.ly/15dWynz>.

I'm pretty sure that Michael Nesmith of the 1960's group *The Monkees* <http://www.monkees.com> has made a payment or two from my using his mother's invention — Wite-Out <http://bit.ly/14DT3ZP>, the correction fluid used

Scanning the Skies Above Dulles

According to the June 27, 2013 Airport/Facility Directory (A/FD) for the Northeast U.S. — on pages 44 and 45 – the frequencies used for Dulles air traffic include the following:

- 134.85 MHz – Automated Terminal Information Service (ATIS). You can also listen to it on the telephone at (571 323-6374.
- 113.5 MHz (transmit)/122.1 MHz (receive) Leesburg Flight Service (ARMEL RCO) Chances you'll hear only the 122.1 from the pilot unless you're right near the airport monitoring the ARMEL VOR
- 126.1 MHz (331°-090°) Potomac Approach
- 124.65 MHz (091°-240°)
- 120.45 MHz (241°-330°)
- 120.1 MHz (runway 01R/19L) Control Tower
- 120.25 MHz (runway 01C/19C)
- 134.425 MHz (runway 01L/19R and runway 12/30)
- 129.55 MHz Midfield Ramp Control
- 121.625 MHz (west) Ground Control
- 121.9 MHz (east)
- 135.7 MHz Clearance Delivery
- 126.65 MHz (121°-299°) Potomac Departure Control — from 300°-120° is not in the IAD listing as that covers the area for Washington Reagan National and Andrews AFB. The approach and departure radar control covers airspace up to and including 15,000 MSL Aircraft above 15,000 MSL are controlled by Washington ARTCC.

Navigation Frequencies:

- 113.5 MHz ARMEL VOR/DME (AML)
- 111.3 MHz ILS Runway 01C (I-OSZ)
- 110.75 MHz ILS Runway 01L (I-OIU)
- 110.1 MHz ILS Runway 01R (I-IAD)
- 109.3 MHz ILS Runway 12 (I-AJU)
- 111.3 MHz ILS Runway 19C (I-DLX)
- 110.1 MHz ILS Runway 19L (I-SGC)
- 110.75 MHz ILS Runway 19R (I-ISU)

*(**NOTE:** Of course you must be on the final approach course to pick up these ILS frequencies, and all you'll hear is the four letter Morse Code identification. – KPC4KGC)*

before you could simply *delete and replace* wording on a computer screen.

I get a reminder around the 10th of each month that *Plane Sense* will soon be due to the editors. Deadline is the 20th. I draw on the ideas offered by my colleagues and you, the readers, for relevant topics. And, of course, I draw on my career experience as an air traffic controller. Somehow, I never seem to run out of ideas.

Wheels Down . . .

Until next month — seasonal home of "Turkey Day" — keep your feet on the ground, your ears to the sky and your scanner nearby! *– KPC4KGC*

Airlines Serving Dulles

Aviation scanners have a goldmine of monitoring opportunities from Dulles. Airlines serving Dulles include:

- Aeroflot
- Aeromexico
- Air France
- All Nippon Airways
- American Airlines
- Austrian Airlines
- Avianca
- British Airways
- Brussels Airlines
- Cayman Airways
- Copa Airlines
- Delta Air Lines
- Delta Connection sub carriers (Chautauqua Airlines, Compass Airlines, Endeavor Air, Express Jet)
- Emirates
- Ethiopian Airlines
- Etihad Airways
- Icelandair
- JetBlue Airways
- KLM
- Korean Air
- Lufthansa
- Porter Airlines
- Qatar Airways
- Saudia
- Scandinavian Airlines
- South African Airways
- Southwest Airlines
- Sun Air International
- Turkish Airlines
- United Airlines (with a major hub at IAD)
- United Express sub carriers (CommuitAir, ExpressJet, GoJet Airlines, Mesa Airlines, Republic Airlines, Shuttle America, Silver Airways, SkyWest Airlines, Trans States Airlines)
- US Airways
- US Airways Express (Air Wisconsin, Mesa Airlines, Piedmont Airlines, PSA Airlines)
- Virgin America
- Virgin Atlantic Airways

Cargo carriers include: FedEx Express, Mountain Air Cargo (a FedEx feeder), and UPS

– Compiled by KPC4KGC

The Hallicrafters SX-25 'Super Defiant,' And Other Monitoring Memories

Compiled by
Richard Fisher, KPC6PC

"No reason for naming the receiver the 'Super Defiant' was ever made known — but it's quite imaginative."

The classic SX-25 communications receiver was introduced by Hallicrafters in 1940 as an upgrade to its *Defiant,* unveiled in 1939. What to call the '25? *Super Defiant,* of course!

"Were the names meant to portray the ability to fight off the noise and pull in that weak signal?" asks a writer on the Boatanchors Pix website <http://bit.ly/1aWHI7i>. "Was it a response to the shortwave propaganda, militarism, and finally war that raged in Europe and Asia in 1939-40 but had not yet involved the United States? Was it named for a racing sail canoe that was a consistent winner in the '30s that bore the name *Defiant?* No reason for the name was ever made known. However, the name is quite imaginative."

Richard Dreyer, WPC1USA, of Warwick, Rhode Island had a *Super Defiant,* and to this day holds the great memories that came along with it. He kicks off this month's remembrances as one of the newest registrants to the *Pop'Comm Monitoring Station* program. Fascinating reflections, as always. Please keep those cards, letters, and emails coming. Write: <PopCommMonitor @gmail.com>. *Good listening!*

– Richard Fisher, KPC6PC

Richard Dreyer, WPC1USA, Warwick, Rhode Island

Back in the early 1950s my father gave me a Hallicrafters SX-25 which he bought at a pawn shop. It was beat up, but worked like a champ. It's long gone and did yeoman's work up through the early 1990s. Shortwave listening has always been a hobby of mine. *(**IN THE MOVIES:** The Hallicrafters SX-25 made a brief appearance in the U.S. Army training film "Resisting Enemy Interrogation," <http://bit.ly/14imZfm>. See it at the 47-minute point of the film, **Photos A** and **B**. – KPC6PC)*

Photo A. The classic Hallicrafters SX-25 receiver had a cameo — albeit *fuzzy* — in the World War II U.S. Army training film *"Resisting Enemy Interrogation," <http://bit.ly/14imZfm>.* The *Super Defiant* — how fittingly named — makes its appearance 47 minutes into the movie. *(Internet screen grab)*

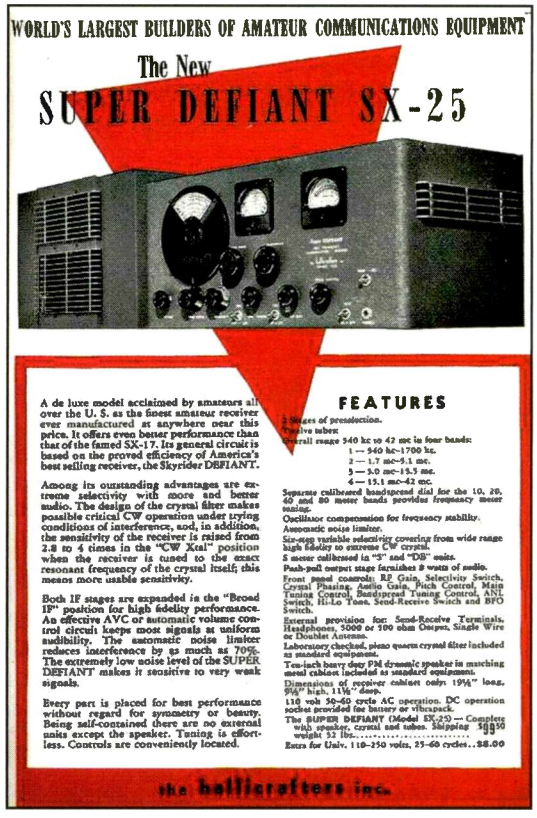


Photo B. The SX-25 *Super Defiant* was touted by Hallicrafters as "a deluxe model acclaimed by amateurs all over the U.S. as the finest amateur receiver ever manufactured at anywhere near this price," which was $99.50. *(Internet screen grab)*

Photo C. Watch and listen to this Hallicrafters S-41G *Skyrider Jr.* — just like the one William Bozek, WPC3BOZ, of Beaver Falls, Pennsylvania, used as a boy <http://bit.ly/13Zon3u>. When his uncle gave him the '41G, "I thought I had *arrived,*" WPC3BOZ beamed. *(Internet screen grab)*

William Bozek, WPC3BOZ, Beaver Falls, Pennsylvania

When I was 11 or 12, my dad gave me an Atwater Kent Cathedral tabletop with three shortwave bands. I listened to that thing for hours all the time. My uncle then gave me a Hallicrafters S-41G and I thought I had *arrived,* **Photo C**. I went into my bedroom and there would listen to Radio Holland, VOA, Radio Moscow, Switzerland Prague, and so on. I was torn between WPC3BOZ — *Boz* was my nickname back then — and MQK, the suffix of my ham call, when requesting a *Pop'Comm Monitoring Station* identification sign. I now have several radios for SWLing. *(**WATCH and LISTEN:** To a Hallicrafters S-41G Skyrider Jr. in action on the AM and shortwave bands at <http://bit.ly/13Zon3u>, **Photo C**. – KPC6PC)*

Logan Carmichael, WPC4QXL, Jasper, Tennessee

I grew up in an *electronics-centric* house. My late father was interested in all things electronics, communications, and model railroading. I've been reading *Popular Communications* and (the late) *Popular Electronics* for as many years as I can remember. *CQ* and *QST,* and the former *73* magazine, as well. My dad was a ham, and I am too — W4QXL. I'm also a broadcast engineer and love DX monitoring on ham, shortwave, and especially the AM broadcast bands! I'm glad to see you guys offering the *Pop'Comm Monitoring Station* program. *It is very cool!* My first choice for a monitoring station identification sign is similar to my actual ham radio call, W4QXL, which is a vanity callsign. My original amateur radio call was awful. I wanted one that sounded similar to a Top 40 station's call letters! (Ha Ha Ha!) Happy DXing, SWLing, monitoring, and 73!

Kevin Daniels, GPC3KBD, Norwich, Norfolk, England

I was first introduced to SWL in the 1980s by an amateur radio friend who was trying to steer me away from using the AM CB bands, as they were not legal in the United Kingdom. He eventually convinced me to buy an old Yaesu receiver and from then on I was hooked. But then due to work and family commitments I hung up my headphones until recently when I caught the bug again.

William Gennett, KPC2AKQ, Pemberton, New Jersey

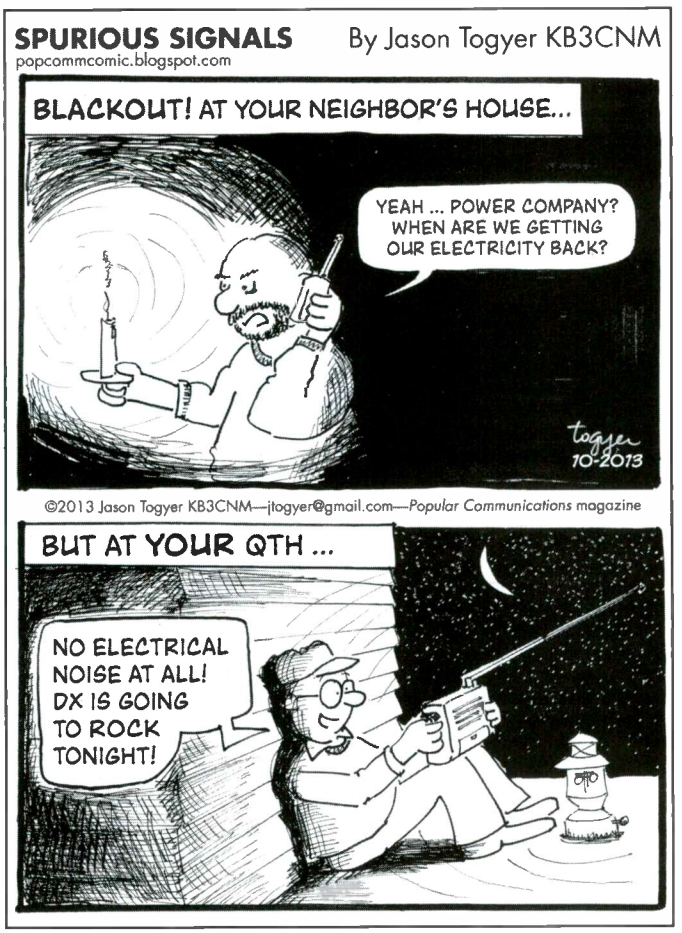
I first started listening to shortwave radio when I was 13 years old in 1976 and I found it very fascinating being able to hear different parts of the world. Now that I'm an amateur radio operator, I hope everyone who monitors the different shortwave radio stations out there is having as much fun as I had back then — and possibly even hearing me on amateur radio, as well.

David Walker, WPC9UC, Waterloo, Illinois

My amateur callsign is AA9UC and that is the reason I requested WPC9UC. I am 56 years old and have been listening to shortwave and AM broadcast band DX since I was 10 years old. I have been a radio amateur since 1996.

Donald Fraser, KPC2DF, Fleming Island, Florida

I started as an SWL as a teen back in New Jersey and hold an Amateur Extra class amateur radio license with the callsign K2DF. So my first choice of KPC2DF echoes that achievement. I am excited to see how digital modes and software-defined radios have opened up and redefined the radio hobby.

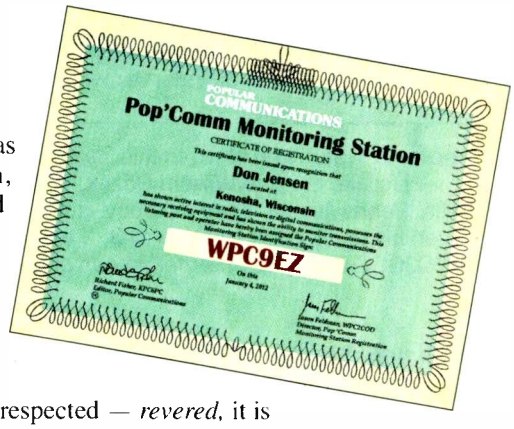


In Memoriam: Don Jensen, WPC9EZ, Kenosha, Wisconsin

A Life Dedicated to Making the Shortwave Community a Better Place to Be

By Richard Fisher, KPC6PC

"His love of radio extended to a hobby in shortwave, where his goal was to listen to tiny stations broadcasting from all over the globe." – The Kenosha News.



A bright and guiding light in the shortwave world was dimmed in May with the sad passing of Don Jensen, WPC9EZ — a world-class radio listener who first tuned in Quito, Ecuador as a child 66 years ago, and never looked back.

Don "died peacefully at home" according to published reports that variously went on to describe him as a kind, generous, and witty man; a world traveler, journalist, and community servant. He was 77.

This titan in the shortwave community was highly respected — *revered*, it is fair to say — and was known all over the world for his prowess and dedication to his communications hobby, **Photo A**.

In January 2012, Don was among the first SWLers in line for a *Pop'Comm Monitoring Station* identification sign, **Photo B**. The pride he had as a shortwave listener, and the communities that serve it, shone through in a note to *Pop'Comm* Don included with his ID-sign request:

"Many, many years ago, when Tommy (Kneitel) began issuing WPE calls at *Popular Electronics*, I was registered as WPE9EZ. Later, when Hank Bennett took over the monitor registration program independently of the magazine, I re-registered as WDX9EZ. To be WPC9EZ in the *Pop'Comm Monitoring Station* program continues this long tradition and brings back some good memories.

"By the way, for a number of years during Tommy's editorship, I wrote a goodly number of shortwave features for *Pop'Comm*. It was an interesting time, looking back on it." And *Pop'Comm* was the better for it.

Photo A. The *Somaliland Sun* trumpeted Don Jensen, WPC9EZ's, reception of Radio Hargeisa in a September 2012 story. *(Internet screen grab <http://bit.ly/1bLcx2z>)*

Pop'Comm Monitoring Station Identification Sign Database - A

File Edit View Insert Format Data Tools Form Help All changes saved in Drive

	A	B	C	D
1	Station ID Sign	Name	Date Issued	Listening Post Location
1259	WPC9DAN	Jeffrey Iverson	7/15/2013	Brooklyn Park, MN
1260	WPC9DB	Jim Stafford	3/24/2012	Roswell, GA
1261	WPC9DGA	Larry Wise	1/18/2012	Gilmer, TX
1262	WPC9DON	Donald Whiteman	3/24/2012	Northfield, IL
1263	WPC9DP	David Pritchard	1/11/2012	Gurnee, IL
1264	WPC9DX	Ron Walerowicz	8/10/2012	Chicago, IL
1265	WPC9DXX	Michael Kern	1/7/2012	Elkhart, IN
1266	WPC9EJD	Edward Delp	6/12/2012	West Lafayette, IN
1267	WPC9EJR	Donald Allen	1/1/2012	Urbana, IL
1268	WPC9EZ	Don Jensen	1/4/2012	Kenosha, WI
1269	WPC9EZK	Ronald Fenton	2/1/2012	Kankakee, IL
1270	WPC9FAC	Adam Colvin	3/24/2012	Chicago, IL
1271	WPC9FC	Terry Martin	8/28/2012	Port St. Lucie, FL
1272	WPC9FKQ	David Wilcox	3/13/2012	Bonita, CA
1273	WPC9FST	Scott Young	3/13/2013	Bellingham, MA
1274	WPC9FTD	Gene Melton	1/13/2012	Litchfield Park, AZ
1275	WPC9GDR	Gregory Rosenberg	4/4/2013	Tinley Park, IL

Photo B. Don was issued WPC9EZ in the *Pop'Comm Monitoring Station* program on January 4, 2012 — just three days after the listening community's launch. *(Internet screen grab)*

Having logged his first shortwave station in April 1947 — HCJB — Don was "still at it, 66 years later."

Internet references to Don Jensen — and there are *many* — reveal a driven and fascinating man:

- At 11, Don was introduced to SWLing by his father, who occasionally bootlegged as a radio amateur.
- His dedication to the North American Shortwave Association — NASWA — in editorial, administrative, and committee capacities spanned four decades, longer than any other active member.
- In 1964 he founded the Association of North American Radio Clubs (ANARC) and was its executive secretary, **Photo C**.
- Don published and edited *Numero Uno* DX weekly from 1969 to 1989.
- He served as editor of *Communications World* magazine and had been a freelance writer since 1963.
- The last of Don's DXing columns for *Popular Electronics* appeared in 1999.
- He was a frequent guest on DX radio programs broadcast on shortwave around the world.

Tributes to Don poured-in to an *"In Memory of..."* page on a Kenosha funeral home's website <http://bit.ly/1cekSLw>.

