

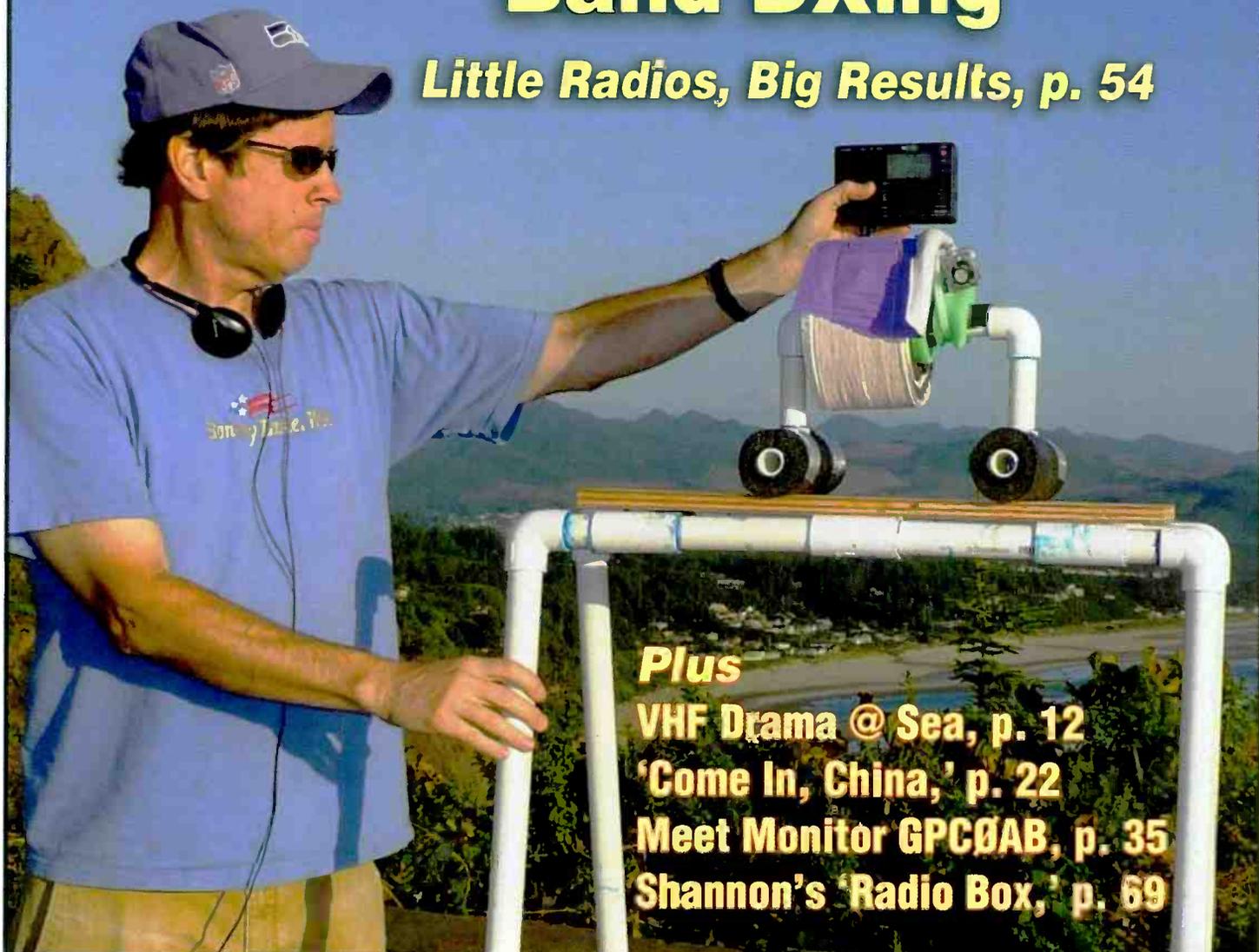
# POPULAR COMMUNICATIONS

JULY 2012

Shortwave Listening • Scanning • AM & FM • Radio History

## 'Ultralight' Broadcast Band DXing

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**YAESU**

**FT-857D**



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**FT-897D**



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**FT-817ND**



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## ON THE COVER

With a stunning view of the Oregon coast, Gary DeBock positions his Tecsun PL-380 *ultralight* radio near a ferrite sleeve antenna in the hope of catching some trans-Pacific broadcast band DX. *Broadcast Technology* columnist Bruce A. Conti, WPC1CAT, this month focuses on the growing *ultralights* movement — where the radios are small, but the results can be *ginormous*. Turn to page 54 (*Photography courtesy of Gary DeBock.*)

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## Super Active Antenna

"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 electrical noise for maximum signal, minimum 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 auxiliary or active antenna. 6x3x5 in. Remote has 54" whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$15.95.



MFJ-1024  
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## Indoor Active Antenna 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.



MFJ-1020C  
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\$69<sup>95</sup>

## Eliminate power line noise!

MFJ-1026  
\$199<sup>95</sup>



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.

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MFJ-1045C  
\$89<sup>95</sup>

## Dual Tunable Audio Filter

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MFJ-752D  
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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.

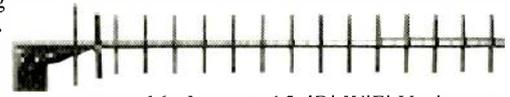
It's easy to read -- front-mounted 2 line 16 character LCD display has contrast adjustment.

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. 5 1/4" W x 2 1/4" H x 5 1/4" D inches.

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



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MFJ-5606SR, \$24.95. Cable connects MFJ-1800/WiFi antennas to computer.

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

## MFJ Shortwave Headphones



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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.

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MFJ-956  
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## Super Passive Preselector

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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

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# POPULAR COMMUNICATIONS

## EDITORIAL STAFF

**Richard Fisher, KI6SN**, Editor

(E-mail: [editor@popular-communications.com](mailto:editor@popular-communications.com))

**Jason Feldman, WPC2COD**, Editorial Assistant

(E-mail: [jason@popular-communications.com](mailto:jason@popular-communications.com))

**Richard S. Moseson, W2VU**, Editorial Director

(E-mail: [w2vu@popular-communications.com](mailto:w2vu@popular-communications.com))

## CONTRIBUTING EDITORS

**Peter J. Bertini, K1ZJH**, Restoration/Electronics

**Bruce A. Conti, AM/FM** Broadcasts

**Rob de Santos**, Trends In Technology

**Gerry L. Dexter**, Shortwave Broadcast

**Mitch Gill, NA7US**, Homeland Security

**Tomas Hood, NW7US**, Propagation

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**Gordon West, WB6NOA**, General Radio Comm.

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**Hal Keith**, Technical Illustrator

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**Rod Somera**, Webmaster

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Hicksville, NY 11801-2953 USA

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## EDITORIAL

### Tuning In

by Richard Fisher, KPC6PC/KI6SN  
<[editor@popular-communications.com](mailto:editor@popular-communications.com)>

# Pop'Comm Monitoring Community Tops 1,000 — Wow!

He didn't know it at the time, but when **Lloyd Loomis**, of Augusta, Kansas, emailed to request *Pop'Comm Monitoring Station* identification sign **KPC0LJL**, he became the 1,000<sup>th</sup> registrant to the program. It was April 18.

We thank Lloyd — and his 1,000+ fellow monitoring stations — for being a part of this community, mirroring others dating to more than 50 years ago. It's an honor to have you all.

The truth is, however, reaching 1K has no great significance beyond the fact that at *Pop'Comm* the milestone *blew our minds*.

When we launched the program January 1, 2012, we had no idea what the response might be. The PCMS team girded for an initial tsunami of registration requests, expecting a drop-off to shortly follow.

*Think again, mojambo.*

The enthusiasm is palpable a half-year later. The <[PopCommMonitor@gmail.com](mailto:PopCommMonitor@gmail.com)> inbox remains a very busy place as our listener community continues to grow. Of course, we see that as a very good thing.

In the pages of *Pop'Comm*, the new, monthly *Monitoring* column, *Monitor of the Month* feature and our listing of *new PCMS members* have been warmly received by readers. That's so important. As you'll see, the energy of these monitoring stations is the main ingredient for the program's success.

If you haven't as yet looked into becoming a *Pop'Comm Monitoring Station* or received a PCMS identification sign, please check January 2012's edition of *Pop'Comm* for full program details and visit *Pop'Comm Monitors on the Web* at: <<http://www.PopCommMonitors.blogspot.com>>. There you'll find step-by-step instructions on how to become part of our exciting initiative.

It's cliché, we know, but: *The more the merrier*. And in our growing listening community, it certainly applies. Please join us!

## 'Secrets of the Sun,' Pop'Comm-Style

Settling in to watch the PBS science series NOVA on April 25 reminded me of how very fortunate *Pop'Comm* is to have writers on our staff with such depth of expertise.

The hour-long program, titled "Secrets of the Sun," set about to answer three key questions: *How does our Sun work? Where does its power come from? And how can its inner workings impact us, some 93 million miles away?*

The premise describes one of the cornerstones on which *Pop'Comm's* Tomas Hood, WPC7USA/NW7US, builds *The Propagation Corner* each month.

Tomas' passion for understanding the Sun and its relation to radio propagation on Earth is fueled by a curiosity dating to when he was just nine years old. We are the beneficiaries of that childhood wonderment. The Sun isn't just *a star*, he says. It's *our star*.

His recent *Pop'Comm* series focusing on the basics of space weather and radio wave propagation — which kicked off in May — touches on many of the issues and questions posed by the scientists featured in "Secrets of the Sun." It was striking to me how many of the points put forward in the program are touched on regularly in *The Propagation Corner*.

*Pop'Comm's* staff is rife with experts in their area across the board. I am so thankful for that — as I'm sure readers are, as well.

## Combined Pop'Comm-WRO Live Internet Chat, July 15

As always, each month you're invited to a casual live Internet chat session for *Pop'Comm* and *WorldRadio Online* readers.

This month's session begins at 8 p.m. Eastern time Sunday, July 15, (Sunday midnight, 0000 UTC) on the *WorldRadio Online Blog*.

It's casual, friendly and quite laid back — just the way you want it to be when you're tying the ribbons on a nice weekend.

*How do I do it?* It's easy: At chat time visit <<http://www.WorldRadioOnline.blogspot.com>> and click on the *Cover It Live* box. You'll be transported to the *chat-o-sphere* where the fun ensues. Replays of previous sessions are posted on the blog now. And you can sign up for an email reminder there today so you don't miss a minute of the action.

Please save the date. We certainly hope to see you there.

— Richard Fisher,

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- Optional P25 (UT-122)
- Optional DSP (UT-106)
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\*Frequency specs may vary. Refer to owner's manual for exact frequency specs. <sup>1</sup>Optional CT-17 required. <sup>2</sup>Optional CS-RX7 required.  
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# The Weirder Side of Wireless, and Beyond

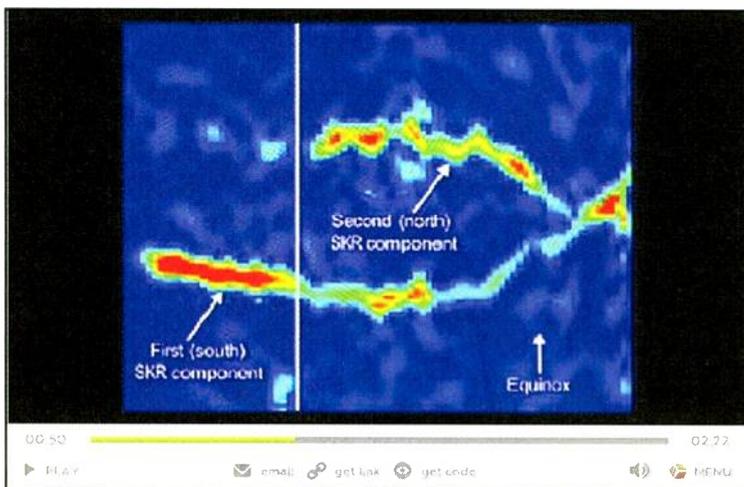
Compiled by  
Richard Fisher,  
KPC6PC

## Taking His Lines from the LAPD

During the filming of the 1996 horror flick “*The Island of Dr. Moreau*,” **Photo A**, the late Marlon Brando “wore a small radio receiver to aid him remembering his lines,” according to *AllMoviePortal.com*. “Co-star David Thewlis claimed he’d be in the



**Photo A.** The late Marlon Brando plays a piano duet in a scene from the 1996 movie “*The Island of Dr. Moreau*.” During filming, Brando — who held amateur radio licenses FO5GJ and KE6PZH — is said of have worn a small radio receiver in order to get assistance in saying his lines. (**WATCH:** A scene from “*The Island of Dr. Moreau*,” <<http://bit.ly/lzE2lj>>. (Internet YouTube screen grab)



**Photo B.** The Cassini space probe, in orbit around Saturn, is picking up signals that sound “a bit like bursts of a spinning air raid siren.” (**LISTEN:** To Saturn’s radio signals that have been puzzling scientists. Visit <<http://bit.ly/fMjcLM>>. (Internet screen grab)

middle of a scene and suddenly he’d be picking up police messages and Marlon would repeat, ‘There’s a robbery at Woolworth’s.’”

By the way, Martin Brandeaux, a pseudonym used by Brando that even the FCC recognized in its database, was an avid amateur radio operator with the call-signs FO5GJ, from his private island in French Polynesia, and KE6PZH in California.

“Isolated in a home atop Los Angeles’ Mulholland Drive next door to Jack Nicholson,” the Gannett News Service reported in 2004, “Brando often connected with the outside world incognito, using fake voices to converse with fellow ham radio operators.” (**WATCH:** Brando in a short scene from the movie at <<http://bit.ly/lzE2lj>>. (Source: <<http://www.allmovieportal.com>>)

## ‘Weirder Than We’ve Even Imagined’

The more we learn about the planet Saturn, the weirder the sixth planet from the Sun seems to get. That’s how Marcia Burton, a Cassini spacecraft fields and particles scientist at NASA’s Jet Propulsion Laboratory, calls it, anyway.

The ringed planet is certainly *radio-active*, in ways scientists never dreamed.

It seems the variation in radio waves Saturn emits is different in its northern and southern hemispheres. Radio and plasma wave instruments have revealed the waves — known as Saturn kilometric radiation — appear to be controlled by the planet’s rotation. At the Cassini probe, in orbit around Saturn, she says, they sound “a bit like bursts of a spinning air raid siren.”

Hearing is believing. Listen to them in the *Space.com* video at <<http://bit.ly/fMjcLM>>. **Photo B.** And you can read the full story there, as well, under the headline: *Weird Saturn Radio Signals Puzzle Scientists*. (Source: *Space.com*)

## Radio! Sif. Stay. Roll Over!

Branden Steineckert, drummer for the punk band *Rancid*, got a dog for Christmas back when he was with the band *The Used*. What did he name it? *Radio*.

Steineckert named her *Radio* after some of his favorite artists — The Clash and Elvis Costello to name a couple — referred to *radio* in some way in their songs. (**WATCH:** Branden Steineckert pound the skins during a live performance by *Rancid*, <<http://bit.ly/JBxvi9>>. *Radio is nowhere to be seen.* – KPC6PC.)

*Radio* traveled with the band and had her own bunk on the group’s tour bus. Really. (Source: *Published reports*)

(Continued on page 82)

## News, Trends, And Short Takes

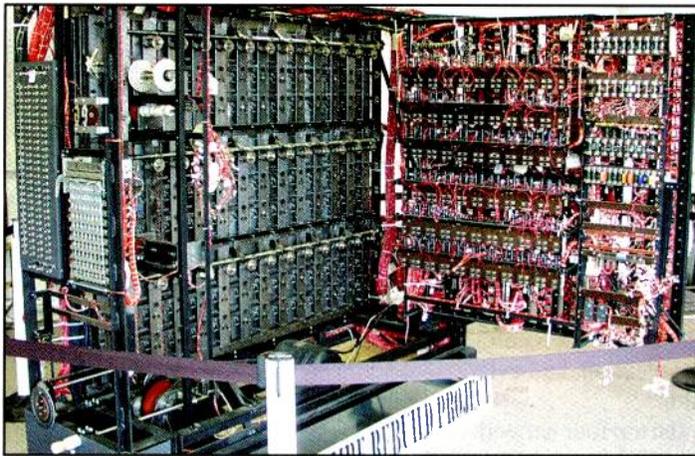
By D. Prabakaran  
<bcdxer@hotmail.com>

### Alan Turing Code-Breaking Papers Released by GCHQ

*BBC News* reports that two 70-year-old papers by Alan Turing on the theory of code breaking have been released by the government's communications headquarters, GCHQ. **Photo A.**

It is believed Turing wrote the papers while at Bletchley Park working on breaking German Enigma codes.

A GCHQ mathematician said the fact that the contents had been restricted "shows what a tremendous importance it has in the foundations of our subject." It comes amid celebrations to mark the centenary of Turing's birth.



**Photo A.** On display at Bletchley Park is a replica of a British Bombe — large electro-mechanical machines worked on by cryptographer, mathematician and computer scientist Alan Turing — to help identify the correct settings for breaking the code of encrypted messages. (Courtesy of Wikimedia Commons)

The two papers are now available to view at the National Archives at Kew, West London.

GCHQ was able to approximately date the papers because in one example Turing had made reference to Hitler's age.

Read the full *BBC News* story at: <<http://bbc.in/1lhBEO>>. (Source: *BBC*)

### France to Launch Terrestrial Digital Radio This Year

The Higher Audiovisual Council (CSA) in France will this year launch terrestrial digital radio, by issuing permits for the stations that were selected in 2008, in the areas of Paris, Marseille and Nice, authorities said.

Three years ago, the CSA had selected 55 radio stations in Paris, 41 in Marseille, and 40 in Nice, but no action had been taken. A call for nominations for 20 major cities will also be launched this year.

According to *RapidTVNews*, <<http://www.rapidtvnews.com>>, large, private radio stations are opposed to the plan, as they say the costs will be too high. The CSA would also adopt a new standard for terrestrial digital radio, DAB+, used especially in Germany. It would be in addition to the standard already adopted, T-DMB.

Eventually, the digital stations will replace the analog radio and TV services, but it will require the purchase of new receivers. (Source: *Asia-Pacific Broadcasting Union*)

### New Shortwave Station in Nigeria

Nigerian Vice President Namadi Sambo commissioned the new shortwave station of the Voice of Nigeria (VON) at Lugbe, a suburb of the capital city, Abuja.

At the event, VON Director General Mallam Abubakar Jijjiwa said the organization would need two additional super-power transmitters and two more antennas to compete favorably with its counterparts around the world.

Jijjiwa said the "state-of-the-art" transmitting station, equipped with DRM-capable, 250-kW Thomcast AG transmitters and rotating antennas, is the first of its kind in sub-Saharan Africa.

Voice of Nigeria is the second shortwave station in Africa and the seventh in the world with rotating antennas. (Published reports)

### RSF Names 12 Countries as 'Enemies of the Internet'

Reporters Without Borders (RSF) has included 12 countries on its latest list of *Enemies of the Internet*.

The 2012 list of "Enemies" includes: Bahrain, Belarus, Burma, China, Cuba, Iran, North Korea, Saudi Arabia, Syria, Turkmenistan, Uzbekistan and Vietnam.

Countries "Under Surveillance" are: Australia, Egypt, Eritrea, France, India, Kazakhstan, Malaysia, Russia, South Korea, Sri Lanka, Thailand, Tunisia, Turkey and United Arab Emirates.

Since the last report was published in March 2011, Bahrain and Belarus were moved from "Under Surveillance" to "Enemies."

Libya and Venezuela were dropped from the list of countries "Under Surveillance," while India and Kazakhstan were added. (Source: *Published reports*)

### SiriusXM Radio Reaches Nearly 21.9 Million Subscribers

SiriusXM Radio announced it ended 2011 with nearly 21.9 million subscribers. SiriusXM broadcasts more than 135 satellite radio channels of commercial-free music, along with sports, news, talk, entertainment and other content to its subscribers.

The company reported approximately 540,000 net new subscribers in the fourth quarter and approximately 1,700,000 for the full year 2011.

The company owns 38 percent of Canadian Satellite Radio Holdings, which operates as SiriusXM Canada.

SiriusXM programming is available on more than 800 devices, including pre-installed and after-market radios in cars, trucks, boats and aircraft, as well as smartphones and mobile devices. SiriusXM has arrangements with every major automaker and has a 65 percent OEM penetration for U.S. auto sales. (Source: *Reuters*)

# Capitol Hill And FCC Actions Affecting Communications

by Richard Fisher,  
KPC6PC/KI6SN



## FCC: Stations Must Post Campaign Advertising Figures

In a move designed to foster transparency with the millions of dollars flowing to TV stations during this election season, the Federal Communications Commission said it would require broadcasters to post online details about political campaigns' advertisement buys.

According to a report in the *Chicago Tribune*, stations are already required to give the public access to the files, "but the FCC's move will force stations to upload that information to a central FCC database."

No start date has been set for the database, but the Commission said it will be in the form of simple PDF files "or other digital copies of the paper file," the *Tribune* reported.

"Agency staffers are hopeful that the first records will be posted before the general election, and even the fall campaign," the story said.

"For the next two years, only the top four network affiliates in the top 50 markets will be required to post, with the rest of the stations given until July 1, 2014 to do so." About 200 stations will fall under the initial requirements.

"Public interest groups and campaign finance advocates had pressed for the change as a valuable insight into where ad dollars are going and in tracking spending by an array of candidates and interest groups," the *Tribune* said. Broadcasters oppose the requirement, saying the information will give their competitors unfair access to commercially sensitive ad rate data. (Source: *The Chicago Tribune*, <<http://trib.in/leb413>>, published reports)

## High Court Asked to Review 'Wardrobe Malfunction' Decision

The FCC made a request to the U.S. Supreme Court in April that it review its previous decision to throw out the Commission's \$550,000 fine against CBS for Janet Jackson's appearance at the 2004 NFL Super Bowl — aka, the infamous *wardrobe malfunction*.

The court has been asked by the FCC to put that ruling on hold until it has ruled on another charge by the agency against FOX for the use of profanity during an awards show, according to *Multichannel News*.

"In the appeal, the FCC says that the court was

wrong to rule their 'fleeting images' indecency policy to be 'arbitrary and capricious,'" a report posted online at *RTT News* said. "The court 'contravened settled principles governing the deference due to an administrative agency's reasonable understanding of its own decisions,' the agency added."

A rehearing of the case was denied by the Third Circuit in January. (Source: *RTT News*, <<http://bit.ly/JSzraG>>)

## Hams Seize Moment to Comment on EmComm to FCC

Following release of an FCC Public Notice requesting comments regarding a study directed by Congress to assess amateur radio's role in emergency and disaster communications and the impact of private land use regulations on the amateur community's ability to provide such communications, more than 1,200 radio amateurs responded.

According to the American Radio Relay League, which provided the response figure, the *Public Notice* focuses on two specific areas for comment:

- The role that Amateur Radio has played and continues to play to support emergency and disaster relief organizations, such as FEMA and local/state emergency management agencies.
- The impact that private land-use regulations — such as deed restrictions and homeowner association covenants — have on the ability of licensed amateurs to fully participate in providing support communications to the served agencies.

The comment period ended in May. (Source: *ARRL*, <<http://bit.ly/IehtJy>>)

## FCC Relents on Prohibition of EAS Text-to-Speech Issue

An order allowing the conversion of Emergency Alert System alerts from text to speech by broadcast stations and cable systems has been issued by the FCC, eliminating a prohibition included in its Fifth Report and Order on the Common Alerting Protocol.

"The prohibition was lifted after FEMA (the Federal Emergency Management Agency) and others objected to the restriction," according to an AllAccess.com posting citing David Oxenford's *Broadcast Law Blog* <<http://www.broadcastlaw-blog.com/>> as its source.

The initial ruling was put in place "because the Commission was concerned that the conversion could cause inaccurate information to be disseminated if the text-to-speech systems presently available are not sufficiently accurate." (Source: *AllAccess.com*, <<http://bit.ly/IKRYDk>>)

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# Can You Hear Me Now? Or You Can Hear a Pin Drop!

by Rob de Santos, K8RKD  
email: <commhorizons@gmail.com>

Twitter: @shuttleman58

*“Bandwidth: It’s our old friend, and you can never have too much of it.”*

**W**ou’ve surely heard the catch phrase: “*Can you hear me now?*” used by a well-known telecommunications company. It was undoubtedly a clever way to send the message to customers that its network was better than the competition’s. Likewise, some years ago another company wanted customers to know that its network was much quieter — with the drop of a pin — than the competition because it was “digital.”

With both, there is more behind it. Or perhaps I should say, there needs to be *more* of it. What is it? It’s our old friend “bandwidth.” You can never have too much of it. In the January 2011 issue of *Pop’Comm*, I wrote about Claude Shannon’s theory of communication. One of the important outcomes of his groundbreaking work is the concept that bandwidth and the information carried by a message are closely related.

If you are to hear that person on the other end, then bandwidth and noise matter. Since both of the companies I referred to were in the *telephone* business, let’s consider the humble telephone. Since AT&T first standardized telephone service in the United States, it set a bandwidth for voice calls — about 3 kHz. It still is, for the most part. While the compression, modulation and digital technologies vary from company to company, what goes in and comes out is usually limited to a frequency range from around 250 Hz to 3,400 Hz (the limits vary slightly). It’s the reason that some people, particularly those with very low or very high pitched voices, sound distinctly different on the telephone as compared to in person.

This begs the question of why we still do this — in this age of technological advances. The commercial reasons are easier to explain than the technical ones. Commercially, there is great mileage in sticking with “the standard” and it controls the amount of bandwidth needed for mobile phone systems, for example.

Technologically though, we are capable of doing much better. In an era when we can watch video from around the world, and video uses vastly more bandwidth, a little more for voice would seem reasonable.

We have HDTV, so why not HD telephone service? You may not know it, but others have already asked that question. The answer is a standard known for short as “G.722,” which you may be surprised to learn is already 25 years

old. This is known internationally as “wideband audio” and to some in the U.S. media as “HD Voice.” The technical term for the implementation of the associated codec’s is “Advanced Multirate-Wideband” or AMR-WB. The bandwidth specified in this standard is 7 kHz. The increase is small in an era when video can consume 1,000 times as much bandwidth. The results are not small.

The natural human voice ranges from around 75 Hz at the low end to as high as 14 kHz, though the bulk of the fundamental and harmonics are at the very low end between 100 and 400 Hz.

Human hearing is tuned to cover this range and a bit more. Of course, those of us like me, who were exposed to too much loud sound in our younger years, can’t hear the higher frequencies anyway.

How much better is the sound? Dramatically better. Voices sound much more natural. Intelligibility is significantly better. It’s Shannon’s theory at work! The good news is that G.722 is being implemented slowly. It’s already widely used in Europe, which began implementation six years ago. Countries like France and Moldova are already there. The bad news is that U.S. and Canada have lagged and very few telephones — mobile or land — have yet been upgraded to accommodate the standard.

Unless you have used a state of the art business telephone system, you may not have ever touched a G.722 capable phone. Changes in everything from the codec technology on the phone computer chips to better speakers and microphones are needed.

Recently, discussions about upgrading U.S. systems have finally begun among U.S. telephone carriers. Perhaps, as networks are upgraded in the U.S. to accommodate increased data, G.722 may hitch a ride.

Yes, the days of “can you hear me now?” may finally be numbered. Aunt Matilda and her high-pitched voice will no longer sound strange when you speak to her on your cell phone. Claude Shannon and bandwidth are coming to the rescue.

*What bandwidth issues do you see on the horizon? Drop me a note and be sure not to use too little bandwidth. I want to hear (from) you! – K8RKD*

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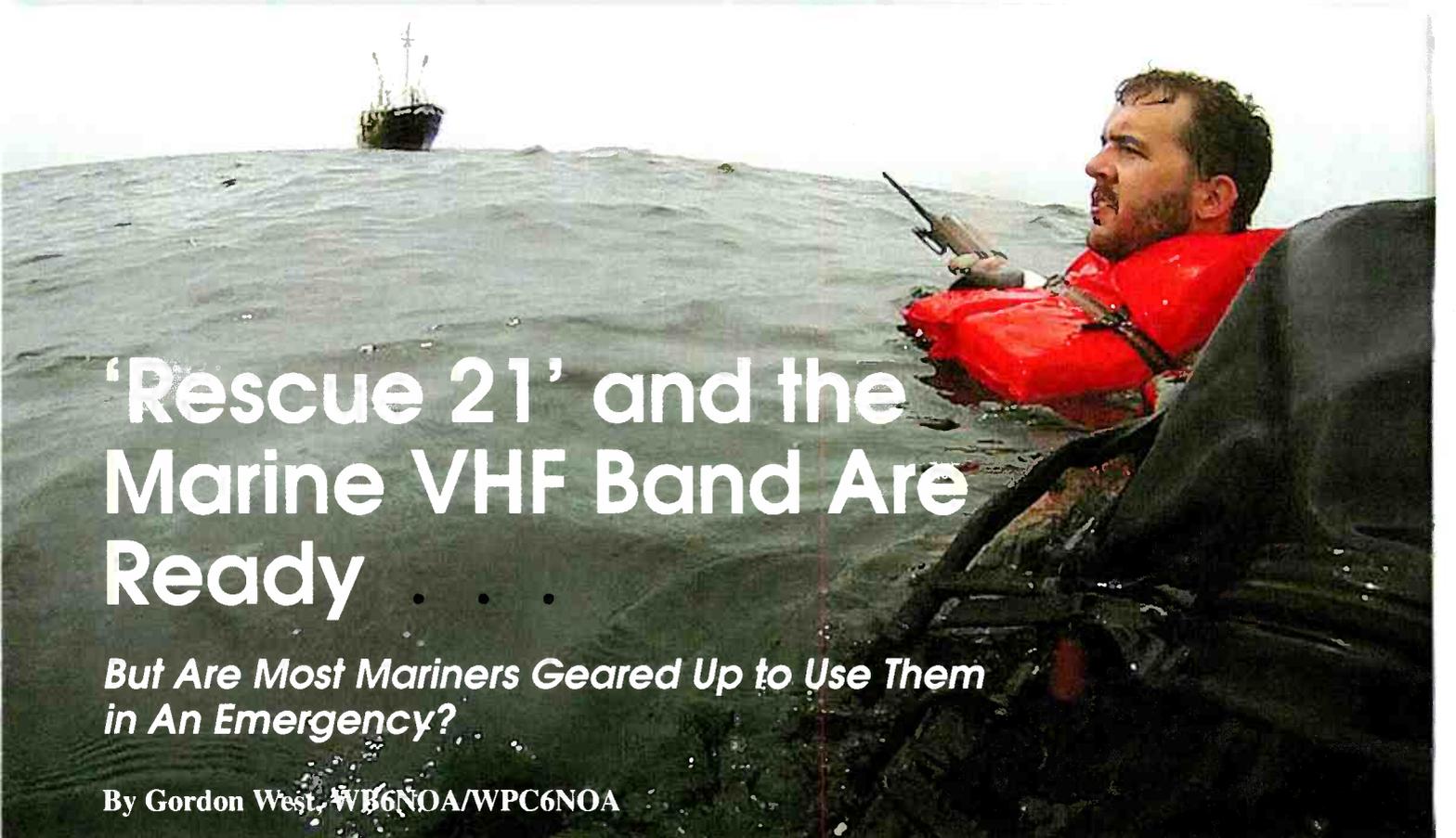
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# 'Rescue 21' and the Marine VHF Band Are Ready

## *But Are Most Mariners Geared Up to Use Them in An Emergency?*

By Gordon West, ~~WB6NOA~~/WPC6NOA

**Photo A.** On an ill-fated fishing trip off Martha's Vineyard in 2011, John Majewski and a couple of friends learned firsthand the value of reliable VHF marine communication when tragedy strikes. He credits his Uniden VHF marine radio with saving his life. Read about Majewski's dramatic rescue in "Atlantic Radio Drama: A Miracle and a Handheld Transceiver Save a Trio Lost @ Sea" accompanying this article. (Courtesy of John Majewski)

The marine VHF band is robust and healthy and the U.S. Coast Guard has you well covered with its new Rescue 21 emergency communications system.

These are testimony to the fact that radio calls from vessels on the water are no trivial matter, **Photo A**. The legacy of the marine radio service — on the air for more than 100 years — is further proof, **Chart 1**.

Did you know that U.S. Coast Guard statistics show the majority of life-and-death *Mayday* radio calls occur from local waters, within VHF radio line-of-sight to shore? **Photo B**.

Across a country as vast as the United States, with nearly 40,000 miles of shore line, providing emergency radio coverage has been a formidable challenge:

- Until 2010, the USCG did not have enough shore-side facilities to provide uninterrupted VHF distress channel coverage throughout the United States.
- The rollout of the Guard's Digital Selective Calling (DSC) distress-alert system was hampered by gaps in radio coverage areas.
- There was the continuing problem of marine VHF DSC equipment being unable to send distress alerts because the equipment lacked user Maritime Mobile Service Identity (MMSI) number registration and radio input.
- The USCG's 1970-era legacy remote stations frequently needed repair, and it was time they modernized equipment for cutting-edge technology.

Updating would make the stations able to continuously guard the international marine distress and calling channel — VHF

*"Fewer than 15 percent of recreational DSC-capable radios have an assigned MMSI number and only a few of those are tied into a GPS receiver."*

Channel 16, 156.800 MHz, **Photo C**, plus guard the DSC channel, Channel 70, 156.525 MHz — from multiple sites, along with direction-finding capability all tied into Regional Command Stations where any weak call for help would get an immediate response.

That system is now in full swing today. Called Rescue 21, the system "is standing the watch and answering the call of duty across an estimated 36,985 miles of U.S. coastline," officials from system developers General Dynamics said.

Twenty-six USCG Command Stations have boaters covered for their coast sailing from:

- Canada to the Florida Keys
- The Gulf Coast, through Corpus Christie
- The West Coast, from San Diego to Alaska

Mariners can now sail as much as 20 miles offshore with a 1-watt marine VHF handheld radio and still reach several remotely-operated Rescue 21 transmitter/receiver stations, **Photos D and E**.

Rescue 21 serves more than 78 million recreational boaters and 13 million commercial vessels cruising the United States

coastlines. (*IN DEPTH: Visit the Rescue 21 website at <http://1.usa.gov/lfE799>*, Photo F. – WPC6NOA)

The 26 Coast Guard Command Stations are tied into hundreds of remote sites, each with direction-finding capability, along the coastlines and rivers. There is virtually no area where mariners might cruise within U.S. waters that doesn't have at



**Photo B.** The U.S. Coast Guard utilizes many different small craft for rescue duty. This Rigid Inflatable Boat — RIB — is called into action for both inshore and offshore missions. (Photography Courtesy of WPC6NOA)

least two or three remote sites tuned in on VHF Channel 16, as well as guarding DSC Channel 70. This includes many remote sites along rivers and popular boating lakes.

By the way, an FCC Ship Station license is *not* required for small pleasure boats cruising in domestic waters, lakes and local rivers. The vessel's name is all the Coast Guard will need in an emergency. A bow number would be helpful, too. But an FCC callsign is no longer needed.

Marine VHF handheld manufacturers have pulled out all the stops to keep pricing affordable for the small boater, yet keep features up including marine VHF radios that actually float! The



**Photo C.** Harbor Patrol, Lifeguard, Sheriff's Department, Lake and Rescue 21 base stations and patrol vessels monitor VHF channel 16.

## Key Moments in Marine Radio Service History

**1908:** The steamship *Republic* and steam-powered *Florida* send spark-gap CQD transmissions after a collision off New York harbor.

**1912:** Titanic sends SOS and CQD after striking an iceberg in the north Atlantic.

**1913:** Radio Act mandates continuous 24-hour marine radio watches while vessels are underway.

**1920:** Continuous Wave (CW) equipment replaces marine spark-gap transmitters. In addition, 500 kHz is established as the CW calling and distress frequency.

**1927:** Radio Act for Congress creates Federal Radio Commission (FRC)

**1934:** Communications Act establishes Federal Communications Commission (FCC).

**1940:** Double sideband full carrier AM "compact" 40-pound marine radios, covering 2 to 12 MHz, come on the scene.

**The 1940s:** 2182 kHz is established as the international distress and calling frequency, monitored in the United States by the U.S. Coast Guard. (**UPDATE:** At Pop'Comm press time, the USCG said long-range mariners signaling a distress on 2182 kHz are being advised that Coast Guard Medium Frequency radio infrastructure may not hear reliably on this medium frequency marine SSB channel. Mariners should use high frequency (HF) to complete their long range radio calls to the USCG on 4, 6, 8, 12, and 16 MHz. Watchkeeping services on these HF radiotelephone and DSC distress frequencies are posted at: <http://1.usa.gov/Jz2qPO>. – WPC6NOA)

**1960:** FM Short-Range Marine VHF Service — Channel 16 — 156.800, is established worldwide.

**The 1970s:** Marine VHF band goes to common +/- 5-kHz deviation, channel spacing every 25 kHz, doubling the number of marine VHF channels to 55. Double sideband AM medium frequency and high frequency 2- to 30-MHz marine radios switch from double sideband to single sideband, upper sideband.

**1978:** The Safety of Life at Sea Convention for Global Maritime Distress Safety System (GMDSS) promotes short-range marine VHF for local distress, calling and port operations.

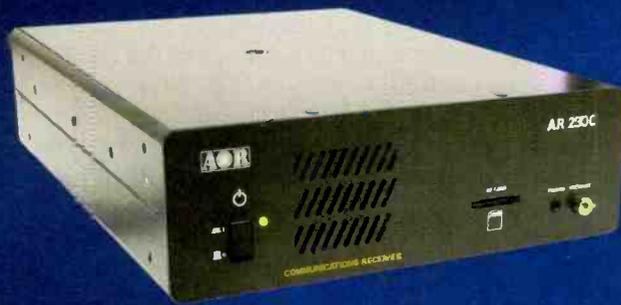
**The 1990s:** Digital Selective Calling (DSC) automates ship-to-ship and ship-to-shore alerting on both marine VHF and marine SSB.

**The 2000s:** The 500-kHz CW distress channel goes silent. The USCG adopts DSC and Rescue 21 expanded range VHF monitoring. High-frequency marine SSB remains strong, even with big ship satellite communications available.

– WPC6NOA

Chart 1

# For ALL your monitoring needs,



## AR2300 "Black Box" Professional Grade Communications Receiver

First in a new generation of software-controlled black box receivers, the AR2300 covers 40kHz to 3.15 GHz\* and monitors up to 3 channels simultaneously. Remote control functions. Internal SD audio recorder allows for unattended long term monitoring. Spectrum recording with optional AR-Q software can be used for laboratory signal analysis. Using FFT, the unit scans large frequency segments quickly and accurately. Optional IP control port.

## AR5001D Professional Grade Wide Coverage Communications Receiver

With amazing performance in terms of accuracy, sensitivity and speed, the AR5001D features ultra-wide frequency coverage from 40kHz to 3.15GHz\* in 1 Hz steps with 1ppm accuracy and no interruptions. Large easy-to-read digital spectrum display and popular analog signal meter. The AR5001D makes it easy to monitor up to 3 channels simultaneously. Can also be controlled through a PC running Windows XP or higher. Great as a mobile or desktop receiver.



## AR-Alpha with I/Q Control Software

Welcome to a new class of professional monitoring receivers. The AR-Alpha can perform unattended datalogging for extended periods and covers 10kHz to 3.3GHz\* continuous, with no interruptions. It boasts a 6-inch color TFT monitor that displays spectrum bandwidth, a switchable time-base "waterfall" display or live video in NTSC or PAL. Five VFOs, 2000 alphanumeric memories that can be computer programmed as 40 banks of 50 channels, 40 search banks, a "select memory" bank of 100 frequencies and a priority channel. Also includes APCO-25 digital capability and can record up to 52 minutes of audio.

## AR-One Communications Receiver

Enjoy total command of frequencies, modes and tuning steps with this versatile performer that allows you to control up to 99 units with a single PC. Covers 10 kHz to 3.3 GHz and delivers excellent sensitivity, ultra-stable reference frequency oscillator, high intercept, adjustable BFO and multi-IF signal output (10.7 MHz or 455kHz) plus 1000 memory channels and 10 VFOs.



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## AR8200 Mark III World Class Portable Receiver

With 1,000 alphanumeric memories and a TCXO that delivers solid frequency stability and performance not found in most desktop units, the AR8200 Mark III covers 500 kHz to 3GHz\* and can be used with optional internal slot cards that expand its capabilities. It features true carrier reinsertion in USB and LSB modes and includes a 3kHz SSB filter. The data port can be used for computer control, memory configuration and transfer, cloning or tape recording output. A special government version, AR82000Mark III IR, features user-selectable infra-red illumination of the display and operating keys.

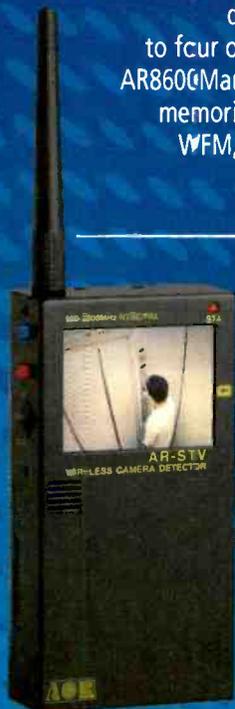
## AR8600 Mark II Wide-Range Desktop Receiver

With an optional P25 (APCO25) decoder module, improved front end and receive audio response, display illumination control, ultra-stable TCXO and up to four option cards that can enhance certain functions, the AR8600 Mark II covers 100kHz to 3GHz\* with 1000 alphanumeric memories and free downloadable control software. Receives VFM, NFM, Super-narrow FM, Wide and Narrow FM, LSB, USB and CW.



## AR-STV Handheld Video Receiver

See who is watching you on wireless video surveillance cameras. The AR-STV handheld receiver detects hidden NTSC or PAL analog video signals in real time. A valuable addition to any security operation, the AR-STV features a large 2.5 inch color LCD display and a USB connector that makes it easy to download stored images into a computer. With optional 4GB SD memory card, up to nearly 2000 images can be stored for later analysis.



## SR2000A Spectrum Display Monitor

Ultra sensitive, incredibly fast, yet easy to use, the SR2000A lets you SEE received signals in FULL color. Using the power of FFT, it covers 25 MHz to 3GHz\* and features a color monitor that displays spectrum bandwidth, a switchable time-lapse "waterfall" display or live video in NTSC or PAL. High quality internal speaker delivers crisp, clean audio signals. Scans 10 MHz in as little as 0.2 seconds. Instantly detects, captures and displays transmitted signals. PC control through RS232C serial port or USB interface. With 12 VDC input, it's perfect for base, mobile or field use.



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# R21 Deployment/Acceptance Schedule

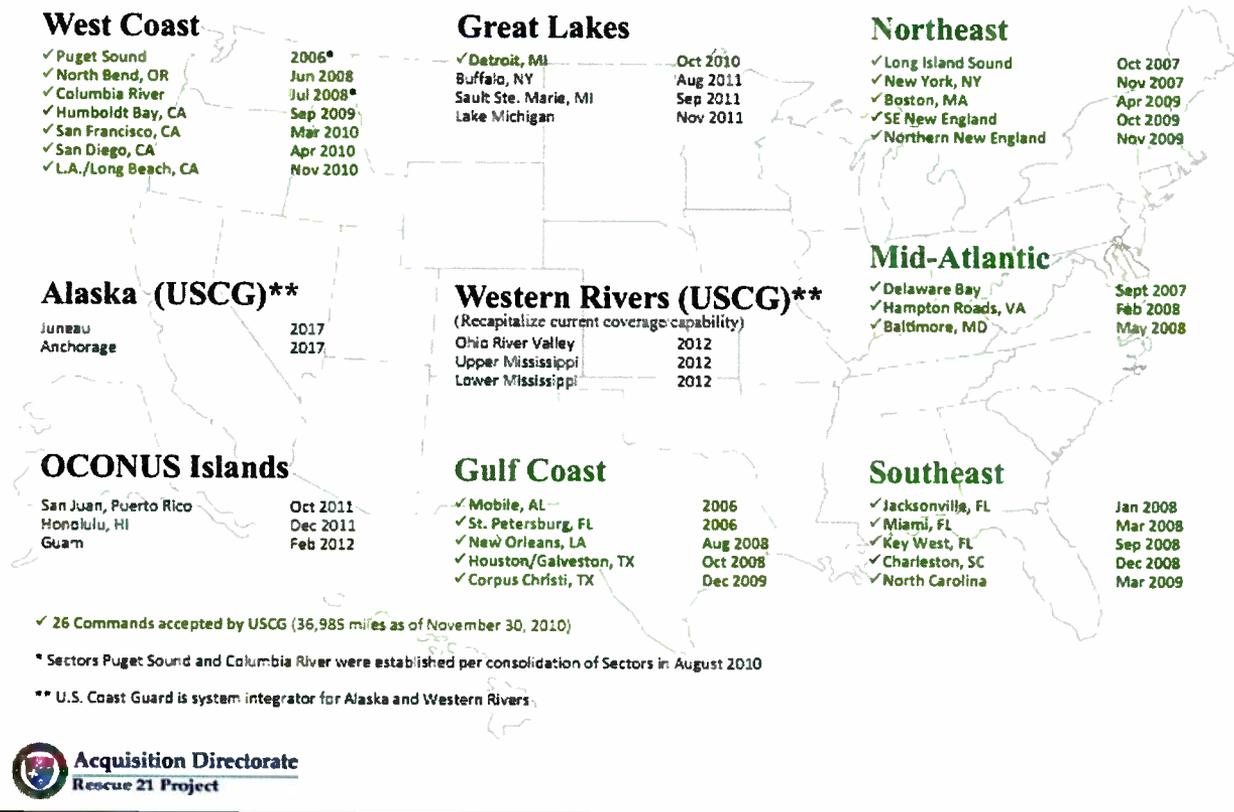


Photo D. (Courtesy of USCG)

submersible floating handheld has been credited with saving multiple boaters who accidentally go overboard with a marine VHF radio on their hip, or suddenly get swamped and find the radio floating up to the surface with the cooler, **Photo G**.

The U.S. Coast Guard, along with its Coast Guard Auxiliary, regularly offers training to ensure that mariners understand how to use a simple marine VHF radio. (*SAMPLE: See training information at <<http://bit.ly/hxbsOE>>.* — WPC6NOA, **Photo H**).

## If Trouble Strikes

When an inexperienced boater finds himself in the surf line, *calling for help is a must*. VHF Channel 16, 156.800 MHz, should be the first place to call *Mayday*.

*Everyone* out on the water should be listening to VHF Channel 16. It's the law of the sea to listen for a fellow sailor who may need help.

When that distress call is picked up by the multiple Rescue 21 remote sites, each site has Voice Over Internet Protocol (VoIP) tied in to the TCP/IP network, taking that call to a local Command Center.

Position determination is accomplished with each of the remote sites using an Adcock antenna array leading to a triangulated position "find" as close as a quarter mile of the distressed vessel. "We might get right down to a position fix of 30 feet if that distress call came in on VHF Channel 70, DCS," reported the U.S. Coast Guard Auxiliary.

## Expanding Capabilities

Digital Selective Calling is now an integral part of marine VHF transceivers. You can spot a marine VHF radio with DSC capability by the red plastic cover over the *hot* button, **Photo I**. The red plastic cover is spring-loaded to prevent an accidental activation.

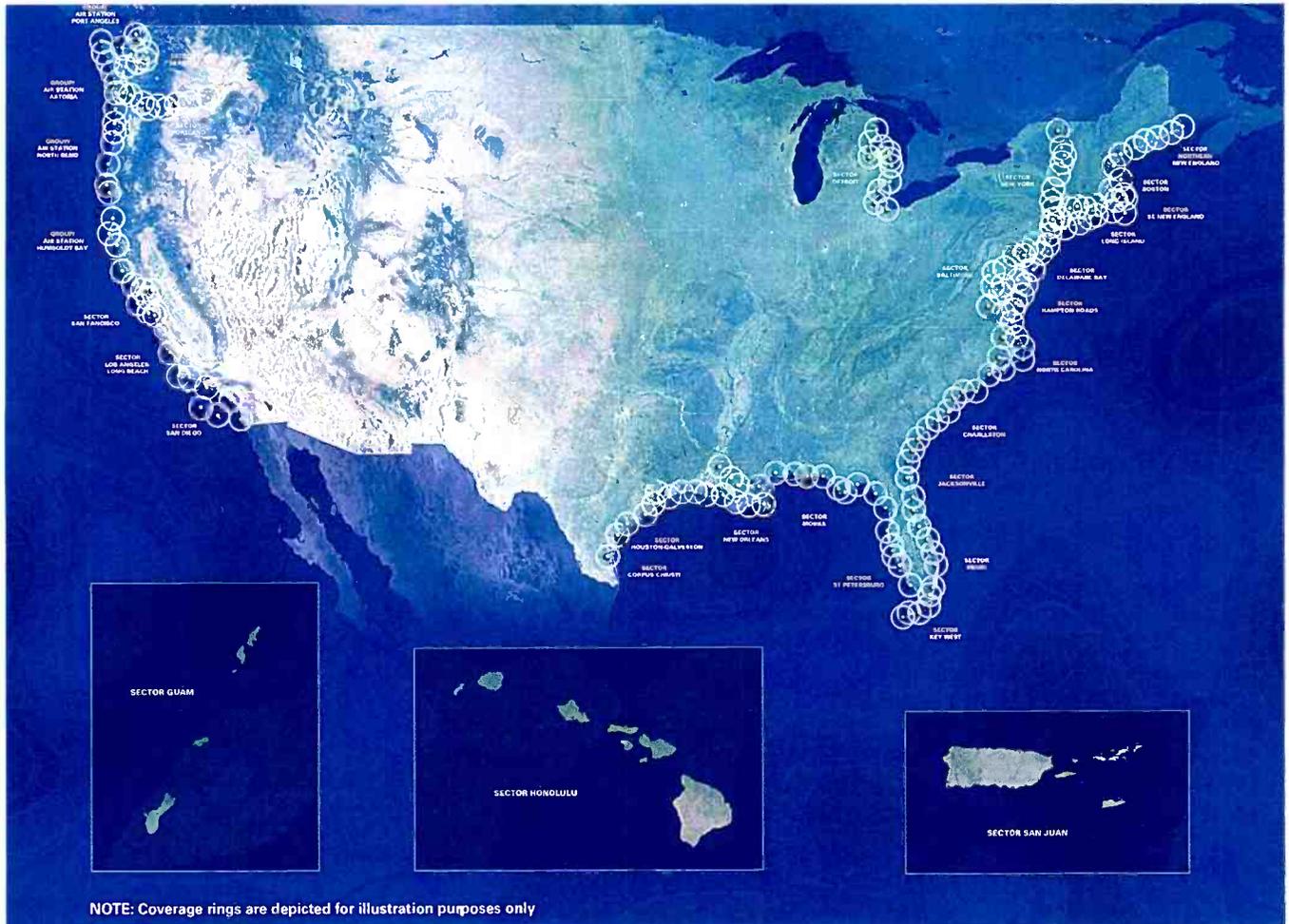
A sailor in distress will lift the red cover, hold the button in for five seconds, and the distress call goes out — *maybe*. The radio needs its own unique identification or MMSI registration number for the red distress DSC circuit to work. The number *must* be hand entered into the radio's memory and can be obtained for free from the web by visiting: <<http://bit.ly/IRFSGa>>.

Once the mariner has obtained the MMSI identification number, it must be entered into the fixed-mount, 25-watt marine VHF transceiver on board, as well as entered into all DSC marine long range single sideband (SSB) radios and any DSC equipped marine handheld. This same number may also be entered in an automatic identification system (AIS) transmitter, although most AIS equipment may have a pre-assigned MMSI number when the equipment is installed aboard. Two different MMSI number assignments are better than none!

We're not done yet — the DCS VHF marine radio also needs GPS input at 4800 baud from an onboard GPS receiver. This allows the DSC Channel 70 circuit to send the distress call digitally *and include* your position down to a couple of meters. This can speed up the rescue process dramatically.

## Being Fully Tied-In to the System is Key

Less than 15 percent of recreational DSC capable radios have an assigned MMSI number and only a few of those



**Photo E.** This USCG map shows the Rescue 21 radio system's massive coverage of the U.S. coastline — spanning almost 40,000 miles. (Courtesy of USCG)

are tied into a GPS receiver, according to radio RTCM marine communications experts.

The USCG is astounded that there are not more MMSI numbers actually installed within the radios and are perplexed that mariners don't have their onboard GPS streaming data to their VHF radios. The reason is simple — if the radio came with a new boat, mariners may incorrectly assume that the radio is pre-registered with all the information. *That won't happen!* It takes the mariner-owner to obtain that number — *easy* — and see that it is programmed into each and every radio capable of receiving that MMSI number. (NOTE: This is easy to do, but you need to read the manual first. — WPC6NOA)

As for the GPS hookup, neither the marine VHF DSC radio nor the marine or portable GPS receiver uses a common wire code for talker and listener of the NMEA data stream. Some GPS units don't output the common NMEA sentence, and some marine VHF trans-

**Photo F.** The U.S. Coast Guard's website is a great place to find resource information about the Rescue 21 system. (Internet screen grab)

ceivers require DIN plug soldering to execute the 4800-baud connection coming out of the GPS to the marine VHF radio.

So few recreational users — the majority of local distress callers — have their GPS receivers linked up to the marine VHF, and few have the marine VHF tied into the DSC with that MMSI number. But, good news, in an emergency, the

good old Push to talk microphone on VHF Channel 16 still works well! Just holler, and one of the many US Coast Guard stations, from their remote sites, will answer a call for help.

### Another Scenario . . .

Let's say you're in an area of a river with no Coast Guard coverage. That may

not be a problem, since most boaters continuously guard VHF Channel 16 for such a predicament. Also, many towboat operators guard the distress channel for call-ups on a breakdown.

The Coast Guard and the Coast Guard Auxiliary have standing orders that boat tows are the priority of the tow operators, not for the Coast Guard to take away their business. So, be assured that there are

## Where to Tune for USCG 'Rescue 21' Action

### On VHF Channels

Channel 16, 156.800 MHz, initial distress and calling

Channel 22A, 157.100 MHz, liaison between any mariner and Coast Guard land or sea stations

Channel 06, 156.300 MHz, on-scene safety calls

Channel 21A, 157.050 MHz, government-only USCG intercom channel

Channel 23A, 157.150, government-only, USCG channel

Channel 81A, 157.075 MHz, oil spill USCG communications

Channel 82A, 157.125 MHz, government-only USCG channel

Channel 83A, 157.175 MHz, U.S. Coast Guard Auxiliary

Channel 13, 156.650 MHz, ships' bridge to other ships' bridge, navigation only

Channel 14, 156.700 MHz Vessel Traffic System

Channel 70, 156.525 MHz, Digital Selective Calling

### On Medium and High-Frequency DSC Frequencies

The U.S. Coast Guard also monitors medium-frequency and high-frequency marine band Digital Selective Calling frequencies:

2187.5 kHz

4207.5 kHz

6312.0 kHz

8414.5 kHz

12577.0 kHz

16804.5 kHz

### On Medium and High-Frequency USB Frequencies

Additionally on medium and high frequencies, USCG Communications Area Master Stations listen for distress calls on these upper sideband (USB) frequencies:

2182.0 kHz

4125.0 kHz

6215.0 kHz

8291.0 kHz

12290.0 kHz



### Monitoring Stations: Locations and Callsigns:

Chesapeake, Virginia – NMN

Boston, Massachusetts – NMF

Miami, Florida – NMA

New Orleans, Louisiana – NMG

Point Reyes, California – NMC

Guam – NRV

Honolulu, Hawaii – NMO

Kodiak, Alaska – NOJ



**Photo G.** New marine handheld radios are submersible and easily fit in a Personal Flotation Device pocket — just in case you go overboard.



**Photo H.** *Pop'Comm's* Gordon West, WB6NOA/WPC6NOA, put on his U.S. Coast Guard Auxiliary uniform when teaching this class on boating safety.

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plenty of ears on VHF Channel 16, just waiting for a calamity to happen!