Sentiments were expressed from such SWLing luminaries as Sheldon Harvey of the Canadian International DX Club; Mark Coady of the Ontario DX Association; Partha Sarathi Goswami of the Asian DX League; *"Medium Wave DXing"* author Victor Goonetilleke; Sudipta Ghose, Indian DX Club International; Clara Listensprechen and Edward Kusalik of *"DX Listening Digest;"* and Edward Shaw, author of *"DX-ing According to NASWA."*

"Don was the living legend of our shortwave radio hobby — bringing his newspaperman instincts to the shortwave world," longtime SWLer Richard A. D'Angelo wrote in July's *NASWA Journal*. The issue was dedicated to Don in his memory, **Photo D**. He "will be best remembered for his diligent work developing and maintaining the club's radio county list," D'Angelo said. "He was its only chairman since its inception."

an airline strike may have contributed to the small number of DXers present. At the convention, Jim Howard awarded an engraved plaque to Don Jensen for "service to the hobby" during his tenure as ANARC Executive Secretary.

ANARC's first convention was held in 1966 in Kansas City.

This photo shows the convention group, with Don Jensen, the first Executive Secretary, in the top row, 3rd from left.

By early August, no nominations for the soon-to-be-vacant Executive Secretary position had been received. Jensen encouraged the club representatives to consider the position, as they were the best qualified individuals to continue

Photo C. In a Web report, Don can be seen in a photograph taken in 1966 at the first convention of the Association of North American Radio Clubs in Kansas City. He founded the organization two years earlier. *(Internet screen grab <http://bit.ly/19y16d5>)*

New Members: *Pop'Comm Monitoring Station* Community

Here are the newest monitors granted a station identification sign, authorized to receive a Certificate of Registration, and welcomed to the *Pop'Comm Monitoring Station* program. They are listed by name, station identification sign, and monitoring station location.

KPC and DX Prefixes

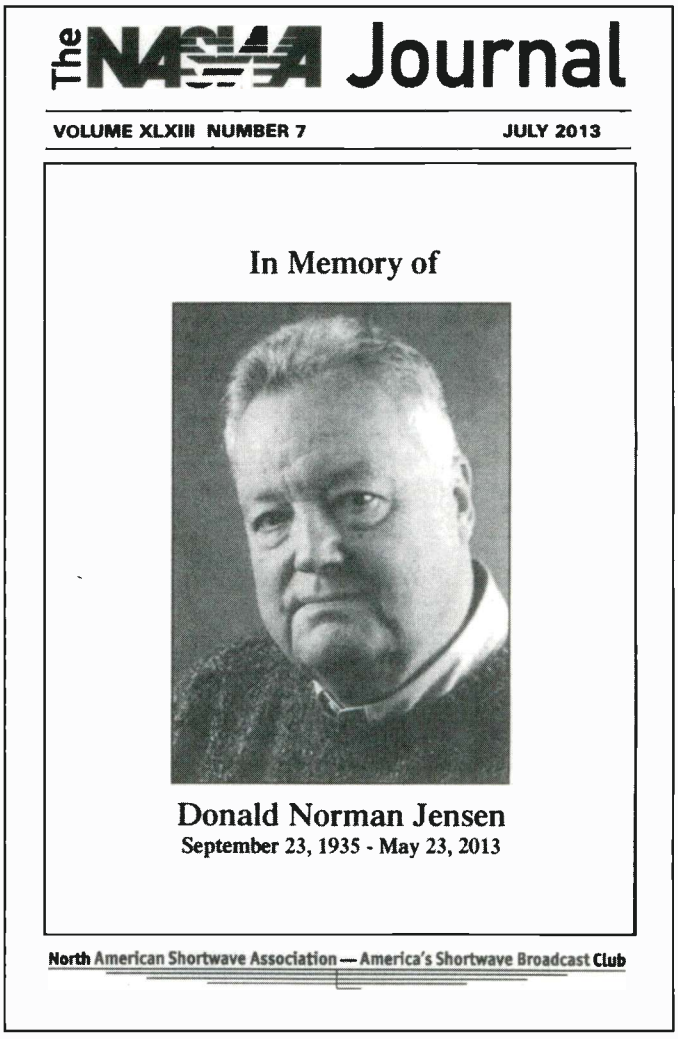
Robert Ahlberg, **KPCØBOB**, Phillipsburg, KS; Kevin Daniels, **GPC3KBD**, Norwich, Norfolk, England; Dale Spangler, **KPC8ZET**, Columbus, OH; William Gennett, **KPC2AKQ**, Pemberton, NJ; Russell Hibma, **KPC9DXR**, Hoopeston, IL; Larry Housour, **KPC9JDL**, Nappanee, IL; McKayla Bendyk, **KCP4MNB**, Lookout Mountain, GA; J. Harley Davidson, **KPC4JHD**, Ashville, AL; Neil Bell, **KPC6NDX**, Clayton, CA; Donald James, **KPC2VU**, Hudson Falls, NY; Marvin Beckner, **KPC4WDO**, Copporhill, VA; Douglas Mulloy, **KPC7ABX**, Hillsboro, OR; John Clarke, **VEPC7JC**, 108 Mile Ranch, British Columbia, Canada; Anna Tomsikova, **OMPC3AT**, Zilina, Slovakia; Donald Fraser, **KPC2DF**, Fleming Island, FL; Laura Delay, **KPC2LAD**, South Burlington, VT; Scott Collier, **KPC2SJC**, Mount Laurel, NJ.

WPC Prefixes

Also: Justin Jones, **WPC9YCU**, Fishers, IN; Nicholas De Nardo, **WPC2ND**, Coconut Creek, FL; Tim Lewis, **WPC2TL**, Wainscott, NY; Richard Beldyk, **WPC4VX**, Lookout Mountain, GA; James Floyd, Jr., **WPC9KID**, Indianapolis, IN; William Bozek, **WPC3BOZ**, Beaver Falls, PA; Richard Glassner, **WPCØEAX**, Jefferson City, MO; Jeffrey Iverson, **WPC9DAN**, Brooklyn Park, MN; Richard Dreyer, **WPC1USA**, Warwick, RI; Jack Sprouse, **WPC9JS**, Lombard, IL; Donald West, **WPC1DJW**, Logan, OH; David Walker, **WPC9UC**, Waterloo, IL; Logan Carmichael, **WPC4QXL**, Jasper, TN; James Liston, **WPC9HSH**, Chicago, IL.

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>


The NASWA Journal

VOLUME XLXIII NUMBER 7 JULY 2013

In Memory of

Donald Norman Jensen
September 23, 1935 - May 23, 2013

North American Shortwave Association — America's Shortwave Broadcast Club

Photo D. The July issue of the *NASWA Journal* was dedicated to world-class SWLer Don Jensen, WPC9EZ, who died in May. *(Courtesy of KPC6PC)*

A *Kenosha News* obituary noted that "Don was active as president of the Newspaper Guild in the 1970s," and "exercised his announcing voice in radio dramas" with the WGTD Radio Theatre. "His love of radio extended to a hobby in shortwave, where his goal was to listen to tiny stations broadcasting from all over the globe," the obituary said.

After getting out of the Army — where he served from 1957 to 1960 — Don was news director for WAXO radio in Kenosha. *(**NOTE:** The station's call letters today are WWDV in Zion, Illinois. – KPC6PC)*

In 1963, he joined the *Kenosha News* as a journalist, testimony to Don's talent as a writer and reporter.

The reverence Don Jensen had for the art of shortwave listening is only matched by the respect and admiration the SWL community had — and *will always have* — for Don. He leaves a legacy that is as vast as the ionosphere that cradles the wireless signals Don so passionately chased.

You can be featured as a Pop'Comm Monitor of the Month. Please send us a photograph of your listening post and tell us about your monitoring experience. We'd be happy to feature you in our pages. Write to Pop'Comm Monitor of the Month at: <PopCommMonitor@gmail.com>.

By Jason Feldman, WPC2COD

ICOM Announces New F3210D Series Digital Portable Radio

ICOM America has recently released its new F3210D Series land mobile radio and joins the company's IDAS™ product line that uses NXDN™ common air interface which makes it compatible with IDAS multi-site conventional, single-site and MultiTrunk™ multi-site trunking.

ICOM's newest radio is compact and ready for the workday. *(Courtesy of ICOM)*

Suitable for outdoor use in noisy environments, ICOM's newest portable is IP54 weather resistant, tested to MIL-STD 810 specifications and provides ease of use even while wearing gloves. The radio has a built-in, bridge-tied amplifier that provides 800-mW output. The channel annoucement function reports the channel number when rotating the channel knob. For maximum safety, the IDAS radio has "lone worker" and emergency call functions to alert dispatch of urgent situations.

The F3210D operates in the VHF/UHF spectrum and features individual/group call, digital voice scrambler, and more. In Multi-trunk mode the roaming scan function automatically finds a new site to retain radio communication.

Operating time of the F3210D rounds out to about 17.5 hours using the BP-265 Li-ion battery pack. Supplied accessories include the battery pack, antenna, and belt clip. The F3210D also has an internal VOX capability for hands-free operation when paired with an optional compatible headset and plug adapter cable.

ICOM said the MSRP of the F3210D is $572 and is available now. For more information contact: ICOM America, 2380 116th Ave NE, Bellevue, WA 98004. Phone: (800) 586-6363. Website: <http://www.icomamerica.com>.

Cross Country Wireless Unleashes Its Sentinel SDR Noise Measurement Receiver

For SWLers interested in making a contribution to accurately measure the high-frequency noise floor, Cross Country Wireless has released the Sentinel, a general coverage receiver and an SDR program.

However, the Sentinel just doesn't just measure the HF noise floor, it can also work as a general receiver capable of covering 2 to 15 MHz. The MMVARI digimode program that is built into the Sentinel allows decoding of PSK, QPSK, RTTY, and GMSK HF data modes using the internal sound card of your PC.

The software scans five HF frequencies and provides the peak, median, and minimum levels of 500 measurements per frequency every 10 minutes. The receiver bandwidth is 500 Hz. The five frequencies are:

- 3.499 MHz
- 5.258 MHz
- 6.999 MHz
- 10.090 MHz
- 13.400 MHz

The program uses serial port controls of the DDS synthesizer and runs on Windows 2000 or XP with a low CPU load so that older PCs and laptops can be used.

The first production batch of Sentinel Receivers is available now and has an MSRP of about $263. For more information contact: Cross Country Wireless, 7 Thirlmere Grove, Bolton, Lancs, BL4 0QB, England. Phone: +44 (0)1204 410626. Email: <info@crosscountrywireless.net>. Website: <http://www.crosscountrywireless.net>.

The Sentinel SDR is geared toward scientific endeavor, but can also work as a general coverage receiver. *(Courtesy of Cross Country Wireless)*

Join the Radio Signal Propagation Discovery Team

By Tomas Hood,
WPC7USA/NW7US

"You do not need to be a radio amateur to be part of PropNET ... SWLers can tune in and report what they catch."

Have you ever considered yourself to be a research scientist? How about being a "radio pioneer?" That has a ring to it, doesn't it?

It is one thing to be considered a shortwave radio listener, or perhaps a utility station monitoring operator, but quite a more prestigious and exciting prospect to be a radio pioneer, breaking new ground, and participating with peers in the adventure of exploration into the unknown world of radio propagation and space weather.

What is even more attractive is the added realization that you could be a sought-for radio pioneer. *It is true:* you are needed in the world of radio propagation research — today. And you do not have to be a rocket scientist to be this kind of explorer and pioneer. When you are not using your favorite receiver, and if you have a fairly new computer — new within the last five years — you could dedicate that equipment to the task of monitoring for radio signals from a network of participating stations for the purpose of radio signal propagation discovery.

PropNET

One of several ways to dive into the scientific research arena as an amateur scientist interested in radio signal propagation is to become a player in an automated and well-organized beacon effort that was originally developed well over a decade ago, for researching 10 meters (28 MHz) and above.

Originally, it was known as *BeaconNET*, which used amateur radio service HF bands and Packet Radio to send unconnected packets as beacons for the purpose of testing the current state of propagation. When BeaconNET added PSK-31 (PSK stands for *Phase Shift Keying*), for all of the bands in its interest (up to 1-1/4 meters), it became known as *PropNET* <http://propnet.

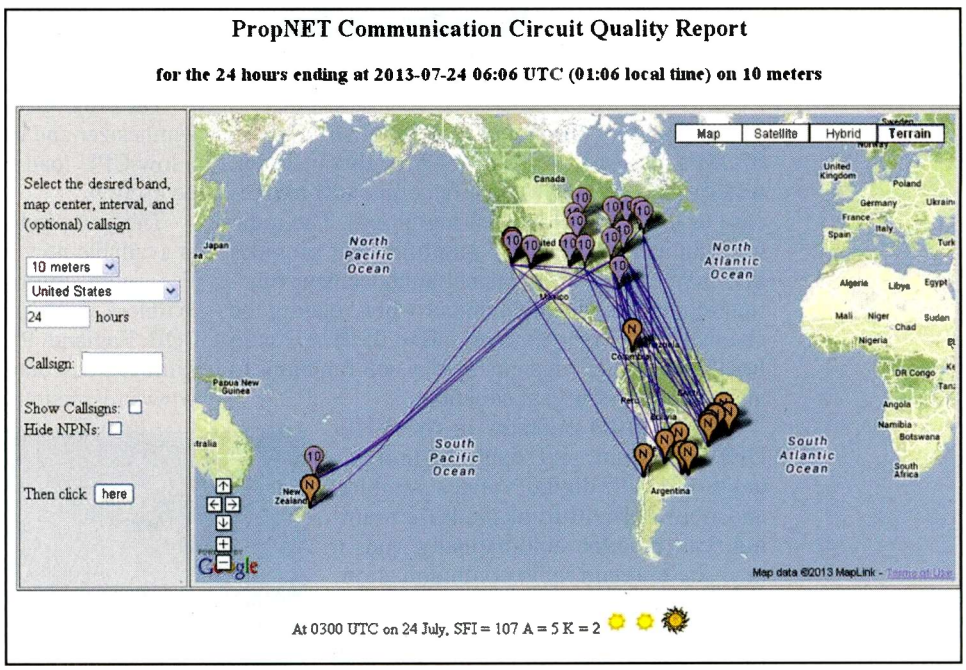


Photo A. A sample 24-hour mapping of 10-meter PropNET propagation shows "catches" submitted by stations around the world. PropNET allows an up-to-the-moment view of propagation conditions on the selected band — in this case, the 10-meter band was selected. The more participants, the better the "resolution" showing band openings. By using such tools, you can conduct propagation research. *(Internet screen grab of PropNET spotting map <http://g.nw7us.us/163ABsA>/NW7US)*

org>, the name given to this innovative project that uses PSK-31 to create an RF-based digital peer-to-peer network.

It quickly became useful, however, to collect the connection quality data of these peer-to-peer radio signal paths (circuits). PropNET uses the Internet to gather beacon data using computers and helps not only in discovery of openings, but has helped discover details about propagation modes.

In this edition of *The Propagation Corner*, we'll look at PropNET research. In an up-coming edition, we'll look at another very popular mode that is used for propagation research — *WSPR*.

What PropNET Is

PropNET is a modern way to study real-time ionospheric conditions and radio-signal propagation on a given radio frequency between all of the participating stations. It runs in the background on a computer and uses an idle radio. PropNET uses APRS technology via either PSK-31, specifically known as *PropNET^31*, or AX.25 (Packet), known as *PropNET.25*. PropNET.25 is not used on HF, since PropNET now relies on PSK-31 beacon stations.

The concept is simple. Participants embed their six-cypher grid locator in each transmission. When another PropNET participant decodes that transmission, a symbol is placed on the receiver's computer screen. This symbol corresponds to the transmitting station's exact location on a map. If the band is open between two stations (propagation exists such that one station can hear another station), a symbol appears on the receiving station's computer screen. If it is not, then no symbol appears. This is much like APRS, but for propagation openings. At predetermined intervals, each participating station's "captures" are uploaded to a central database. The database server allows for an Internet interface which includes up-to-the-hour maps, <http://g.nw7us.us/163ABsA>.

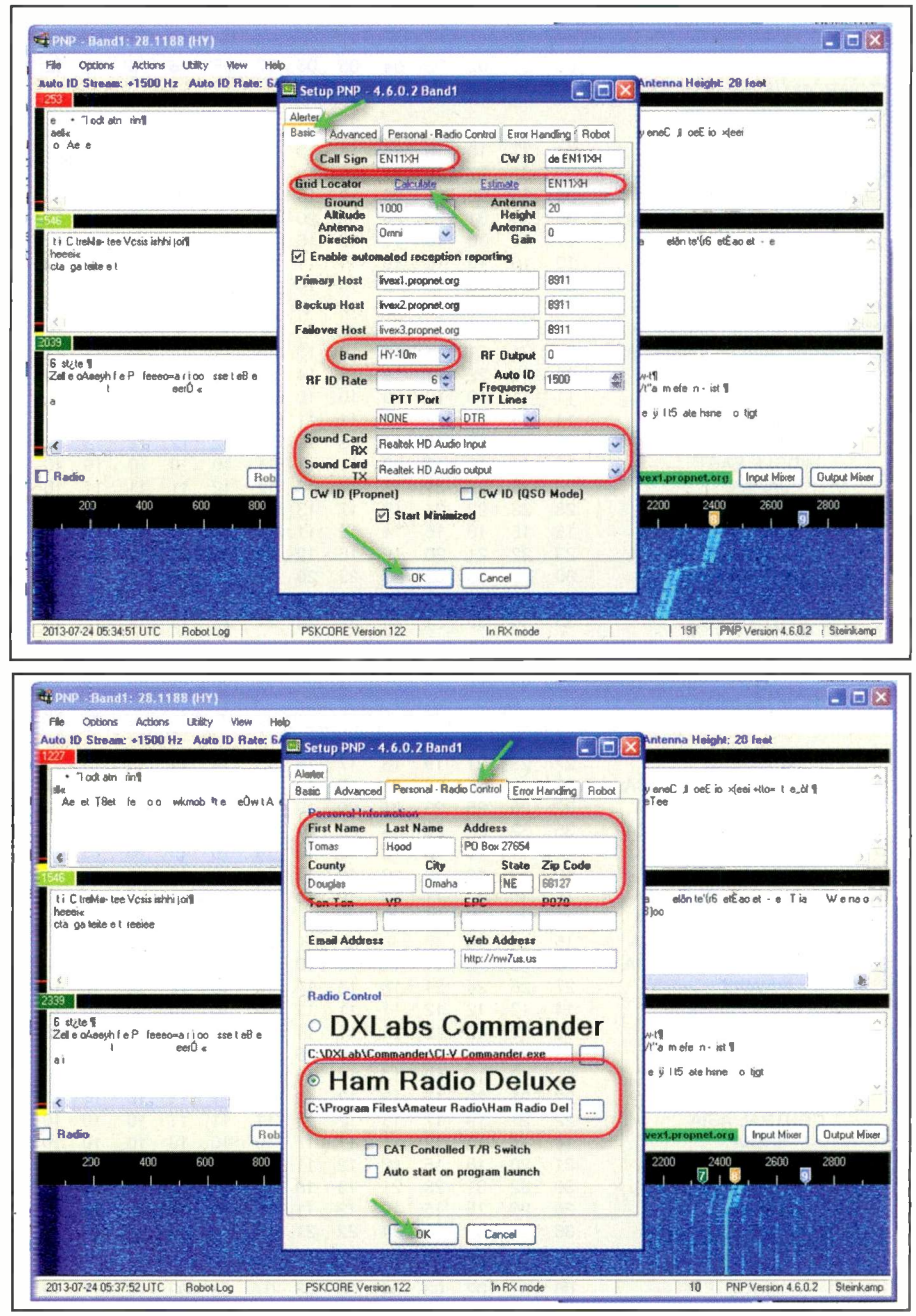


Figure 1. When you first install PropNETPSK, it automatically presents the Setup dialog, in which you enter your amateur radio callsign or your Grid Locator (see text). Be sure to enter all of the information that you know, and, select your sound card. Also, select the band on which you will be operating the software and radio, as this is highly important for reporting and correct data.
(Courtesy of NW7US via PropNETPSK software/PropNET)

What PropNET Does

Using this ad-hoc PSK-31 network of propagation, radio enthusiasts probe the ether for previously unknown openings. Sometimes they stumble across long forgotten or yet-to-be officially discovered phenomena.