### In Closing

Watch the marine electronics ads for the sales of marine VHF handheld that may include Family Radio Service and GMRS



**Photo 1.** Digital Selective Calling is now an integral part of marine VHF transceivers. You can spot a marine VHF radio with DSC capability by the red plastic cover over the hot button. The red plastic cover is spring-loaded to prevent an accidental activation.

transmit and receive channels. These multi-band marine VHF handhelds are soon to be outlawed — way too much confusion when a pair of hunters link up on Channel 16, only to discover they are on the VHF marine distress 16 when they thought they were on GMRS Channel 16!

The confusion will soon be ended when the FCC disallows both services with identical channel numbers in one handheld radio.

If you live near the coast, a lake, or a river, and you're looking for some fun scanning action, load in 156.800 MHz and hear the powerful broadcasts from a local remote-site U.S. Coast Guard Rescue 21 station.

### Helpful Resources:

- *Marine VHF Radio Handbook*, by Laszlo Mercz, a member of the International Telecommunications Union (ITU) on maritime mobile service including GMDSS. This book is well illustrated, and features an in-depth look at marine VHF equipment, rules and regulations and how to send DSC radio calls: <<http://www.mercator-publishing.com>>.
- U.S. Coast Guard Radio Communications website: <<http://www.navcen.uscg.gov>>.
- National Marine Electronics Association website: <<http://www.NMEA.org>>.
- Radio Technical Commission for Maritime Services website: <<http://www.RTCM.org>>.

— WPC6NOA

# Atlantic Radio Drama: A Miracle and a Handheld Transceiver Save a Trio Lost @ Sea

By John Majewski



**Photo A.** "By an act of God the Uniden radio popped to the surface about 10 feet from me, and I was able to get to it before it disappeared behind the ocean swells," recalls John Majewski. "I am sure the radio submerged far deeper than the IPX rating, but by some miracle it still worked." (Photography courtesy of John Majewski)

Last August I was tuna fishing with a couple of friends on a 20-foot center console boat about seven miles south of Martha's Vineyard when our vessel sank.

It was just a matter of seconds. Waves rushed over the boat and we found ourselves treading in 120 feet of Atlantic water. We were out of sight of land with nothing but some debris that had floated to the surface.

The boat went down so quickly. We didn't have time to grab the ditch bag with flares. We didn't even have time to grab a radio.

The boat had two handheld VHF radios clipped to the windshield that day. One was my friend's VHF — I don't remember the brand, but it had stopped working earlier in the day.

The other VHF was my Uniden, which was only a few months old. At some point it broke free from the windshield of the boat while the vessel was on its way to the ocean floor.

By an act of God the radio popped to the surface about 10 feet from me, and I was able to get to it before it disappeared behind the ocean swells. I am sure the radio submerged far deeper than the IPX rating, but by some miracle it still worked, **Photo A**.



I issued a *Mayday* distress call, and although we were beyond the radio horizon of land, a U.S. Coast Guard station with a tall mast antenna picked up our distress and launched a search and rescue effort.

We were eventually picked up by a commercial fishing vessel returning from sea, and then transferred to a USCG

**Photo B.** The Uniden VHF radio was very appreciated on the trip, writes John Majewski. He credits the handheld transceiver with saving the fishing party's lives.

*"My friends and I offer our sincerest gratitude for giving us a second chance at life . . . This radio saved our lives."*

vessel about an hour later. The VHF radio (allowed us) to coordinate our rescue with the captain of the commercial fishing vessel, **Photos B** and **C**.

I am a research scientist with a background in electrical engineering and communications systems. Speaking as an engineer, I am extremely pleased with the quality of Uniden's products! And those were my sentiments before my Uniden VHF saved my life! My friends and I offer our sincerest gratitude for giving us a second chance at life. *Thank you!*

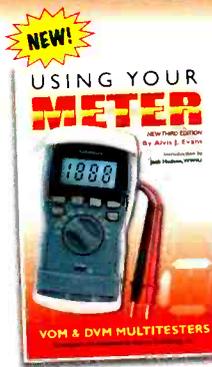
This radio saved our lives.

(NOTE: John Majewski's dramatic story was detailed in an email received by Paul Opitz, Senior Product Manager, Radio Category Products, Uniden America Corp., who shared it with Pop'Comm. "As we read John's account," Opitz writes, "we were alternately terrified by the unfolding events and then thrilled by the outcome. We are so glad that John and his boat mates were rescued unharmed, and that one of our products was there to help play a part in their rescue." Majewski is an associate staff member at Massachusetts Institute of Technology's Lincoln Laboratory in Lincoln, Massachusetts. — WPC6NOA)



**Photo C.** It was truly amazing they made it to safety, John Majewski says. Now aboard the commercial fishing boat, he looked back on the rescue as nothing short of a miracle.

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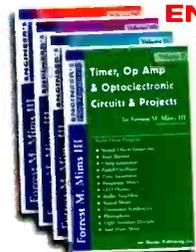
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## LATE UPDATE: USCG Brass Calls On NMEA to Help Solve Marine Radio Problems

By Gordon West, WB6NOA/WPC6NOA

United States Coast Guard Rear Admiral Robert Day has asked the National Marine Electronics Association (NMEA) to help solve the problem of few marine DSC VHF radios getting programmed with the MMSI number, plus being tied into the onboard GPS for Digital Selective Calling.

"Despite the promises DSC technology offers in significantly reducing the alerting and search time for mariners in distress, there is little a Coast Guard watchstander can do after receiving a distress alert with no position information, using an unregistered MMSI number, and having no follow up voice communications," Day said.

*(NOTE: This leads me to believe even the USCG may not realize a digital selective calling distress call cannot be generated without the MMSI identification number registered to each radio. If there is no MMSI number pre-programmed into the radio, the distress alert will not go out! New radios are not shipped with an embedded MMSI number. If there is no MMSI number, there is no distress signaling capability. – WPC6NOA)*

Marine electronics expert Todd Crocker, formerly with Standard and Uniden, suggests that the MMSI registration should happen at the VHF radio's point of sale. "If it doesn't work out of the box, consumers are often too impatient to read installation manuals, and radio manufacturers' packaging and instruction should EMPHASIZE the safety benefits (requirement) of MMSI registration for DSC function ability."

Late-breaking news from Standard Horizon solves half the problem. The new Standard GX 1700 incorporates the GPS receiver inside the fixed-mount radio.

"It is designed to receive a GPS fix when the radio is flush mounted in the dash of a boat," said Jason Kennedy, Standard Horizon Executive Vice President.

The company markets the Matrix AIS GX 2100, as well, which can take a companion Standard Horizon GPS remote antenna/receiver for plug-in GPS connectivity.

"The majority of current VHF DSC installations will use the 0183 NMEA interface, which can be tricky to install for most customers," Bruce Angus, NMEA interim executive director, said.

"The NMEA may soon publish a cabling standard which includes color coding for the two GPS talker data wires and the two VHF listener data wires. White and brown will be for GPS talkers. Yellow and green will be for listeners, with black for ground and bare wire for shield," Angus said.

There was no mention of a common type of plug between GPS and marine VHF equipment.

ICOM America indicates it is considering a 25-watt marine VHF with a GPS receiver included in the package — maybe a remote-mounted receiver/antenna for GPS, or possibly, like Standard, actually building the GPS system directly into the 25-watt marine radio.

# Monitoring the Middle Kingdom

***There Is a Vast Array of Signals From China for You to Capture***

By Gerry Dexter, WPC9GLD

**I**“It was a dark and stormy night,” said Snoopy, but even with that bad line you can almost picture that long ago scene: It’s nighttime in December 1943. Perhaps we could add a bitter, blustery wind.

A 17-year-old girl rides a donkey along a two-lane dirt road. A narrow path eventually veers off toward a nearly-hidden cave outside the small town of Yun’an in Guangdong Province, China. It’s about 100 miles inland from the South China Sea.

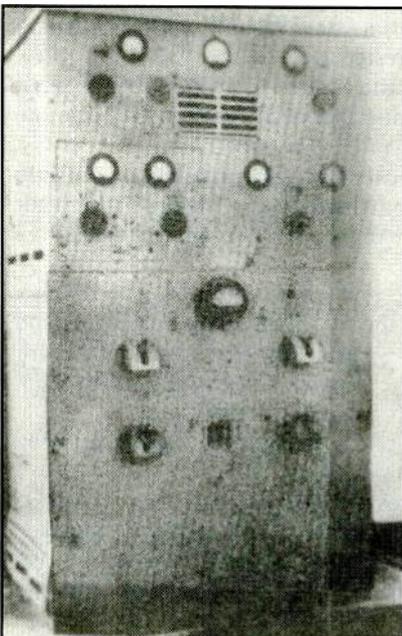
As she ducks into the cave, a radio engineer has already fired up a 300-watt transmitter that the radio people have brought from Russia. The girl, Miss Hara Kiyosi, sits down, takes her cue and, at 8:40 p.m. local time, begins speaking Japanese into a microphone. And so begins the first radio broadcast from what would, decades later, become China Radio International. In those early years it was known as simply as Xinhua New Chinese Radio (XNCR).

*(LISTEN: To the English service of China Radio International at <<http://www.crienglish.com>>. – WPC9GLD)*

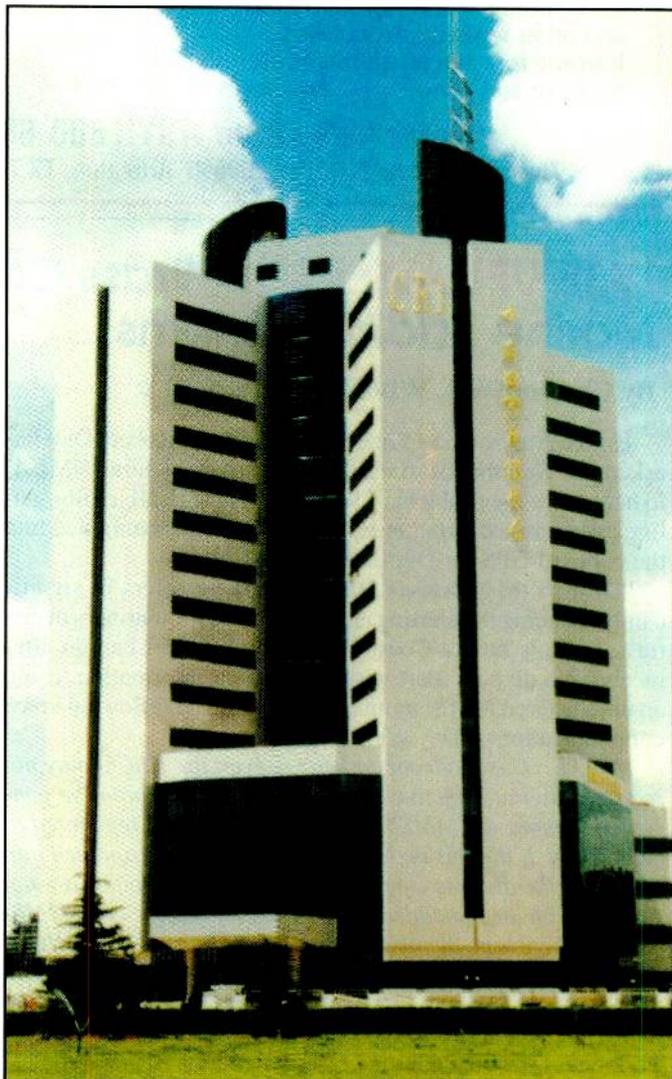
## **XNCR’s First English Broadcast**

Four years later, while the Communists were fighting the Nationalists, the transmitter was moved to yet another cave, this

*“Whether you go after China Radio International or the tougher China National Radio, good luck in adding as many ‘new ones’ as possible to your log.”*



New China Radio’s original studio was in a cave in 1943.



China Radio International’s ultra modern 21st Century home in Beijing.



The 10-story Radio Beijing/CPBS building, home to the station from the 1980s to the early 2000s.



CRIs' second home – another cave, this in Shanbei, Hebei Province.

one near Shahe, in southern Hebei Province. This was the place from which Miss Wei Lin made XNCR's first English language broadcast. She continued working at the station — using the on-air name "Jo Lee" until 1994 — largely doing cooking programs. She also had to work with the minimal light given off by kerosene lamps, since there was no electricity for that first English broadcast, either.

A heavy blanket had to be strung over the cave's entrance to help keep out the

cold and to prevent the noise of bleating sheep from being picked up by the microphone. The station had but one piece of music to play — the Triumphal March from the opera Aida.

### Enter: Radio Peking

After the Communist victory in the fall of 1949 the station was moved again. No more hiding out in small towns and villages, this time the broadcaster relocated

### China Radio International Broadcasts In . . .

Albanian, Arabic, Belarusian, Bengali, Bulgarian, Burmese, Croatian, Cambodian, Mandarin, Chinese, Czech, Danish, English, Esperanto, Estonian, Filipino, Finnish, French, German, Greek, Hausa, Hebrew, Hungarian, Icelandic, Indonesian, Italian, Japanese, Kazakh, Korean, Laotian, Lithuanian, Malay, Norwegian, Persian, Polish, Portuguese, Romanian, Russian, Serbian, Sinhalese, Spanish, Swahili, Tamil, Thai, Tibetan, Turkish, Ukrainian, Uyghur, Urdu and Vietnamese. — WPC9GLD

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The main studio/control room at Radio Beijing, circa 1999.

to the capitol and was renamed Radio Peking in April 1950.

For the next decade, into the '60s, Radio Peking rapidly grew to become more of a regional international broadcaster. It moved forward at a slow-but-sure rate, adding a European Service, followed by services to the Middle East, Africa and South Asia. English and Spanish came first. Arabic, Farsi and several Chinese minority languages followed shortly afterward.

By the 1960s Radio Peking had

become well known for its virulent propaganda against the United States and, by mid-decade, was also heavily and endlessly promoting the wonders of China's Cultural Revolution.

Broadcasts to the Soviet Union began in 1962 — the year of the Cuban Missile Crisis and the skirmish with India. It was also the year in which Radio Peking had set its sights on the Soviet Union as relations between Peking and Moscow began to sour.

At that time China was then ranked —

by some measures — as the world's third largest international broadcaster.

By the time the '70s were in play, Russia and China were increasingly *on the outs*. Both broadcasters were jockeying for position and dominance. Radio Peking was working hard to catch up with Radio Moscow in the number of weekly hours broadcast. By 1972 Radio Peking was up to airing 200 hours per week, but was also beginning to suffer from the ills caused by its aging equipment and a growing number of outages and breakdowns — hardly the mark of a major international broadcaster. In those days a 120-kilowatt transmitter was considered to be operating at a superpower level.

The pandemonium caused by Mao's Cultural Revolution didn't help the broadcaster's situation either. Foreigners (read that: *potential language announcers*) were not easy to find. By the 1980s, when the madness of the Cultural Revolution had ended, China's radio broadcasting was again undergoing further modernization.

Following President Nixon's visit and once America was out of Vietnam, Radio Peking began to thin out its formerly thick anti-American propaganda. A decade or two later the station radically changed its tune, and began to take a still stronger anti-Russian tack. This continued off and on through the 1990s and the Gorbachev/Glasnost era.

### Then: Radio Beijing

In 1983 the station underwent its third name change — to Radio Beijing — in accordance with the switch to the international Pinyin system used for transliterating Chinese. The 1980s also saw Radio Beijing begin operating from a new, 10-story, Soviet-style, transmitter-topped building in the Fuxingmenwai Dajie district near the center of Beijing.

The 1980s also saw an initial move to adopt stereo broadcasting. One large main studio was renovated and modernized, but it is unclear whether Radio Beijing actually ever did much stereo broadcasting. In any event, the studios probably needed still more upgrading since, at the time, Radio Beijing was still stuck using huge, clunky, Russian-manufactured tape recording machines.

### Finally: China Radio International

By this time the station had also made its first attempt at using an out-of-coun-



Those clunky Russian-made tape machines playing a Chinese program.



Wei Lin, China Radio's first English announcer.

try relay site which it built in Albania. Ten years later, Radio Beijing was renamed for the fourth time — to its current name: China Radio International. The change was made to reflect China's determination to become a dominant international broadcaster and a major player in the world's media scene.

Radio Beijing paid its foreign employees in the domestic currency — renmin-

bi — as opposed to the Foreign Exchange Certificates which non-domestics could use to buy imported foreign goods, including liquor, cigarettes and luxury items. Many of the foreign-born employees lived in the Foreign Experts Building, which is located within the restricted Broadcasting Ministry's compound.

Residents there had to sign-in with a public security officer when entering, as



Radio Beijing's English announcing staff some years back.

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well as when departing. Except for relatives, no non-residents could remain there overnight. Such a practice helped keep the *foreign devils* separate from the rest of the population.

“CRI is a reliable, sizeable and established employer, unlike many companies in China,” said one of its employees in 2009. “Although there are sometimes issues, you can trust that they

will pay you, get your visa and fulfill their end of the contract — good for networking and an introduction to working in China.

“It’s an interesting experience to work for state media and interact with Chinese journalists,” the worker continued. “It’s one of the safest ways for a foreign journalist to get started in China and learn about how things work here. There’s also an international multicultural office and social environment around CRI as well. CRI can be a difficult environment for people training as western journalists because of the nature of state media in China. Management may not allow you to do the work you want to do once you get there, or may try to get you to participate in projects or events you don’t want to.

“Management and basic office structure is very unorganized, communication is non-existent. Hours can be irregular for some employees. The office is located extremely far from the city center, resulting in long commutes for some.” (NOTE: There are some aspects in this observation that are strikingly similar to conditions at many small town U.S. domestic AM/FM radio stations! – WPC9GLD)



### Celebrating 70 Years of Broadcasting

Today, as it celebrates 70 years of operation, China Radio International vies with the Voice of America — and perhaps even Family Radio — for the title of *world’s largest*. It airs some 3,200 hours of broadcasts per week in 61 different languages over some 50 shortwave transmitters.

## Your Chinese Pronunciation Cheat Sheet

Site or Name	English Pronunciation	Site or Name	English Pronunciation
ANHUI	on-whee	LIAONING	lee-on-ing
BAOJI	bow-gee	LINGSHI	lang-shhh
BEIJING	bay-jeeng	NANJING	non-ching
CHANGSHA	chong-sha	NANNING	non-ing
CHONGGING	chong-ging	NEI MENGQU	may-mon-goo
CHONGQUING	chong-chang	NINGXIA XUI	neon-sha
FUJIAN	foo-gee-an	QINGHUI	ching
FUZHOU	foo-joe	QUINGHAI	ching-high
GANSU	goo-soo	SHANXI	shan-see
GIANGXI ZHUANG	gwan-see	SHALANG	sha-long
GIZHOU	hwan-jo	SHANDONG	shon-long
GUANGDONG	gwon-dong	SHANGHAI	shong-high
GUANGXI	gwon-see	SHANXI	shan-see
HAILAR	high-laar	SHIJIANGHUANG	sh-tian-jong
HAINAN	high-non	SICHUAN	sit-chuan
HEBEI	hoo-bay	TIANJIN	tea-an-ching
HEILONGJIANG	hay-long-gee-an	PUJIANG	hwong-poo-jong
HENEN	hu-non	XI'AN	shee-an
HEZUO	huh-joe	XIANYANG	see-a-young
HOHHOT	who-ka-how-ka	XICHANG	see-chong
HUAXIA*	wah-see-ya	XINING	see-ning
HUAYI	wha-ee	XINJIANG UIGHUR	shih-jong
HUBEI	who-bay	XINJIANG (URUMQI silent)	shin-jong
HULUN BUIR	who-loon-bayeer	XIZANG	see-jong
HUNAN	who-nan	YUNNAN	you-non
JILIN	gee-lynn	ZHEJIANG	chew-tee-an
JINHUA	gee-wa	ZHONGHUA*	jung-hwa
JINLING	geen-lang		
KASHI	kah-shee		
KUNMING	koon-mang		
LENXI	lahn-see		

(Courtesy of Chinese speaker Gloria Loncsar, New Berlin, Wisconsin)

CRI has 70 overseas branches, 18 global network relay stations and nearly 40 other sites. It is well on its way to establishing itself as a monster multimedia conglomerate. CRI and its various services come at you via the Internet and through several different satellites. There are even CRI apps for your smart phone and in some cities you can even find CRI programs on local U.S. AM/FM stations.

Any day now you might be able to pick up CRI's Urdu service on your toaster!

"CRI must be brave in shouldering responsibilities, carrying out reform and innovation, promoting a modern international broadcasting system, forming a modern, comprehensive and innovative media group," said Liu Yunshan, head of the publicity Department of China Radio International, during CRI's 70<sup>th</sup> anniversary event.

The accompanying frequency list for China Radio International shows transmitter sites. Many of the channels show more than one site. You will have to check the times as

listed in the *World Radio-Television Handbook* (WRTH) or via an online list such as EiBi: <<http://www.eibispace.de/>> to determine which site you're hearing. (*NOTE: These alignments are for the A-12 season and are effective only until the end of October; although you can be fairly certain that those shown for China National Radio will remain largely unchanged, especially on the lower frequencies.* – WPC9GLD)

The CRI listing shows a few sites for Sackville (Canada), which will no longer exist after the end of this month. There seem to be no listings for either Brasilia or Santiago, which have been used by CRI over the past few years.

### In the Chase . . .

Whether you go after the many sites used by China Radio International or the tougher, and less-obvious China National Radio stations and sites (*SEE: "The Insider: China National Radio" – WPC9GLD*), or all of them, I wish you good luck in adding as many "new ones" as possible to your log.

## The Insider: China National Radio

By Gerry Dexter, WPC9GLD

China National Radio, <<http://www.cnr.cn>> is a different animal than China Radio International.

CNR, formerly known as the China People's Broadcasting Station (CPBS), is comprised of more than a dozen different "programs" which might be more accurately called "services" or even "networks."

It broadcasts from a number of different sites within China. Some of the domestic broadcasters still identify as People's Broadcasting Station. Perhaps the higher ups haven't yet noticed the discrepancy.

### A Smorgasbord of CNR Broadcasts

**News Radio** airs 24 hours of news and commentary daily on medium wave, FM and shortwave. (*NOTE: Check the accompanying frequency list to see which programs or networks are carried on which frequencies.* – WPC9GLD)

**China Business Radio** — the Voice of the Economy — carries mainly business news and features on medium wave, FM in Beijing and on several shortwave frequencies.

**Music Radio** carries Chinese and world pops on FM in many Chinese cities. It is not aired on shortwave.

**Voice of the City/Metro Channel** is aired in Beijing only and is mainly talk and entertainment.

**Voice of Zhonghua** or **Zhonghua News Radio** broadcasts on medium wave, FM (in Fuzhou) and on several shortwave frequencies.

**Voice of Shenzhou**, also called Shenzhou Easy Radio, on medium wave, FM (in Fuzhou) and shortwave.

**Voice of Huaxia/Huaxia Radio**, aimed at the Zhujiang Delta, airs in Amoy, Hakka and Chinese on only medium wave and FM channels.

**Ethnic Minority Radio** is on medium wave, shortwave and FM locally in Hohhot with broadcasts in Kazakh, Korean and Mongolian.

**Voice of (the) Literary** is also called "Story Radio" and uses FM only.

**The Voice of Old Age** — more tastefully called Senior Citizens Radio — is a FM-only service.

**The Tibetan Service** operates on medium wave, shortwave and FM in Lhasa.

**Voice of Entertainment Radio** aka **Happy Radio** is broadcast only on medium wave in Beijing, although it's available online and on demand: <<http://aod.cnr.cn/>>.

**The Uighur Service** uses medium wave and shortwave for Uighur language programs.

### Some Things Don't Add Up

There are a couple of anomalies here: Some broadcasts don't fit the overall CNR pattern because they appear to be separately operated from their own studios and offices.

The two odd ones are:

**The Yunnan People's Broadcasting Station**, also less known as "The Voice of Shangri-la" which broadcasts on 6035 from sites in or near Kunming in Chinese and Vietnamese. Email: <[admin@ynradio.net](mailto:admin@ynradio.net)>.

**The Voice of Guangxi Beibu Wan** (aka **Beibu Bay Radio**) broadcasts from Nanning on 5050 and 9820 with programs designed for Vietnam, in Vietnamese, Chinese, Cantonese and Thai. This one is fairly often heard on 9820 with the hours from 1100 to 1600 provide the best opportunities, <<http://www.bbtrv.com/english>>.

# China National Radio Broadcast Frequencies

Frequency	Station	Location	Frequency	Station	Location
3280	V of Pujiang	Shanghai	6190	Xinjiang PBS	Urumqi
3900	Hulun Buir PBS	Hailar	6200	Xizang PBS	Lhasa
3950	Xinjiang PBS	Urumqi	7295	Xinjiang PBS	Urumqi
3985	CNR-2	Golmud	7210	Yunnan PBS	Kunming
3990	Gannon PBS	Hezuo	7215	CNR-1	Shijiazhuang
3990	Xinjiang PBS	Urumqi	7220	CNR-2	Golmud
4220	Qinghai PBS	Xinjiang	7225	Sichuan PBS	Xichuang
4330	Xinjiang PBS	Urumqi	7230	CNR-1	Xi'an
4460	CNR-1	Beijing	7230	Xinjiang PBS	Urumqi
4500	Xinjiang PBS	Urumqi	7240	Xizang PBS	Lhasa
4750	Xining	Hailar	7245	CNR-2	Beijing
4750	Qinghai PBS	Xining	7255	CNR-3	Baoji
4800	CNR-1	Golmud	7255	Xizang PBS	Lhasa
4820	Xizang PBS	Lhasa	7260	Xinjiang PBS	Urumqi
4900	V of Strait	Fuzhou	7265	CNR-2	Baoji
4905	Xizang PBS	Lhasa	7270	Nei Menggu PBS	Hohhot
4920	Xizang PBS	Lhasa	7275	CNR-1	Beijing
4940	V of Strait	Fuzhou	7275	Xinjiang PBS	Urumqi
4950	V of Pujiang	Shanghai	7280	V of Strait	Fuzhou
4980	Xinjiang PBS	Urumqi	7290	CNR-1	Beijing
4890	Hunnan PBS	Changsha	7295	Xinjiang PBS	Urumqi
5005	Fujian PBS	Fuzhou	7305	CNR-1	Shijiazhuang
5040	Fujian PBS	Fuzhou	7310	Xinjiang PBS	Urumqi
5050	V of Strait	Fuzhou	7315	CNR-2	Xi'an
5050	China Huayi BC	Fuzhou	7335	CNR-2	Baoji
5060	Xinjiang PBS	Urumqi	7340	Xinjiang PBS	Urumqi
5075	V of Pujiang	Shanghai	7345	CNR-1	Beijing
5860	V of Pujiang	Nanjing	7350	CNR-11	Baoji
5975	CNR-5	Beijing	7360	CNR-11	Baoji
5935	Xizang PBS	Lhasa	7365	CNR-1	Shijiazhuang
5945	CNR-1	Beijing	7370	CNR-2	Beijing
5955	CNR-8	Beijing	7375	CNR-2	Beijing
5960	Xinjiang PBS	Urumqi	7385	Xizang PBS	Lhasa
5970	Gannon PBS	Hezuo	7395	CNR-2	Xianyang
5975	CNR-8	Beijing	7410	CNR-8	Brijing
5990	Qinghai PBS	Xinjing	7420	Nei Menggu PBS	Hohhot
6000	CNR-1	Beijing	7425	CNR-2	Xianyang
6010	CNR-11	Baoji	7445	CNR-8	Beijing
6015	Xinjiang PBS	Urumqi	7450	Xizang PBS	Lhasa
6020	CNR-11	Beijing	7620	CNR-5	Beijing
6025	Xizang PBS	Lhasa	9170	CNR-6	Beijing
6030	CNR-1	Beijing	9410	CNR-6	Beijing
6035	Yunnan PBS	Kunming	9420	CNR-13	Lingshi
6030	CNR-2	Beijing	9440	CNR-8	Beijing
6040	Nei Menggu PBS	Hohhot	9445	CNR ! & 8	Ligshi
6050	Xizang PBS	Lhasa	9470	Xinjiang PBS	Urumqi
6060	Sichuan PBS	Xichang	9480	CNR-11	Baoji
6065	CNR-2	Beijing	9590	Xizang PBS	Lhasa
6080	CNR-1	Golmud	9500	CNR-1	Shijiazhuang
6080	Hulun Buir PBS	Hailar	9505	V of Strait	Fuzhou
6090	CNR-1	Golmud	9510	Xinjiang PBS	Urumqi
6110	Xizang PBS	Lhasa	9515	CNR-11	Beijing
6115	V of Strait	Fuzhou	9520	Nei menggu PBS	Hohhot
6120	Xinjiang PBS	Urumqi	9530	CNR-11	Baoji
6125	CNR-1	Beijing	9560	Xinjiang PBS	Urumqi
6125	CNR-1	Shijiazhuang	9570	CNR-2	Golmud
6130	Xizang PBS	Lhasa	9580	Xizang PBS	Lhasa
6140	CNR-8	Lingshi	9600	Xinjiang PBS	Urumqi
6145	Qinghai PBS	Xining	9610	CNR-8	Beijing
6155	CNR-2	Beijing	9615	CNR-8	Beijing
6165	CNR-6	Beijing	9620	CNR-2	Beijing
6175	CNR-1	Beijing	9630	CNR-2	Golmud
6185	V of Pujiang	Fuzhou	9630	CNR-8	Lingshi
6190	CNR-2	Golmud	9640	CNR-1	Beijing

Frequency	Station	Location	Frequency	Station	Location
9645	CNR-1	Beijing	11835	CNR-2	Xianyang
9645	CNR-8	Beijing	11845	CNR-2	Xianyang
9665	CNR-5	Beijing	11860	Xizang PBS	Lhasa
9675	CNR-1	Beijing	11885	Xinjiang PBS	Urumqi
9685	CNR-5	Beijing	11905	CNR-6	Beijing
9705	V of Pujiang	Shanghai	11915	CNR-2	Baoji
9705	Xinjiang PBS	Urumqi	11925	CNR-1	Lingshi
9710	CNR-1	Shijiazhuang	11935	CNR-5	Beijing
9720	CNR-2	Baoji	11950	Xizang PBS	Lhasa
9750	Nei Menggu PBS	Hohhot	11960	CNR-1	Beijing
9755	CNR-2	Xi'an	11975	Xinjiang PBS	Urumqi
9775	CNR-2	Beijing	12020	CNR-1	Shijiazhuang
9780	Qinghai PBS	Xining	12045	CNR-1	Beijing
9785	CNR-8	Beijing	12055	CNR-1 & 8	Lingshi
9810	CNR-1	Nanning	12080	CNR-2	Baoji
9810	CNR-2	Baoji	13610	CNR-2	Nanning
9820	CNR-2	Xianyang	13670	Xinjiang PBS	Urumqi
9830	CNR-1	Beijing	13700	CNR-13	Lingshi
9835	Xinjiang PBS	Urumqi	13840	Xizang PBS	Lhasa
9845	CNR-1	Beijing	15270	CNR-2	Beijing
9850	Qinghai PBS	Xining	15300	Xizang PBS	Lhasa
9860	CNR-1	Beijing	15370	CNR-1	Shijiazhuang
9890	CNR-13	Lingshi	15380	CNR-1	Beijing
9900	CNR-1	Beijing	15390	CNR-13	Lingshi
11610	CNR-2	Beijing	15415	CNR-8	Beijing
11620	CNR-5	Beijing	15480	CNR-1	Beijing
11630	CNR 1 & 8	Beijing	15500	CNR-1	Beijing
11660	CNR-2	Xi'an	15540	CNR-2	Lingshi
11670	CNR-2	Beijing	15550	CNR-1	Beijing
11685	CNR-11	Baoji	15570	CNR-11	Beijing
11710	CNR-1	Beijing	15670	CNR-8	Beijing
11720	CNR-1	Shijiazhuang	15710	CNR-6	Beijing
11740	CNR-2	Lingshi	17550	CNR-1	Beijing
11750	CNR-1	Shijiazhuang	17565	CNR-1	Beijing
11760	CNR-1	Shijiazhuang	17480	CNR-1	Lingshi
11770	Xinjiang PBS	Urumqi	17795	CNR-1	Shijiazhuang
11780	CNR-8	Beijing	17605	CNR-1	Beijing
11800	CNR-2	Beijing	17625	CNR-2	Beijing
11810	CNR-1 & 8	Lingshi	17725	CNR-1	Beijing
11815	CNR-8	Beijing	17890	CNR-1	Beijing

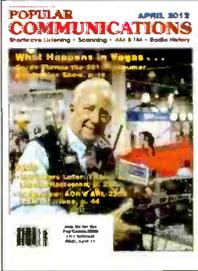
## China Radio International Broadcast Frequencies

Frequency	Transmitter Site	6060	Beijing	6180	Kashi
5905	Kashi	6060	Kunming	6185	Cerrik, Albania
5910	Beijing	6075	Kashi	6190	Sackville, Canada
5915	Kashi	6080	Sackville, Canada	7205	Beijing
5915	Hohhot	6090	Kunming	7205	Urumqi
5955	Beijing	6090	Urumqi	7205	Xi'an
5960	Cerrik, Albania	6095	Kashi	7210	Beijing
5965	Xi'an	6100	Beijing	7210	Cerrik, Albania
5965	Beijing	6100	Xi'an	7215	Xi'an
5970	Cerrik, Albania	6100	Kunming	7215	Kunming
5975	Kashi	6110	Xi'an	7220	Cerrik, Albania
5985	Beijing	6135	Beijing	7220	Jinhua
5990	Hohhot	6140	Kashi	7220	Xi'an
5990	Havana, Cuba	6140	Kunming	7225	Urumqi
6020	Cerrik, Albania	6145	Xi'an	7225	Moscow, Russia
6020	Sackville, Canada	6145	Issoudun, France	7225	Beijing
6020	Shijiazhuang	6145	Sackville, Canada	7225	Kashi
6040	Sackville, Canada	6165	Urumqi	7235	Kashi
6040	Xi'an	6165	Beijing	7235	Shijiazhuang
6055	Nanning	6175	Kashi	7235	Cerrik, Albania
6055	Cerrik, Albania	6175	Beijing	7235	Cerrik, Albania
		6175	Cerrik, Albania	7240	Kashi

7245	Xi'an	7440	Nanning	9600	Kashi
7245	Boaji	7440	Jinhua	9610	Kunming
7245	Kashi	7440	Xi'an	9620	Kashi
7250	Urumqi	7440	Beijing	9635	Kashi
7255	Beijing	7445	Nanning	9640	Kashi
7255	Kunming	7445	Urumqi	9645	Beijing
7255	Boaji	7450	Baoji	9645	Kunming
7260	Urumqi	9410	Kashi	9650	Sackville, Canada
7260	Kashi	9430	Kashi	9655	Kunming
7265	Kashi	9430	Urumqi	665	Kashi
7265	Urumchi	9435	Kunming	9670	Beijing
7265	Urumqi	9435	Kashi	9675	Kashi
7265	Kashi	9435	Urumqi	9675	Shijiazhuang
7265	Kunming	9435	Kunming	9675	Kunming
7285	Cerrik, Albania	9440	Cerrik, Albania	9675	Beijing
7285	Beijing	9440	Kunming	9585	Urumqi
7285	Kashi	9440	Nanning	9685	Xi'an
7290	Xi'an	9450	Kashi	9685	Kunming
7295	Bamako, Mali	9455	Kunming	9685	Kashi
7295	Urumqi	9460	Kunming	9690	Nobeljas, Spain
7305	Issoudun, France	9460	Kashi	9690	Kunming
7305	Kashi	9460	Kunming	9695	Kashi
7315	Kunming	9470	Urumqi	9695	Beijing
7315	Kashi	9470	Xi'an	9695	Jinhua
7320	Samara, Russisa	9480	Cerrik, Albania	9710	Kashi
7325	Jinhua	9480	Kunming	9720	Urumqi
7325	Beijing	9490	Kunming	9725	Hohhot
7325	Kunming	9490	Kashi	9730	Kunming
7325	Urumqi	9490	Beijing	9730	Beijing
7325	Xi'an	9515	Cerrik, Albania	9730	Kashi
7330	Xi'an	9515	Beijing	9745	Kunming
7335	Beijing	9525	Shijiazhuang	9745	Urumqi
7335	Jinhua	9525	Beijing	9760	Kunming
7335	Shijiazhuang	9525	Kashi	9765	Nanning
7340	Kashi	9535	Kunming	9765	Kashi
7345	Cerrik, Albania	9535	Issoudun, France	9765	Xi'an
7345	Kashi	9535	Baoji	9765	Shijiazhuang
7350	Kashi	9535	Xi'an	9765	Beijing
7350	Kunming	9540	Beijing	9770	Urumqi
7350	Kashi	9640	Kunming	9785	Kashi
7355	Kashi	9550	Kunming	9785	Kunming
7360	Kunming	9550	Beijing	9785	Xi'an
7360	Moscow, Russia	9555	Cerrik, Albania	9790	Sackville, Canada
7380	Cerrik, Albania	9560	Beijing	9790	Havana, Cuba
7385	Urumqi	9560	Kashi	9800	Kashi
7385	Kashi	9560	Sackville, Canada	9800	Jinhua
7390	Hohhot	9560	Kashi	9810	Xi'an
7390	Jinhua	9560	Xi'an	9815	Kashi
7390	Beijing	9560	Urumqi	9825	Kashi
7390	Xi'an	9560	Urumqi	9855	Beijing
7395	Xi'an	9565	Cerrik, Albania	9860	Kashi
7395	Urumqi	9570	Cerrik, Albania	9865	Kunming
7395	Kashi	9570	Havana, Cuba	9865	Urumqi
7400	Kashi	9570	Urumqi	9870	Xi'an
7400	Beijing	9570	Kunming	9880	Beijing
7405	Hohhot	9570	Beijing	9880	Beijing
7405	Xi'an	9580	Havana, Cuba	9880	Nanning
7410	Kashi	9585	Xi'an	9880	Xi'an
7415	Kashi	9585	Kashi	9890	Beijing
7415	Kunming	9590	Kashi	11600	Baoji
7415	Beijing	9590	Cerrik, Albania	11610	Xi'an
7415	Urumqi	9590	Kunming	11610	Urumqi
7415	Kashi	9590	Beijing	11610	Urumq
7420	Urumqi	9595	Kashi	11610	Urumqi
7420	Kunming	9600	Kunming	11620	Urumqi
7430	Jinhua	9600	Baoji	11620	Beijing
7435	Beijing	9600	Kashi	11632	Beijing
7435	Jinhua	9600	Beijing	11635	Urumqi

11640	Kunming	11980	Kunming	15170	Kashi
11640	Kashi	11980	Xi'an	15170	Jinhua
11640	Jinhua	11990	Nanning	15190	Kashi
11640	Xi'an	12010	Baoji	15205	Kashi
11640	Bamako, Mali	12035	Baoji	15210	Kashi
11650	Urumqi	12070	Xi'an	15210	Kunming
11650	Kashi	12085	Xi'an	15220	Kashi
11650	Kunming	13580	Beijing	15225	Kashi
11650	Urumqi	13580	Kunming	15230	Xi'an
11650	Beijing	13580	Urumqi	15245	Urumqi
11650	Xi'an	13590	Beijing	15250	Kunming
11660	Kashi	13600	Xi'an	15260	Kashi
11660	Kunming	13600	Kashi	15260	Sackville, Canada
11660	Shijiazhuang	13600	Kunming	15270	Kashi
11665	Kashi	13610	Kashi	15335	Kashi
11665	Kunming	13620	Xi'an	15350	Kashi
11675	Urumqi	13630	Bamako, Mali	15425	Xi'an
11680	Nanning	13640	Kashi	15435	Xi'an
11680	Xi'an	13640	Urumqi	15435	Urumqi
11685	Kashi	13640	Jinhua	15440	Kunming
11690	Xi'an	13645	Kashi	15445	Kashi
11690	Kashi	13645	Bamako, Mali	15465	Kashi
11690	Beijing	13650	Cerrik, Albania	15505	Bamako, Mali
11695	Beijing	13650	Urumqi	15525	Urumqi
11695	Xi'an	13650	Havana, Cuba	15560	Xi'an
11695	Cerrik, Albania	13655	Xi'an	15600	Kunming
11730	Nanning	13660	Xi'an	15625	Kashi
11750	Sackville, Canada	13670	Kashi	15665	Kashi
11750	Beijing	13670	Cerrik, Albania	15785	Xi'an
11760	Kunming	13680	Kashi	17485	Kashi
11765	Urumqi	13685	Kashi	17490	Kashi
11770	Beijing	13685	Bamako, Mali	17495	Beijing
11770	Kashi	13700	Urumqi	17500	Kashi
11775	Cerrik, Albania	13700	Sackville, Canada	17505	Xi'an
11775	Kashi	13710	Cerrik, Albania	17505	Kashi
11780	Jinhua	13710	Kashi	17515	Kashi
11780	Baoji	13720	Kashi	17520	Kashi
11780	Kunming	13720	Xi'an	17530	Xi'an
11780	Beijing	13730	Kashi	17540	Beijing
11875	Cerrik, Albania	13730	Havana, Cuba	17540	Kashi
11785	Kashi	13740	Havana, Cuba	17560	Xi'an
11790	Xi'an	13750	Beijing	15570	Urumqi
11790	Kashi	13755	Kashi	17575	Shijiazhuang
11790	Urumqi	13760	Kashi	17605	Kunming
11975	Kashi	13770	Xi'an	17615	Xi'an
11800	Kashi	13780	Kunming	17615	Kunming
11820	Xi'an	12790	Jinhua	17630	Bamako
11840	Sackville, Canada	13790	Urumqi	17650	Kashi
11850	Sackville, Canada	13790	Kashi	17670	Kunming
11860	Kunming	11810	Kashi	17680	Kashi
11870	Kashi	13850	Beijing	17680	Kunming
11870	Beijing	13860	Shijiazhuang	17710	Jinhua
11875	Kunming	15100	Jinhua	17710	Beijing
11875	Urumqi	15100	Beijing	17720	Kashi
11880	Xi'an	15110	Kashi	17730	Xi'an
11895	Kashi	15110	Urumqi	17735	Kunming
11895	Xi'an	15120	Havana, Cuba	17740	Xi'an
11900	Beijing	15120	Beijing	17750	Kashi
11900	Jinhua	15125	Beijing	17885	Beijing
11920	Cerrik, Albania	15125	Kashi	17865	Kashi
11935	Shijiazhuang	15125	Bamako, Mali	17880	Bamako, Mali
11940	Kashi	15130	Beijing		
11940	Kunming	15135	Kunming		
11945	Kunming	15140	Xi'an		
11955	Kunming	15140	Kashi		
11965	Kashi	15145	Xi'an		
11975	Kunming	15160	Jinhua		
11975	Bamako, Mali	15160	Nanning		

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

CQ Communications, Inc. 25 Newbridge Rd, Hicksville, NY 11801  
[www.cq-amateur-radio.com](http://www.cq-amateur-radio.com)

800-853-9797 - FAX us at 516 681-2926

**Pop'Comm July**  
**2012 Reader Survey**

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

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

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

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

More and more stations are streaming shortwave programs on the Internet. We'll call it WLing, or Web Listening. How do you feel about that? (Choose all that apply.)

- I will never replace SWLing with WLing. *Never!* . . . . . 1
- I don't like the idea, but it seems to be the wave of the future. . . . . 2
- WLing is a nice complement to SWLing, but that's about it. . . . . 3
- I'll only WL when my favorite station is no longer on SW. . . . . 4
- It's a great idea, especially for those who only have a computer. . . . . 5
- Thumbs up: I'm more concerned about content than mode. . . . . 6
- Thumbs down: I'm more concerned about mode than content. . . . . 7
- I don't feel one way or the other about the issue. . . . . 8

Do you envision a day when all worldwide broadcasting will be on the Web?

- No, will never happen. . . . . 9
- Yes, but not in my lifetime. . . . . 10
- Yes, and not in the too distant future . . . . . 11
- It's a drip, drip, drip of transition — timeframe unknown. . . . . 12

Would you like to see a monthly Web Listening column in *Pop'Comm*?

- No, there are enough Web links in the magazine already. . . . . 13
- A column devoted to WLing could be interesting. . . . . 14
- Not sure. How about running it on a trial basis so we can see? . . . . . 15

Do you use the Internet for monitoring? If so, in which arena? Shortwave, VHF/UHF, public service, AM-FM broadcast? And how much? (Use the comment line.)

**Take This Reader Survey Online**

You can now participate in this reader survey via the Internet. Simply go to *Pop'Comm On the Web*: <<http://www.popcomm-magazine.blogspot.com/>> and click the link to the *Pop'Comm July 2012 Reader Survey*. It's quick and easy.

**For July, the Envelope, Please . . .**

For participating in the *Pop'Comm Reader Survey*, the winner of a free subscription or extension is **Robert Fraser, WPC1ME, of Belfast, Maine**, who writes: "I still get a thrill hearing a new station or DXing a new band."

*Way to go, Robert! We're happy to know the magic of shortwave listening is alive and well at your listening post. Thanks! - KPC6PC*

## MONITOR OF THE MONTH

Listening, Around the World

# GPCØAB: Isle of Sheppey, Kent, England

By Andy Booth,  
GPCØAB

*Inheriting his father's fascination for radio, Andy Booth, GPCØAB, Photo A, of Eastchurch, Isle of Sheppey, England, has had a passion for wireless since he was a young boy. As you'll see, he and his growing family overcame the challenge of a small first residence and Andy now has an extremely impressive listening post, with a bit of elbow room to boot. His story is as interesting as his radio gear is beautiful.*

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

— Richard Fisher, KPC6PC

*"I haven't forgotten my roots. I'm proud of what my dad introduced me to and the quality equipment he first gave me."*

I first got interested in radio when I was seven years old. My dad was an avid "wireless" constructor, de-constructor and was generally interested in everything in the wireless world.

He set me up with a beast of a receiver in my bedroom — a CR100 model — specially positioned on a sturdy chest of drawers, connected to a thin wire aerial pinned around the edge of my bedroom ceiling.

I was now indoctrinated into this fascinating world of 24-hour communications — and I was hooked!

I'd usually add to my "receiving station" as dad acquired a newer receiver and I was passed a hand-me-down boat anchor: First a National HRO, Photo B, with all plug-in coils. A Type PCR and an Eddystone EC10 were soon to follow. I was a very happy boy.

Time passed and my life took many twists and turns. Now I was married and with my own son:

*Enter adult life and reality.*

Radio was now a distinct memory. Our first residence was a flat and I just couldn't get my receivers out from storage at my parents' home.

Now we live in a larger home, I have a little more time — our son is all grown up now — and I have a few extra notes in my wallet. I set to

work to enhance my shack and I set to work finding the equipment that I'd read so much about.

The lure of such names as Yaesu, ICOM and Kenwood was irresistible. London-based dealers — of which there are very few — helped me, as



**Photo A.** Andy Booth, GPCØAB, listens to stations from around the world at his Isle of Sheppey, Kent, England listening post.

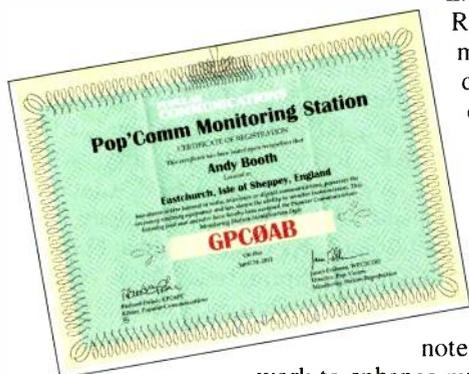
did those Internet sites offering second hand items for sale.

I am now the very proud owner of a venerable array of equipment. It's a listener's delight!

**Photo C.**

My current equipment consists of:

- ICOM IC-R71E, IC-R7000 and an IC-R72
- Yaesu FRG 7700, FRG 100, VR 500, VR 5000 and FRG 9600
- Kenwood R-5000
- JRC NRD 535
- Trio 9R-59DS
- AOR AR-1000
- Eddystone EC10





**Photo B.** Although charmingly out of focus, this vintage shot of Andy Booth, GPCØAB's classic childhood listening post has front-and-center the hand-me-down National HRO receiver he inherited from his dad.

Each has its own characteristics and qualities that make operation in the shack really exciting.

(NOTE: The HRO and PCR reside in the garden workshop, all wired and ready to warm up those winter evenings. – GPCØAB). The add-ons are various DSPs, speakers, antenna tuning units, power supplies, headphones, and decoders.

I listen to amateur bands — mainly 20, 40 and 80 meters — international broadcast services, military and civil aviation, Morse via a code reader, and data. The

## New Members: *Pop'Comm Monitoring Station Program*

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

### KPC and DX Prefixes

Monitoring stations are listed by name, station identification sign, and listening post location.

Andy Booth, **GPCØAB**, Isle of Sheppey, Kent, England; George Speck, **KPC5GS**, Forest Hill, TX; Arthur Thomason, **KPC7MD**, Syracuse, UT; Ken Hayward, **KPC7QBK**, Lynden, WA; Salvador Rico, **KPC6SR**, Novato, CA; Leslie Nice, **KPC5RKO**, Rowlett, TX; Rich Elb, **KPC6RE**, Notavo, CA; Alex Prieto, **KPCØPMW**, Minneapolis, MN; Mark Sherman, **VKPC2SWL**, Central Coast, NSW, Australia; Lee Clark, **KPCØLEE**, Lee's Summit, MO; Terence Concannon, **KPC6PCJ**, Arroyo Grande, CA; Ace McInturff, **KPC7AT**, Sequim, WA; Lee DeBevoise, **KPCØNE**, Friend, NE; Edward Stroh, **KPC9EGS**, Thornton, IL; Steve Hawley, **KPC4EU**, Culpeper, VA; Guy Charron, **VEPC3VCF**, Ottawa, Ontario, Canada; Mark Daniell, **KPC4KV**, Raleigh, NC; Gary Long, **KPC2GRL**, Allentown, NJ; Bill Christian, **KPCØWMC**, Indianola, IA; Donald Wilson, **KPC6DW**, North Hollywood, CA; Thomas Meredith, **KPC3UPN**, Scott Township, PA; Gordon Pierce, **VEPC2AHI**, Québec, QC, Canada; Roger Eslick, **KPC4RW**, Eslick, SC; Hans Richner, **HBPC1HR**, Oetwil adL, Switzerland; Diadina Cotte, **KPPC4GDX**, Lajas, Puerto Rico; George Vaughn, **KPC4BBQ**, Freeport, FL; Norbert Sichterman, **KPCØSWL**, Rapid City, SD; Andrey Klimenko, **VEPC1AK**, Toronto,



Ontario, Canada; Camilo Castillo R., **HPPC1CAC**, Panama, Panama; Nathan Hodges, **KPC7TLA**, Sierra Vista, AZ; Jan Hattingh, **ZSPC6BMN**, Centurion, Gauteng, South Africa; Stephen Daniels, **KPCØIF**, Tyler, TX; Peter Dittmar, **KPC2KFF**, Falls Church, VA; Bernie Dodge, **KPC6CIQ**, San Diego, CA; Kevin Rupp, **KPC7NQC**, Lynwood, WA; David Orzechowski, **KPCØDO**, St. Cloud, MN; Steven Payne, **KPC5SKP**, Irving, TX; Jim Fry, **KPC4ZWN**, Nokesville, VA; Joe Carlson, **KPC6JC**, Livermore, CA; Douglas Copeland, **VEPC4DC**, Winnipeg, Manitoba, Canada; Michael Boland, **KPC7GTF**, Great Falls, MT; Brad Lorenzen, **KPCØHSN**, Springfield, MO; Nick Morvay, **VEPC3EIB**, Georgetown, Ontario, Canada; Glenn Wyant, **VEPC3GE**, St. Catharines, Ontario, Canada; Garry Hammond, **VEPC3XN**, Listowel, Ontario, Canada; Dennis Finegan, **KPC9PYD**, Lisle, IL; Douglas Wilson, **KPC5YTX**, Porter, TX; Felix Riess, **DEPC5BC**, Sandstedt, Lower Saxony, Germany; T.C. Patterson, **DUPC7TC**, Cebu, Philippines; Keith Gilbertson, **KPCØBHO**, Rochert, MN; Ben



**Photo C.** The listening post of GPCØAB on the Isle of Sheppey, Kent, England is diverse, impressive and years in the making. (Photography courtesy of GPCØAB)

essential computer provides all the programs I need. It's fascinating. Basically, if I can receive it, I'm interested.

My antenna consists of an 80-foot-long wire mounted at 35 feet, a discone antenna for VHF/UHF and a great self-built active antenna that has enormous capability from 50Hz to 2GHz. Both the discone and active antennas are mounted high on the side of the house, **Photo D.**

I enjoy construction projects and maintaining a healthy and neat shack layout, **Photo E.** I'm really lucky to live

Johnson, **KPCØBEN**, Mount Union, IA; Randy King, **KPCØNG**, Adams, NE; Dmitry Mezin, **RPC4DM**, Kazan, Tartarstan, Russia; Larry Shaunce, **KPCØAKX**, Albert Lea, MN; Gordon Guthrie, **VEPC3WGG**, Guelph, Ontario, Canada; Steven Scharff, **KPC7RAM**, Henderson, NV; Gerry Farmer, **VEPC6PW**, Calgary, Alberta, Canada.

## WPC Prefixes

Also: Klaus Spies, **WPC9YBM**, Niles, IL; W.R. Bernert, **WPC8WRB**, Stow, OH; Charles Tubbs, **WPC3AZ**, Wilmington, DE; Robert Relstab, **WPC9QDR**, Libertyville, IL; Michael Ishman, **WPC2OSN**, Niagara Falls, NY; Louis Uhl Disinger, **WPC9UHL**, Santa Claus, IN; Chuck Rippel, **WPC4CR**, Chesapeake, VA; Edward Holz, **WPC1KEX**, Temple, NH; Scott L. McMannis, **WPC3NK**, New Kensington, PA; Paul F. Merrill, **WPC7IV**, Bellingham, WA; Martin A. Chittum, Sr., **WPC9XN**, Sharpsville, IN; Al Stern, **WPC4AS**, Satellite Beach, FL; Steve Cherry, **WPC4LCE**, Warrenton, VA; Tony Casciato, **WPC4EI**, Melbourne Beach, FL; Michael Kern, **WPC9DXX**, Elkhart, IN; Robert Kastelic, **WPC9RJK**, Oak Creek, WI; Robert Rude, **WPCØRA**, Richmond, KS; Pasco Radio Operators, **WPC4AR**, Dade City, FL; Joseph L. Konczyk, **WPC3NWI**, Philadelphia, PA; Robert Gulley, **WPC4NB**, Bellevue, KY; Paul Avery, **WPC6PRA**, Gardena, CA; Richard B. Callebs, **WPC8UU**, Wellston, OH; Adrian M. Nesnadny, **WPC2AN**, Watertown, NY; Charles Lind, **WPC9ZLW**, Janesville, WI; Brian Rogers, **WPC8AA**, Allen Park, MI; Rick Muller, **WPC4ZT**, College Park, GA; Charles Mickler, **WPC4CWM**, Rainbow City, AL; Ronald Ramsey, **WPC4RGR**, Chatsworth, GA; Tomas Hood, **WPC7USA**, Hamilton, MT; Ralph Marxen, **WPC4LMN**, Fayetteville, NC; Thad Wallace, **WPC4TMW**, New Bern, NC; Robert A. Gibbs, **WPC8JWM**, Rochester, MI; Dayton Johnson, **WPC8YST**, Mayville, MI; William Centurion, **WPC8WAC**, Whitehall, OH; Dave Bergeron, **WPC2DB**, Ellington, CT; Bruce Dean, **WPC1CGL**, Needham, MA; Jim



Seeber, **WPC3USN**, Matamoras, PA; Mark Wintersole, **WPC5NZ**, Montgomery, AL; Dennis Wegner, **WPC3DJW**, Gordonville, PA; Dan Dankert, **WPC6DX**, Tustin, CA; Tom Goodfellow, **WPC6SWL**, Ramona, CA; Anthony Pursley, **WPC4NCR**, Wilmington, NC; Joe Eisenberg, **KPCØNEB**, Lincoln, NE; Anthony Bauman, **WPC8AJB**, Warren, MI; Ken Edwards, **KPC4PUG**, Lawrenceville, GA; Jay Barton, **WPC4QH**, Watha, NC; James Patterson, **WPC8RFT**, Columbus, OH; Ralph Swensen, **WPC1QSL**, East Falmouth, MA; Russell Hack Jr., **WPC1ENF**, Enfield, CT; Jon Pearl, **WPC4ABC**, St. Petersburg, FL; Patrick O'Brien, **WPC9PMO**, Pekin, IN; Robert Mershon, **WPC8CHJ**, Lebanon, OH; Robert Krueger, **WPC9BK**, Lombard, IL; Craig Blaine, **WPC2FDQ**, Westerville, OH; Paul McNamee, **WPC4PMC**, Chesapeake, VA; Roger D. Bowman, **WPC4ESK**, Winter Park, FL; Chris Bloxson, **WPC2KBK**, San Antonio, FL.