Compare the useful information that is conveyed in a typical PropNET transmission compared with that of a CW beacon, or a voice QSO that is in progress. PropNET is geometrically more powerful of a tool than either of those methods of determining the quality of an opening, **Photo A**.

The PropNET work is particularly significant because it is the first generation of propagation beacons for amateur radio's digital age. PropNET has been a key aid in researching Sporadic-E during this past extended sunspot cycle minimum, and has been instrumental in other areas of propagation study. By thinking differently about propagation research, and by using tools like PropNET, it is possible to discover a wealth of knowledge about radio propagation, the Ionosphere, and even space weather.

Radio Amateurs and SWLers Welcome!

This is where you come in. While PropNET requires a number of well-

Optimum Working Frequencies (MHz) - For October 2013 - Flux = 135, 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	15	14	13	13	12	12	12	11	11	11	15	21	23	25	26	27	27	27	27	26	25
NORTHERN SOUTH AMERICA	33	31	27	22	21	20	18	17	17	16	16	15	15	14	25	28	31	33	34	35	36	36	36	35
CENTRAL SOUTH AMERICA	33	30	25	21	20	19	18	17	16	16	15	15	15	18	28	30	31	33	34	34	35	35	35	35
SOUTHERN SOUTH AMERICA	35	33	31	26	24	22	20	19	18	17	17	16	16	15	22	28	32	33	35	36	36	37	37	37
WESTERN EUROPE	11	11	10	10	10	10	10	10	10	10	10	10	10	13	17	19	20	20	19	18	17	13	12	11
EASTERN EUROPE	10	10	10	10	10	11	11	11	10	10	10	10	10	10	15	16	16	15	14	13	11	11	10	10
EASTERN NORTH AMERICA	26	24	18	15	15	14	14	13	13	13	12	12	12	19	24	26	28	29	30	30	30	30	29	28
CENTRAL NORTH AMERICA	15	14	13	9	8	8	8	7	7	7	7	7	7	7	11	13	15	15	16	16	17	16	16	16
WESTERN NORTH AMERICA	8	8	7	6	4	4	4	4	4	4	3	3	3	3	3	6	7	8	8	9	9	9	9	9
SOUTHERN NORTH AMERICA	26	24	21	16	15	14	13	13	12	12	12	11	11	11	19	23	25	26	27	28	28	28	27	27
HAWAII	24	23	22	21	19	15	14	13	12	12	11	11	10	10	10	10	14	18	21	22	23	24	24	24
NORTHERN AFRICA	11	11	10	10	10	10	10	11	10	10	10	10	10	15	18	20	21	22	21	18	13	12	12	11
CENTRAL AFRICA	14	14	13	12	12	11	11	11	10	10	10	10	10	14	18	19	20	21	22	19	18	17	16	15
SOUTH AFRICA	23	21	15	15	14	13	13	13	12	12	12	12	12	20	23	25	27	28	28	28	28	28	27	25
MIDDLE EAST	10	10	10	10	10	11	11	11	10	10	10	10	10	10	16	18	19	18	13	12	12	11	11	11
JAPAN	23	23	22	21	19	17	13	12	12	11	11	11	10	10	10	10	10	10	10	10	16	20	21	23
CENTRAL ASIA	23	23	22	21	19	17	13	12	11	11	11	11	10	10	10	10	12	13	13	13	13	12	22	23
INDIA	15	15	16	16	14	12	11	11	10	10	10	10	10	10	10	10	10	11	13	13	14	14	15	15
THAILAND	23	22	21	20	19	16	12	12	11	11	11	10	10	10	10	10	13	16	15	14	14	13	13	18
AUSTRALIA	30	32	33	32	29	23	20	19	18	17	16	16	15	15	15	15	20	19	18	17	20	23	26	28
CHINA	21	22	21	20	18	15	12	12	11	11	11	10	10	10	10	10	11	10	10	10	10	10	16	19
SOUTH PACIFIC	35	36	35	32	29	24	22	21	20	18	17	17	16	16	15	15	18	18	20	24	27	30	32	33

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	23	21	19	18	17	16	15	14	14	13	13	15	22	26	28	30	31	31	32	31	31	30	29
NORTHERN SOUTH AMERICA	30	28	25	23	21	19	18	17	16	15	15	14	14	21	24	27	29	30	32	33	33	34	33	32
CENTRAL SOUTH AMERICA	32	28	25	23	21	20	19	18	17	16	16	15	19	26	28	30	32	33	34	35	35	35	35	34
SOUTHERN SOUTH AMERICA	35	32	29	26	24	22	21	19	18	17	17	16	16	22	28	30	32	33	35	36	36	37	37	36
WESTERN EUROPE	11	11	10	10	10	10	10	10	10	10	10	10	16	19	20	21	21	21	20	19	18	15	12	11
EASTERN EUROPE	10	10	10	10	10	10	11	10	10	10	10	10	14	18	19	18	18	18	17	16	14	11	11	11
EASTERN NORTH AMERICA	18	15	12	11	10	10	10	9	9	9	9	9	10	17	19	20	21	22	22	22	22	21	21	20
CENTRAL NORTH AMERICA	9	8	6	5	5	5	4	4	4	4	4	4	4	6	8	9	9	10	10	10	10	10	10	9
WESTERN NORTH AMERICA	15	14	13	9	9	8	8	8	7	7	7	7	7	7	11	14	15	16	16	17	17	17	17	16
SOUTHERN NORTH AMERICA	18	16	13	11	11	10	10	9	9	9	8	8	8	11	15	17	18	19	20	20	20	20	19	19
HAWAII	27	26	24	21	16	15	14	13	13	12	12	12	12	11	11	12	17	22	25	27	28	28	28	28
NORTHERN AFRICA	14	13	12	12	11	11	11	10	10	10	10	10	18	20	22	23	23	24	24	24	17	16	15	14
CENTRAL AFRICA	15	13	12	12	11	11	11	10	10	10	10	10	18	20	21	22	23	23	24	21	19	18	17	16
SOUTH AFRICA	23	20	19	18	17	16	16	15	15	15	14	14	26	30	33	35	36	36	36	35	34	30	28	25
MIDDLE EAST	11	10	10	10	10	11	11	10	10	10	10	10	16	19	21	22	21	19	14	13	12	12	11	11
JAPAN	22	21	20	17	13	12	12	11	11	11	10	10	10	10	10	11	10	10	10	10	15	19	21	22
CENTRAL ASIA	22	21	19	17	13	12	11	11	11	11	10	10	10	10	10	14	14	13	13	13	12	12	21	22
INDIA	14	15	15	12	11	11	11	10	10	10	10	10	10	14	17	16	15	12	11	11	10	10	10	10
THAILAND	21	20	18	15	12	12	11	11	11	10	10	10	10	10	14	18	17	16	15	14	14	13	13	16
AUSTRALIA	30	32	31	28	21	19	18	17	17	16	16	15	15	15	14	21	20	18	18	17	21	24	26	29
CHINA	20	20	18	15	12	12	11	11	11	10	10	10	10	10	11	11	11	11	10	10	10	10	13	18
SOUTH PACIFIC	36	34	32	28	24	22	21	20	18	18	17	16	16	15	17	19	18	18	22	26	29	31	33	34

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	19	17	16	15	14	13	12	12	11	11	11	16	20	22	24	25	25	26	26	26	25	24	23
NORTHERN SOUTH AMERICA	27	25	23	21	19	18	17	16	15	14	13	13	17	20	23	25	27	28	29	29	30	30	30	29
CENTRAL SOUTH AMERICA	32	29	26	24	22	21	19	18	17	17	16	19	24	26	28	30	32	33	34	34	35	35	35	34
SOUTHERN SOUTH AMERICA	34	31	29	26	24	22	21	19	18	17	17	16	22	26	28	31	32	34	35	36	36	37	37	36
WESTERN EUROPE	11	10	10	10	10	9	9	9	9	9	13	18	20	21	22	22	21	21	20	19	18	15	12	11
EASTERN EUROPE	11	10	10	10	10	10	10	10	10	10	10	17	20	21	21	20	20	19	18	17	14	12	11	11
EASTERN NORTH AMERICA	8	6	6	5	5	5	5	4	4	4	4	4	7	9	10	10	10	11	11	11	11	10	10	9
CENTRAL NORTH AMERICA	19	16	12	11	11	11	10	10	10	9	9	9	12	18	20	21	22	23	23	23	23	23	22	21
WESTERN NORTH AMERICA	26	24	18	15	15	14	14	13	13	13	12	12	12	19	24	27	28	29	30	30	30	30	29	28
SOUTHERN NORTH AMERICA	21	18	15	14	13	13	12	11	11	11	10	10	11	18	21	23	24	24	25	25	25	24	24	23
HAWAII	27	25	20	17	16	15	14	14	13	13	13	12	12	14	13	13	19	24	27	29	30	31	30	29
NORTHERN AFRICA	15	14	13	13	13	13	12	12	12	12	19	24	27	28	29	30	30	29	27	25	20	17	16	15
CENTRAL AFRICA	16	15	14	14	13	13	13	12	12	12	19	24	27	28	30	30	30	29	27	24	21	20	18	17
SOUTH AFRICA	23	22	20	19	18	17	17	16	16	15	17	26	31	33	35	36	36	36	36	35	34	30	28	25
MIDDLE EAST	13	12	12	11	11	11	10	10	10	10	15	19	21	23	23	24	24	24	21	16	15	14	14	13
JAPAN	20	17	13	12	12	11	11	11	10	10	10	10	10	11	11	11	10	10	10	10	12	18	20	21
CENTRAL ASIA	19	16	12	12	11	11	11	10	10	10	10	10	14	15	15	14	13	13	13	13	12	12	19	21
INDIA	10	10	10	11	11	11	10	10	10	10	10	14	15	15	15	15	15	15	14	14	13	11	10	10
THAILAND	17	13	12	11	11	11	11	10	10	10	10	10	17	20	19	18	17	16	15	14	14	13	13	13
AUSTRALIA	31	30	24	21	20	19	18	17	16	16	15	15	15	21	22	21	20	18	17	17	21	24	27	29
CHINA	18	13	12	12	11	11	11	10	10	10	10	10	13	12	12	11	11	11	10	10	10	10	10	16
SOUTH PACIFIC	34	32	28	25	23	22	20	19	18	17	17	16	15	21	20	19	18	20	25	28	31	33	35	36

placed transmitting participants, it also needs as many receiving stations as possible. You do not need to be an amateur radio operator to be a participating receiving station in the PropNET effort.

This is because PropNET has two components: the *cast* (the transmitted payload) and the *catch* (the receiving of a *cast* transmission). Only licensed amateurs may *cast*. However, there is nothing keeping a Short Wave Listener (SWLer) from tuning in and reporting what they *catch*.

For the SWLer, it couldn't be simpler: connect a receiver to the computer soundcard (this is as simple as taking the receiver's audio-out/speaker signal and wiring it to the Mic-in or Line-in soundcard jack; or as complex as using a radio with a data interface ready for soundcard integration). Using the downloaded PropNETPSK client software from <http://g.nw7us.us/163BukT>, enter a six-cypher Maidenhead grid locator, instead of an amateur radio callsign. *(**FIND:** Your Maidenhead Grid Square Locator at <http://bit.ly/nrrXCq>. – NW7US)*

Then, with the computer connected to the Internet and the radio tuned to one of the PropNET frequencies, any PropNET transmissions the receiver *catches* will start showing up on the PropNET maps. That's all there is to it.

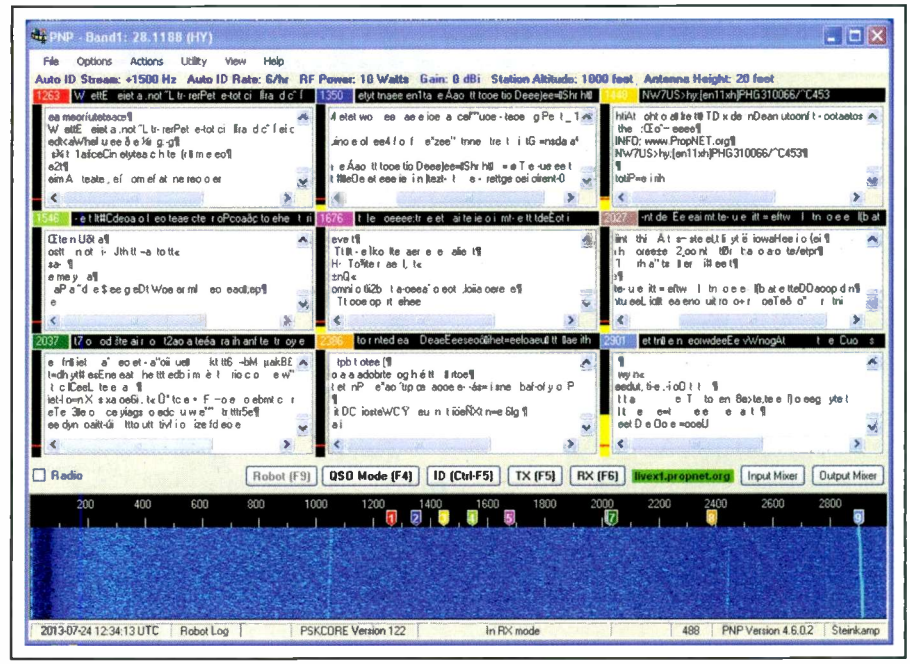


Figure 2. A screen capture of the PropNETPSK software of the PropNET project shows the nine individual receivers each monitoring a different slice of the band segment. When any of these nine receive a PropNET transmission by one of the beacons, it is logged and sent to the PropNET Project server, allowing mapping and research of the propagation on the monitored HF band (see text). *(Courtesy of NW7US via PropNETPSK software/PropNET)*

Get Started on 28 MHz — 10 Meters

The software, PropNETPSK, is capable of receiving multiple signals — two to 16 of them — at one time for the exclusive use to decode a properly formatted PropNETPSK beacon signal. Let's look at setting up your station on 10 meters.

Set up your radio by tuning to 28.1188 MHz, in upper sideband (USB). Connect the radio's audio (headphones/speaker) to your computer's Line-in or Mic-in. Be sure that you start with the radio's volume turned down to a whisper.

Install PropNETPSK, then start the program. *(**NOTE:** When the installation is complete, you have the option to immediately run the program. – NW7US)*

For visual cues to the installation process, refer to **Figures 1** and **2**.

From menu toolbar, in this order, click:

- Options
- Setup
- Basic tab

If you are a licensed amateur radio operator, type your amateur radio callsign in the *"Call Sign"* box. Otherwise, just enter your Maidenhead grid locator. For example, I would enter EN11XH, the six-cypher locator.

Now, enter your grid locator (in my case, EN11xh) in the *Grid Locator* box.

Finally, enter other information if you know it. Don't worry about what you put into the *CW ID* box, unless you are an amateur radio operator — in which case, you will need more than a receiver.

Select *HY 10M* in the *Band* drop-down list. Click on the *Personal — Radio Control* tab, and fill out your name, and so on.

Understanding the Grid Square

A grid square is an instrument of the Maidenhead Locator System, named after the town outside London where it was first conceived by a meeting of European VHF managers in 1980.

A grid square measures 1-degree latitude by 2-degrees longitude and is approximately 70 x 100 miles in the continental U.S. A grid square is indicated by two letters (the field) and two numbers (the square), as in FN31, the grid square within which W1AW, ARRL's Maxim Memorial Station, resides.

Each sub-square is designated by the addition of two lower-case letters after the grid square, as FN44ig. These more precise locators are used as part of the exchange in the 10-GHz contest. They measure 2.5 minutes latitude by 5 minutes longitude — roughly corresponding to 3 x 4 miles in the continental U.S. PropNETPSK requires the six-character grid square.

Options for Finding Your Grid Square

Beyond the previously-noted link <http://bit.ly/nrrXCq>, there are a number of ways to find your specific grid square.

If you know your exact latitude and longitude, you can compute the grid square directly in the program by clicking the PropNET *Calculate* link to the right of the label *Grid Locator*. A new window will appear and allow you to enter your latitude and longitude and return your grid square.

If you do not know your latitude and longitude, if you are close to an airport, go to AirNav <http://www.airnav.com>, type in the airport name and you can get a latitude and longitude for there.

If you are not near an airport, you might check out the Internet for websites

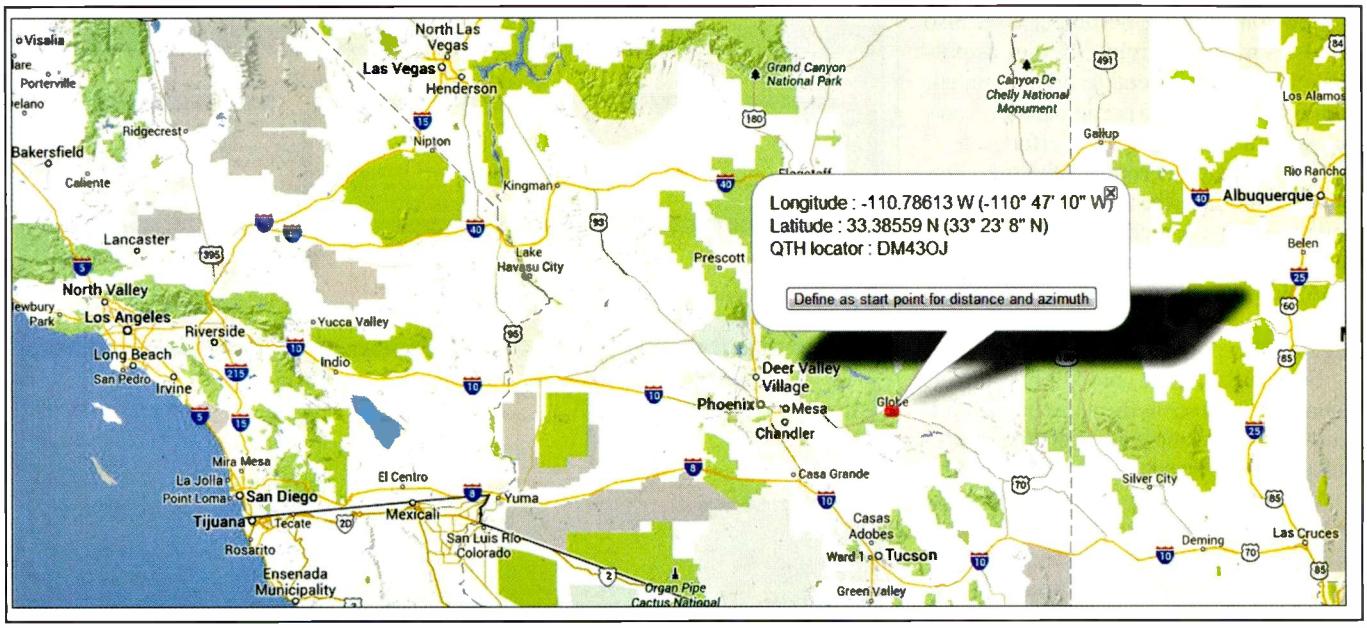


Photo B. Link to <http://g.nw7us.us/163CUfb> and move the hand mouse cursor to your location, and click. A box appears that shows you the grid locator of that map location. In this example, Globe, Arizona is shown as being in grid square DM43oj. *(Internet screen grab)*

that have maps that allow you to enter your address, and then show your latitude and longitude. One available tool is found at <http://g.nw7us.us/163CUfb>. At this map tool, just move the hand mouse cursor to your location, and click on your location. A box appears that shows you the grid locator of that map location. *(**SEE: Photo B** to view results of a demonstration of the grid square locator map tool <http://g.nw7us.us/163CUfb>. Globe, Arizona, in this example, is in grid square DM43oj. – NW7US)*

Now, click on the *Basic* tab (in *Setup*), then select your sound card. Choose the other settings per your specific computer hardware, and radio interface. Most of the settings can stay with the default selections.