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](mailto:PopCommMonitor@gmail.com)>



**Photo D.** "My antenna consists of an 80-foot-long wire mounted at 35 feet, discone for VHF/UHF and a great self-built active antenna which has enormous capability from 50Hz to 2GHz," GPCØAB writes. "Both the discone and active antennas are mounted high on the side of the house."

where there is little noise interference — the bane of many listeners, I fear.

Also, being on an island, I believe this has its own benefits. It must be all that water and fog! I actually live a couple of miles from where the famous Wright Brothers taught early pioneers the lessons in flight.

My wife is pretty understanding of my passion for radio — although she often peers quizzically while I'm receiving strange hisses, whistles and garbled chatter. Oh well — *a boy has to have his space*, doesn't he?

My dad is still as enthusiastic as ever and his equipment lineup is equally impressive. Neither of us have taken the steps to becoming licensed — my fear is that I'd wish to take even more rooms in our home and I don't think that would go down too well!

I've listened to a huge amount of countries, spanning the globe from relatively close European stations to the extreme IOTA (Islands On The Air) stations and even the International Space Station when it could be heard.

Above all, I haven't forgotten my roots. I'm proud of what my dad introduced me to and the quality equipment he first gave me. That I still have it is testament to that. I often think: Wouldn't it be nice to go and spend £10,000+ on a single *all singing and dancing* receiver and get rid of my shack? Errrr no . . . I'm not even going to consider a swap.



**Photo E.** A close-up view of GPCØAB's ICOM IC-R71E receiver and matching IC-SP3 speaker show only part of the beauty of the gear at his island listening post.

# A Valuable Resource to Enrich Any Shortwave Listening Post

**BOOK REVIEW:**

*Domestic Broadcasting Survey*  
 14th Edition, April 2012  
 Edited by Anker Petersen  
 ISSN 1399-8218

Reviewed by Richard A. D'Angelo

*“In order to make the DBS reliable, the club’s own monitors around the world checked the 690 station shortwave frequencies from April 2011 to March 2012.”*

With the proliferation of the Internet, there are numerous providers of free radio broadcasting information in the marketplace today. Although the “free” price is reasonable, these publications tend to be lacking in terms of the quality of information.

The latest *Domestic Broadcasting Survey*, 14th Edition (*DBS* or *DBS-14*), which has again been edited by Denmark’s world-renowned DXer Anker Petersen, is one resource that provides an accurate DX reference for the shortwave enthusiast each year.

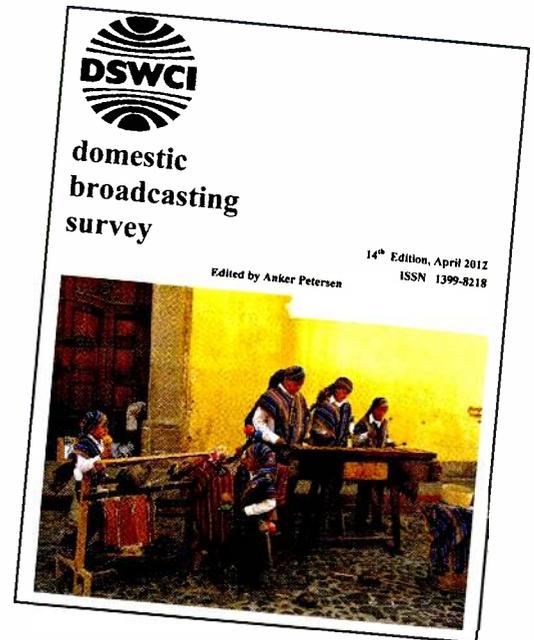
Published in April by the Danish Shortwave Club International (DSWCI), the *DBS* continues to be the top annual publication devoted to tropical and domestic band shortwave broadcasting stations. (*VISIT: The DSWCI website at: <http://www.dswci.org>.* – KPC6PC)

The DSWCI offers the *DBS* in electronic form (PDF-format), which provides for a substantial reduction in price over the paper version — thereby increasing its value and speed of delivery. For traditionalists, the paper version of the *DBS* is available. Either way you will be receiving and using an important DX resource produced by an international array of top notch DXers that will prove its worth to you time after time.

The cover picture of the 14<sup>th</sup> edition of the *DBS*, **Photo A**, was taken by *DBS* Editor Anker Petersen during his world travels. His annual cover photo continues to provide the local flavor associated with a domestic shortwave listening market.

The DSWCI is now 55 years old. It has a worldwide membership of experienced shortwave listeners scattered in 33 countries around the globe. Anker draws upon the knowledge and skills of the DSWCI’s international array of top-flight DXers to produce this unique and extremely valuable hobby resource.

In order to make the *DBS* reliable, the club’s own monitors around the world checked the 690



station shortwave frequencies — down from 775 stations the previous year — on the air throughout the period April 2011 to March 2012. In addition to the club’s extensive monitoring activity, the new survey is also based upon many official sources and DX bulletins with A12 schedules included when available.

Over the years, the DSWCI has published some of the best non-commercial hobby references available to the shortwave listener. The electronic and print editions of *DBS-14* continue in this grand tradition. It is an essential reference for serious shortwave listeners and DXers.

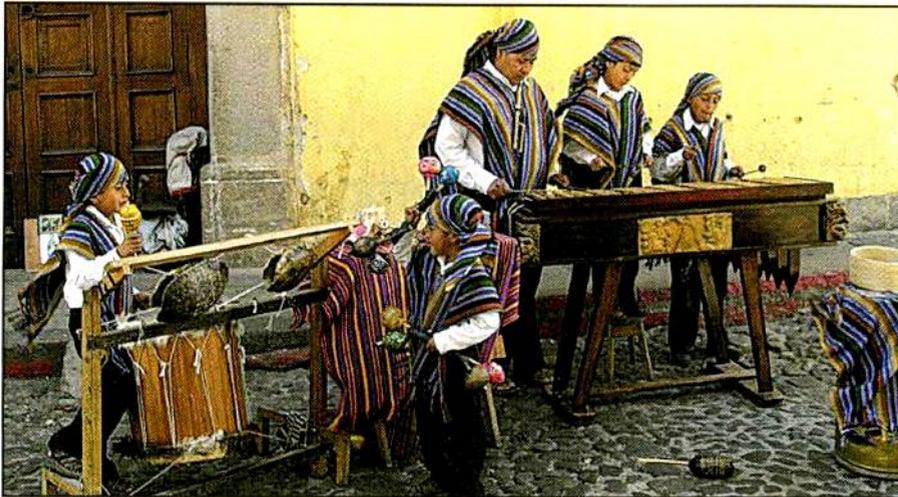
This is the 14th year that the DSWCI has incorporated its invaluable tropical band survey into a broader national survey that includes all domestic shortwave broadcasting. The classic *Tropical Band Survey* (TBS) portion of this publication, which has been tops in the field of shortwave broadcast lists for many years, is in its 40<sup>th</sup> year and is updated on the Web.

Because most of the club’s members devote the majority of their DXing time to domestic broadcasting stations on the tropical and international shortwave bands, many years ago the DSWCI decided to expand the traditional tropical band survey to include stations broadcasting to a domestic audience on the international shortwave bands. Consequently, the DSWCI now publishes a superb, comprehensive reference of domestic shortwave broadcasting throughout the shortwave spectrum.

The *DBS-14* covers all active stations broadcasting to a domestic audience between the fre-

## Samples from Domestic Broadcasting Survey 14:

B	3385	10	PNG	NBC East New Britain, Rabaul	Kundu (Provincial) Sce: 2000-2100 0700-1200 E/Tok Pi	MAR12
C	3390	1	CAF	R ICDI, Boali	1500-2100 F/Sango/Bayaka/Fulfulde rlg, ck 6040	MAR12
A	3480		CLA	Voice of the People, via Goyang, South Korea	0455-2305 Korean to KRE, ID: "Inmin-e sori pangsong-immida," // 3912 4450 6518 6600. Operated by the Korean Armed Forces	MAR12
B	3900	7.5	CHN	Hulun Buir PBS, Hailar, Nei Menggu	2130-0700 (Tu-0210) 0900-1440 C	DEC11
C	3905	10	PNG	NBC New Ireland, Kavieng	Kundu (Provincial) Service: 1900v-2200 0730-1200v Tok Pisin, ID: "Maus bilong Mai Mau"	DEC11
A	3912	-	CLA	Voice of the People, via Goyang, South Korea	0455-2305 Korean to KRE // 3480(ID) 4450 6518 6600	MAR12
B	3915	1	PNG	R Fly, Kiunga	24h E/Tok Pisin // 5960	MAR12
A	3915	100	SNG	BBC, via Kranji	FS: 2100-2400 E. Broker: Babcock	FEB12
B	4750	1	UGA	Dunamis Broadcasting, Mukono, Kampala	1500-1900v E/Vn, rlg. A joint project by High Adventure Canada and Dunamis FM. Sponsor: Bible Voice Broadcasting	MAR12
B	4754,9	10	B	R Imaculada Conceição, Campo Grande, MS	[ Oct-Feb] 24 hP rlg, n 4755, relays R Educação Rural, r-2139* d -4768	MAR12
B	4755,4	1	FSM	The Cross R, Pacific Missionary Aviation (PMA), Pohnpei	1930-1100v E rlg, ID: "The Cross Radio," relays FM 88.5/99.5/102.5	MAR12
B	4760	8.5	IND	AIR Port Blair, Brookshabad, Andaman & Nicobar Islands	Southern Sce: 2355-0300 1030-1700(SS -1730) (SE: 2315-0300 1030-1830) E/Hindi/ Sanskrit/Nicobarese/Telegu/ Bengali/Tamil/ Malayalam, E nx 0035 1230 1530. S/on with Vande Mataram hymn, Hindi ID: "Yeh Akashvani Port Blair-he" (Akashvani = The voice from the sky), 0125-0130 Sanskrit, 1030-1100 Nicobarese, 1100-1130 Telegu, 1130-1200 Tamil, 1200-1230 Bengali, (= 7390) †Apr-Oct 0130) 0212-0413(Su 0430) 1200-1700, (SE: 2315-0410 1045-1830) E/Hindi/Urdu/Laddakhi/Kashmiri. ID: "Akashvani Leh," "Radio Kashmir." E nx 0245-0300, (= 6000). Part of AIR, d -4720	FEB12
B	4760	10	IND	R Kashmir, Leh (Laddakh), Jammu and Kashmir	FS: 1425-1625 E/Ndebele/Shona	JAN12
B	4760	50	SWZ	TWR, Mpangela Ranch	2300-2000 Tajik, ID: "In jo Dushanbe"	FEB12
A	4765	50	TJK	Tajik R 1, Yangiyul, Dushanbe	Px 2: 0400-1000 1300-1800 A/Afar/Amharic/Oromo/Saho/Bilen// 7175, d-4760	MAR12
B	4770		ERI	Voice of the Broad Masses of Eritrea, Asmara	1100-1400 2000-0200 S	FEB12
A	4774,9	0.5	PRU	R Tarma, Tarma, Junin	[ Oct-Feb] 0800-2400v P. Usually with Evangelical px	MAR12
B	4775	1	B	R Congonhas, Congonhas, MG	2055-2400(Apr-Oct 2300) C, // 6065 6090 9820, (=3985(ID) 7220)	NOV11
B	6190	100	CHN	China Business R, Golmud, Qinghai	0000(Apr-Oct 2330)-0330 1230-1800 Mongolian // 4500(ID), (= 9510); 1210-1230 Kyrgyz	FEB12
B	6190	100	CHN	Xinjiang PBS, Urumqi, Xinjiang	Apr-Oct: 2250-1600 Tibetan, ck 4220 5990	OCT11
C	6190	50	CHN	Qinghai PBS, Xining, Qinghai	24 h G // 153 207 LW 1269 MW. Old transmitter with problems	MAR12
B	6190	17	D	Deutschlandfunk, Berlin Britz	R Rossii Dubl 3: 2100-1700 Ru. exc. Reg px: Su-Th 2110-2200 2210-2300, SS 0110-0200,MF 0210-0225 0410-0500 1110-1200 Ru/Buryat	MAR12
C	6195	50	RUS	GTRK "Buryatiya," Selenginsk, Ulan Ude, Respublika Buryatiya	2050-1805 Tibetan, 0700-0730 1630-1700 E "Holy Tibet" // 4905 MF 0500-0700 1630-2000 F/E/Kikongo/Kinyarwanda/Lingala/ Mashi/Swahili/Tshiluba	JAN12
B	6200	100	CHN	Xizang PBS, Lhasa, Tibet	0530v-2300v S/Vn, ID: "Radio Malabo" Equatorial. Malabo	MAR12
C	6210	0.8	COD	R Kahuzi, Bukavu	24 h Hebrew // 15785. Operated by Israel Defence Forces. ID: "Galei Tzahal, Shidure Tsava Hagana Le'Yisrael." ex 7635, ex 9235	MAY11
D	6250	20	GNE	Radio Nacional de Guinea	Minority px "Rakhine Broadcasting Station": 2330-0030 Chin, 0030-0130 Kachin, ck 7345 9590; ex 7100	MAR12
B	6973	10	ISR	Galei Tzahal (= The Waves of Defence), Lod, Tel Aviv	1030-1430 Bamar, 1430-1500 E // 639 MW. some days -1630* 0555(Su 0800v)-2300 F/Vn, F ID: "Ici Conakry," "Radio Guinée"	MAR12
B	7110	-	MYA	Rakhine R, Pyin Oo Lwin	Px 2: 0300v-1000 1300-2000v A/Afar/Amharic/Oromo/Saho/Bilen, A ID: "Huna Asmara, Idha'at Sawt al-Jamahir al-Iritriyyah," d 7099-7191 to avoid Ethiopian jamming // 9710 9830	SEP11
B	7110	-	MYA	Thazin R, Pyin Oo Lwin	Main px: 0030-0200 1000-1330v Bamar, 0200-0245 (SS -0300) E, ck 5985(ID) 9730, ex 7200	MAR12
D	7125	50	GUI	R Conakry, Sonfonia, Conakry	Red Channel: 0600-1300 E/Swahili/Vn. (= 4976)	JUN11
A	7175	100	ERI	Voice of the Broad Masses of Eritrea, Asmara	0230-0530 0730-1000 Bamar, r 2330-0200 1100-1330 Bamar,ex 9400	MAR12
D	7185.8	50	MYA	Myanma R, Yangon, Yegu	Px 1: 0300-1000 1300-1830 Tigrinya/Tigre/Kunama; Tigrinya ID: "Ezi kab Asmara Zemehalalef Medeber Radio Demtsi Hafash Eritrea Eyu", d-7210, // 9710; jammed by Ethiopia	MAR12



**Photo A.** The picture on the cover of the 14<sup>th</sup> edition of the *Domestic Broadcasting Survey* was taken by longtime DXer and DBS Editor Anker Petersen — featuring a Mayan family playing marimba and percussion, including turtle shells, on the street in Antigua, Guatemala. (Courtesy of DSWCI)

This simple coding system provides valuable information when tuning the bands while trying to get a handle on rare, exotic shortwave DX catches. As a result of extensive monitoring, most of the frequencies already have been confirmed as being active in 2012.

## Top Quality Information

The combination of high quality and low price make the *Domestic Broadcasting Survey* unbeatable in today's global resource reference marketplace.

It is one of the first resources I pack when attending French Creek DXpeditions, <<http://bit.ly/IEO39A>>, **Photo B.**

## At the Listening Post

How easy is the *Domestic Broadcasting Survey* to use? Very.

The first column provides the reception code — A, B or C as previously described. The second column lists the frequency. The third column provides the station transmitter output. The fourth column designates the broadcasting country utilizing the International Telecommunications Union (ITU) country code abbreviations. For those not familiar with these abbreviations, a complete list of ITU country codes is given on page 3 of the *DBS*.

The fifth column provides the station name and/or call letters and location. The next column provides transmission times and other useful information about the station, such as operating schedules during Ramadan for Middle East and Indonesian stations.

See the sample extracts from the *DBS* accompanying this review.

## How to Get It

The 23-page A-4 size *Domestic Broadcasting Survey* is available in electronic form in PDF-format of about 505 kB, via email for U.S. \$7.00, EUR 5, or 3 International Reply Coupons (IRCs).

The *DBS-14* print edition is available for U.S. \$13, EUR 10, or 5 IRCs, and can be ordered direct from the club treasurer at: DSWCI, c/o Bent Nielsen, Egekrogen 14, DK-3500 Værløse, Denmark. Contact Nielsen via email at: <[bent.elin@webnetmail.dk](mailto:bent.elin@webnetmail.dk)>.

If the Euro is your national currency, you are advised to order through the club representative in Germany: Andreas Schmid, Lerchenweg 4, D-97717 Euerdorf, Germany.

If you want to pay via PayPal, write for information at: <[schmidandy@aol.com](mailto:schmidandy@aol.com)>.

frequencies of 2,300 kHz to 30,000 kHz, including clandestine stations.

- Part 1 is the 40<sup>th</sup> edition of *Tropical Band Survey* covering all active broadcasting stations in the 2,300- to 5,700-kHz range.
- Part 2 covers the domestic stations on the international bands above 5,700 kHz broadcasting to a domestic radio audience.
- Part 3 contains deleted frequencies between 2 and 30 MHz, which have not been reported heard during the last five years, but may reappear at some future point in time. (*NOTE: This latter section*

*is only published in the email/PDF-format version, but buyers of the printed version can get a copy direct from the editor upon request. — R.A. D'Angelo*)

## Easy As A, B, C, D

To assure reliability, each of the 690 station frequencies has been checked by the club's extensive collection of worldwide shortwave monitoring experts since the last publication through the April closing date. Stations confirmed as being active are marked with an "A" (regular), or "B" (irregular), or "C" (sporadic) in the list. A "D" means the station is likely inactive.

The screenshot shows the website 'DXing.info' with a navigation menu on the left and a main content area. The main content area features a report titled 'French Creek DXpedition no. 17' by Rich D'Angelo. The report text describes the expedition and mentions that John Figliozzi was delayed by snow. Below the text is a photograph of the expedition members sitting around a table. The caption for the photo reads: 'Left to right - Ed Mauger, Tracy Wood, John Figliozzi, Rich D'Angelo and Rich Cuff'.

**Photo B.** A report posted on the Internet from the December 2003 French Creek DXpedition captures the flavor of the event. (Internet screen grab)

# BROADCASTING

## World Band Tuning Tips

# 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	UTC	Freq.	Station/Country	Notes
0000	9880	Radio Canada International		0300	7215	TWR, USA, via South Africa	
0000	15190	Radio Inconfidencia, Brazil	PP	0300	9620	Radio Exterior de Espana, Spain	SS
0000	6180	Radio Nacional Amazonia	PP	0300	3350	Radio Exterior Espana, Spain	SS
0000	7510	Democratic Voice of Burma, via Armenia	Burmese	0300	7200	Sudan Radio TV	AA
0000	6010	Radio Mil, Mexico	SS	0300	9460	BBC Relay, Seychelles	
0000	15125	VOA, Northern Marianas Relay	CC	0300	3320	Radio Sonder Grense, South Africa	Afridaans
0000	9920	Radio Free Asia, USA	VV	0300	3345	Channel Africa, South Africa	
0000	5860	Radio Farda, USA, via Sri Lanka	Farsi	0300	12035	BBC Relay, Seychelles	
0000	11905	Sri Lanka Broadcasting Corp.	Hindi	0400	6165	Radio Nationale Tchadienne, Chad	FF
0000	13745	Radio Thailand		0400	4930	VOA, Botswana Relay	
0000	6055	Radio Exterior Espana, Spain		0400	7200	Islamic Republic of Iran Broadcasting	
0000	7260	Voice of Russia, via Moldavia	RR	0400	7175	Voice of the Broad Masses of Eritrea	Tigrinya
0100	9570	China Radio International, via Albania		0400	15720	Radio New Zealand International	
0100	11765	Super Radio Deus e Amor, Brazil	PP	0400	5446.5	Armed Forces Network, Florida	
0100	15755	BBC, England		0400	4960	Voice of America, Sao Tome Relay	
0100	11600	Radio Pakistan	Urdu	0400	15620	Voice of America, Sao Tome Relay	FF
0100	5954	Radio Republica, to Cuba	SS	0400	6130	Radio Romania International	
0100	13760	Voice of Korea, North Korea		0500	4990	Radio Apinte, Suriname	DD
0100	9435	Voice of America, Sri Lanka Relay		0500	9625	CBC Northern Quebec Service, Canada	
0100	15745	Sri Lanka Broadcasting Corp.		0500	6110	NHK World Radio Japan	
0200	11815	Radio Brazil Central	PP	0500	5975	NHK World Radio Japan	
0200	11710	Radio Argentina al Exterior		0500	5005	Radio Nacional, Equatorial Guinea	SS
0200	4055	Radio Verdad, Guatemala	SS	0500	9660	Vatican Radio	
0200	9315	Radio Cairo, Egypt		0500	6175	Voice of Vietnam, via Canada	VV
0200	11735	Voice of Korea	SS	0500	7275	Radio Tunisienne, Tunisia	AA
0200	7245	RTV Mauritanie, Mauritania	AA	0600	4915	Radio Difusora Macapa, Brazil	PP
0200	9650	Voice of Turkey	SS	0600	7390	Radio France International	FF
0200	9680	Radio Taiwan, via Florida		0600	9765	Radio New Zealand International	
0200	9750	Voice of Russia, via Armenia	SS	0600	6165	Zambia National Broadcasting	
0300	4780	Radio Djibouti	AA	0700	6155	Radio Austria International	GG
0300	5910	Alcaravan Radio, Colombia	SS	0700	6165	NHK World Radio Japan	JJ
0300	9820	Radio Nove de Julho, Brazil	PP	0700	6185	Radio Educacion, Mexico	SS
0300	7395	NHK World Radio Japan	Swahili	0800	2285	Radio East New Britain, Papua New Guinea	Tok Pisin vernacular
0300	7210	Radio Fana, Ethiopia	Amharic	0800	9635	RTV Malienne, Mali	
0300	7200	Voice of the Broad Masses of Eritrea	Tigrinya	0900	3290	Voice of Guyana	EE/DD
0300	9575	Radio Medi Un, Morocco	AA	1000	6135	Radio Santa Cruz, Bolivia	SS
0300	5010	Radio Madagasikara, Madagascar	Malagasy	1000	3310	Radio Mosoj Chaski, Bolivia	Aymara
0300	9660	Vatican Radio		1000	4700	Radio San Miguel, Bolivia	SS
0300	5915	Zambia National Broadcasting	vernacular	1000	4878	Radio Difusora Roraima, Brazil	PP
0300	11625	Vatican Radio		1000	5029	Radio Libertad, Peru	SS

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
1000	11665	Wai FM, Malaysia	Bahasa Malay	1900	15120	Voice of Nigeria	
1000	4755	The Cross Radio, Micronesia		1900	15140	Radio Sultanate of Oman	AA
1030	12085	Voice of Mongolia		1900	11615	Radio Nederland, via Vatican	
1100	6165	Radio Nederland, Bonaire Relay	SS	1900	11655	Radio Nederland, Madagascar Relay	
1100	9615	Radio Veritas Asia, Philippines	Mandarin	1900	15240	Adventist World Radio, via South Africa	
1100	4775	Radio Tarma, Peru	SS	1900	11930	Radio Marti, USA	SS
1100	6285	Voice of Korea, North Korea	FF	1900	9885	Family Radio, USA, via UAE	
1100	5020	Solomon Islands Broadcasting Corp.		1900	9925	Family Radio, via Germany	Somali
1100	6300	Ministry of National Defense, S. Korea	KK	1900	15240	Adventist World Radio, via South Africa	Fulani
1200	6020	Radio Australia		1900	15345	Islamic Republic of Iran Broadcasting	FF
1200	9580	Radio Australia		1900	4747	Radio Hunanta 2000, Peru	SS
1200	3925	Radio Nikkei, Japan	JJ	2000	11760	Radio Havana Cuba	
1200	2215	Radio Republik Indonesia	II	2000	7465	Radio Tirana, Albania	GG
1200	9880	Adventist World Radio, Guam	KK	2000	17750	NHK World Radio Japan, via Madagascar	FF
1200	9975	TWR, Guam	Mandarin	2000	7320	Islamic Republic of Iran Broadcasting	
1200	7119	Thazin Radio Broadcasting	Burmese	2000	11670	All India Radio	Hindi
1200	12045	Voice of America, via Philippines	CC	2000	11995	Radio France International	
1200	9650	KBS World Radio, South Korea		2000	6110	Radio Fana, Ethiopia	amharic
1300	9570	China Radio International		2000	7290	Radio PMR, Moldavia	
1300	11690	Radio Havana Cuba		2000	15345	RT Marocaine, Morocco	AA
1300	11655	NHK World Radio Japan	JJ	2000	13590	CVC-One Africa	
1300	9526	Voice of Indonesia		2000	13570	WINB, Pennsylvania	
1300	15190	IRRS, Italy, via Romania		2000	11755	Adventist World Radio, USA, via S. Africa	
1300	9430	Far East Broadcasting Co., Philippines	Mandarin	2000	9555	Broadcasting Svc. of Kingdom, S. Arabia	AA
1300	9835	Sarawak FM, Malaysia	Bahasa Malay	2100	11760	Radio Havana Cuba	SS
1300	6050	Asyik FM, Malaysia	Bahasa Malay	2100	15580	VOA, Botswana Relay	
1300	9840	Voice of Vietnam		2100	9830	Adventist World Radio, via Austria	
1400	11775	University Network, Anguilla		2100	12095	BBC, Ascension Island Relay	
1400	9595	Radio Nikkei, Japan	JJ	2100	9445	All India Radio	
1400	15660	NHK World Radio Japan		2100	7450	Radio Macedonia, Greece	Greek
1400	11580	TWR, Guam	KK	2100	11865	Deutsche Welle, Germany, via Rwanda	
1400	5764	Armed Forces Network, Guam	usb	2100	9705	Radio Ethiopia	Amharic
1400	5875	BBC, Thailand Relay		2100	12020	HCJB, Ecuador, via Chile	AA
1400	9520	Radio Veritas Asia, Philippines	Tamil	2100	9705	La Voix du Sahel, Niger	AA/vernacular
1500	11725	Radio New Zealand International		2100	7560	Voice of America, Kuwait Relay	
1500	11530	Denge Mezopotamia, to Iran	Kurdish	2100	15195	Family Radio, via Ascencion	
1500	11710	Voice of Korea, North Korea		2100	5960	Voice of Turkey	
1500	17540	Radio Romania International	AA	2100	9330	Radio Damascus, Syria	
1600	15190	Radio Africa, Equatorial Guinea		2200	17680	CVC- La Voz, Chile	SS
1600	11765	Sound of Hope, to China	Chinese	2200	9420	Voice of Greece	Greek
1600	11965	Radio Nederland, Madagascar Relay	DD	2200	7370	Radio Polonia, Poland, via England	Polish
1600	15190	IRRS, Italy, via Romania		2200	7330	Radio Polonia, Poland, via England	Polish
1600	17695	CVC-One Africa, Zambia		2200	15315	Radio Nederland	DD
1600	9905	Radio Free Asia, USA, via Palau	Mandarin	2200	6090	Radio Nigeria	
1600	17745	Sudan Radio Service, USA, via Sudan		2200	11950	Radio Kuwait	AA
1600	11815	Voice of Turkey	TT	2200	11820	Broadcasting Svc. of Kingdom, S. Arabia	AA
1600	13660	Family Radio, via France	Oromo	2300	4319	Armed Forces Network, Diego Garcia	usb
1600	15225	Broadcasting Svc. of Kingdom, S. Arabia	AA	2300	6070	CFRX, Canada	
1600	11870	Radio Romania International		2300	7375	Radio Canada International	
1600	12005	RT Tunisienne, Tunisia		2300	9665	Voz Missionaria, Brazil	PP
1700	15300	Radio France International	FF	2300	7210	Radio Tirana, Albania	
1700	11600	Radio Television Libye, Libya	FF	2300	15345	Radio Argentina al Exterior	
1800	9635	CVC-La Voz, Chile	SS	2300	6190	BBC, via South Africa	
1800	15445	NHK World Radio Japan, via Germany	JJ	2300	15650	Voice of Greece	Greek
1800	17640	BBC, via South Africa		2300	9835	HCJB Ecuador, via Chile	GG
1800	15420	WBCQ, Maine		2300	6270	Radio Cairo, Egypt	
1800	15310	Radio Romania International	Romanian	2300	9305	Radio Cairo, Egypt	AA
1900	13640	Radio Havana Cuba	FF	2300	7520	Radio Ffarda, USA	Farsi
1900	9915	BBC, Cyprus Relay	AA	2300	9930	WBCQ, Maine	
				2300	9740	BBC Relay, Singapore	

# Communications Trivia and Other Pursuits

By R.B. Sturtevant,  
KPC7RBS/AD7IL

**Q.** Who was the first U.S. military radioman to be killed in Vietnam?

**A.** According to the Veterans of Foreign Wars, the first radio operator killed in action in Vietnam was Spec. 4 James T. Davis of Livingston, Tennessee. He was a cryptologist attached to the 3<sup>rd</sup> Radio Research Unit stationed at Tan Son Nhut Air Base, 3<sup>rd</sup> RRU. Later renamed the 509<sup>th</sup> Radio Research Group, it was part of the secretive Army Security Agency.

Davis came to Vietnam in May 1961 on a civilian passport and was involved in classified communications work. On December 22, 1961, he was advising a radio-direction-finding team which came under fire from the Viet Cong. Davis died returning fire.

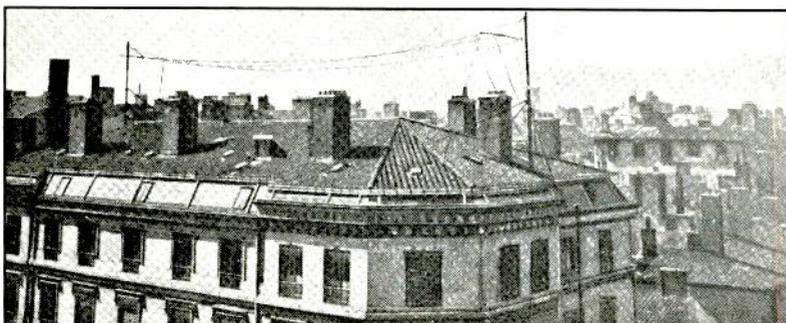
Radio operators were deeply involved in dangerous action and missions throughout the war, **Photo A**.



**Photo A.** A U.S. Army infantryman is lowered into a tunnel by members of a reconnaissance platoon near Duc Pho, Quang Ngai Province in Vietnam in April 1967. Radio operators were in the thick of the action during the war. (Courtesy of U.S. Army)

**Q.** Does the diameter or thickness of the wire used to build an antenna have an impact on the amount of signal that is sent off the wire?

**A.** Throughout radio history, but especially in the 1930s, there was a theory going around that it did, **Photo B**. Some folks even built antennas with quarter-inch diameter wire. But then we discovered the *skin effect* — the phenomenon that when current is introduced into a wire the electrons tend to move along the outside of the wire.



Think of the wire in cross section as a doughnut. The electrons move in the dough area and not in the area of the hole.

Like everything else you do building wire antennas: Anything done has to be a compromise because there are no *perfect* antennas.

**Q.** Are the drug cartels we hear so much about in the news recently using amateur radio gear to help get drugs into this country?

**A.** Yes, along with everything else they can possibly think of, they use high-end, handheld gear; repeaters; top-of-the-line antennas; and sophisticated networks to listen in on all radio communications along the front lines of the drug wars. They even use the military channels to broadcast threats against Mexican soldiers and police targeting their operations.

“They’re doing what any sensible military unit would do,” said Robert Killebrew, a retired U.S. Army colonel who has studied the Mexican drug cartels for the Center for a New American Security, a Washington think tank. “They’re branching out into as many forms of communications as possible.”

According to other experts: “The radio system appears to be a *low-cost, highly extendable and maintainable network* that shows the cartels’ sophistication.” Operating from northern Mexico to Nicaragua, this is not a local problem.

Last year, Mexican authorities confiscated 167 antennas, 155 repeaters, 166 power sources, 71 pieces of computer equipment and 1,446 radios.

**Q.** I’ve heard that the shenanigans of young radio experimenters gave the military services fits at one time. What happened?

**A.** Radio for young people many years ago was something like the computer craze of the ’70s and ’80s. Everyone wanted to know about it and kids wanted to build a set and get in on the fun.

Unfortunately, some young boys near Mare Island Navy Base in Vallejo, California were listening in on official Navy traffic — something the service likes to keep under wraps — and telling newspapers which ships were due in and which were going out.

One boy near the Brooklyn Navy Yard sent a message, supposedly from a Navy admiral, ordering a large warship to delay its sailing. The ship sailed on time, but you can imagine what the Navy thought about the false message.

The Army didn’t have too much trouble of this kind because it was using the wire telegraph at the time.

Fortunately, radio amateurs would go on to become highly skilled and disciplined and the U.S. Navy would welcome them into military ranks — and have been doing so for generations.

**Photo B.** This photograph, taken in 1912, shows a radio amateur’s heavy-duty antenna array on the roof of an urban building somewhere in France. (Courtesy of Société de TSF française à Juvisy-sur-Orge via Wikimedia Commons)

## IN GEAR

### Power Up

By Jason Feldman, WPC2COD

## Cross Country Wireless Releases Third Version of Its SDR Receiver

Cross Country Wireless, a manufacturer of software defined receivers (SDR) based in the United Kingdom, has introduced the third version of its compact high-performance, high-frequency receiver which is designed to be used in fixed or portable stations.

Enhanced with a new RF pre-amplifier using a power MOSFET and other revisions, Cross Country said it will improve its performance both as a stand-alone receiver and as an IF panadaptor with HF and VHF transceivers.

Following the development of the new SDR-4+ general coverage receiver, Cross Country Wireless also redesigned the audio amplifier to minimize changes in audio phase. This ensures that once the I/Q amplitude and phase balance is set, it remains constant over the bandwidth of the receiver so that the unwanted sideband rejection remains high.

It has a choice of two internal crystal oscillators or an external VFO input. It's got good RF filtering (high and low pass filters similar to our VHF/UHF filters) before the RF pre-amplifier and it's optimized for use with any stereo input sound card so it negates the need to buy an expensive sound card. It can also be used with high performance sound cards for a wider tuning range and greater dynamic range.

An Experimenter's Special version can cover 6 to 15 MHz depending on crystals. It has a crystal center frequency of 7.156 MHz in the X1 crystal position and a HC25/u crystal socket in the X2 position. A selection of different crystals is supplied with the receiver covering center frequencies of 7.056, 9.000 (for some Yaesu, Kenwood and ICOM IF frequencies), 10.125 and 14.250 MHz.

The 40/30-meter version has center frequencies of 7.057 MHz and 10.125 MHz.

The 30-meter version has a narrower front-end band pass filter and center frequencies of 10.125 and 10.154 MHz.

The 80-meter version has center frequencies of 3.580 and 3.668 MHz. An optional frequency of 3.515 MHz is available.

The 500-kHz version has a center frequency of 500 kHz so a 48-kHz sound card will cover 476 to 512 kHz.

The 455-kHz version has an offset center frequency of 460.5 kHz and reduced audio gain so that it can be used as a SDR panadaptor on existing receivers or transceivers fitted with a 455-kHz IF output.

Using a 48-kHz sound card, SDR software can tune +/- 24 kHz from the center frequency. With a 96-kHz sound card, SDR software can tune +/- 48 kHz from the center frequency.

The SDR Receiver Version 3 is available now at an MSRP of £49.95 and £10.00 international postage. Cross Country Wireless can also provide the SDR Receiver as a built and tested PCB ready to include in your project or fit into an existing case for £35.00 + £10.00 international postage. (VISIT: Cross Country Wireless' website: <<http://bit.ly/Jn3bpe>>)

#### Features Include:

- Multiband Experimenter's Special, dual band 40/30 meter or monoband 20 meters, 30 meters, 80 meters, 500 kHz or 455 kHz versions
- Two crystal oscillators and an external VFO input
- RF band pass filter and RF amplifier using a power MOSFET in receiver front end
- Works well with 48- or 96-kHz stereo input sound cards
- Minimum signal detectable is better than -127 dBm with a 48-kHz, 16-bit sound card
- CCW TNC Digi Tracker
- LO output to the antenna is less than -70 dBm
- Compatible with SDR software designed for Softrock receivers such as HDSDR, Rocky 3.7, PowerSDR, Winrad, CW Skimmer, SDR Sharp or SDR-Radio
- No surface mount components
- Supplied built, aligned and tested with a detailed specification sheet
- Supplied with a CD-ROM containing sample SDR and digital mode programs
- Power requirements 7 to 25 volts current consumption 73 mA
- Complies with FCC Part 15 rules and CE specifications for EMC, RoHS and WEEE
- Built with high-grade components in a tough ABS case
- Supplied with connection details, circuit, instruction manual, and sample software on a CD



Photo A. Version 3 of Cross Country Wireless' SDR. (Courtesy of Cross Country Wireless)

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**Any day you don't learn  
something new is a wasted day!**

# Some Basic Solar Terms, Part III: When Things Are in Flux, It's A Good Thing

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

*"This measurement (10.7-cm Radio Flux) is useful because it provides a somewhat accurate way to assess how much energy the sun is radiating."*

Last month, we explored one of the most prominent features on the Sun: Sunspots. Let's look at other measurable solar activity: the 10.7-cm Radio Flux and the background X-ray flux.

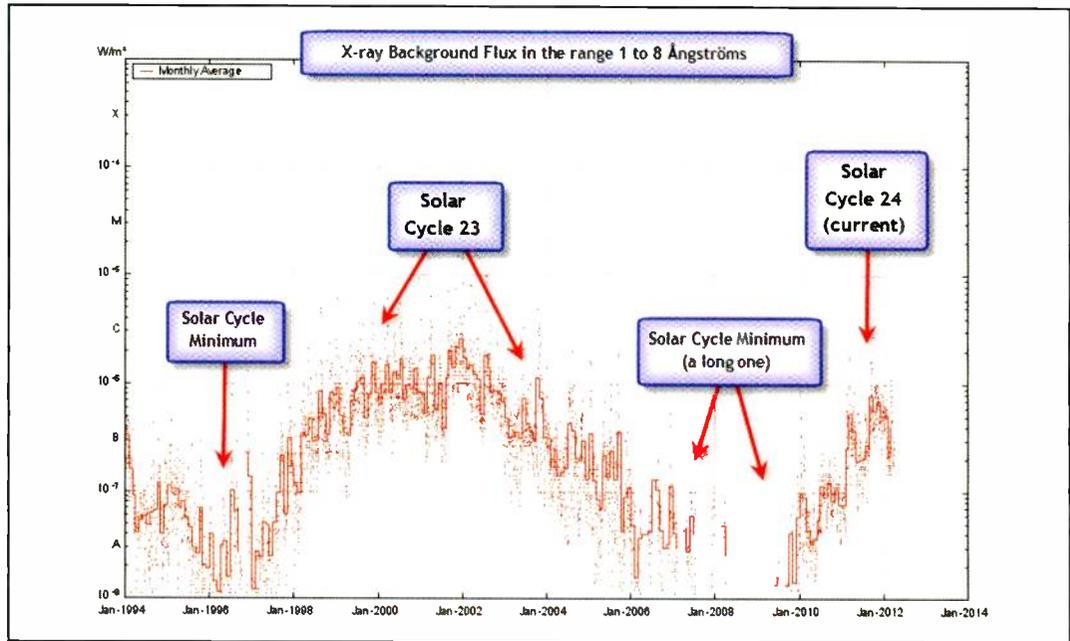
## The 10.7-cm Radio Flux

Another measurement of solar activity, of course, is the 10.7-cm Radio Flux. This measurement is useful to the SWLer or radio amateur because it provides a somewhat accurate way to assess how much energy the sun is radiating. Since long-range DX depends on the ionospheric refraction of our shortwave radio signals and since the ionosphere depends on solar energy for its existence, the more solar energy available, the better the DX.

Scientists have been routinely measuring the flux of microwaves from the Sun at wavelengths between 3 and 30 cm (frequencies between 10 and 1 GHz) since 1947. These solar radio emissions come from high in the Chromosphere and low in

the Corona. Specifically, the radio flux has two different sources: thermal bremsstrahlung, <<http://g.nw7us.us/JGG142>>, due to electrons radiating when changing direction by being deflected by other charged particles, and 'gyro'-radiation, <<http://g.nw7us.us/JGGpQ5>>, due to electrons radiating when changing direction by gyrating around magnetic field lines. These mechanisms give rise to enhanced radiation when the temperature, density and magnetic field are enhanced. This is why this microwave radiation is a good measure of general solar activity.

Strong solar magnetic fields are located in specific regions (often in active sunspot regions) that can live for weeks. These active regions often reoccur at or near the same location on the solar disc for months, perhaps even years. At solar cycle minimum, especially a *deep* one as we just witnessed between Cycle 23 and current Cycle 24, the effect of active regions largely disappears and we observe a sort of solar *ground state*.



**Figure 1.** This graph plots the daily (red dots) and monthly (red line) average of the background 'hard' X-ray energy in the 1 to 8 Ångström wavelengths, as measured by the GEOS satellite. It is clear from this plot that Sunspot Cycle 24 energy is rising, though with variation as is typical of all solar cycles. (Courtesy of GEOS-14 data, plotted with the gnuplot program)

As the radio flux measurements (as contrasted with the sunspot count numbers) are unaffected by changes of human observers and their observing techniques and instrumental and atmospheric differences, these radio flux measurements may be a 'truer' and more objective measure of solar activity

The longest-running series of solar observations is that of the 10.7-cm (or, 2800-MHz) Radio Flux (often simply referred to as 'F10.7'), which was started by Covington in Ottawa, Canada in April 1947. These numbers are maintained at the Penticton site in British Columbia, <<http://g.nw7us.us/IbUc01>>. There are three measurements per day with small systematic differences. For daily records and analysis of propagation, we only use the noon value for Penticton at 2000 UTC, and we've used this noon value since 1991.

## Even More Accuracy

The late Robert Brown, Ph.D., NM7M, proposed an even more accurate way to assess the level of energy available for ionization of the ionosphere on a given day. (*SEE: NM7M's great introduction to radio signal propagation at <<http://g.nw7us.us/Itbyn0>> – WPC7USA.*) He explained that the hard

X-ray energy present from the wavelengths of 1 to 8 Ångströms (Å, <<http://g.nw7us.us/JGFDCA>>) provided the most effective ionizing energy throughout all of the ionospheric layers in our atmosphere. The GEOS satellites measure these wavelengths and the resulting measurements are reported as the "background X-ray level" throughout the day. A daily average is reported, as well.

Just like X-ray flares, the background hard X-ray level is measured in watts-per-square-meter (W/m<sup>2</sup>), reported using the categories, A, B, C, M and X. These letters are multipliers; each class has a peak flux 10 times greater than the preceding one. Within a class there is a linear scale from 1 to 9.

Dr. Brown recorded the daily background X-ray levels for several sunspot cycles, and discovered that during solar cycle minimum periods, the background X-ray levels remained at the A-class level. During the rise and fall of a solar cycle, the background X-ray energy levels remained mostly in the B range. During peak solar cycle periods, the background energy reached the C and sometimes even M levels.

## Information Is Power

Armed with this information, can we discover any clues as to the current status of Sunspot Cycle 24? **Figure 1** is a graph plotting the background hard X-ray energy reported by the GEOS satellites since the end of Sunspot Cycle 22 through April 1, 2012. Clearly, we see a noticeable rise in Cycle 24 activity. Cycle 24 is alive and moving along toward an eventual sunspot cycle peak in several years.

I've provided links and information about the 10.7-cm Radio Flux, and the background X-ray flux as well as other space weather data, at my page, <<http://sunspotwatch.com/>>. A subset of this information is provided on the Solar Weather 'tab' on both the *Popular Communications* Facebook page <<http://g.nw7us.us/GNJ21M>> and the same tab at the HFRadio.org Space Weather Facebook page <<http://g.nw7us.us/GNJbCe>>.

*Next month, we'll look at more space weather science. Stay tuned!*

## HF Propagation

Solar activity is expected to be at about the same level as we observed last year at this time. This results in low maximum usable frequencies. Even so, expect fair openings into most areas of the world throughout the day on 22, 19 and 16 meters.

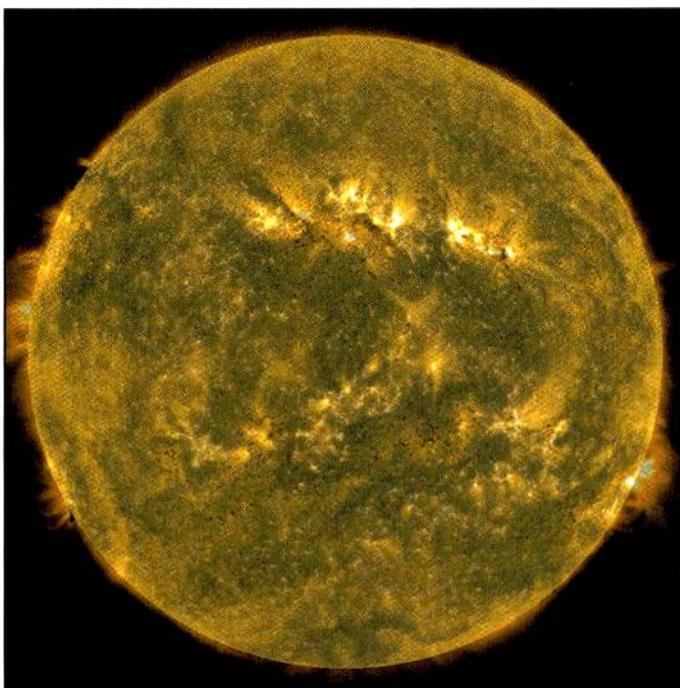
Through the summer, you can expect propagation between north and south regions during the daylight hours. Nineteen and 16 meters will be the strong daytime bands, with 19 remaining a popular band throughout the year. Reception of stations located in tropical or equatorial areas may be possible well into the hours of darkness.

For distances between 800 to several thousand miles, expect exceptionally strong signals. Multi-hop signals will be observed.

Twenty-five and 22 meters will remain open from just before sunrise to a few hours past sunset. From late afternoon to well into darkness, expect these bands to offer worldwide coverage.

Thirty-one meters is a year-round power band with outstanding domestic and international paths, around the clock. During periods of low geomagnetic activity this summer, this band may offer long distance DX all through the night.

Forty-one and 49 meters offer domestic propagation during daylight hours and somewhat during the night. The tropical bands (60, 75, 90 and 120 meters) are not noticeably affected



**Figure 2.** One thing leads to another, literally. The correlation between the magnetic field structures observed near the surface of the Sun (revealed in the black and white magnetograms) and the loops and active regions that are visible higher up in the corona (seen in extreme UV light, yellow tint) is striking and fun to see revealed. You can view a video <<http://g.nw7us.us/JKMiG>> that fades between the two views, showing activity over 4.5 days (April 4-8, 2012). The strong black and white regions indicate strong magnetic polarity. These same areas, when viewed higher up in the solar atmosphere, show how the forces generate the bright loops of materials spinning along these extended magnetic field lines. It's interesting to, in essence, digitally peel away the layers. The bright areas with the strong magnetic structures is the source of the X-ray emissions that energize the ionosphere, providing a way for shortwave radio signals to be refracted, allowing world-wide DX (See text).  
(Courtesy of Solar Dynamics Observatory and NASA)

Optimum Working Frequencies (MHz) - For July 2012 - Flux = 134, Created by NW7US

UTC	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
TO/FROM US WEST COAST																								
CARIBBEAN	27	26	26	26	24	22	20	18	17	16	15	14	14	17	19	21	22	23	24	25	26	26	26	27
NORTHERN SOUTH AMERICA	35	35	34	32	29	26	24	22	21	19	18	17	17	20	23	26	28	30	31	33	34	34	35	35
CENTRAL SOUTH AMERICA	33	30	28	25	23	22	20	19	18	17	16	20	20	22	25	27	29	31	33	34	35	36	36	35
SOUTHERN SOUTH AMERICA	28	21	19	18	17	16	16	15	15	15	15	14	14	19	22	25	27	29	31	32	33	34	34	32
WESTERN EUROPE	15	14	13	13	12	11	17	15	14	13	13	15	19	21	22	23	24	25	25	24	23	22	21	19
EASTERN EUROPE	11	11	11	10	15	18	17	15	14	13	12	12	16	19	21	22	23	23	22	21	20	17	13	12
EASTERN NORTH AMERICA	31	31	31	30	29	28	26	23	21	20	18	18	19	22	24	26	27	28	29	30	30	31	31	31
CENTRAL NORTH AMERICA	17	17	17	16	16	15	14	13	12	11	10	10	11	13	14	15	15	16	16	17	17	17	17	17
WESTERN NORTH AMERICA	9	9	9	9	9	9	8	8	7	7	6	5	5	5	6	7	7	8	8	8	9	9	9	9
SOUTHERN NORTH AMERICA	28	28	28	28	27	26	24	22	20	19	17	16	15	16	19	21	22	24	25	26	26	27	28	28
HAWAII	23	23	23	24	24	23	23	23	21	19	17	16	15	14	13	13	14	16	18	19	20	21	22	22
NORTHERN AFRICA	20	19	17	16	15	15	17	16	15	14	13	17	19	21	22	23	24	25	25	25	25	24	24	22
CENTRAL AFRICA	21	20	18	17	17	17	16	14	14	13	16	19	21	22	23	24	25	25	25	25	25	26	25	23
SOUTH AFRICA	19	18	17	16	16	15	16	22	20	19	19	19	22	24	25	27	28	28	29	27	24	23	21	20
MIDDLE EAST	17	16	16	16	18	19	16	15	14	13	12	17	20	22	23	24	24	25	24	23	22	20	19	19
JAPAN	24	24	25	25	24	24	23	22	21	19	18	16	16	17	18	16	15	17	19	21	22	23	23	23
CENTRAL ASIA	24	25	25	25	25	24	24	23	22	20	19	17	16	16	17	19	20	19	17	17	17	18	20	23
INDIA	22	22	22	23	22	21	19	16	14	13	13	12	11	12	11	11	10	10	13	17	19	20	21	21
THAILAND	20	23	24	25	25	24	23	22	21	19	17	16	15	14	16	19	21	22	20	18	17	16	16	18
AUSTRALIA	35	36	37	37	37	36	36	35	32	28	26	24	22	21	19	18	17	16	16	19	26	30	33	33
CHINA	23	23	24	25	24	24	23	22	20	18	16	15	14	13	16	19	19	18	17	17	17	19	21	22
SOUTH PACIFIC	35	36	36	35	34	32	29	22	19	18	17	16	16	15	15	15	14	14	25	30	33	34	35	35
UTC TO/FROM US MIDWEST																								
CARIBBEAN	30	30	30	29	27	24	22	20	19	18	16	16	17	20	22	24	25	27	28	28	29	30	30	30
NORTHERN SOUTH AMERICA	32	32	31	29	26	24	22	20	19	18	17	16	16	20	22	24	26	28	29	30	31	31	32	32
CENTRAL SOUTH AMERICA	33	30	28	25	23	22	20	19	18	17	16	19	20	24	26	28	30	32	33	34	35	35	36	35
SOUTHERN SOUTH AMERICA	28	21	19	18	17	16	16	15	15	15	14	15	21	24	26	28	30	32	33	34	35	34	31	31
WESTERN EUROPE	19	16	15	14	13	12	16	15	15	18	20	21	22	23	24	24	25	25	24	24	23	22	21	21
EASTERN EUROPE	12	11	11	11	10	17	16	15	14	13	16	19	21	22	23	24	24	24	23	22	21	20	17	13
EASTERN NORTH AMERICA	22	22	22	21	21	19	17	16	15	13	13	13	14	16	17	19	20	20	21	22	22	22	22	22
CENTRAL NORTH AMERICA	10	10	10	10	9	9	8	7	7	6	6	6	7	8	8	9	9	10	10	10	10	10	10	10
WESTERN NORTH AMERICA	17	17	17	17	16	16	14	13	12	11	10	11	12	14	15	15	16	16	17	17	17	17	17	17
SOUTHERN NORTH AMERICA	20	20	19	19	18	16	15	13	12	12	11	11	12	14	15	16	17	18	18	19	19	19	19	20
HAWAII	27	27	28	28	28	27	27	24	22	20	19	17	16	15	15	17	19	21	22	24	25	26	26	26
NORTHERN AFRICA	25	23	21	20	18	18	18	17	17	18	20	21	22	23	24	24	25	25	25	25	25	25	25	25
CENTRAL AFRICA	22	20	18	17	16	16	18	17	17	19	20	21	22	23	24	24	24	25	25	25	25	25	25	24
SOUTH AFRICA	18	17	16	16	15	15	15	24	22	21	20	22	25	28	30	31	33	34	31	26	23	22	20	19
MIDDLE EAST	18	16	15	15	17	18	17	15	14	14	18	20	21	22	23	24	25	25	24	24	23	21	19	19
JAPAN	24	25	25	24	24	23	22	21	19	17	16	15	16	18	19	18	16	16	16	18	20	21	22	23
CENTRAL ASIA	25	25	25	24	23	23	21	20	18	16	15	14	16	18	20	22	22	20	19	18	17	18	20	23
INDIA	15	18	19	20	20	18	16	15	14	13	12	16	19	21	20	19	18	15	12	11	11	10	10	10
THAILAND	20	22	24	24	23	21	20	17	16	15	14	13	16	19	21	22	23	22	20	19	18	16	16	18
AUSTRALIA	36	37	37	36	36	35	34	32	29	26	24	22	21	20	19	18	17	16	16	15	20	27	31	34
CHINA	23	23	24	24	23	21	20	17	16	15	14	13	16	19	21	21	19	18	17	17	17	19	21	22
SOUTH PACIFIC	36	36	35	34	33	31	27	19	18	17	17	16	15	15	15	14	14	14	26	30	33	34	35	35
UTC TO/FROM US EAST COAST																								
CARIBBEAN	24	24	24	22	20	18	17	15	14	13	13	13	15	17	18	20	21	22	23	23	24	24	24	24
NORTHERN SOUTH AMERICA	28	28	27	24	22	20	19	17	16	15	14	14	16	19	21	22	24	25	26	27	27	28	28	28
CENTRAL SOUTH AMERICA	33	30	27	25	23	21	20	19	18	17	16	19	22	25	27	29	31	32	33	34	34	35	35	35
SOUTHERN SOUTH AMERICA	26	21	19	18	17	16	16	15	15	15	14	21	24	26	28	30	31	33	34	34	35	33	30	30
WESTERN EUROPE	20	19	17	16	14	14	15	15	16	18	20	21	22	22	23	23	24	24	23	23	23	23	22	21
EASTERN EUROPE	14	13	12	12	11	16	18	18	18	19	20	21	22	22	23	23	24	24	24	23	22	21	19	16
EASTERN NORTH AMERICA	11	10	10	10	9	8	8	7	6	6	6	6	7	8	8	9	9	10	10	10	10	11	11	11
CENTRAL NORTH AMERICA	24	23	23	22	22	20	18	17	15	14	13	13	15	17	18	20	21	22	22	23	23	23	24	24
WESTERN NORTH AMERICA	31	31	31	30	29	28	26	23	21	20	18	18	19	22	24	26	27	28	29	30	31	31	31	31
SOUTHERN NORTH AMERICA	24	24	24	23	22	20	18	17	15	14	13	13	14	16	18	19	20	21	22	23	23	24	24	24
HAWAII	29	30	30	30	30	28	25	23	21	20	18	17	17	17	16	16	18	21	23	24	26	27	28	29
NORTHERN AFRICA	25	23	21	19	18	17	17	18	18	18	21	23	25	27	28	29	30	30	31	31	31	30	29	28
CENTRAL AFRICA	22	20	18	17	16	16	18	18	18	18	21	23	25	27	28	29	30	30	30	30	30	30	29	26
SOUTH AFRICA	18	17	16	16	15	15	15	21	19	19	20	23	26											

by the solar flux, but are degraded during geomagnetic storminess. Through the summer, expect these bands to be more challenging, though less this year than last year.