Feel free to explore the other tabs, and set the options per your installation requirements and operation preferences. Finally, click on *OK* to finish the setup.

Final Steps

Next, be sure you are on one of the PropNET USB frequencies (1.9982, 3.5982, 7.1032, 10.1389, 14.097, 18.105, 21.098, 24.924, 28.118, 50.291, 144.288, 432.300 MHz), then adjust your soundcard receive levels.

Make sure the volume level from your radio is *low*, and then start adjusting your soundcard record level for the Line-in or Mic-in, so that you start seeing traces on the waterfall display. Once you have a reasonable display of signals, you should start seeing "caught" signals decoding in one of the decoding windows.

Read the help file, too. Visit the official PropNET website at <http://propnet.org>. You might also join the Yahoo! group at <http://yhoo.it/12YaDTj> where there is an ongoing discussion of the operation and other issues of PropNET.

Finally, browse over to <http://g.nw7us.us/1dU5UXs>, the PropNET Studies blog covering research of the PropNET data, **Figure 3**. This is the effort of Art Jackson, KA5DWI. This may well inspire you to join in the research from your location, **Figure 4**.

Readers would like to hear about your success with this mode, so please write in with the details of your experience with PropNET. Screen shots are welcome, too.

More to Come

Stay tuned to this column, as we explore additional tools of research that you can leverage as an amateur scientist in the radio hobby. You may well be the one who uncovers a new aspect of radio propagation that was unknown before your discovery.

HF Propagation for October

A change in propagation conditions in the Northern Hemisphere can be observed as we move away from the long sunlit days of summer into the longer hours of winter's darkness. The change in the length of daily darkness, though, is not the only influence on the propagation of radio waves through the atmosphere. The amount and strength of radiation arriving and passing through our atmosphere varies from season to season, as well as from the solar cycle minimum to the solar cycle maximum.

During the Northern Hemisphere's winter months, the Earth is closer to the sun than during any other time of its orbit. This makes the daytime ionization more intense than that of summer daytimes. During the longer winter hours of darkness, the ionosphere has more time to lose its electrical charge. These conditions cause a wide daily variation in the maximum frequency that can be refracted by the wintertime ionosphere. Many radio enthusiasts celebrate the arrival of the winter shortwave season for these reasons.

Signals below 120 meters are improving, with nighttime paths growing larger in the Northern Hemisphere. Seasonal static, which makes it difficult to hear weak DX signals, is starting to decrease as we move into winter. Expect a few DX openings during the hours of darkness and into the sunrise period. These openings will often be weak due to the relatively high signal absorption during the expected elevated geomagnetic storminess through the rest of this year.

Look for openings from Europe and the south if you are lis-

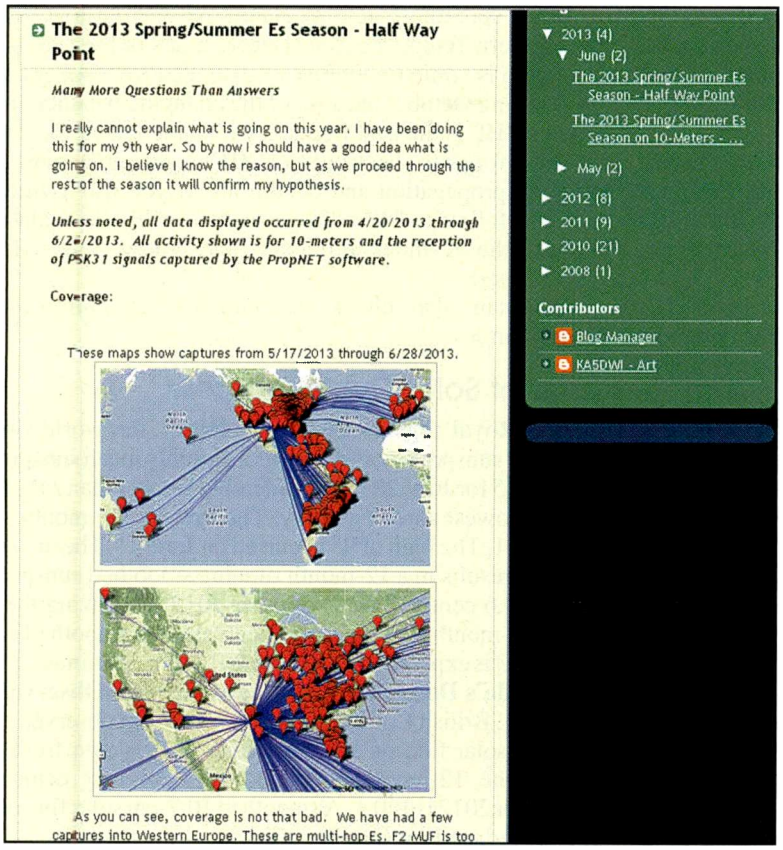


Figure 3. Here's a screen capture of the PropNET Studies Blog. For some fascinating and revealing research results, watch this blog. Recent studies show this year's 10-meter, Sporadic-E characteristics as revealed by the PropNET Project. This blog is the work of Art Jackson, KA5DWI.
(Internet screen grab of <http://g.nw7us.us/1dU5UXs>.)

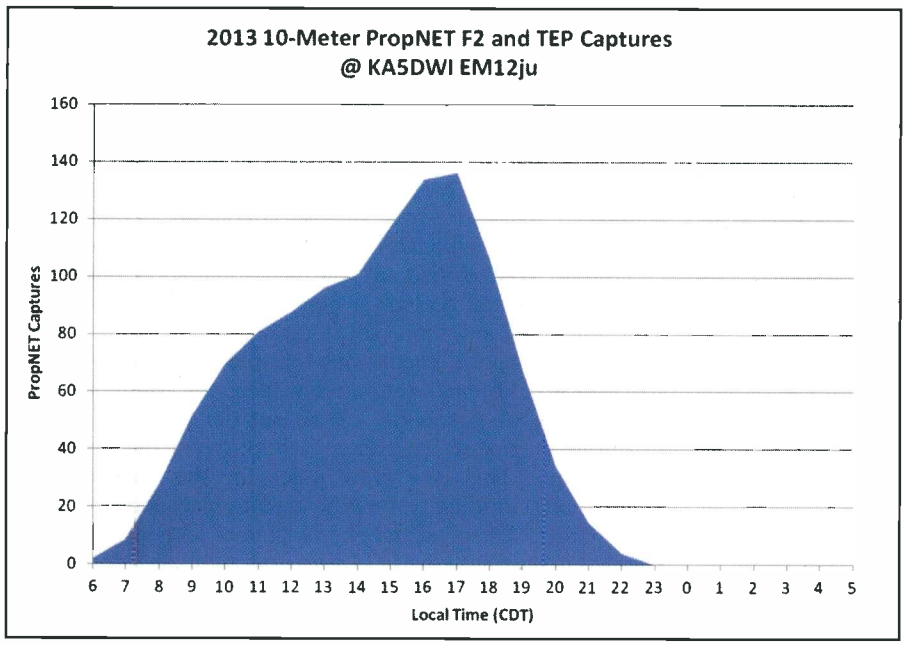


Figure 4. Here's an example chart produced by Art Jackson showing Trans-Equatorial (TE) propagation on the 10-meter band from his Texas location. This mode of propagation has been very active and favors the afternoon hours toward South America. He reports propagation "openings" between his station and Oceania at 10 p.m. local and South America at 7 a.m.
(Courtesy of KA5DWI via <http://g.nw7us.us/1dU5UXs>)

tening in the eastern half of the United States, and from the south, the Far East, Australasia, and the South Pacific if you are in the western half of the country.

The best propagation aid is a set of sunrise and sunset curves, since DX signals tend to peak when it is local sunrise at the easterly end of the path in question. A good website featuring a *grayline* map display is found at <http://g.nw7us.us/1dU6Gnn>. Follow the link, *"map of the Earth"* showing the day and night regions.

Seventy-five through 120 meters are coming alive in late October. Expect long-range DX on the low bands, starting close in right after sunset, and extending farther as the night develops. Signals here should peak from Europe and from a generally easterly direction around midnight. DX paths will move farther west through the night. By morning, openings from Asia should be common.

For openings in a generally western direction, expect a peak just after sunrise. The band should remain open from the south throughout most of the night. Propagation in this band is quite similar to that expected on 41 meters, except that signals will be somewhat weaker on the average, noise levels will be a bit higher, and the period for band openings in a particular direction will be a bit shorter.

Forty-one meters should be the hottest DX band during the dark hours as the seasonal static levels are lower than they were during the summer. The band should be open first for European DX in the eastern United States during the late afternoon. Signals should increase in intensity as darkness approaches. During the hours of darkness, expect good DX openings from most areas of the world. Signals should peak from an easterly direction about midnight, and from a westerly direction just after sunrise. Excellent openings toward the south should be possible throughout most of the nighttime period.

Paths on 31 through 19 meters are becoming ever more reliable between North America and Europe in the morning, and between North America and Asia during the late afternoon hours. The strongest openings occur for a few hours after sunrise and during the sunset hours.

Thirty-one and 25 meters will often remain open into many areas late into the night and will open early in the morning, especially when part of the propagation path moves through sunlit regions. However, these bands are crowded and signals are usually very strong and steady. Twenty-five meters is expected to be an excellent band for medium distance (500 to 1,500 miles) reception during the day-

light hours. Longer distance reception (up to 2,000 to 3,000 miles) should be possible for an hour or two after local sunrise, and again during the late afternoon and early evening. Thirty-one meters will provide medium distance daytime reception ranging between 400 and 1,200 miles.

Twenty-two through 19 meters compete with 16 for the best daytime DX band during October. They will open for DX just before sunrise and should remain open from all directions throughout the day, with a peak in the afternoon. Nighttime conditions will favor openings from the south and tropical areas. Since the Southern Hemisphere has long daylight hours, DX paths on these bands from stations in the south will be common.

Sixteen through 13 meters will occasionally open through October when flux levels reach above 100. Paths from Europe and the South Pacific as well as from Asia, at least during days of higher solar flux levels, are common, especially on 16 meters. Look for best conditions from Europe and the Northeast before noon and from the rest of the world during the afternoon hours. Reception from the South Pacific, Australia, New Zealand, and the Far East should be possible well into the early evening.

VHF Conditions

Conditions during October should include moderate levels of trans-equatorial propagation (TE) in which stations in the southern states and parts of the Caribbean will be able to work into the northern areas of South America during the late afternoon. During peak years of a solar cycle, October is one of the best months for TE activity, especially later in the month. Since we are in the decline from the current Solar Cycle's peak, these openings will be rarer than previous years, but some exciting openings might occur.

While sporadic-E activity is non-existent during October in the northern Temperate Zone (where much of the U.S. is located), there is some possibility of extended tropospheric conditions during October because of the changing weather patterns. Higher VHF is the best frequency range to watch for this.

Don't forget to check out *CQ VHF* magazine for more details on VHF propagation and conditions. If you use Twitter.com, you can follow <@hfradiospacewx> for hourly updates that include the K index numbers (and follow this columnist <@nw7us>).

You can also check the numbers at <http://SunSpotWatch.com>.

Current Solar Cycle Progress

The Royal Observatory of Belgium, the world's official keeper of sunspot records, reports a monthly mean sunspot number of 52.5 for June 2013, considerably weaker than May's 78.7, and the lowest since February. The low for the month was 11 on June 11. The high of 95 occurred on June 21. The mean value for June results in a 12-month running smoothed sunspot number of 59.6 centered on December 2013. Following the curve of the 13-month running smoothed values, a smoothed sunspot level of 83 is expected for October 2013, plus or minus 12 points.

Canada's Dominion Radio Astrophysical Observatory at Penticton, British Columbia reports a 10.7-cm observed monthly mean solar flux of 110.2 for June 2013, down from May's 131.3. The 12-month smoothed 10.7-cm flux centered on December 2012 is 120.1. A smoothed 10.7-cm solar flux of about 135 is predicted for October 2013.

The geomagnetic activity as measured by the Planetary-A index (A_p) for June is 13, up from May's 10, continuing in the slow yet steady climb in space weather activity. The 12-month smoothed A_p index centered on December 2012 is 7.5. Geomagnetic activity should be much the same as we have had during September. Refer to the Last Minute Forecast for the outlook on which 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 <@hfradiospacewx>).

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* magazine fan page at <http://www.facebook.com/PopComm>. This is a great place for the *Popular Communications* community, for you, 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>

WYFR: A Shortwave Giant Leaves the Airwaves

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

"The end came quietly with a final broadcast at the end of June. But the broadcaster left without any announcement indicating that this was the end."

"The sky is falling, the sky is falling," clucked the chicken.

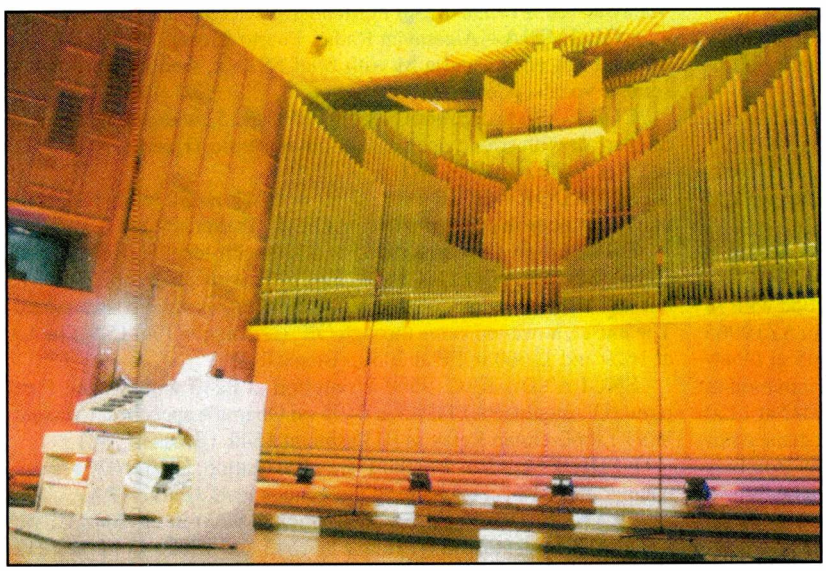
Indeed! The single event which I thought would *never happen* ... has.

Your Family Radio/WYFR has shut off its transmitters and is no longer broadcasting on shortwave. Who knows how many shortwave broadcast hours have gobbled dust as a result.

At one time, I counted over a dozen transmitter sites carrying WYFR programming simultaneously. WYFR likely hit its peak with Harold Camping's end-of-the-world prediction last year, which was advertised using painted buses and billboards. His message had some believers selling everything they owned. All of which made a brief news splash in the media last spring.

That huge *blown call* resulted in a major drop off in contributions. YFR was hit hard in the pocketbook and could no longer handle the monster costs involved in worldwide broadcasting. Its departure leaves holes in the shortwave bands big enough to drive a Humvee through — *sideways.*

The end came quietly with a final broadcast at the end of June. But the broadcaster left without any announcement indicating that this was the end. Apparently many listeners were left to figure things out for themselves.



Bob Fraser sends this colorful but unidentified subject featured on a QSL from Radio Romania International.

Nearly lost in the detritus left behind by WYFR's closure is the news that **Radio Taiwan International** coincidently ended its service to North America. RTI's strong signal covered the American continent through its relay over WYFR's Okeechobee (Florida) transmitters. So that service — thought to be well established and nearly rock-solid — has ended too. You have to wonder what — *or who* — will be next?

Around the Dial

Now let's get into a summary of the month's *shortwave-lets:*

Radio Nacional Angola appears to have dropped the use of 4950 where it was fairly well heard, in favor of the almost never heard 7217 where they are currently shown with French at 2000 and English for an hour at 2100. This one is listed for very low power (15 kilowatts) and those are hardly ideal times.

Australia is reported to be getting ready to pull the plug on its broadcasts to China, as well as Indonesia, but it maintains there are no plans to delete services to Papua New Guinea and other Pacific areas. But once such talk or rumors begin, that's often a harbinger of nasty things to come.

International Radio of Serbia has returned. It's using 6100 to Europe from 1800 to 2200 and to North America on 9685 from 0000-0130.

China's **Voice of Pujiang** is due to close its shortwave broadcasts "sometime this year." The station was usually best heard on 4950 and 5075. The move was made to save money and devote more time and energy to the development of new media.

If you haven't heard Mexico's **Radio Mil** lately, it's because it has suffered a transmitter breakdown, which may well have been repaired by now. Go ahead and check 6010 for it during the late night or early morning hours.

Both frequencies of **Radio Vanuatu** are currently off the air. It should be undergoing repairs soon — *they say.* So maybe this one will be worth some late night/early morning checks.

Fight for the Shortwaves

Finally, a reminder that with all of the stations going off the air in favor of "new media," it's more important than ever to write shortwave broad-

Portables by RadioShack® and Tecsun reside on top of Rick Barton's Drake R8 receiver.

casters still active and let them know that you are listening and that you appreciate their work.

Now, 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 would be of interest. And how about sending a photo of you at your listening post? *It's your turn to grace these pages!*

– WPC9GLD

October's Reception Reports

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.

ALASKA—KNLS, (p) 9655 at 1040-1048 with M/W ancrs in EE. (Handler, IL)

ANGUILLA—University Network, 6090 at 0350 with Melissa Scott preaching and 11775 at 1235 with Pastor Scott. (Maxant, WV)

ARGENTINA—11710.7 at *0200 opening EE service and speaking of flood damage to several key cities. (Rippel, VA) 0211 with M doing Argentine news, f/by sports. (Coady, ON)

ASCENSION—BBC Atlantic Rely Station, 15105 in (l) Hausa at 2006. (Brossell, WI)

AUSTRALIA—Radio Australia, 6150 at 1030, very good with M in Pidgin. Then they went to EE after the next hour. (Barton, AZ) 9965 via Palau with talks in (l) Mandarin. (Brossell, WI) 11945 at 0944-0957* with coverage of a football match until carrier termination at 0957. (D'Angelo, PA) 1300 on the Oklahoma tornados, 12045 at 1250 on drug prescription abuse and 19000 at 2320 with a soccer game commentary. (Maxant, WV) 11945 at 0944-0957* covering Suns-Bombers football. (D'Angelo, PA) 0203 with W doing news in The World Today, 21740 at 0048 with an interview of an author of a book on Papua New Guinea. (Coady, ON) 12065 at 1050 with items on recovering the economy. (Sellers, BC) 15160-Shepparton at 0428 with soccer match coverage. (Parker, PA)

HCJB, 15400-Kununurra at 1245 with preaching f/by gospel music. (Maxant, WV)

AUSTRIA—Adventist World Radio, 9505-Moosbrunn in Farsi at 0353 with talks and slow piano to abrupt sign off. (Parker, PA) 11955 at 2118 with M preaching about prayer. (Sellers, BC)

BOLIVIA—Radio Santa Cruz, 6134.7 heard at 0007-0054 with continuous LA music and occasional brief SS anmts, nice canned IDs at 0030 and again at 0036 before continuing with more LA vocals. (D'Angelo, PA)

BOTSWANA—Voice of American Relay, Mopeng Hill, 4930 at 0337 with VOA News and several correspondent reports and //9885 at 0300 with Yankee Doodle IS and then beginning news. (Coady, ON) 15580 at 1935 on the Catholic Church and the Pope. (Brossell, WI) 2046-2103 with W in EE hosting a music pgm f/by news at 2100. Poor to fair in noise. The signal had improved to good level when I retuned at 2145. (D'Angelo, PA)

BRAZIL—Radio Itatiaia, Belo Horizonte, 5970 at 0312 with a slow ballad and a M vocal. (Parker, PA)

Radio Nacional Amazonia, Brasilia, 6180 with 2 ancrs taking phone calls and very seductive-sounding W caller raving about the "musica" on Radio Nacional. (Parker, PA)

Radio Voz Missionaria, Camboriu, 9665 at 0410 with M talk and inspirational music. (Parker, PA)

Radio Brazil Central, Goiania, 11815 at 0431 with M and talks, ID and PP pops with jingle IDs. (D'Angelo, PA)

Radio Inconfidencia, Belo Horizonte, 15190 at 2233 with talks. (Brossell, WI)

CANADA—CFVP, Calgary, 6030 at 2147 with an ID for MW CKMX and CFVP, ads for Acura and Sleep Country. (Sellers, BC) *(**NOTE:** Harold said both transmitter sites are surrounded by farm fields and are well away from the river valleys that had so much flooding recently – gld)*

CFRX, Toronto, 6070 with news at 1240 and coml for a Toyota dealership. (Maxant, WV)

CKZN, St. John's (Newfoundland), 6160 at 2325 with a male vocal. (Maxant, WV) CHU, Ottawa, 14670 with FF/EE time anmts. (Maxant, WV)

CHINA—China Radio International, 7250-Urumqi at 2301-2317 with M and SS news, f/by a talk segment with periodic short music segments; 9640-Kashi at 2251-2300* with series of vocals ending SS pgm f/by opening in CC, but carrier was cut 30 seconds later; 11660-Kashi at 2114 with W hosting pops pgm in FF. (D'Angelo, PA) 9570 via Cuba with news of Turkish riots and Iranian voting. (Maxant, WV) 9890-Beijing in RR at 1149, 11835-Xi'an at 1152 with talks in Mandarin, 11875-Kunming in (l) Chazchow, 11955-Kunming in (l) Malay at 1255, 17550-Kashi in Mandarin at 1254. (Brossell, WI)

COLOMBIA—Alcaravan Radio, Puerto Lleras, 5910 at 0438 in SS with LA vocals and a M with brief SS talk, then light instls and somber vocals. (Coady, ON)

CUBA—Radio Havana Cuba (p) 9850 at 1152 with at least a minute of dead air with strong open carrier but no audio. (Handler, IL) 17720 in PP at 2020. (Brossell, WI)

ECUADOR—HCJB-Pifo, 6050 at 0341 in EE with Facebook anmts but poor in a sea of adjacent QRM. (Parker, PA)

EGYPT—Radio Cairo, 9965 at 2330 with local songs and poor audio. (Maxant, WV) 11895 at 2229-2245* with apparent EE service but the talk was so muddled it was almost impossible to understand. The music, however, came through OK. (D'Angelo, PA) 15345 in AA at 1629 and 11560 in FF at 2050. (Brossell, WI)

ENGLAND—BBC, 9500-Wooferton at 0240 with W and Farsi pgm. (D'Angelo, PA) 11945 at 0405 on Obama's speeches. (Maxant, WV) 13660-Oman Relay in (l) Pashto at 1540. (Brossell, WI)

ETHIOPIA—Voice of the Tigray Revolution, 5850 at 0303 in vernacular and with an enchanting indigenous instl. (Parker, PA)

FRANCE—Radio France International, 9790 in FF 2040, 11995 in FF at 2051, 17625 in (l) Hausa at 1642 and 17620 in FF at 1212. (Brossell, WI)

GERMANY—Deutsche Welle, 9655-Rwanda Relay on health care in Africa at 2035. (Brossell, WI) 11865-Rwanda Relay at 2101 with M and news in EE. (D'Angelo, PA) 12070-Rwanda Relay at 2137

on the dangers of dry cleaning chemicals. (Sellers, BC)

GREECE—Voice of Greece, 9420 at 0350 checked after terminating and then restoring their service. M with usual Greek talks and music, a few audio dropouts here and there, 15630 at 2146-2250 with M/W talk and hosting pgm of Greek music, ID at 2200. (D'Angelo, PA) 15650 with songs in Greek at 1940. (Brossell, WI)

GUAM—Trans World Radio, 9910-Agana at 1150 with M in Mandarin. (Handler, IL; Brossell, WI) and 0025 in (l) Mandarin at 1231. (Brossell, WI)

GUATEMALA—Radio Verdad, Chiquimula, 4055 in EE at 1047 with M and Bible reading. Later, at 1108, had a hymn, organ and more EE Bible reading. (Sellers, BC)

HAWAII—WWVH, 1000 at 1042 with W and time anmts under WWV. (Coady, ON)

INDIA—All India Radio, 11670-Bangaluru at 2150 with M/W Hindi vocals, ID at 2150 f/by news at 2200 and commentary on Sri Lanka's 13th amendment, another ID at 2215 and M doing an economic review. Closedown at 2230. (D'Angelo, PA) 13640-Bangaluru in (l) Gujarati at 1545. (Brossell, WI)

IRAN—Islamic Republic of Iran Broadcasting, 11750 at 1930-2030 with pops and news commentary in EE. (Rippel, VA) 13710-Kalamabad at 0500 with talks and music bridges. (Parker, PA)

JAPAN—Radio Japan, 11740 via Singapore at 1225 with M/F co-hosting, 11815 with a talk in JJ to closing at TOH, although continued with on the hour time pips. (Barton, AZ) 15290 via France at 0948-1000* with JJ talk until ID and time pips before carrier was terminated. (D'Angelo, PA)

Radio Nikkei, 3925 at 1140 very good with soft piano music. //6055. (Barton, AZ) 1037 in JJ with traditional stringed instrument and percussion and JJ talks by M/W. 3945 program 2 with JJ songs. (Sellers, BC)

KUWAIT—Radio Kuwait, 15540 in EE at 1815 with non-stop western pops. (Fraser, ME) 2036 with rap, ID, and EE inviting reception reports; 2058 announced that it was "almost midnight" and closed down the EE service. (D'Angelo, PA) 2040 with rap and hip-hop and a PSA on safety, then more of the earlier stuff. (Coady, ON) 17550 in AA at 2027 and much stronger than EE on 15540. (Brossell, WI)

LIBYA—Radio Libya, 11600 at 1908 with mostly AA talks. Seemed to be an extensive group discussion with a studio host and others from remote locations. (D'Angelo, PA)

MALAYSIA—RTM Sarawak, 9835 at 1045 with a Muslim prayer, W with an ID, then vocals. (Barton, AZ)

MEXICO—Radio Educacion, Mexico City, 6185 with mariachi intls and slow ballads in SS. (Parker, PA)

MOLDOVA—Radio PMR, 9665 at 2345 with classical music and W ancr giving ID and closedown at 2355 and into an East European-sounding language. Closing IS from 2356 when Radio Romania's EE pgm began, but that was cut one minute later. (D'Angelo, PA)

MOROCCO—Radio Medi Un, 9579.1 at 0008-0058 with W ancr in FF hosting a light music pgm, which was blocked at 0058 when China Radio International via Cuba came on. (D'Angelo, PA) 0403 in AA. (Parker, PA)

NEW ZEALAND—Radio New Zealand International, 9700 with songs until time pips

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 you can 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*

برامج الإذاعة الكويتية
KUWAIT RADIO PROGRAMMES (SW)

Main Programme

توقيت الكويت المحلي Kuwait Local Time	نوع البرنامج Programme
00:00 - 20:00 - 13:00 - 8:00 - 5:00	News نشرات الأخبار
15:00 - 11:00 - 10:00 - 8:00 - 7:00 4:00 - 2:00 - 23:00 - 22:00 - 18:00	Brief News موجز الأنباء
6:31	Good Morning صباح الخير
9:02	World of Family عالم الأسرة
9:32	Marahleb مرحب
11:13	Media & Development الإعلام والتنمية
11:18	Juristic Encyclopedia الموسوعة الفقهية
11:32	Religious Posture الوقفة الدينية
11:58	Memorable Days أيام مشهورة
12:13	Youth Diary Serial مسلسل مذكرات شباب
12:38	Market & Indications مؤشرات وأسواق
13:13	Event & Comment حدث وتعليق
15:02	Spot in Kuwait Serial مسلسل إذاعات كويتية
16:02	Jubaina News أخبار جبينة
16:18	Window On History نافذة على التاريخ
16:35	Top Star نجوم القمة
17:08	Religious Postur (Rerun) الوقفة الدينية
17:22	Constitutional Lights إضاءات دستورية
17:48	Regret آسف لعدم القدم
19:00	Good Evening Kuwait مساء الخير يا كويت
20:15	The World Around Us العالم من حولنا
22:02	Our Evening أمسيتنا
00:15	News Stations محطات إخبارية
4:02	Sayings & Prayers أحاديث نبوية ودعية

English Programme

توقيت الكويت المحلي Kuwait Local Time	نوع البرنامج Programme
8:00	Open
8:02	Rightly Guided Caliphs
10:20 - 10:00 - 8:45 - 8:15	Songs
21:30 - 9:00	News
22:30 - 9:15	Kuwait in The Heart of History
9:30	Press Today
21:45 - 10:15	Road To Islam
10:58	Closing
21:02	Open
22:15 - 21:00 - 21:15	Rightly Guided Caliphs
22:30	Road To Islam
23:50	News In Brief
23:58	Closing

جدول موجات إذاعة دولة الكويت A-2013 (من 2013/3/31 إلى 2013/10/27)
KUWAIT RADIO FREQUENCY SCHEDULE (SW) FOR THE PERIOD A-2013 (31 /3 /2013 - 27 /10 /2013)

منطقة التغطية TARGET AREA	البرنامج PROGRAMME	التردد / كيلوهرتز FREQ. (KHZ)	التوقيت الدولي UTC	توقيت الكويت المحلي KUWAIT LOCAL TIME	مناطق أخرى للتغطية OUT OF TARGET AREA
منطقة الخليج والجزيرة العربية GULF AREA	البرنامج العام Main Arabic Programme	5960	0200 - 0900	0500 - 1200	
		6050	1600 - 2100	1900 - 0000	
	البرنامج الفارسي Persian Programme	7250	0800 - 1000	1100 - 1300	
شمال افريقيا NORTH AFRICA	البرنامج العام Main Arabic Programme	9750	1100 - 1600	1400 - 1900	جنوب افريقيا ووسط أمريكا SOUTH AFRICA & CENTRAL AMERICA
وسط وغرب افريقيا CENTRAL & WEST AFRICA	القرآن الكريم Holy Quran	11630	0930 - 1600	1230 - 1900	جنوب أوروبا وسط وجنوب أمريكا SOUTH EUROPE, CENTRAL & SOUTH AMERICA أوروجواي - تشيلي - الارجنتين URUGUAY - CHILE & ARGENTINA
الشرق الأقصى FAR EAST AREA	البرنامج العام Main Arabic Programme	15515	0500 - 0900	0800 - 1200	روسيا الاتحادية ومنغوليا RUSSIA & MONGOLIA
أوروبا وشمال أمريكا EUROPE & NORTH AMERICA	البرنامج العام Main Arabic Programme	21540	1005 - 1500	1305 - 1800	وسط أمريكا CENTRAL AMERICA
	البرنامج الانجليزي English Programme	15540	1800 - 2100	2100 - 0000	
غرب أمريكا الشمالية WESTERN NORTH AMERICA	البرنامج العام Main Arabic Programme	13650	1700 - 2000	2000 - 2300	شمال أوروبا NORTH EUROPE
	البرنامج العام Main Arabic Programme	17550	2000 - 0000	2300 - 0300	
جنوب وجنوب شرق آسيا SOUTH AND SOUTHEST ASIA	البرنامج الفلبيني Philippine Programme	21580	1000 - 1200	1300 - 1500	
	برنامج الأردو Urdu Programme	15540	1600 - 1800	1900 - 2100	

Listeners can Obtain Frequency Schedules and other Information through URL http://www.media.gov.kw

Radio Kuwait's current broadcast schedule and frequencies.

and ID at 1200 the news headlines. (Handler, IL) 15720 at 0345 with Maori vocals and a rock and roll pgm. (Maxant, WV) 0455 with a music pgm. Outstanding audio. (Parker, PA)

NICARAGUA—El Pescador Preacher, 8989u at 0006-0012 with M and SS talk to end of transmission at 0012. (D'Angelo, PA)

NIGERIA—Voice of Nigeria, 7255 at 2153 in (l) Fulfulde with hi-life vocals, W with brief talk and into local instls at 2158. (Coady, ON) 2237 with M in (l) Hausa with short Afro-pop selections, news at 2255 f/by ID and closedown with an orch. NA. (D'Angelo, PA)

NORTH KOREA—Voice of Korea, 11710 at 1030 with W and patriotic W vocals. (Coady, ON) 1240 with victory songs and 15245 with martial music at 1534. (Brossell, WI)

OMAN—Radio Sultanate of Oman, 9760 at 0138-0156* with W in AA talk and music, later talk by MW and a brief instl prior to close. (D'Angelo, PA) 15140 at 2016-2107 with 2 M in AA, later M in AA hosting AA vocals, ID, bells and news at 2100. (D'Angelo, PA)

OPPOSITION—Radio Salaam Watandara (via Romania to Afghanistan), 11545 at 0351-0400* with M in Pashto and W with apparent ID and closedown. (D'Angelo, PA)

Voice of Tibet (via Tajikistan to China), 15565 at 1255 in (l) Tibetan. (Brossell, WI)

Voice of the People (South Korea to North), 3912 with M in KK over a lame attempt at jamming by the North. (Barton, AZ)

Radio Tamazuj (via Madagascar to Sudan) 15400 at 0445 with phone calls in vernacular. (Parker, PA)

Radio Dabanga (via Vatican to Sudan), 15305 in AA at 1625. (Brossell, WI)

Radio Miraya (from Sudan via Bulgaria to South Sudan), 11560 heard at 0422 with W in EE asking questions about agriculture and other subjects until pgm previews at 0428, then several IDs and jingles and into AA at 0430. Noted the next night with EE opening at 0415. (D'Angelo, PA)

PAKISTAN—Radio Pakistan, 15625 in Urdu with a M vocal. (Fraser, ME)

PAPUA NEW GUINEA—NBC EAST, New Britain (East New Britain), 3385 with commls in EE music, news in Tok Pisin interrupted at 1102:40. (Sellers, BC)

PHILIPPINES—Far East Broadcasting Assn., 11895 via Ascension Island at 2203-2215 with long talk in (l) Hassinya, music segment prior to closedown ID and anmts and another instl segment before termination. (D'Angelo, PA) 15215 via UAE in (l) Tibetan at 1210. (Brossell, WI)

PIRATES—Captain Morgan Shortwave, 6925 at *0342-0424* with mostly blues, frequent IDs and email as: <captainmorganshortwave@gmail.com>. (Hassig, IL)

The Crystal Ship, 6950 at 0158-0333 with patriotic rock and other numbers including a speech by JFK, a Sousa march, and other patriotic things, <tcsshortwave@gmail.com>. (Hassig IL)

Rave on Radio, 6925u at 0100-0137 with a sign on and into Grateful Dead and other rock, <raveonradio@gmail.com>. (Hassig, IL)

Radio Free Whatever, 6945 at 0042-0101 with pop/rock. I was not able to hear the ID, but too much t-storm noise to get the address. Also noted on other days on 6025. (Hassig, IL)

Left Wing Radio, 6925u with M and several IDs, email as <leftlaneradio@gmail.com>. Several Soviet-style music segments before closing with slow-scan sounds. (D'Angelo, PA) 0101-0109 with choir singing from the late USA or Eastern Europe, SSTV, or FAX at 0107. (Hassig, IL)

Voice of Doom, 6925u at 0252 but very poor with a long story similar to the old KXKVI or Undercover Radio. (Hassig, IL)

Wolverine Radio, 6925u poor at 0153 with tunes about morning, SSTV/FAX sounds at 0250. (Hassig, IL)

Northwoods Radio, 6935u at 0210 with M and ID and into rock. they do not e-QSL. (Rippel, VA) 0101 saying "broadcasting freedom from the great lakes." With DJ Jack Pine Savage. <northwoodsradio@gmail.com>. (Hassig, IL)

Black Cat Radio, 6925u at 2246-2333* opened and closed with SSTV sounds. Played rock with two M ancrs providing periodic IDs and email <blackcatradio@gmail.com>.

A new-style QSL from the Voice of Russia, received by Rich D'Angelo.