Overall, daytime bands will open just before sunlight, and last a few hours after dark. Look higher in frequency during the day, as these frequencies will be less affected by any solar storms occurring, and more broadcasters have transmissions in these upper bands.

## VHF Conditions

July is one of the noticeably more active months of the year for VHF propagation between stations from about 500 to about 3,000 miles apart. Strong signals appear on the lower VHF spectrum, and then quickly fade away. Experienced VHF DXers know this season as the Sporadic-E season, and July is in the very peak of the yearly season that begins in May, and ends by September.

Sporadic-E propagation (abbreviated as  $E_s$  or Es) affects the highest frequencies of the shortwave spectrum, as well as the lower to (sometimes) the mid-VHF spectrum. It occurs most frequently during late spring and early summer. Sporadic-E propagation does not typically last very long, but the openings can be quite strong. The key to  $E_s$  is the chemistry and physics of Earth's atmosphere.

Sporadic-E propagation tends to occur in two peaks during the daylight hours centered on either side of noon.  $E_s$  occurrence during the year seems to follow a similar trend, with the main peak in the late summer, and a second but weaker peak occurring in the winter. During the winter peak,  $E_s$  is most common just after sunset. The summer daytime peak is in the morning between 7 a.m. and 12 p.m., local time. A secondary peak occurs between 8 and 10 PM. However, observations over many decades show a slightly stronger likelihood of  $E_s$  in the morning than in the afternoon or evening. Despite the apparent greater likelihood of  $E_s$  in the morning hours, however, this diurnal characteristic is much less noticeable in the day to day casual observation of DXers. In addition, check for  $E_s$  after dark.

## Current Solar Cycle 24 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for March 2012 is 64.2,

up significantly from February's 33.1. The lowest daily sunspot value of 18 was recorded for March 1. The highest daily sunspot count was 86 on March 11 and 12. The 12-month running smoothed sunspot number centered on September 2011 is 59.5, slightly up from the previous month's 59.0. A

smoothed sunspot count of 78, give or take about 9 points is expected for July 2012.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 115.1, up from February's 106.7. The 12-month smooth-

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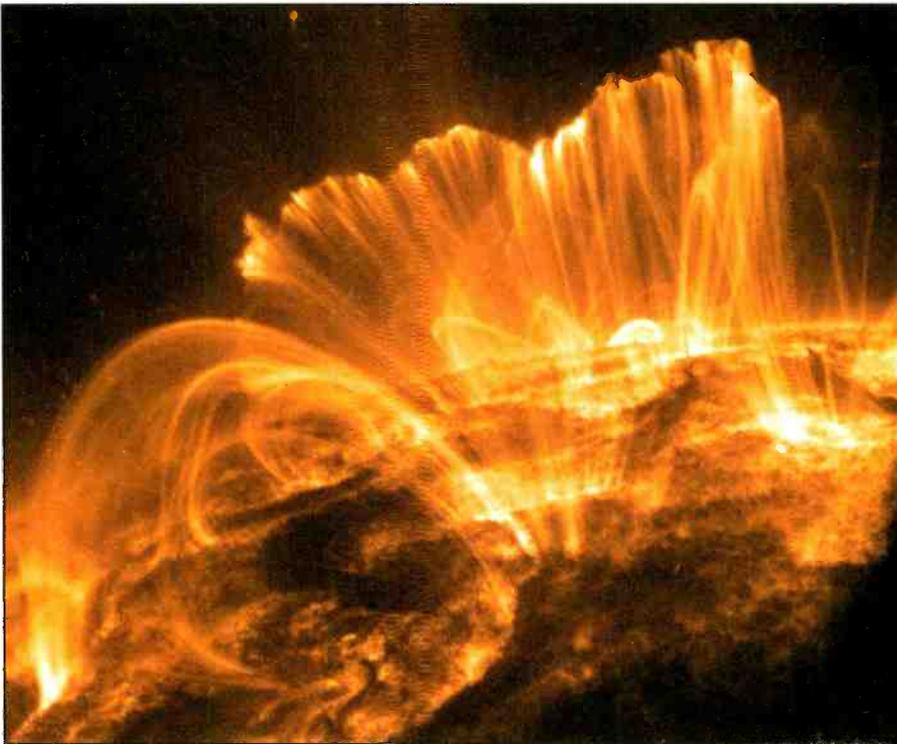
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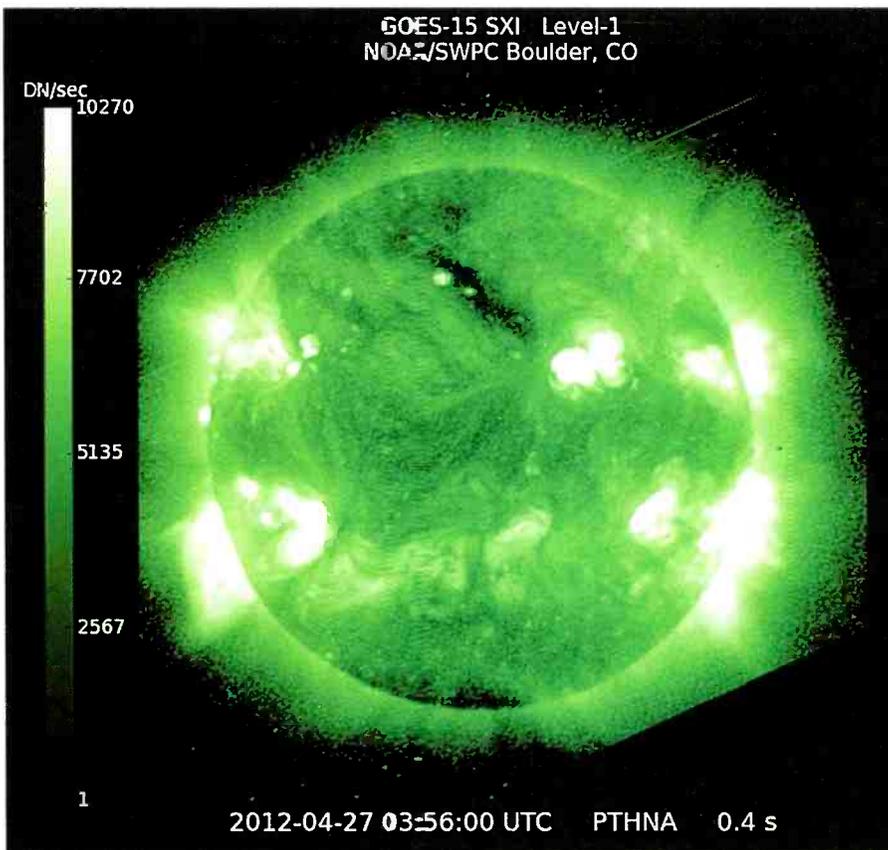
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REACT.HQ@REACTintl.org

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**Figure 3.** This dramatic image of solar plasma riding magnetic field lines, we can see the plasma *raining* back to the Sun. It is from such magnetic structures that the emissions that energize the ionosphere originate (See text). (Courtesy of NASA/Transition Region and Coronal Explorer)



**Figure 4.** Another view of the Sun, revealing the X-ray energy around active magnetic (and sunspot) regions. (Courtesy of GEOS-15/NASA)

ed 10.7-cm flux centered on September 2011 is 118.4, slightly up from 117.9 for August. The predicted smoothed 10.7-cm solar flux for July 2012 is 134, give or take about 9 points.

**The observed monthly mean planetary A-Index ( $A_p$ )** for March 2012 is 14, double February's 7, showing that the Sun is becoming more active. The 12-month smoothed  $A_p$  index centered on September 2011 is 7.7. Expect the overall geomagnetic activity to be varying greatly between quiet to stormy during July, more than during May; refer to the Last Minute Forecast published in *CQ Magazine* or on this columnist's website <<http://SunSpotWatch.com>> for the outlook on what days that this might occur.

### I'd Like to Hear From You

I welcome your thoughts, questions and experiences regarding this fascinating science of propagation. You may e-mail 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 de NW7US, Tomas Hood  
WPC7USA  
<[nw7us@NW7US.us](mailto:nw7us@NW7US.us)>

Twitter: @NW7US (for my personal feed)

Twitter: @hfradiospacewx (space weather and propagation feed)

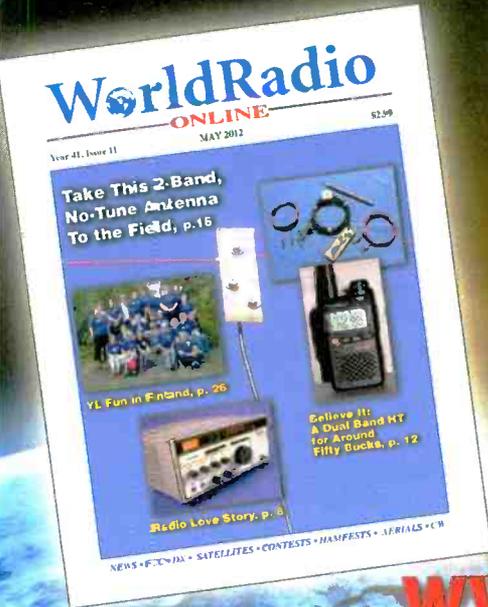
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# The Modern AM Broadcast Band DXer Defined: The Joy of Going 'Ultralight'

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

*“An ultralight radio is a simple shirt pocket-sized radio . . . considered an entertainment radio but not of a novelty nature.”*

Over the past two months *Broadcast Technology* has defined the modern AM broadcast band DXer in terms of the latest innovations in antennas and receivers. DXers and receiver manufacturers have risen to the challenges of increased congestion and interference with the development of software defined radio technology and noise-reduced unidirectional broadband loop antennas.

Well, let's forget all that for now. After all, owning the latest and greatest gear doesn't necessarily make one a better DXer. For many accomplished BCB DXers, having less stuff is more fun. Welcome to the minimalist world of ultralight AM broadcast DXing.

## What's An Ultralight?

*Ultralight aviation, ultralight backpacking, ultralight beer, and now ultralight radio . . . What is it?*

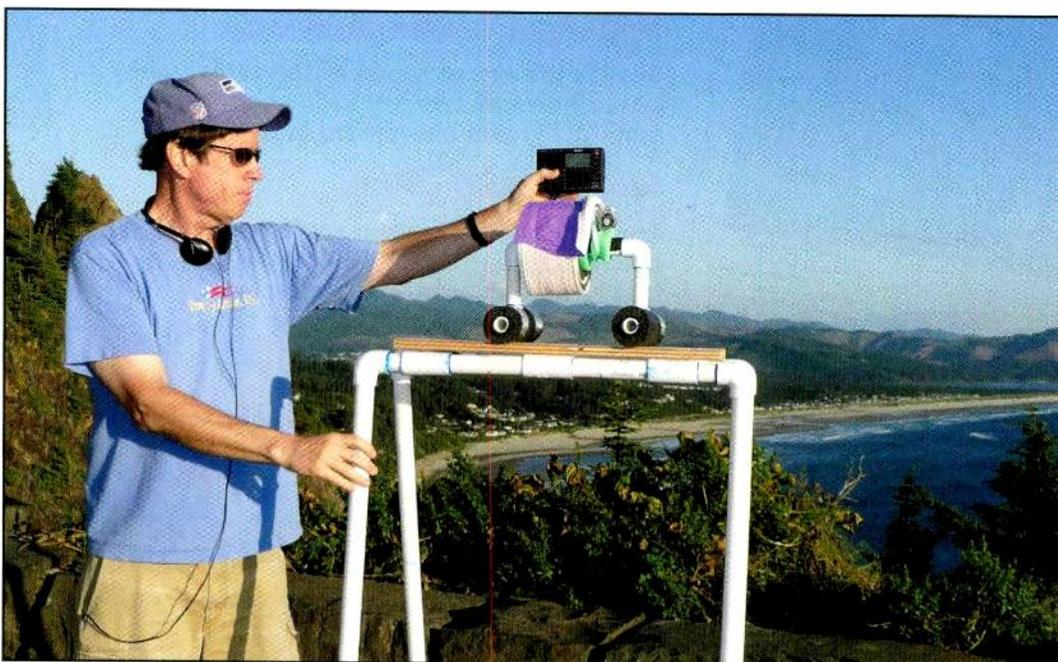
An ultralight radio is basically an updated ver-

sion of the once popular pocket transistor radio. “To me, an ultralight radio would be defined as a *pocket radio*,” ultralight DXer Phil Bytheway explained in most simple terms. “So portable radios such as the Sony ICF-2010 would not qualify.” (*IN DEPTH: See the Sony ICF-2010 at <<http://bit.ly/Is09Av>>*. – WPC1CAT)

“An ultralight radio is a simple shirt pocket-sized radio having no additional sideband mode and considered an entertainment radio but not of a novelty nature,” Allen Willie, an accomplished ultralight DXer in Newfoundland, said. “Only certain models that meet specific requirements are officially designated as ultralights by an Ultralight Definitions Committee.”

Here are some examples of ultralight radios designated and used by various DXers. They are listed by name followed by an Internet link for more information:

- Kichibo D96L,  
<<http://bit.ly/JJGpMq>>



**Photo A.** Gary DeBock, with a Tecsun PL-380 ultralight radio and ferrite sleeve antenna, is set up for trans-Pacific DXing overlooking the Oregon coast. (Courtesy of Gary DeBock)



**Photo B.** “The entire ultralight radio phenomenon was kicked off by the reception of several trans-Pacific AM broadcast signals on a \$17 Sony SRF-59 analog pocket radio in November of 2007,” Gary DeBock said. (*WATCH: SRF-59 video at <<http://bit.ly/1lrDnO>>.*)

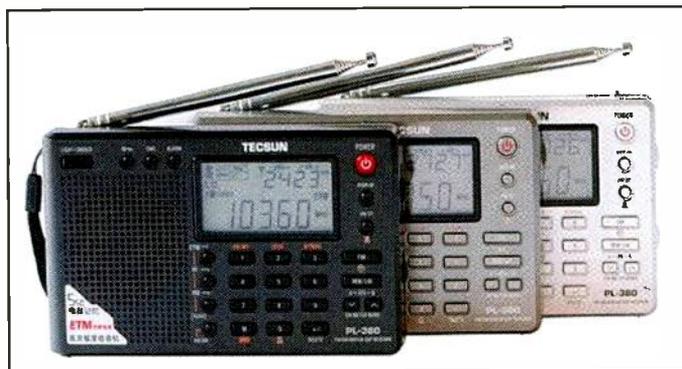
- Tecsun PL-310,  
<<http://bit.ly/1s2oUe>>
- Eton E-100,  
<<http://bit.ly/1ckmNI>>
- Sangean DT-400W,  
<<http://bit.ly/1ciJ1x>>
- Sony SRF T-615,  
<<http://bit.ly/1JHiVj>>
- Sangean DT-200VX,  
<<http://bit.ly/1JD91Yi>>
- Sony SRF-M37V,  
<<http://bit.ly/1u23nw>>
- Sony SRF-M37W,  
<<http://bit.ly/1ITIKD7>>
- Sony SRF-39FP,  
<<http://bit.ly/1dzruW>>

“One of the first ultralights on the scene was the Sony SRF-59,” Willie said. “The appeal of these mini machines seems to be that such small radios can receive something so far away for such a minimal cost investment.”

## Defining the ‘Ultralight’ Genre

“In our ultralight radio enthusiast group we have the Ultralight Definitions Committee which is assigned the task of setting basic limits for ultralight radio qualification,” said Gary DeBock, **Photo A**, who, along with the late John Bryant, is credited with the establishment and organization of ultralight DXing as a unique segment of the AM broadcast DX hobby.

“These limits determine which models qualify for our Ultralight Radio Awards program, and for ultralight radio equipment reviews published online. The basic concept is to use standard, consumer market radios without SSB capability, limited to 20 cubic inches in overall volume. The committee has the task of reviewing new pocket radios that come on the market, and judging their acceptability according to the definitions criteria.



**Photo C.** The Tecsun PL-380 ultralight radio can be found in three different colors on eBay for under \$40.

“Of course, our enthusiast group is free to use any portable (or table) radios that they wish for personal DXing, but only *qualified* ultralight radio models may be used for award certificate applications.”

## ‘Ultralight’ Milestones

DeBock is officially recognized for the first ultralight reception of a trans-Pacific signal, and Willie with the first trans-Atlantic, by the worldwide *UltralightDX* enthusiast group.

Phil Bytheway is the ultralight columnist for the National Radio Club’s *DX News* magazine. John Bryant, who in 2008 inaugurated the still-active *UltralightDX Yahoo Group*, died in 2010.

## Birth of a Movement

“Ultralight radio DXing provides greater challenges for success, but also offers greater rewards,” DeBock said. “Instead of depending on advanced equipment for DXing results, a listener must depend on knowledge of propagation, DXing skill and patience while using very basic equipment that is far from state-of-the-art.

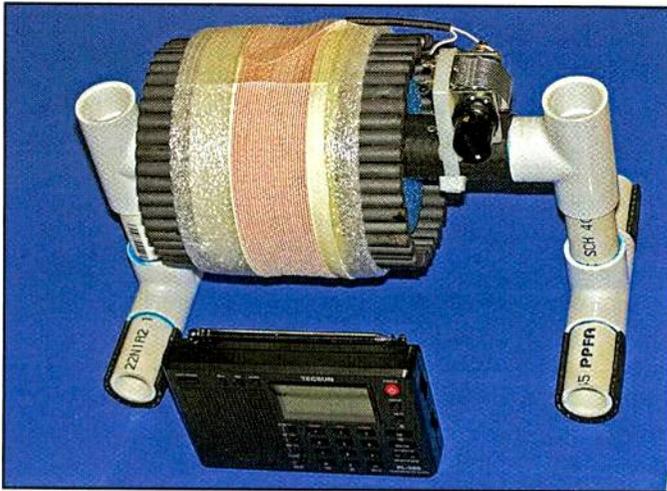
“The concept of ultralight radio AM DXing was directly borrowed from the mindset of the amateur radio QRP (low power output) community — namely that a skilled, determined operator can overcome equipment limitations and still have exceptional DXing success by depending on his own knowledge, determination and patience.

Two contributing factors to the boom in ultralight radio interest were recent advances in pocket radio capabilities such as memories, search functions and DSP filtering, and the very reasonable prices for such new models averaging around \$50.”

## November 2007

“The entire ultralight radio phenomenon was kicked off by the reception of several trans-Pacific AM broadcast signals on a \$17 Sony SRF-59 analog pocket radio in November of 2007,” DeBock said. “The fact that three transoceanic DX stations — 594 JOAK, 747 JOIB from Japan, and 972 HLCA South Korea — could be heard on such a humble pocket radio in the State of Washington was a huge surprise, and motivated me to write a full review of the SRF-59 receiver, published by Colin Newell on his DXer.ca website that December.

“More DXers quickly caught on, purchased the SRF-59 and other pocket radios such as the Sony SRF-M37V, Sangean DT-200VX, and Sony SRF-T615, and found that they were not only quite sensitive, but had unique advantages like excellent nulling



**Photo D.** The Tecsun PL-380 ultralight is inductively coupled to a ferrite sleeve antenna. (Courtesy of Gary DeBock)

ability,” DeBock said. (**WATCH and LISTEN:** A new user demonstrates the SRF-59 right out of the box, **Photo B**, <<http://bit.ly/1lrDnO>>. – WPC1CAT)

“At the time in late 2007, the thrill and challenge of ultralight radio DXing provided a very welcome change from the *doom and gloom* atmosphere related to the growing IBOC menace (In-Band On-Channel HD digital interference) on the AM band, and the interest in our new niche hobby boomed.”

### Phil Bytheway: ‘Thrill of Great Reception’

“I won a Sony SRF-M37V in an auction at the 1997 International Radio Club of America convention,” Phil Bytheway said. “I found that this small portable was very sensitive and became intrigued at such sensitivity in a small radio.

“Unfortunately, the selectivity was pretty nasty, so I only used it now and then to listen when not at home, but not in any DX situations. When the SR-59 came out and several email groups started mentioning the DX capabilities, I got one.

“It soon proved to be good for DX, but since it didn’t have a digital readout, it got limited use. Once the digital readout models came out, I purchased a few. Since then, I have used various models to DX from my car. At present, I’m using a Tecsun PL-310 that I believe is a fairly popular model, though the *thrill* of the great reception on the SRF-M37V still fascinates me. The newer models are even better in that regard. So basically, for me, I am still fascinated by the reception capabilities of these small radios.”

### Allen Willie: Ultralight DXing from Newfoundland

“It all started for me back in January of 2008, shortly after an ultralight DX group had begun on Yahoo Groups,” said Allen Willie. “I had read that some DXers were using the smaller ultralight machines so I looked into it through Internet research before eventually getting my first ultralight radio.

“I had posted some radio logs online and mentioned that my receiver was a newly acquired Sony SRF-M37V. The late John Bryant, DXer *extraordinaire*, and expert West Coast ultralight DXer Gary DeBock, who were two of the initial founding members of the group, had asked me if I would like to submit logs for others to read.

“After some friendly persuasion, I followed up by joining the group and the rest is history, as they say. Later in 2009 my friend and mate Dianne Froude also joined the fun using these mini marvel machines. Together we have logged hundreds of trans-Atlantic stations from here in Newfoundland. We continue to ultralight DX, barefoot without the use of an external attached antenna.”

### Mark Connelly: Simplicity and Portability

“The interest fostered a couple of years back, largely by John Bryant and Gary DeBock, got me thinking about how portable radios could usefully add to my overall DXing experience,” said acclaimed trans-Atlantic DXer and antenna designer Mark Connelly, WA1ION.

“In my case, I’d also used some portables not within the ultralight guidelines. I was intrigued by the new life the *UltralightDX Yahoo Group* was injecting into the hobby at a time when it had been demoralized by IBOC, stale *me-too* program formatting, the *greying* base of DX enthusiasts, and a plethora of new interference sources.

“Bryant, DeBock, and others introduced a high level of well-documented, do-it-yourself receiver and antenna projects at a time when many DXers had lost touch with their drills and soldering irons, with the satisfaction that results from a few well-spent hours with hand tools.

“John Bryant was a master DXer with much *serious* involvement with *real* radios and antennas. That he would embrace ultralights came as somewhat of a surprise to me, but I couldn’t ignore some of the appeal. Basically that is how I was drawn in.

“To me it boils down to (a) operating simplicity and (b) you can take the radios anywhere — lawn chair in the backyard, balcony of a hotel or other high-rise, deck of a cruise ship, an overcrowded beach, busy public park, etc.,” Connelly said. “Even so, ultralight use is still just a very peripheral part of my overall DX hobby. Of course, for serious DX, especially coastal DXpeditioning when hot DX is rapidly arriving in such quantity and quality that one-at-a-time station tuning makes you miss



**Photo E.** Watch video of Gary DeBock demonstrating a ferrite sleeve loop antenna used with a Tecsun PL-380 receiver at <<http://bit.ly/1lfhpiy>>. (Courtesy of Gary DeBock)

# This Month in Broadcast History

**75 Years Ago (1937):** An unprecedented two-minute moment of silence was observed by wireless stations worldwide in memory of the father of wireless Guglielmo Marconi who passed away in Rome. Step inside WCC, the Cape Cod wireless station built by Marconi which now serves as the Chatham Marconi Maritime Center, at: <<http://www.chathammarconi.org>>. There you'll find a new exhibit featuring the role of the shipboard Marconi station in the Titanic disaster.

**50 Years Ago (1962):** Bring It On Home to Me by Sam Cooke topped the 1380 WAMS Wilmington, Delaware music survey. (**LISTEN:** To Sam Cooke perform his 1962 hit: <<http://bit.ly/1UXaCf>>. Yes, that's Lou Rawls singing harmony. – KPC6PC)



**25 Years Ago (1987):** Radio New York International began pirate broadcasts on 1620 AM and 103.1 FM from aboard the Honduran freighter *Sarah* anchored five miles offshore in international waters of the Atlantic.

– WPC1CAT

stuff, a spectrum-capturing software defined radio such as the Perseus is the only tool for the job.”

## Latest Ultralight Technology

“Recent advances in pocket radio DSP technology have made the Tecsun PL-310, PL-380, and PL-606 receivers very popular among ultralights,” DeBock said, “primarily because of their combination of good sensitivity and awesome selectivity with 1-kHz DSP narrow filtering, which was unthinkable in the pocket radios of the last century.

“The top-of-the-line Japanese-market SRF-T615 also enjoys an exceptional reputation among top DXers because of its outstanding audio fidelity and amazing sensitivity for its tiny size. Other pocket radios like the analog Sony SRF-39FP and Eton E100 still have their fans, and Allen Willie of Newfoundland has set the standard for trans-Atlantic DXing with a simple Sony SRF-M37V.”

“The Tecsun PL-380 is very popular,” Connelly said. “I use mine quite a bit since it has better selectivity enabled by DSP filtering. I also like my Sangean DT-400W. It has accompanied me on numerous plane trips.”

The Tecsun PL-380 covers AM/FM broadcast, longwave, and shortwave. Additional features include 550 memory positions, selectable AM IF bandwidths of 1, 2, 3, 4, or 6 kHz, FM stereo, three AA battery power or external USB power with an optional adapter, and a 12/24-hour format alarm clock. The PL-380,

**Photo C**, can be found in three different colors on eBay for under \$40.

## ‘Ultralight’ Classifications

There are two principal classifications of ultralight radio equipment: Barefoot and unlimited.

- A barefoot-class ultralight is a stock, unmodified radio with no peripheral devices to enhance reception.
- Unlimited class covers almost anything else one could imagine doing with an ultralight radio, including internal modifications and external antennas.

DeBock is one of the pioneers of compact external antennas specifically designed for unlimited-class ultralight radio applications. Current experiments have involved the design of ferrite sleeve loop (FSL) antennas first introduced last year.

These antennas are inductively coupled to the internal ferrite antenna of an ultralight, requiring no direct or hard-wired connection, **Photo D**.

His latest project — a 5-inch FSL antenna — maximizes performance from a minimal package size. Previous larger ferrite loop antenna designs, although extremely effective, were cost prohibitive primarily due to the quantity and expense of ferrite rods. The new design implements readily available Litz wire and Russian surplus ferrite rods that can be purchased from eBay sellers.

**(BUILD IT:** A detailed construction article by Gary DeBock, “5-inch ‘Ultra Light’ FSL Antenna: Maximum AM-DXing Performance from a Minimal Package,” can be downloaded at <<http://bit.ly/1KeVmCN>>. **WATCH:** A ferrite sleeve loop antenna in action at <<http://bit.ly/1fhpiy>>. **Photo E.** – WPC1CAT)

## Ultralight Radio Web Resources

**Explore:** Ultralight construction articles, receiver shootouts, and the latest news in ultralight radio at <<http://www.dxr.ca>>.

**Join:** The conversation at *UltralightDX on Yahoo* to get involved.

**Read:** More about the ultralight exploits of Allen Willie in “Marconiland” at <<http://www.nldxers.fav.cc>>, including videos of actual ultralight trans-Atlantic reception.

**Watch:** Gary DeBock demonstrate reception on a Tecsun PL-380 ultralight radio with a ferrite sleeve loop antenna at <<http://bit.ly/1fhpiy>>.

*Next month the modern AM broadcast band DXer prepares for the new DX season and the prospect of tropical reception enhanced by solar weather. 73 and Good DX!*

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# 'Oh, Canada,' What Have You Done?

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

*“What a kick in the solar plexus: Radio Canada International and the CBC’s Northern Quebec Service are closing July 31.”*

**R**adio Canada International, <<http://www.rcinet.ca/>>, is closing down due to government-issued budget cuts — or should we say: *budget guts*. The sad reality:

- Two out of three RCI employees will lose their jobs.
- Radio Canada International will close its Russian and Portuguese language sections.
- Radio Canada International will close its French and English sections.
- Radio Canada International will close the Sackville transmitting facility.
- Radio Canada International will close short-wave operations completely!