XFM Shortwave, 6924.3 heard at 0432 with awful techno or 'club' sounds. Whatever it was, I had to endure eight minutes of it to get an ID. Strong with good audio but the studio mike could have stood more "punch." (Parker, PA) 6950 heard at 0138 with Woodstock stuff. (Hassig, IL)

RTN, 6940 poor at 0454. Originally opened on 6924 but QRM caused them to move higher, then switching to pop/rock from '70s to '90s. (Hassig, IL)

Grizzly Bear Shortwave, 6935u at 0230. ID by M and then into obscure pops. Reports to <grizzlybeaarshortwave@gmail.com>. (Rippel, VA)

WAZU, 6935 at 0305 with pop sounds dedicated to Ed Snowden. (Hassig, IL)

KBOX, 6950 at 0116 with rock number and strange banter between 2 people, maybe others. (Hassig, IL)

Power Line Radio (Netherlands), 6305 well heard from 0115-0200* with pops "WOLD" song and lots of IDs. Reports to: <radiopi@hotmail.com>. (Rippel, VA)

Summerfest Radio, (Euro) 6260.2 with M ID and lots of back-to-back U.S. pops. (Rippel, VA)

ROMANIA—Radio Romania International, 9700 at 2045 on a terrorist bombing, intro'ing a new RRI website and requesting listener comments. (Maxant, WV) 9740-Tiganesti at 2338-2557 with M and SS talk including pgm of Romanian folk tunes, ID and familiar IS at 2356; 11975-Galbeni at 2039-2052 with stories about massive debt resulting in privatization and Romanian doctors complaining about the health care system; 15300-Tiganesti at 2122-2145 with W and SS pgm and Romanian folk tunes. Best signal on the band. (D'Angelo, PA) 11740 with news in EE at 1710 and head of the CIA visiting. (Fraser, ME)

RUSSIA—Voice of Russia, 9465 at 2328 on Iranian elections, 9665 giving frequencies and transmission times to 0400 close. (Maxant, WV) 12065-Chita at 1209 in (l) VV. (Brossell, WI)

Kyzyl Radio, 6200 in (p) RR at 1202. (Brossell, WI)

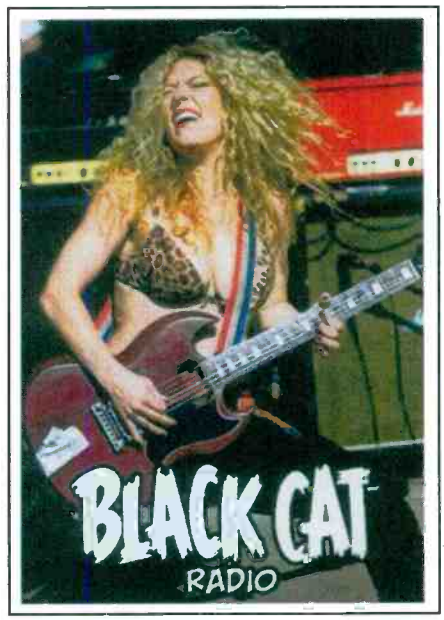
SAO TOME—VOA, Pinheira Relay, 9885 heard at 2130 with Yankee Doodle IS but then nothing. Scheduled for FF until sign off. (Sellers. BC)

SAUDI ARABIA—BSKSA, 11915 with Holy Qur'an Service at 2224-2300* with recitations and M AA to close at 2301*. (D'Angelo, PA) 15170-Riyadh at 0432 with AA talks, 15285-Riyadh in Swahili with talks at 0440. (Parker, PA) 17705 in AA at 1217. (Brossell, WI)

In Times Past

Here's your "blast from the past" for this month: Radio Educadora de Bahia, Salvador Brazil, 6025 at 0817 in Portuguese on May, 17, 1982, running 10 kilowatts.

Pirate broadcaster Black Cat Radio was QSL'd by Rich D'Angelo with this scary card.



Another Black Cat QSL. Which is more frightening — the rats or the guitar?

SEYCHELLES—BBC, Indian Ocean Relay, 15420 at 1835 with Global Business: New Dimensions on advances in digital manufacturing. (Coady, ON)

BBC, Indian Ocean Relay Station with soccer coverage at 0450. (Parker, PA)

SOMALIA—Radio Hargeisa, 7120 at 0330 in Somali with a marching band anthem and M with Qur'an at 0333. (Coady, ON) 0342 in Somali. (Brossell, WI)

SOUTH AFRICA—Radio Sonder Grense, 3320 in Afrikaans heard at 0349. (Brossell, WI)

SOUTH KOREA—KBS World Radio, 9840 via UAE at 2047. (Brossell, WI) 15575 via French Guiana at 1305 on business relations with Russia. (Maxant, WV) 1334 with pops hosted by a W with short EE talks. (D'Angelo, PA)

SPAIN—Radio Exterior Espana, 6055-Costa Rica Relay at 0010 interviewing a BBC commentator. (Maxant, WV)

SUDAN—Radio Omdurman, 7205 in AA at 0300 with wailing vocals, time pips, and ID on the hour then news. (Coady, ON) 9505 at 0403 with M and AA news, f/by local music pgm. (D'Angelo, PA)

TURKEY—Voice of Turkey, 9515 at 0358 ending new on Syria to sign off at 0400, 15450 with W discussing Iraq. (Maxant, WV) 9785 at 1830 with EE sign on and into news. (Fraser, ME)

TUNISIA—Radio Tunisienne, 7275 with M AA vocals, f/by W ancr and AA talks. (D'Angelo, PA)

UGANDA—UBC Radio, 4976 at 0339 with US pops and anmts in EE at 0339. (Brossell, WI)

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!

This month's prize winner is **Rick Barton** from El Mirage, AZ, who is now the owner of a Universal Radio "Go Bag" that's the ultimate handler of small stuff. There is room for a portable radio (or a scanner), a pocket book, battery pack, a *WRTH* — even your lunch. It's great for desert trekking, which I'm sure Rick is doing on occasion. Take a look. It's on page 53 of Universal's giant radio hobby catalog which you can get free by calling (614) 866-4267, or by writing to <dx@universal-radio.com>. They're free, of course. Universal remains your universal source for everything in hobby radio.

Are there any "Happy Stations" left on shortwave? *(Courtesy of John Miller)*

UNITED STATES—Voice of America, 9760 interviewing a designer of commercial buildings. (Maxant, WV) 13670-Greenville at 2129 sign on with Yankee Doodle IS and "The following program is in Bambara" (listed as Mon-Fri). (Sellers, BC) 11860 via South Africa in (l) Hausa at 2055, 15115-Northern Marinas Relay at 1306 in listed Mandarin, and 17690 via Vatican in (l) Hausa at 1527. (Brossell, WI)

Radio Free Asia, 11675 via Tajikistan in Mandarin at 1550, 15195 via Tajikistan in (l) Tibetan at 1205, and 15430 in Mandarin at 1633. (Brossell, WI)

Radio Farda, 7280 via Nauen at 0127 in (l) Farsi with nice vocal selections, time pips at 0130 f/by news. (D'Angelo, PA) 9760 in (l) Farsi with pops at 0414. (Parker, PA)

Adventist World Radio, 9905 via Austria with talks in FF at 2045 and 15255 via Sri Lanka at 1500 with an EE ID and into talks in (l) Nepali. (Brossell, WI) 11610 via Nauen at 1944 with M/W in AA and some local vocals mixed with talks. Nice EE ID at 1959 then several other languages ancng next pgm in AA. (D'Angelo, PA) 15225 via Wertachtal with inspirational music at 0435. (Parker, PA)

WRMI, Florida, 9955 at 0300 with special broadcast from the Rhein Main Radio Club in EE and GG discussing club activities alternating with music selections. (D'Angelo, PA) 0410 with brother Stair and a Cuban jammer in the background. (Maxant, WV)

WRNO, Louisiana, 7505 with vocals at 0352. (Maxant, WV)

WTWW, Tennessee, 5830 on diets. (Maxant, WV))

WINB, Pennsylvania, 2315 with a preacher. (Maxant, WV)

WEWN, Alabama, 15610 heard at 1315 with a call-in program. (Maxant, WV)

KVOH/The Voice of Hope, California, 17775 at 1804-1830 test with EE/SS IDs, email address for reports <mail@voh.net> and some light music. Fair-good but subject to some very deep fades. (D'Angelo, PA)

VATICAN—Vatican Radio, 11625 at 2036-2100* with EE talk on African culture and Christianity, ID at 2027 ends pgm. (D'Angelo, PA)

VIETNAM—Voice of Vietnam, 6175 (via WHRI – gld) at 0350 on tourism there. (Maxant, WV) 0352 with talk and slow Western-style ballad. (Parker, PA)

ZANZIBAR—ZBC Radio, 1735 at 11903 in Swahili with W in apparent news, then lively vocals at 1910. (Coady, ON)

And that winds up another one. High Fives, fireworks, fist bumps, and all that other good stuff to the following whose reports made it work this time: Steve Handler, Buffalo Grove, IL; Rich D'Angelo, Wyomissing, PA; Charles Maxant, Hinton, WV; Mark Coady, Peterborough, ON; Rick Barton, El Mirage, AZ; William Hassig, Mt. Pleasant, IL; Harold Sellers, Vernon, BC; Bob Fraser, Belfast, ME; Bob Brossell, Pewaukee, WI; Rich Parker, Pennsburg, PA; and Chuck Rippel, Cheasapeake, VA.

Until next time, good luck and good listening!

The English staff of "Brussels Calling" of Belgian Radio. *(Courtesy of John Miller)*

Mike Yohnicki got this QSL from Radio Slovakia International.

New Procedure: *Pop'Comm* October 2013 Reader Survey

Your feedback is important to us at *Pop'Comm*. You'll notice there is **no longer a pull-out card** to fill in. Instead:

- **Cut out or photocopy** the *Popular Communications Survey* card below.
- **Circle the appropriate numbers** corresponding to this month's questions.
- **Place it in a stamped envelope** and mail to: October Reader Survey, Popular Communications, 25 Newbridge Rd., Hicksville, NY 11801.

As always, 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 name, mailing address, and other contact information**.

Please write your response to our "comment" question on a **separate piece of paper** and include your name. Send it to us in the envelope with the Reader Survey card.

Last, but not least: You can take this survey online. Link to <http://svy.mk/1cDaGLo>.

As a scanner listener, where do you spend your time (Choose all that apply)

Aviation frequencies 1
Utility communications 2
Amateur radio VHF/UHF bands 3
Police frequencies 4
Fire frequencies 5
Ambulance/rescue channels 6
Military and government channels 7
Other frequencies 8

Physically, what kind of scanner do you prefer? (Choose all that apply)

Base station with big antenna 9
Pocket-size handheld 10
In-vehicle mobile scanner 11
Other 12

In what areas would you like to see more scanning coverage in *Pop'Comm*? (Choose all that apply.)

VHF/UHF frequency information 13
Scanner equipment reviews 14
Coverage of antennas for scanning equipment 15
Scanning resource information in general 16
No other areas, the scanning coverage is fine as it is 17

Do you find *Pop'Comm's* focuses on specific metropolitan, regional, and state scanning frequencies useful?

Yes 18
No 19
In certain cases 20

What specific scanning content or topic area would you like to see more of in *Pop'Comm?* (Please comment)

Take This Reader Survey Online

You can now participate in this reader survey via the Internet. Simply link to <http://svy.mk/1cDaGLo> and click on the *Pop'Comm October 2013 Reader Survey*. It's quick and easy.

We Have An October Winner!

For participating in the *Pop'Comm Reader Survey*, the winner of a free subscription or extension is **Alan Dixon, WPC4WB/N3HOE** of **Melbourne, Florida** who writes: *"Thank you for the new CB and More column! Thank you!!"* – and then makes it pop out with a yellow highlighter.

Well, Alan, thank you for your feedback. Pop'Comm has gotten a lot of positive reaction to our new monthly Citizens Band radio coverage, and the team is so happy you are among the many that are enjoying it. (If we could easily highlight this in yellow in every copy of Pop'Comm, we'd certainly do so.) – KPC6PC

POPULAR COMMUNICATIONS **Survey Response for Issue:** _____

Circle the numbers below that correspond to your answers.
Copy and mail to: Popular Communications, 25 Newbridge Rd., Hicksville, NY 11801.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40

Name _____ **Call Sign** _____

Address _____

City _____ **State** _____ **Zip** _____

E-mail _____

When Radio Was WYDE *aWAKE* and *WILD*

by Shannon Huniwell,
WPC2HUN
<melodyfm@yahoo.com>

"In the summer of '58, Jacqueline McOwen would ride a Top-40 wave as the Bartells spread the modern radio format from Milwaukee to Birmingham to Atlanta to Cape Cod."

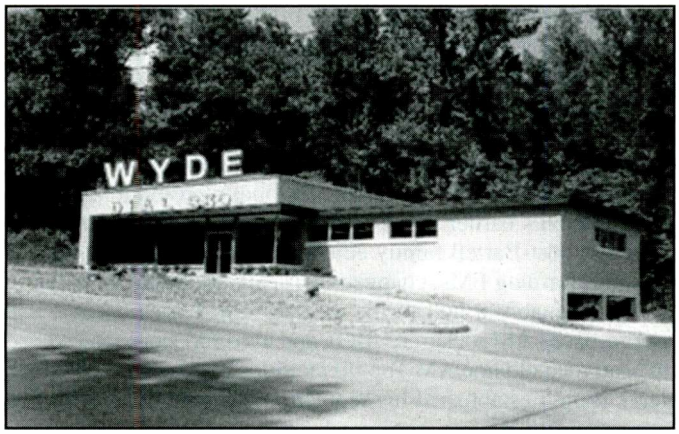
"There was nobody lonelier in the summer of 1958 than a teenager without a transistor radio." That's the personal psychological assessment of one former 9th grader, anyway. The present day *Pop'Comm* reader and very occasional Broadcast Band DXer, Jacqueline McOwen, figured that her late Eisenhower-era brush with a trio of pioneering Top-40 formatted AMs, as well as living within the city-grade signal of another seminal "rocker," was more coincidental than particularly unusual. But after hearing just several minutes of her story, I have to disagree. By the last line in this month's column, perhaps you will concur that Jackie's connection with the three stations, though admittedly fleeting, makes her one of the few people to have been an active part of their fledgling and historic audience.

About a month before Jacqueline McOwen's first year of high school ended, her father — whom ran an interior decorating business specializing in motel design — died suddenly. His uninsured and completely unexpected death left Jackie, her 15-year-old sister, and her mother in a precarious financial position. Jackie's mom decided it prudent to bury her heartache in work, so, with the two girls in reluctant tow, set out from their small suburban Milwaukee home to Birmingham, Alabama, where the first of three summer redecorating contracts waited to be fulfilled.

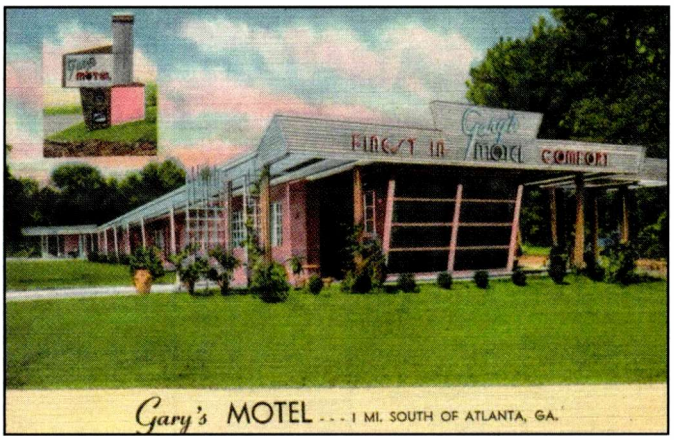
"It was a long, hot ride." Jackie reflects, "Few cars in 1958 were fitted with air-conditioning. We were lucky that our dented old station wagon even had a radio that still worked!"

Because Jacqueline's moody older sister demanded the back seat for herself, Jackie rode shotgun. This allowed her full access to the Plymouth's dashboard AM dial. It also prompt-

The molded plywood furniture immediately pegs this postcard image as "mid-century modern," or circa 1950. As an interior designer, the mother of our story's Jacqueline McOwen was tasked with ensuring that the pictured library and the rest of the Motel Birmingham was kept contemporary in the tradition of a "modern, all air-conditioned motel, described as *America's finest*." The facility, six miles east of Birmingham, Alabama on Highway 78 included many pleasant rooms and "more than 5,000 books plus all types of parlor games" in its library. Also there, near a brick fireplace, was a high-fidelity table radio through which Jackie became a fan of nearby WYDE's programming; audio fare that was ahead of its time in that Southern city and throughout the rest of Eisenhower-era America. "More than once," Jackie recalls with a smile, "I'd be attentively listening to the latest hit WYDE record and some grumpy old motel guest would come into the library, select a book, and direct me to *please turn down the horrible racket on that radio!*"



This little shot was probably taken around Labor Day 1957. That's when the Bartell family bought the Birmingham station, then dubbed WILD, and switched calls to WYDE. They lost little time in installing this new moniker over the cantilevered roofing. The buyer's president, Gerald A. Bartell had no desire to lose the mnemonically-active W-I-L-D call letters, however, and requested that FCC quickly assign them to a Boston property his firm had just acquired. Originally a transmitter shack for the 850-kilocycle Alabama AM, the larger part of this structure — with big windows — was built in 1954 when then WILD closed its downtown studios and moved out to the transmitter site on Montgomery Highway.



After awaking on the first morning of her stay in this Atlanta motel, Jackie McOwen felt lonely and sorry for herself for having to live on the road while her mother fulfilled a week or so of interior decorating duties at such establishments. The teen's melancholy was lessened a bit, however, when she overheard the desk clerk's radio pouring forth some very familiar sounds via local station WAKE. "It was as if my old friend WYDE had simply been given a new name and different DJs and then recreated on the Atlanta dial, just for me" she says. In fact, that's essentially what happened when the Bartell organization debuted its brand of Top-40 "formula radio" in several U.S. media markets.

ed barbed cries like, "Mother, please tell your younger child to stop playing with the radio like a baby and leave it on one station for more than 10 seconds!"

Jackie's defense included the reasoning that she was simply looking for a friendly-sounding station that played the style of songs that her friends enjoy; similar to "the cool station back home in Milwaukee."

Among The Midwestern Pop Radio Pioneers

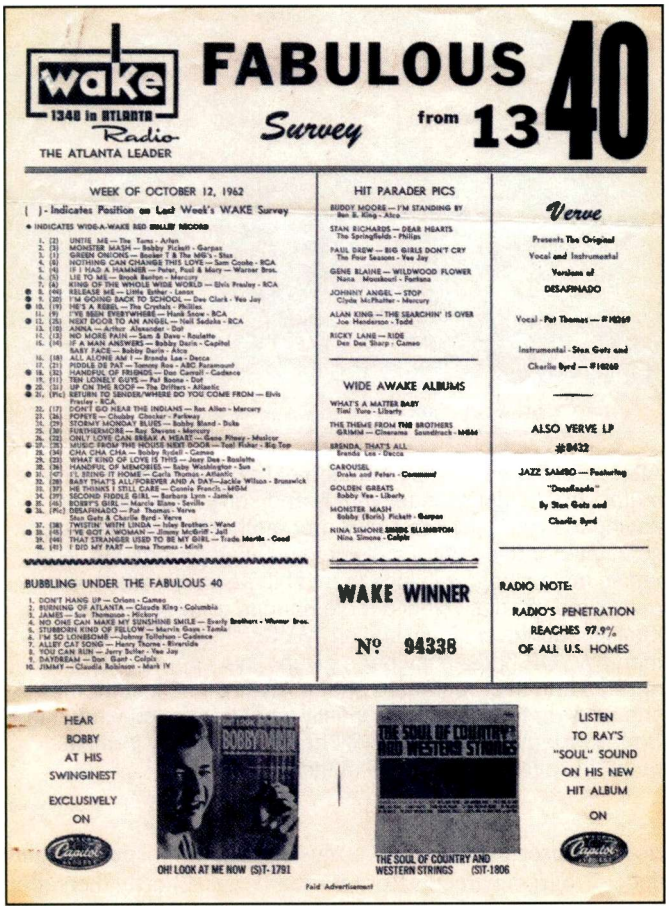
Even I instantly identified Jackie's exemplar music radio outlet as WOKY. My father's stock history lesson on the origins of the very American Top-40 format always included a fondly-told chapter about the Wisconsin outlet's influence on the programming's development. What he hadn't mentioned, however, was WOKY's predecessor with which its ownership began perfecting their craft. *Pop'Comm* broadcast historian, Jan Lowry, fills in these early details:

A new 1,000-watt, daytime-only AM broadcast station was FCC authorized in late March 1947 for the Andave Radio Corporation at Milwaukee, Wisconsin. The construction permit was given the callsign WEXT. Owners of Andave included Fred F. Roede, Syd Charney, Bruno Bitkel, George Grabin, Arthur Meyerhoff, G. Ben Berkin, Lee K. Beznor, and Gerald "Jerry" A. Bartell. The latter individual was the real sparkplug of the firm and brought experience from major market commercial radio acting work on the mike, as well as from the academic side as college speech instructor and respected educational station WHA staff member at the University of Wisconsin at Madison.

Bartell became President and Executive Director of WEXT, which debuted in late September 1947 from studios in the Century Building. The daytimer's transmitter and tower were located at 2501 S. 43rd Street, Milwaukee. The independent sunrise-to-sunset facility aired a music, news, and sports format under Program Director Rosa Bartell Evans. Shortly thereafter, the station's licensee name was changed to WEXT Incorporated, and during the following year, WEXT's studios were combined with its transmitting facilities. In early 1950, its licensee name was again changed, this time to Bartell Broadcasters Inc.

With several more family members assisting, chief owner, Gerald A. Bartell became both President and General Manager. That position secured, Bartell got the Commission's May 1950 OK to switch the Milwaukee facility's callsign from WEXT to WOKY (pronounced "wau-key"). It appears that this new name was kept under wraps until WEXT 1430 could be shut-off at sunset one evening and Bartell's recast WOKY 920 could be fired-up on an entirely different and less restrictive frequency. Bartell had been working behind the scenes to obtain full-time operating status for his family's modest AM, and was notified by Washington authorities that the September 1950 frequency change from 1430 to 920 kilocycles was approved. This allowed the new WOKY a kilowatt during days and the right to begin nighttime service also with 1,000 watts via a new multi-tower directional antenna site (single pattern, all hours) located in the town of Greenfield, a suburb southwest of Milwaukee. Business offices and studios of WOKY were relocated to Milwaukee's Empire Building, 710 N. Plankinton Avenue in 1950. This was also the home of another Milwaukee AM station, WEMP. Sometime during 1951, the FCC granted WOKY a construction permit to raise day power to 5,000 watts (nights to remain at the 1,000-watt level), but this CP was dropped in 1952; the station continuing to operate directionally with 1,000 watts for all of its broadcast day. Studios were moved in 1953 to new quarters at 704 W. Wisconsin Avenue, Milwaukee, then in 1955 again relocated, this time to 522 W. Wisconsin Avenue.

By 1956, WOKY was airing a successful "Top 40"-style contemporary music format that the Bartells had honed from "for-



Bartell ownership of WAKE was two years in the past when this FABULOUS 1340, Top-40 music survey was published for the Week of October 12, 1962. By then, arguably its best known DJ, Bill Drake, left for larger venues, eventually developing a very tight/fast-paced Top-30 song programming style — the hallmark of many RKO General stations and scores of others via imitation and syndication — often dubbed the Drake Format. A Top-40 focus continued for about three more years before the mighty little kilowatt days/250-watts night WAKE abandoned the format it helped pioneer in Atlanta, changed calls to WIGO, and focused on reaching inner city residents via soul music programming.

matics" they'd learned starting with their WEXT tenure. To be sure, the now *historic* format was not an instant creation, nor was it originally presented as a sign-on to sign-off affair. Rather its evolution consisted of a series of DJ/record shows that aired on WEXT and the first four or five years of WOKY amidst hour-long polka shows and other such conveniently salable block programming.

Noticing that radio listening habits were fast changing from tuning individual shows to dialing in favorite stations that ran a consistent/predictable format, Bartell and his contemporaries developed an air product featuring a steady stream of highly recognizable music, exciting local news briefs, upbeat jingles, easy to play contests, and personality DJs designed to make around-the-clock friends with increasingly mobile audience members.

On September 3, 1959, WOKY's license was transferred from Gerald A. Bartell and Bartell family members to Bartell Broadcasters Inc., making it a true family affair. Studios of WOKY were moved in early 1960 to 3500 N. Sherman Boulevard, Milwaukee. Under a new CP, WOKY's power was finally increased to 5,000 watts (1,000 watts at night) in the summer of 1965 when it switched to two pattern (day and night) directional operation.

By early 1968, Jerry Bartell had sold his interest in the media company that wore his family's name. Well into the 1970s, this reconstituted firm continued the Bartell tradition of topical DJs, contemporary hit music, and lots of publicity/promotions. Unlike Jerry Bartell's earlier brush-off of frequency modulation, however, the post-Bartell family edition of the company sought out underperforming FMs, changed their calls to lettering ending in a "Q" (arguably a nod to the outfit's famed high-energy, San Diego-based AM rocker, KCBQ), and used FM stereo to go head to head with old line AM Top-40 facilities like the ones on which Jerry Bartell established his reputation. Most notable were FM turnarounds that went from nowhere to number one (especially in 12-34 year old demographic) in markets like St. Louis via KSLQ and Miami with WMYQ. But that's another story, as is the roster of technical, licensee, and format changes that WOKY experienced until its present day iteration as a CBS Sports Radio Network affiliate airing a 24 hour-a-day "Sports Talk" format.

One Of Two *Very* Influential Radio Companies ...

Researcher, David MacFarland has chronicled the origins of radio's Top-40 format and identifies two companies as the programming style's major experimenters: Memphis-based Plough Broadcasting and Bartell's Milwaukee group. The media historian also touts individuals, Gordon McLendon and Todd Storz as seminal Top-40 developers. All are worthy of much more word count than I can provide in this column. Maybe some other time, because it's imperative that we get back on Jacqueline's "involuntary" road trip to Alabama and her summer '58 Bartell encounter.

Understandably, it sure didn't help that Jackie's classy mom and prissy sister preferred hearing Broadway show tunes and the likes of Frank Sinatra on the car radio. "They'd roll their eyes," she muses with a shake of her head, "if Elvis or even the Everly Brothers dared to sing through the Plymouth station wagon's oval speaker. My parent and sibling were in little danger of such audio consternation, however, as almost none of the signals received between the Milwaukee fringe to inside the Alabama border resembled WOKY's sound."

Jackie conked out sometime during the last hour or so of the seemingly nonstop trek. She vaguely remembers "sleep walking" to their motel room around 1 a.m., though is clearer about moping about the place after awaking at midday and feeling hopelessly bored. Jackie eventually found her mother, who was already busily suggesting decorating upgrades to the motel owner. Jacqueline's sister — acting like first borns do — suggested that Jackie not bother them while they were "actually making a contribution to the family business."

She began trudging out of the office, but, just beyond the main desk, caught the strains of Ricky Nelson's number one hit, "Poor Little Fool." The spunky sound wafted from a hefty 1940s radio nestled in a knotty pine cubby built into the office wall. "What station is playing that?" Jackie wondered while catching the gaze of a cherry red-lipped brunette behind the counter attempting, through a light green rayon blouse, subtle adjustments of her padded bullet bra, then fussing with the elastic on her perky ponytail.

"That's *why'd*, Honey," the 20-something motel clerk drawled.

"It's what?" Jackie asked.

"Wa, Wa, Wa, Wy-da," she chiseled, as if Jacqueline were deaf and could only read lips. Jackie instinctually shrugged.

"Dub-ya, Waa, Dea, A," the woman mouthed in her best attempt at deep-south to Yankee translation. Then in an exaggerated gesture, she bounced an index finger at the radio and intoned the mysterious word again.

Jacqueline offered a sheepish grin and skedaddled. A minute later, she ended up in the motel's library, plopping her depressed self down in a red cushioned molded plywood chair. Looking up from the linoleum floor, Jackie noticed she was serendipitously seated within arm's length of a decent tabletop AM set almost identical to the one commandeered by that pretty motel employee with an apparent speech impediment.

Following its warm up, and after she gently twisted its slide rule dial away from some schmaltzy geezer ballad in one spot and glided it past the annoyingly twangy announcer and his banjo-strumming guest in another locale, Jackie struck gold when pointing the tuning indicator just south of the 90 or 900 kilocycles. There was Elvis and a steady stream of other hit music stars she craved. And just like WOKY back home, the station playing them knew how to do so while sounding like it was generating fun and friendliness.

"Oh, so that's what the girl at the desk was trying to tell me!" Jackie laughed to herself when hearing a station jingle a couple of times. "She was trying to say that the station's nick name is *Wide*," Jacqueline more clearly deciphered after the DJ divulged a legal station ID, *W-Y-D-E in Birmingham at Eight-Five-Oh on your radio.*

The Width of WYDE's Bartell Ownership

Similar to WOKY having lived a previous Milwaukee life on some other frequency with different calls, Bartell's Alabama property was founded as a less significant facility than was the case when Jackie tuned it in July 1958. In fact, the southern AM debuted in September 1946 as WTNB — for original owner, Thomas N. Beach — on local channel 1490 kilocycles emitting a modest 250 watts. Beach must have been combing the Broadcast Band for a better signal and, in late 1947, convinced the Commission to let WTNB vacate 1490 for 850 kilocycles with 5-kilowatt days and 1,000-watts directional at night. Perhaps to help finance this upgrade, Beach took on a partner and changed WTNB's licensee name to Pilot Broadcasting Corporation during 1949. By early August of that year, however, some now forgotten problems caused WTNB to be taken off the air. When it finally resurfaced in March 1950, it was still squeaking out just a quarter kilowatt on 1490. And that was that until mid-January 1952 when WTNB became WILD.

Beach and partner ended up selling their newly named peanut whistle shortly thereafter. The sale included that aged Construction Permit to move down the dial to 850. That opportunity had attracted the buyer — an engineering-savvy individual who resubmitted an FCC application to jump the CP's day power to 10,000 watts (1-kilowatt nights/directional). Washington approved the proposal, and a newly located as well as a 40 times more potent WILD began blasting through the Birmingham air waves a few days before May 1953. In the summer of 1957, Jerry Bartell's Milwaukee-based group bought WILD for two reasons: they figured their fledgling Top-40 format would work wonders on a 10-kilowatt, low-dial position facility, and they had moving plans for those WILD call letters — a callsign that already possessed the chief Bartell station identity ingredient — evocative word power. On Labor Day 1957 WILD Birmingham became WYDE and went Top-40 personality 24/7. This was its 1958 audio incarnation when Jackie discovered the Alabama "flame thrower" purveying the latest musical gems such as Bobby Darin's "Splish-Splash" and the Champs' "Tequila."

As for those old WILD call letters, Bartell got the word that FCC officials would quickly transfer them to a Boston daytimer also being acquired by Bartell interests. Had Jacqueline returned to Birmingham anytime past October 1960, she would have detected that the Bartells were gone. They'd exercised a chance to sell WYDE at a tidy profit and move on to other stations needing a quick turnaround. WYDE kept with Top-40 until a November 1965 flip to country music. After a long list of new owners, formats, technical specifications, call changes to WMKI in 1998, back again to WYDE during 1999, then WDJC in 2002, and WXJC in 2004, it's a 50,000-watt days with a kilowatt after dark through separate directional patterns and runs a conservative talk format.

Jackie admits that she'd listen to it today, but would have quickly turned the dial had the old WYDE spent as much time blabbing when she, her mother, and sister repacked their old station wagon, left the Birmingham motel, and headed to another such interior decorating assignment in Atlanta.

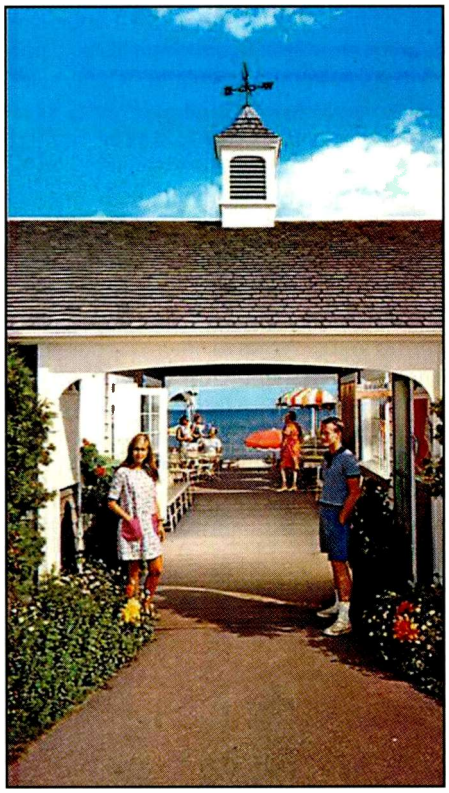
"WAKE Me When We Get To Georgia"

That's what Jacqueline requested partway after what felt like a million hours in their stuffy car. Once inside their Georgia motel room, Jackie resolved to reserve teenage judgment on whether or not to be depressed until after she tried finding "a cool radio station" on the wood-grain AM/FM set. "What's FM?" Jackie asked while activating the 'on' switch/volume control and awaiting the tubes to warm.

"It's slow, dramatic music for real old rich people," her sister replied in a know-it-all declaration.

Whomever had last used the motel room's radio apparently was neither aged nor wealthy, as the AM band soon made itself clear with a healthy dose of the market's perennial leader, 50,000-watt, clear-channel WSB 750. To Jacqueline, it, sounded geared toward Southern senior citizens who might point a disapproving finger at Elvis and his musical gyrations. But a slow twist of her wrist to the right eventually landed the dial on a carrier wave conveying product uncannily identical to that of WYDE's and WOKY's. She waited for its name, instinctively knowing the identity would arrive on the notes of a snappy jingle ... *Wonderful WAKE, W-A-K-E in Atlanta,* the singers divulged. *(**LISTEN:** Sample some 1958 vintage WAKE jingles at <http://www.wakeatlanta.com/wakejingles.html> – WPC2HUN)* Jacqueline smiled. She might not have known a soul — other than her preoccupied mom and "annoying" sister — for a hundred miles around, but this revelation on the radio meant she had at least one electronic friend in Atlanta.

The tiny AM station that brought Bartell's big Top-40 sound to Atlanta began life as WBGE in March 1947. Jan Lowry reports that the 250-watt facility's main founder/owner was Mike Benton, a.k.a "The Georgia Cracker," who established WBGE's "studios on the top floor of the nine-story Georgian Terrace Hotel and situated its transmitter and tower at the corner of West Peachtree and South Pine Streets." With the slogan, "locally owned and operated," WBGE, 1340 kilocycles, was inaugurated as a 24-hour per day operation. It's not recalled whether likely simulcaster, WBGE-FM, which debuted on 95.5 megacycles



"Imagine being miserable in this beautiful mid-August '58 Cape Cod seaside motel setting!" Jacqueline McOwen proposes. "For a while, I sure was," she admits, "especially when my insensitive, annoying older sister, Meg (left), got to pose for the Popponesset Inn's new postcard picture while I had nothing to do but sit on the patio, hear seagulls squawking, and listen to old people and little kids blabbing on about boring stuff." That all changed a few days into her "forced" stay there, Jackie recalls ... Reportedly, a cute boy with an even cuter little radio appeared on the beach and befriended the downcast looking girl. He, too, was a Top-40 fan. The Buffalo, New York-area resident and devotee of the then six week old *FutureSonic Radio* format from WKBW 1520 there, couldn't receive "KB" on his very modest transistor set, but they shared earphones —almost as romantic as holding hands and caught some hits on a Providence, Rhode Island station spinning the days' top tunes.
After sunset, the couple either tuned a "factory-built," six-transistor portable he also packed or gathered in a lounge room where the 5-tube set easily snagged Buffalo's music, jingles, and exciting DJ patter. From that radio they discovered vestiges of Boston-based WILD 1090 and the Bartell-inspired Top-40 output that single-kilowatt daytimer offered for what amounts to be a proverbial flash in the pan.

during June 1947, was kept on the air around the clock.

In December 1955, the stations were bought by the Bartell family group. They'd searched through the FCC call-sign database in search of a pronounceable station name and starting with W-A — (the "A" for Atlanta) soon hit upon W-A-K-E. With those slogan-friendly calls installed, the Bartells jumped into 1956 by highlighting WAKE's new morning DJ show dubbed "Wake To Music." As the year progressed, listener feedback considered, and the most requested records noted, Bartell programming architects unveiled its fledgling version of a Top-40 format. By the time the sound rolled-out in late '56, however, it was an AM-only affair, as the Bartells quickly took the old WBGE-FM dark and told the FCC to delete its license.

Reportedly, the new owners considered frequency modulation as not ready for prime time, void of a marketable audience, and a waste of company operating capital. To be sure, they were not alone in this practice of silencing late Truman and Eisenhower-era FM. Another Top-40 pioneer, Todd Storz, kicked back the thought-to-be worthless FM license on his newly acquired WOW properties shortly after buying the Omaha stations.

Within five years of making little WAKE a major powerhouse in Atlanta and the "modern music" radio scene, the Bartells sold their $100,000 original investment for a half million bucks plus $80,000 for their promise not to operate another station within 50 miles of Atlanta. A year after this 1960 transaction, the new owners — who had also purchased Bartell's Birmingham, Alabama-based WYDE — received approval to raise WAKE's day power to a full kilowatt. Even so, Atlanta's suburban sprawl left the local AM's signal out of clean reach (especially during 250-watt nights) of an increasing number of upwardly mobile folks that advertisers coveted. The addition of CBS network news/features and a more "mature" middle-of-the-road music approach — under the slogan *The new sound of WAKE* — during late 1963, didn't result in a larger audience. Consequently, ownership decided to focus on inner city listeners via a "Negro appeal" format in the fall of 1965. The callsign WIGO got picked to identify this new program initiative. Under several successive owners, this offering continued through 2000 when the station — renamed WALR five years earlier — morphed into TalkRadio 1340. A short-lived 2006-2007 dalliance into Spanish language sports ended with a return to sports formatting in English, a concentration that the 1,000-watt (day/night) Atlanta outlet continues today.

A WILD Ride To Massachusetts

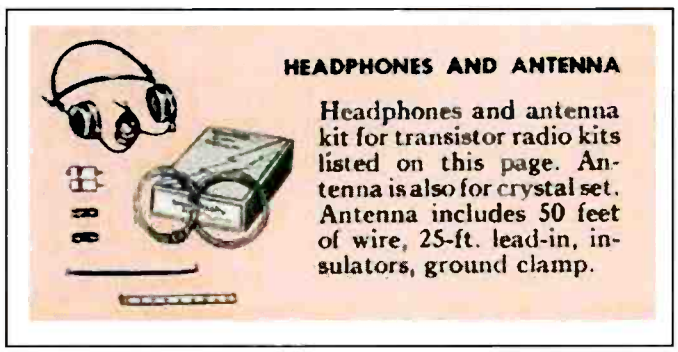
In addition to trying to enjoy WAKE in the presence of her easily offended sister while in the motel room, Jackie had spent hours sitting in the Atlanta motel's well-stocked library just thinking teenage girl thoughts with WAKE serving her as soundtrack. One Thursday, she walked all afternoon to and from a record shop she'd heard advertised; not to buy any 45-rpm singles — as she had nothing on which to play them — but to pick up a complimentary copy of WAKE's latest Top-40 survey. The document gave her a thumbnail glimpse of what the station's DJs looked like. Jacqueline had been searching the front desk for some tape with which to post the survey to the family's motel room wall when she overheard her mom chatting with the establishment's owner's wife about her next contracting project starting the following Monday at a Massachusetts motel.

They were on the road a few hours later. Her mother urged Jackie and her sister to join her in prayer that the beleaguered old Plymouth would make the 1,100-mile journey without breaking down, exploding, or overheating. When the car wheezed into the Cape Cod-based motel's driveway three days later, all three female travelers roasting, not only from the early August sun, but because Jackie's mom had to allow the Plymouth's heater to go full blast in order to increase the coolant's run, thus keeping the radiator from boiling over.

The ocean breeze permeating every open window at the motel provided a welcomed sensation. Jacqueline liked the venue better than the other places her mom was contracted to redecorate. Even the teen's love of hit music soon found a soul mate. Jackie had struck-up a conversation with a boy maybe a year older than she. He was sitting at a patio table engrossed in the adjustment of some tiny radio. "Built it myself from a kit," he hesitantly introduced without a hint of conceit, then admitted it wasn't working as well as his other "factory-wired" transistor set that was still stowed in his suitcase.

The boy offered Jackie one half of the kit's headphones and for much of the day

"Here's a tiny one transistor radio kit that's just slightly bigger than a package of cigarettes!" Allied Radio Company's 1957 catalog brags. The very modest receiver was described as "efficient" and capable of "excellent selectivity and remarkable selectivity [with] clear reception throughout the standard AM broadcast band." This was at least remotely true when the "required external antenna" (which boasted a shipping weight more than that of the radio) was properly installed.



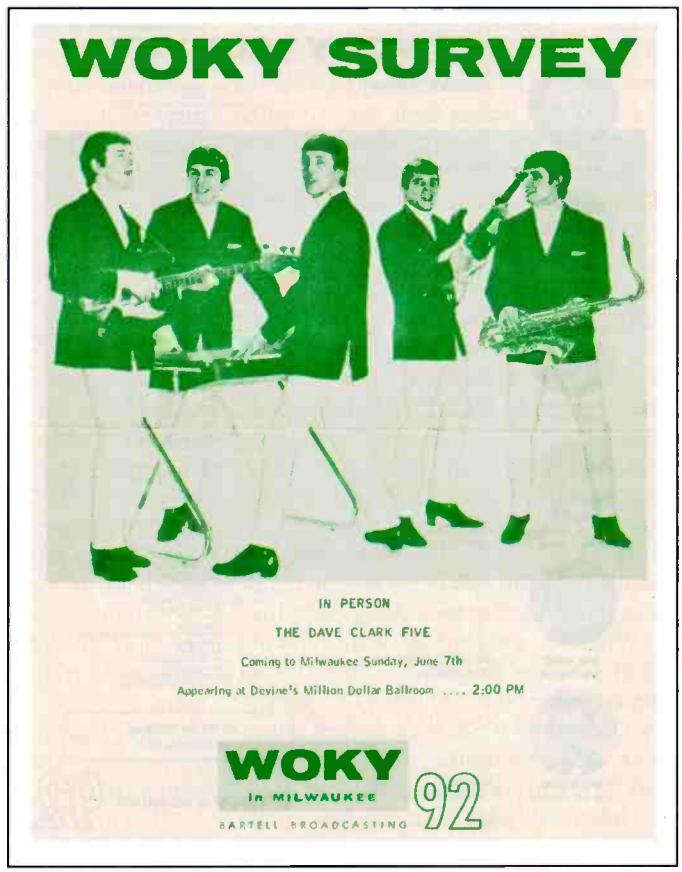
Jacqueline McOwen laughed when I asked her about the practicality of a compact transistor radio that needed to be tethered to a 50-foot wire antenna and hefty headphones in order to fulfill its catalog accolades. "Well," she conceded, "it was rather clumsy having to string the wire between beach umbrella poles, but the process gave me the impression that my apparent *boyfriend* was a real electronics whiz. Plus, that little radio was better than nothing, which is what we would have otherwise had unless we stayed inside within sight of all of the grown-ups."

they sat close together listening to whatever the one transistor pocket-sized marvel scratched in across the saltwater from Rhode Island and Boston. During a good part of the week that he and his folks were guests of the seaside motel, he and Jacqueline relaxed on a beach blanket, talking about this and that, and doing a bit of DXing, a term he defined for her as "searching up and down the dial for interesting sounding stations." That's how they hit upon the obviously weak signal of WILD along with its music they both liked. Jackie felt this catch allowed her to make a big impression on her friend by regaling him with descriptions of WYDE and WAKE. "I guess you could call those three, *wide awake and wild!*" he smiled. And somehow the rhythmic ocean waves and static-imbued radio waves from nearly 70 miles away gave little WILD an even greater mystique than if they'd been only a thousand yards from its tower.

The *Just In Time* Listener

The W-I-L-D connection to Jackie's summertime '58 radio chronicle is truly as fleeting as was the Bartells' association with the Boston daytime-only AM. She happened upon shreds of its decidedly fringe signal just a few years before WILD was unlinked from its famous owners and their portable Top-40 format.

Templetone Radio Manufacturing Company secured the initial construction permit leading to the single kilowatt Beantown station's November 1946 debut on 1090 kilocycles from a tower



This mid-1960s WOKY concert promo was printed on the flip side of one of the station's music surveys. Full-time W-O-K-Y, pronounced *WAU-KEY* (in Milwaukee), was the Bartell family's second radio property, built on the experiential foundation of its intentionally silenced Milwaukee daytime outlet, WEXT. For years, WOKY defined hit music in that key Midwestern city known for Evinrude Outboard Motors, several pro baseball teams, and the fictional home of TV's *Laverne & Shirley*.

in nearby Medford. Because the radio maker wanted to exude a superlative and classy image, it dubbed its new outlet WBMS for Boston's Best Music Station and ran a full schedule of classical recordings. Templetone's didn't hold onto the audio outlet for long, however, selling it to "The Friendly Group" in 1948. This firm continued trying to make WBMS' product profitable, but dumped the highbrow tunes in favor of pop on May 1, 1950. That approach lasted a year until the calls were switched to WHEE and a country music format aired through early October '52 when the WBMS handle was reacquired. It is unclear what programming then reigned, though some brand of middle-of-the-road pop or maybe some classical is a safe bet. Whatever the approach, though, WBMS still wasn't setting the New England radio scene on fire — a moribund condition especially attractive to the Bartell family seeking "obvious" turnaround situations.

Debuted by Bartell Broadcasters, Inc., during the first week of October 1953, WOKY-TV transmitted on Channel 19 and served as the Milwaukee affiliate for ABC and DuMont networks. Just over a year later, the Bartell's sold the UHF outlet for $335,000. According to an article in the *Milwaukee Journal* shortly after his 1990 passing, Jerry Bartell often told his wife that when it came to business ventures, he got easily bored — so he kept actively seeking good buys and even better opportunities to sell. This streamlined his sense of knowing when to take the money and run. In WOKY-TV's fledgling condition, this was a smart decision, as many such early UHF-TV operations made a big promotional splash, struggled for viewers in a then predominantly VHF-TV universe, and often went dark. After the late 1954 sale, WOKY-TV was recast as WXIX(TV) — designating channel 19 in Roman numerals — got reallocated to Channel 18, went off the air for a while, before finally hitting a positive stride in the mid to late 1960s eventually becoming one the most watched non-network affiliated TV stations in any U.S. media market. This grainy image of WOKY-TV's station ID was part of an early newspaper ad heralding the video outlet, which today is called WVTV(TV).

Bartell interests acquired WBMS at 1957's traditional summer's end, just in time for the AM to be rebranded with the W-I-L-D call letters then very recently removed from Bartell's simultaneous Birmingham, Alabama radio purchase. This facilitated the instant re-invention of the 1090 spot on Boston dials as WILD (as in *W-I-L-D is wild about Boston!*) complete with the installation of a high energy Top-40 format.

Unlike most of the other Bartell acquisitions, its Boston buy was not a good candidate for increased power or augmentation to full time operation. Plus, much larger and around-the-clock competitors — such as Plough Drugs' WCOP 1150, WMEX 1510, and the 50-kilowatt WBZ Westinghouse gem — would make the task of sustaining major buzz in the market incredibly daunting.

Whatever the Bartells were thinking when deciding to grab the little Boston property, their strategy wasn't long term. By December 1958, they cashed out of their Massachusetts experience for $200,000 and enough profit to have made the relatively brief New England radio venture worthwhile. WILD's new ownership knew it lacked the showmanship pizzazz to survive in a modern music radio war, so ended the contemporary push in lieu of simply booking foreign and ethic block programming. By 1964, the African-American component in this lineup gained WILD's primary focus, one that essentially had been maintained under several successive owners — a 1978 quintupling of its *non-critical hours* power and a 2005 transmitter move to Quincy, Massachusetts — until a rather enigmatic mid-2011 jump to programming from China Radio International. Some loyal urban radio fans went so wild at this stark change that they threatened to sue.

An Old Car and Reuniting With an Old Broadcast Band Friend

A young attorney vacationing with his wife at the Cape Cod seashore motel noticed Jackie's mother raising the Plymouth's hood. "Anything I can help you with, Miss?" he politely offered.

"Oh, it's just tired ... Got some radiator problems but needs to get me and my girls back to Wisconsin soon."

"Hmmm ... All the way to Wisconsin, you say?" the leisurely tan 30-something considered while poking at some engine parts.

"Yes, I'm afraid so — Milwaukee to be precise," Jacqueline's mother noted with a sigh.

That brief exchange became the catalyst for a deal that provided Jackie's family with train fare home, as well as a nice envelope of spending money.

"My wife has been strongly hinting for me to buy her a station wagon," the lawyer confessed, "and I think I can turn this 'classic' into an 'acquittal' with a rebuilt radiator and water pump. In other words you'd really be bailing me out if you sold me your car. I guess it could be an answer to both of our problems," he more asked than submitted. The resulting transaction was a big improvement from the steaming, side-of-the highway predicament Jackie's mom had dreaded. And everyone agreed that the subsequent air-conditioned train ride to Milwaukee had been far superior than a three-day broiling in their former station wagon.

Jacqueline truly felt at home when she was finally able to switch-on the beige plastic table radio awaiting to sing and gab again in her very own bedroom. Through its warmth, WOKY greeted her return — sounds made ever more familiar when mixed with the summer '58 memories of the Milwaukee Top-40 outlet's three AM sisters in Alabama, Georgia, and Massachusetts.

Fifty-five years later, I sent Jackie a draft of my interpretation of her brush with hit music radio history. "Your pieces about the AM triplets we should call *WYDE aWAKE & WILD*, and the Bartells make clear the broadcasting family's goal-oriented business pattern of finding and turning around otherwise struggling signals that I certainly didn't recognize as a kid in love with the pop culture they gave me," Jackie reflected. "So, maybe a good way to bring closure to this article," she suggested, "would be to observe that there was probably nobody happier in the summer of 1958 than a Top-40 radio pioneer who located some poor little station just waiting for a new name, enthusiastic DJs, a pile of hit records, and several clever on-air promotions."

And so ends another day of radio remembrances on *Pop'Comm*.

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 III	www.aorusa.com
Advanced Specialties	13	www.advancedspecialties.net
Alpha-Node Hub	25	www.AlphaNodeHub.com
C. Crane Company	39	www.ccrane.com
CQ Merchandise	1,9	www.cq-amateur-radio.com
Cutting Edge	19	www.powerportstore.com
Electronic Products Design	19	www.epd-inc.com
HRD Software, LLC	45	www.ham-radio-deluxe.com
HamTestOnline	13	www.hamtestonline.com
Homeland Security	25	www.ready.gov
ICOM America, Inc.	Cov II	www.icomamerica.com
Kenwood USA	Cov IV	www.kenwoodusa.com
MFJ Enterprises, Inc.	3	www.mfjenterprises.com
PowerPort	19	www.powerportstore.com
QCWA	25	www.qcwa.com
REACT International, Inc.	39	www.reactintl.org
Universal Radio	13	www.universal-radio.com

Reach this dynamic audience with your advertising message, contact Charlie Payne at 859-305-6117
e-mail: cpayne@cqcomm.com
Please direct editorial and subscription questions to (516) 681-2922

Two Decades Later, He's Back in the Saddle Again

By Bill Price, N3AVY

"My little 2-meter FM HT has gotten me back into — or at least very near to — ham radio, after a very long hiatus."

Bow wow. Bao Feng. Feng shui. I made my first amateur radio contact in about 20 years. Really! Two meters. FM. I actually used a microphone. *OK, it was built-in.*

It all began when the brown Santa Claus truck showed up one day with a mysterious package. Since I'm not a product reviewer, this had me stumped. Inside was a cute 2-meter/70-cm HT (handie-talkie for the uninformed), a large and a small rubber duck antenna, a programming cable, two batteries, a charger, a battery eliminator for the car, a discrete throat-mic/earphone, and a "look at me, I'm a cop" clip-on microphone speaker for my collar. Oh, and a brand new repeater directory.

It seems that a good friend decided that it was time I got on the air. If David G. were in England, he'd be a prince. I have a couple of good friends who I can't tell you much about because too many people would take advantage of their good nature. David G. is one of them.

Some of you may be familiar with this little radio. It's solid, works well, and comes with about a 10-word instruction manual. It needs to be programmed. Instructions for doing that are, shall I say, *vague.*

After three days of reading websites, interpreting various instructions, and using some really *bad* language, I got the hang of putting in some transmit and receive frequencies and assigning them channel numbers. I knew from some information online that I'd have to speak loudly and right into the microphone because this little critter had minimal modulation.

The requirement that I sleep with a surplus gas mask connected to an old canister vacuum cleaner has had a serious effect on the amount of rest I get. I doze a few hours every couple nights. It's lovely. *Really.*

So there I was, at 0600 sitting under my blue canopy in the back yard listening to a nearby repeater. Soon I found myself talking to Jim, from down the line a bit. He couldn't hear me as well as I could hear him, but that was because bath-toys (everyone's favorite rubber duck antenna) don't put out much of a signal. We chatted for a while. I kept suppressing yawns. Heck of a nice guy for a first FM contact.

While we chatted, I realized that it had been at least 20 years — maybe even longer — since I had made my last amateur radio QSO. That's jargon for *contact.*

There is a moral to all this: even if you don't have a friend like David G., you might want to get yourself one of these little radios. If you're not a licensed ham, you'll have to refrain from transmitting, however the listening is easy, and the desire to push that "TALK" button might just spur you to get a license. You can find these little radios on a website named for a South American river.

Norm sent me some hardware to put together a couple mobile mag-mount antennas, and one for the nice metal roof of the house. And my new friend Jim has a nice dual-band j-pole antenna for me once we pick a meeting place — and once my SMA/female to female bullet arrives, so I can connect something besides the *duck* to the HT.

A male SMA connector for the antenna output on this little radio is about the dumbest thing since left-handed threads on the left wheels on some '50s cars. Meanwhile, if I want to talk to anyone on this thing, I would have to at least go outside of the Price Manse, which is, electrically speaking, a Faraday cage. That's an enclosure which does not allow any RF signals to get in or out.

There are not many mountains here in Cowfield County, either. There are some old iron climbing rungs on the back of a silo behind the house, but there are owls living in one of them, and some vultures roosting in the one next to it. *I'll pass.*

Kidding aside, this has gotten me back into, or at least very near to, ham radio after a long hiatus. Every time I walk past the HF transceiver in the kitchen, it seems to be calling out to me. Of course, it's calling to me in Morse code. *Good night, David.*

AR6000 Professional Grade 40 kHz ~ 6 GHz Wide Range Receiver

Now tunes to 6 GHz

Continuous Coverage That Goes Far Beyond!

The AR6000 delivers continuous tuning from 40 kilohertz to 6 gigahertz in a wide variety of modes for professional monitoring performance that's nothing short of amazing in terms of accuracy, sensitivity and speed. Standard modes include AM, FM, WFM, FM Stereo, USB, LSB and CW. An optional module can add the capability to receive APCO25 digital communications plus an optional I/Q output can be added to capture up to one megahertz of bandwidth onto a storage device for later listening or signal analysis.

Designed for the monitoring or technical service professional, there are no interruptions in the AR6000's tuning range. With exceptional tuning accuracy and sensitivity throughout its tuning range, the AR6000 begins at the floor of the radio spectrum and continues up through microwave frequencies so it can be used for land-based or satellite communications. It works as a measuring receiver for those seeking a reliable frequency and signal strength standard. To support its broad spectrum, the AR6000 has two antenna ports with the added capability of an optional remote antenna selector from the front panel of the receiver.

With its popular analog signal strength meter and large easy-to-read digital spectrum display, the AR6000 is destined to become the new choice of federal, state and local law enforcement agencies, the military, emergency managers, diplomatic service, lab technicians, news-gathering operations and security professionals.

Continuously amazing, the AR6000 professional grade receiver features:

- 40 kHz ~ 6 GHz coverage with no interruptions
- Multimode AM, FM, WFM, FM Stereo, USB, LSB and CW
- Tuning steps of 1 Hz up to 3.15 GHz; 2 Hz from 3.15 ~ 6 GHz
- Receiver is programmable and manageable through a USB computer interface
- Up to 2,000 alphanumeric memory channels
- Analog S-meter, large tuning dial, front panel power, volume & squelch controls
- Direct frequency input
- Fast Fourier Transform algorithms
- An SD memory card port can be used to store recorded audio
- Two selectable antenna input ports plus optional remote antenna selector

Add to the capabilities of the AR6000 with:

- Optional APCO-25 decoder
- Optional interface unit enables remote 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

AOR® Authority On Radio Communications

The Serious Choice in Advanced Technology Receivers

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

Available in the US only to qualified purchasers with documentation. Specifications subject to change without notice or obligation.

HF/50MHz ALL MODE TRANSCEIVER TS-590

Nothing But Performance

The TS-590S

Kenwood has essentially redefined HF performance with the TS-590S compact HF transceiver. The TS-590S RX section sports IMD (intermodulation distortion) characteristics that are on par with those "top of the line" transceivers, not to mention having the best dynamic range in its class when handling unwanted, adjacent off-frequency signals.*

- HF-50MHz 100W
- Digital IF Filters
- Built-in Antenna Tuner
- Advanced DSP from the IF stage forward
- 500Hz and 2.7KHz roofing filters included
- Heavy duty TX section

- 2 Color LCD

KENWOOD

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

Scan with your phone to download TS-590S brochure.

www.kenwoodusa.com

ISO9001 Registered
ADS#06213

* For 1.8/3.5/7/14/21 MHz Amateur bands, when receiving in CW/FSK/SSB modes, down conversion is automatically selected if the final passband is 2.7KHz or less.