And one final kick in the solar plexus: the CBC Northern Quebec Service, <<http://bit.ly/I6qwhN>>, will close, as well. The last day for RCI and for CBCNQS will be July 31.

## More Sad News: Radio Belarus

It seems that **Radio Belarus**, <<http://bit.ly/IcpnrV>>, is nearing what you might call *tin cup* mode. Reductions, cut backs and so on are leaving the broadcaster in a much-reduced situation.

Broadcasts from Radio Belarus appear to have shrunk to using only 7255 from 0400-0700 for its

Radio One program, 1100-1200 for the Radio Belarus service on new 11730 and 1700 to 2300 on 6155.

The transmitter sites on 6010, 6070, 6040, 6190, 7235, 7265 and 7280 have been silenced. There are reports, too, of poor modulation on at least one of the channels. Are we seeing a shut-down in their future?

## Good bye, Bush House

The BBC is ending its long occupancy of **Bush House**, London, <<http://bit.ly/I9Kc66>>, which has been the “Beeb’s” headquarters since 1940. By the time summer is in swing, the more than two dozen other language services used by the BBC will also have made the move to the new headquarters building in London’s west end. As of a few years ago — at least — there were said to be BBC employees who’d been there for decades, but who had not yet been in — or even discovered — every room in Bush House.

## Another Fond Farewell

Best wishes and congratulations to **Jonathan Marks** of **Radio Nederland** who is retiring from the station as well as from Media Network — once a weekly program, now a blog. Over the years, Media Network, <<http://bit.ly/IcoWOB>>, has covered more than 15,000 stories about shortwave and broadcast activities, history and such. The program goes back more than 30 years! *Pop’Comm* offers congratulations, thank you and a major *Well Done!* We wish you well, Jonathan Marks!

## R.I.P.: Radio St. Helena Annual Broadcast

I’ve received the distressing news that there’ll not be a Radio St. Helena annual broadcast this year — or ever again!

The Radio St. Helena broadcasts are finished. The island broadcaster is closing down the company as well as the radio station by the end of its summer season. The new company — the St. Helena Broadcasting Corporation — is intended to become self-supporting over the next three years. So this much-anticipated annual shortwave broadcast event is no more! The cable and wireless transmit-



Pennsylvania’s WINB is issuing this special QSL commemorating their 50<sup>th</sup> anniversary.

ter that was used on 11092.5 is being closed down. (*INDEPTH: For more about Radio St. Helena, visit: <http://bit.ly/I6Rjxp>.* – WPC9GLD)

## More News From Around the Dial . . .

**Polish Radio** has ended its External Service in English, effective as the A-12 schedules came into play at the end of March. (*INDEPTH: Learn how to listen to Polish Radio's External Service at: <http://bit.ly/JV99Pp>.* – WPC9GLD) . . . **WINB, Red Lion, Pennsylvania**, is celebrating its 50<sup>th</sup> anniversary this year and, to mark the occasion, is offering a **new QSL card** — but only for emails that include an audio file, <http://bit.ly/I87Ou3> . . . The new high-power transmitters for the **Voice of Nigeria**, <http://www.voiceofnigeria.org/>, are now installed at the Abuja site, and are in operation on 7250, 9690, 11770 (as yet unnoted), 15120, and 17800 (also as yet unnoted).

## 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 broadcaster according to its *home country* and include your last name and state abbreviation after each.

Needed, as well, 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 high time you graced these pages!

Double capital letters are language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is mentioned English (EE) is assumed.

**ALBANIA**—Radio Tirana, 7210 in SS at

2315-2330 with news and discussion on the unrest in Syria. (Linonis, PA) 7425 in Albanian at 0005 with talk and pops, anthem at 0057. IS and off at 0059. (Goodman, IA) 7465 in GG at 2033. (Brossell, WI)

**ANGUILLA**—Caribbean Beacon/University Network, 6090 at 0035 with Dr. Scott preaching and 11775 at 1425. (Maxant, WV) 1950 with religious programming. (Goodman, IA) 2002. (Klauber, NY)

**ARGENTINA**—Radio Continental, 13363.5u, with SS p-b-p at 2330 and another day at 0002 with a short talk and instls to 0102 close. (Alexander, PA) 2200 with SS p-b-p coverage. (D'Angelo, PA)

Radio Argentina al Exterior, 11710 in FF with talks at 0333. (Parker, PA) 0156 in JJ, IS at 0157, SS ID at 0200 and into English. (Sellers, BC) 0200 opening music, multilingual IDs, news headlines and pgm highlights, 15345 in SS at 0124. (Coady, ON) 2202 with p-b-p futbol coverage. (Alexander, PA) 2333 with SS tangos at 2333. (Goodman, IA)

**ASCENSION ISLAND**—BBC South Atlantic Relay, 7255 at 0505 with world news. (Goodman, IA) 0546 on Shintoism and Buddhism. (Parker, PA) 9915 with an interview at 2200. (Coady, ON) 2244 with phone-in pgm. (Brossell, WI) 2254 and 12095 at 2130-2249. (Klauber, NY)

**AUSTRALIA**—Radio Australia, 6020, 9580 and 9590 with news at 1201. (Klauber, NY) 9525 via Al Dhabbaya (UAE) at 2237 with discussions in Indonesian, IDs and into news at 2300. (D'Angelo, PA) 9580 with news at 1200. (Fraser, ME) 1305 and 9590 on books at Melbourne University that were published in Japan. (Maxant, WV) 9965 via Palau with CC/EE lesson at 1400. (Sellers, NC)

Northern Territory Shortwave Service: VL8A, Alice Springs, 2310 at 1030. (Wilkner, FL) 2325, VL8T Tennant Creek, with M/W talk — the best of the three but still very poor. (Sellers, BC)

**AUSTRIA**—Radio Austria International, 6155 in GG at 0703. (Klauber, NY)

Adventist World Radio, 9830 in EE to West Africa at 2124. Closed at 2129. (Klauber, NY)

**BAHRAIN**—Radio Bahrain, 9745 at 2325-0040 with domestic ME music, AA talk, indigenous vocals. Weak to poor with adjacent channel splatter. (Alexander, PA)

**BOLIVIA**—Radio Mosoj Chaski,

Cochabamba, 3310 strong at 0930 mentioning Roman Catholic saints. (Wilkner, FL) 1012-1026 M in (p) Ayamara with IDs, anmts, more rustic music. (D'Angelo, PA)

Radio San Miguel, Riberalta, 4699.3 at 1012 with SS talks and noticias. (D'Angelo, PA)



Radio Belarus seems to be in the process of slimming down.

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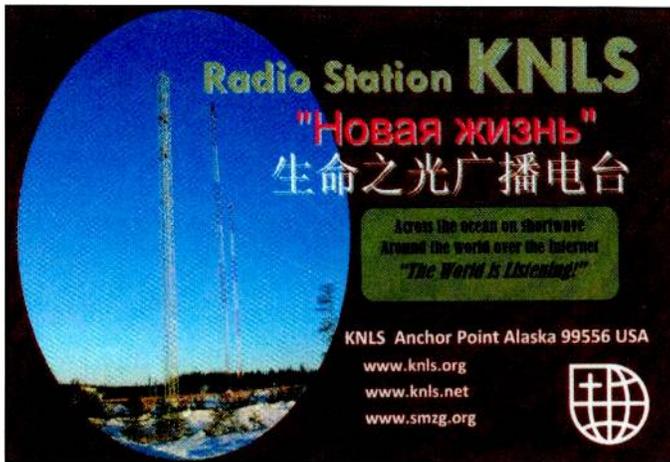
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## Help Wanted

We believe the Global Information Guide — month after month — offers more logs than any other monthly SW publication. (Nearly 612 shortwave broadcast station logs were processed this month!) Why not join the fun and add your name to the list of GIG reporters? Send your logs to Gerry Dexter, Global Information Guide, 213 Forest St., Lake Geneva, WI 53147 or email them to <gdex@wi.rr.com>. See the column text for formatting suggestions.

*\*Not all logs get used. There are usually a few which are obviously inaccurate, unclear or lack a time or frequency. Also discounted are unidentifieds, duplicate items (same broadcaster, same frequency, same site) and questionable logs.*



A new QSL card from KNLS in Alaska. (Courtesy of Rich D'Angelo)

Radio Yura, Yura, 4717 at 1030 with very strong signal. Grayline was favoring Bolivia at this time. (Wilkner, FL)

Radio Pio Doce, Siglo Viente, 5951.4 with SS at 0125, SS and domestic music. Weak but readable. (Alexander, PA)

Radio Santa Cruz, Santa Cruz, 6135 at 1006 strong in SS. (Wilkner, FL) 1024 with SS ancr, canned ID and other anmts. (D'Angelo, PA)

**BONAIRE**—Radio Nederland Relay, 15315 in DD at 2207. (Klauber, NY)

**BOTSWANA**—VOA Relay, Mopeng Hill, 4930 at 0409 with various news and features about Africa. (D'Angelo, PA) 7340 at 0347 in Kinyarwanda, W with an interview, EE ID at 0350. (Parker, PA) 15580 at 2133 with *American Gold* pgm. (Klauber, NY) 15580 at 1815 on corruption in Kenya. (Brossell, WI)

**BRAZIL**—(all in PP - gld)

Radio Municipal, Sao Gabriel da Cachoeira, 3375.1 strong at 0950 with techno-rock bridge and long talk. (Wilkner, FL)

Radio Difusora Amazonas, Manaus, 4805 with ID at 1030, partially blocked by CODAR. (Wilkner, FL)

Radio Difusora Roraima, Boa Vista, 4879.8 at 0315 with Brazilian ballads, anmts. Off with NA at 0404. (Alexander, PA) Daily around 0950-1000, usually drifts. (Wilkner, FL)

Radio Difusora de Macapa, Macapa, 4915 at 0110 with Brazilian ballads, anmts, IDs. (Alexander, PA) 0915 with long talk, several anmts at 0921, more talk and some music. (D'Angelo, PA) 0635 with slow ballads. (Parker, PA)

Radio Capixaba, Vitoria, 4935 at 0643 with M addressing crowd. (Parker, PA)

Voz Missionaria, Camboriu, 5940 at 0100 with talk, inspirational music, //9665, but both were weak. (Alexander, PA) 9665 at 2309 with an impassioned preacher. (Coady, ON)

Radio Itatiaia, Belo Horizonte, 5970 at 2320 with fast talk ancr and some music. (D'Angelo, PA)

Radio Inconfidencia, Belo Horizonte, 6010 at 2126 with talks by several ancrs, ID, pops, Fair, while 15190 was booming in. (D'Angelo, PA) 15190 at 0150 with talk, song in EE. (Goodman, IA) 2225 with talk, lite instls, //6010. (Alexander, PA) 2259 with EE pop/rock, simple "Inconfidencia" ID ads, and promos. (Coady, ON)

Super Radio Deus e Amor, Curitiba, 6060 at 2250 with preacher, anmts, ID at 2302 and some local inspirational music, weak under CFRX; //6120, 11765 good. Also 9565 at 0315 with preacher, //11765. (Alexander, PA) 0235 with high energy preaching, RHC QRM. (Goodman, IA) 0623 with preacher. (Parker, PA) 2300 with musical pgm. (Klauber, NY)

Radio Nacional Amazonia, Brasilia, 6180 at 0001 with what sounded like sports coverage but with no crowd noise. Very good, //11780. (Sellers, BC) 11780 at 2236 with music pgm, phone calls. (Klauber, NY) 2313 with long ad spot. (Parker, PA)

Radio Bandeirantes, Sao Paulo, 9645 at 0240 with p-b-p. (Goodman, IA)

Radio Cancao Nova, Cachoeira Paulista, 9675 at 2316 with Brazil pops, ballads and high-spirited W DJ. (Coady, ON)

Radio Nove de Julho, Sao Paulo, 9820 at 0334 with M talk, ID, TC and into music pgm to 0400. (D'Angelo, PA) 0432 with M talk. (Parker, PA)

Radio Brazil Central, Goiania, 11815 with music at 0053. (Klauber, NY) 0220 with pops. (Goodman, IA)

Observatorio Nacional/PPE, Rio, 10000 at 2249 repeating station's name and a single time pip every ten seconds. Fair under WWV. (Coady, ON)

**CANADA**—Radio Canada International, 9560 in Cantonese at 1217; 11845 in FF at 2123; 11885 at 1318 on International Car Pool Day; 11970 with news at 2300; and 13650 with music at 2128. (Klauber, NY) 9880 via Kunming (China) at 0008 with *Maple Leaf Mailbag*. (D'Angelo, PA)

CBC Northern Service, 9625 reading letters from listeners at 1609. (Klauber, NY) 0535 on hydro-electric generating. (Maxant, WV)

CFRX, Toronto, 6070 with call-in pgm at 1228. (Klauber, NY) 1420 on an auto accident. (Maxant, WV) 0036 with *Friendly Fire* pgm. (Sellers, BC)

CKZN or CKZU, St. John's or Vancouver, at 2325-2331, ID as "CBC Radio One." Unsure of which one it was. (Parker, PA)

CFVP, Calgary, 6030 at 2027 with country songs, ID at 2030, "The pride of Southern Alberta, "Classic Country 10-60." (Sellers, BC)

CHU, Ottawa, 7850 at 1310 and 14670 at 1925. (Maxant, WV) 14670 at 1354. (Sellers, BC)

**CHAD**—Radio Chad, N'Djamena, 6165 at 0447 in FF with tribal highlife music. (Parker, PA) 2205 in FF on African affairs, mentioning several countries. (Coady, ON) (p) 2320 in FF with chatter and hילה music. (Strawman, IA)

**CHILE**—CVC-La Voz, 9635 in SS at 1807 and 17680 with SS news at 2201. (Klauber, NY) 2330-2350 with SS Christian pgm. (Linonis, PA)

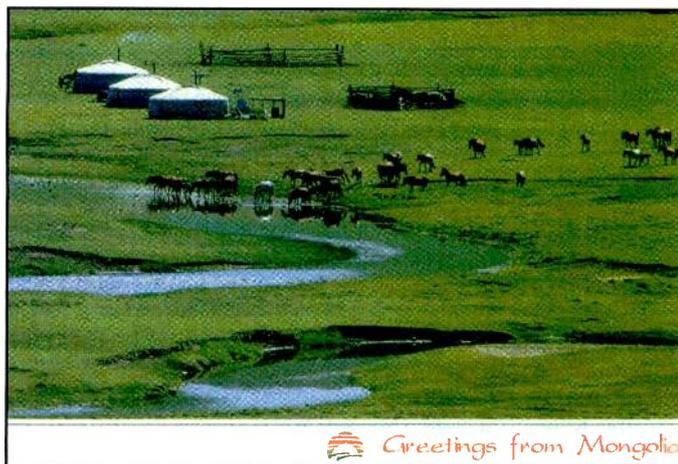
**CHINA**—China Radio International, 5960 at 0550 ending the *Beijing Hour* in CC. Off at 0559; 6005 similar at 0127; 6175 in PP at 2206; 7210 in SS at 2256; 9590-Kashi in SS at 0144; and 9570 via Albania at 0257. (Klauber, NY) 9570 via Cuba at 1355. (Maxant, WV) 6060 via Cuba at 0530 on Pakistan removing Bin Laden's compound, 6145 at 2215. (Maxant, WV) 7285 via Albania at 2035 with news items, //5950. (Fraser, ME) 9590-Urumqi in (I) Hungarian at 1918; and 12045-Beijing in CC at 1217. (Brossell, WI) 11970, Beijing, with M/W with CC/VV language lesson. (Sellers, BC) 11990-Kunming with *China Drive* pgm at 1310. (Coady, ON)

China People's Broadcasting Station/China National Radio:

### 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 **Alex Klauber**, Oneida, New York, who collects a 2012 edition of the *World Radio TV Handbook*. The WRTH leads the way year after year providing complete coverage of world and local broadcasters for frequencies, powers, times, personnel, addresses, emails, websites and more. Get your copy now from any radio hobby supplier, big box bookstore or online source. You'll get far more enjoyment from your radio hobby once you've done so.



The Voice of Mongolia QSL'ed Rich D'Angelo's reception on 12085. English airs at 1030 and 1530.

Zinjiang PBS, 4330-Urumqi at 1416 in (l) Kazakh with W talk, //6015 also very poor. (Sellers, BC) Voice of the Strait, 4940-Fuzhou at 1234 in CC. (Brossell, WI) 1304 with W talk and music. (Strawman, IA) Voice of Pujiang, 4950-Shanghai at 1417 in CC with EZL music, //5075. (Sellers, BC) CPBS-Beijing in CC at 1309. (Brossell, WI) China Business Radio 9820-Xianyang at 2120 with Mandarin lesson hosted by a W. (D'Angelo, PA) CNR-1 13610-Nanning in CC with talks at 0103. (Parker, PA)

Fire Drake music jammer, 14700 at 1354 but gone by 1403 recheck. (Sellers, NC) 17250 at 0045 to off at 0100. (Goodman, IA)

**COLOMBIA**—Alcaravan Radio, Puerto Lleras, 5910 at 0200 in SS ending music pgm with ID at 0210, then news by W. (Klauber, NY) 0313 in SS. (Parker, PA)

**CROATIA**—Voice of Croatia, 3975 at 0300 with "Glas Hrvatska" ID and man with "This is Croatian Radio, the Voice of Croatia." (Coady, ON) 7375 via Germany in EE at 2318, into SS at 2330. (Klauber, NY) 0120 in (p) Croatian. ID at 0200. (Goodman, IA) 0406 in Croatian with talks. (Parker, PA)

**CUBA**—Radio Havana Cuba, 6060 at 0530 on Chavez. (Maxant, WV) 6140 in SS at 1209; 9570, 11690, 11750 and 11840 at 1315; 11760 in FF at 2124; 13740 at 1422; 13670 closing at 1558; and 15230 in SS at 1503. (Klauber, NY) 11760 in EE at 2046 on a new postage stamp. (Sellers, BC)

**CYPRUS**—Cyprus Broadcasting Corp., 9760 at 2231 with an apparent radio comedy in Greek, //7220. (Coady, ON)

**DJIBOUTI**—Radio Djibouti, 4780, \*0259 opening with choral vocal, M with ID, opening anmts in AA, f/by another with recitations, later with lively music. (D'Angelo, PA) \*0300 with NA and AA talk. (Alexander, PA) 0323 in talks and M vocals and string accompaniments. (Coady, ON)

**DIEGO GARCIA**—Armed Forces Network/AFRTS, 4319u at 1414 with music, but weak. (Sellers, BC) 2350 to 0014 with vocals. (Wilkner, FL)

**DOMINICAN REPUBLIC**—1Radio Pueblo, Santo Domingo, 5010, in SS with gentle-voiced M anc answering a W questions, barely poking through the noise floor, but fair at brief moments. (Parker, PA)

**ECUADOR**—HCJB Global, 9835 via Chile at 2336 in GG with M vocal, W with talk, mentions of "Voz Christiana" and HCJB ID at 2359. (Coady, ON) 11920 via Santiago in PP at 0015. (Goodman, IA) 12025 via Canada in AA at 2120. (Klauber, NY)

**EGYPT**—Radio Cairo, 6270 at 2356 and 9305 in AA at 2305. (Klauber, NY) 6270 with M/W and ME instls at 2205 with very poor modulation and 9315 at 0200 with EE pgm highlights, f/by another W with a tourist pgm. (Coady, ON) 6290 at 0025 with Egyptian vocals. (Maxant, WV)

**ENGLAND**—BBC, Thailand Relay, 5874 at 1405 with *Hardtalk* pgm; //5975, 6195, 9740 (Singapore Relays); 9410 Thailand Relay at

0018 on witchcraft in Africa. (Sellers, BC) 6145 via South Africa at 0307 with *The World Today* and 11860 with news at 0400. (Coady, ON) 6190 via South Africa at 2300 with music about Syria. (Parker, PA) 9915 Cyprus Relay in AA at 1932. (Klauber, NY) 11830, Wofferton, with a soccer match. (Brossell, WI) 15755 Thailand at 0015. (Linonis, PA) 0115. (Parker, PA) 0130 and 17640 via South Africa on hooliganism in sports. (Goodman, IA)

**EQUATORIAL GUINEA**—Radio Nacional, Bata, 5005 at \*0453 sign on with domestic music, SS talk, anthem at 0508, then Afropops. (Alexander, PA)

Radio Africa (p), 15190 at 1638-1700 with EE religious talk with a strong but distorted signal. (Alexander, PA)

**ERITREA**—Voice of the Broad Masses of Eritrea, 7175 with Program 2 at 0305 with HOA music, vernacular talk, 7200 with Program One at \*0256 sign on with IS, vernacular talk, HOA music. Irregular and with some ARO QRM and from co-channel Sudan. (Alexander, PA) 7175 in AA at 0302 with HOA music. (Coady, ON) \*0258 with IS, f/by ID and opening anmts in (p) Tigrinya, then onto news. (D'Angelo, PA) 0317 with indigenous music. (Parker, PA)

**ETHIOPIA**—Radio Ethiopia, 9705 at 2025-2101\* with HOA music and Amharic talk. Off with anthem at 2059. (Alexander, PA)

Radio Fana, 6110 at 2051-2301 with HOA vocals, closing anmts and final ID at 2059 and choral anthem. Also heard at 0328. Needed LSB to clean up the signal. (D'Angelo, PA) 7310 at \*0256 sign on, open ID, Amharic talk, HOA music, chirping birds. Weak under Russia and much better on 6110. (Alexander, PA)

**FRANCE**—Radio France International, 6245 at 2152 with music prior to CC ID and pgm close at 2156. (D'Angelo, PA) 7390 at 0643 in FF in what seemed to be a pgm on intl affairs. (Sellers, BC) 11995 at 2003 with M/W doing news and phone interview. (Coady, ON) 15300 in FF at 1752. (Klauber, KY)

**GERMANY**—Deutsche Welle, 7350 Rwanda at 0358 with IS and opening. (Parker, PA) 9655 Rwanda Relay at 2015 with an *Inside Europe* report. (Coady, ON) 11865 Rwanda in EE at 2118 and 12070 Rwanda at 2115. (Klauber, NY) 11865 Rwanda, on farming in Quebec at 2159. (Sellers, BC) 12070 Rwanda at 1950. (Fraser, ME) 15410, Rampisham, on people worldwide seeking freedom. (Brossell, WI)

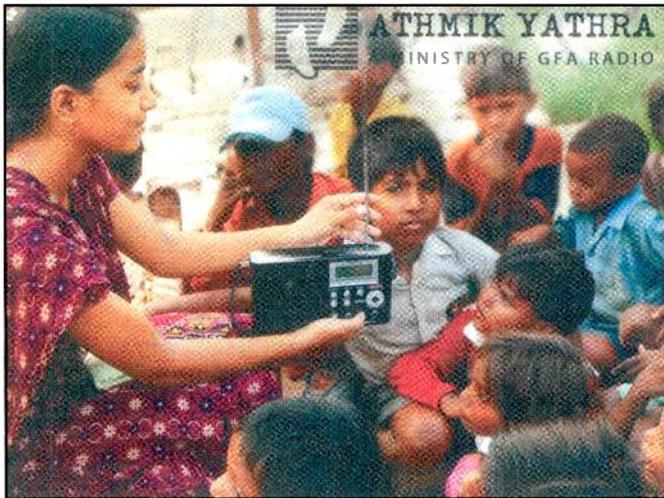
Radio Oomrang, 15215 via Wertachtal at \*1600-1700\* with its annual pgm. Several IDs as "This is Radio Oomrang, the Freisian voice of Amrum" including postal address on Amrum Islands. (D'Angelo, PA) (One day per year only.- gld)

**GREECE**—Voice of Greece, 7475 in Greek at 2337; 9420 in Greek at 2156; 15630 in 1709 in Greek. (Klauber, NY) 9430 in Greek at 2218. (Goodman, IA) 15630 at 1819. (Brossell, WI) 15650 at 2330. (Linonis, PA)

Radio Makedonias, 7450 in Greek at 2121. (Klauber, NY)



Anti-Cuba broadcaster Radio Republica tested recently over WRMI, Miami — and Rich D'Angelo QSL'd them.



A QSL card from India-based Athmid Yathra Radio, currently airing via Nauen, Germany, on 15285, received by Rich D'Angelo.

**GUAM**—KTWR, 9975 at 1248 with M hosting Mandarin language pgm with soft instls and talks. (D'Angelo, PA)

Adventist World Radio, 9880 in (I) Korean at 1228. (Brossell, WI)  
Armed Forces Network/AFRTS, 5765 at 1432 on budget and the U.S. primaries. (Sellers, BC)

**GUATEMALA**—Radio Verdad, Chiquimula, 4055 at 0540 with M preaching in EE, into SS and EE at 0558. Closed at 0609. (Parker, PA) 1108 tune in to IS, NA at 1111, multi-lingual ID and contact info. Religious music at 1122. (Alexander, PA)

**GUYANA**—Voice of Guyana, 3290 in EE at 0824 with a preacher, pop or Christian song and Hindi songs. (Sellers, BC) 0930 "Good morning to you," birthday greetings from 0940-0955 and pop/rock. (Wilkner, FL)

**INDIA**—All India Radio, 4860, Delhi, at 0124 in (p) Hindi, M/W speakers; 4950, Srinagar (Kashmir), 0134 in (p) Kashmiri what appeared to be news, national vocals at 0140 but lost in noise around 0148; 6155, Bangaluru, at 0034 in Urdu; 13710 at 1438 with continuous Indian instls. (Sellers, BC) 5010-Thiruvananthapuram in (I) Hindi at 1302 and 11670 in EE at 1914. (Brossell, WI) 7550 and 9445 at 2127; 11670 in FF at 1952. (Klauber, NY) 11670 at 1932 with talk, ID, local pops; 15175 in Gujarati with traditional music, off at 1559. (Goodman, IA) 11670 on India's exports. (Maxant, WV) 1930-1945, (Linonis, PA)

Athmeeya Yatra Radio, 7240 via Germany in (I) Santhali with talk and woodwind instls, closing anmts at 0027 and off at 0029. (Coady, ON)

**INDONESIA**—Radio Republik Indonesia, Palangkaraya (Kalimantan), in Indonesian at 1403. (Sellers, BC)

RRI Kendari (Sulawesi), at 1411 with a pop song. (Sellers, BC)  
Voice of Indonesia, 9525 at 1442 with W hosting a jazz vocal. (Sellers, BC) 1503 weak with inadequate modulation. (Strawman, IA)

**IRAN**—Islamic Republic of Iran Broadcasting, 3965 (p) at 0213 with M speaker in Urdu and music bridges. Very poor. (Sellers, BC) 6030 at 2345 in SS. (Linonis, PA) 7200 at \*0330 with M and EE ID, recitation, W with news at 0336. (D'Angelo, PA) 7320, Sirjan, at 2020 with Middle East news. (Fraser, ME) 15345 in FF at 1900. (Klauber, NY)

**ITALY**—Italian Radio Relay Service, 15190 at \*1257 sign on and 1300 ID then into Brother Stair/Overcomer Ministry program. IRRS ID anmts at 1529. (Alexander, PA) 1620 with Overcomer Ministry. (Coady, ON)

**JAPAN**—NHK World Radio Japan, 5975 via Wooferton with *Focus* pgm at 0534. (Parker, PA) 6110 via Canada at 0510 with news; 15660 at 1410 with news on Syria; and 21560 at 1415 also on Syria. (Maxant, WV) 6145 and 6165 in JJ at 0741. (Sellers, BC) 7395 at \*0305 with OC, IS at 0310, ID and opening in Swahili at 0315. (D'Angelo, PA) 11655 with call-in pgm in JJ at 1311 and 17650 FF at 2021. (Klauber, NY)

## In Times Past

Here's your "blast from the past" for this month: **La Voz del Alpha 66**, on 7055 – a clandestine anti-Cuban broadcaster from the Miami area, heard on February 7, 1980, broadcasting in SS at 0115.

15445 via Germany in JJ at 1812. (Brossell, WI) 11730 via Tashkent at 1304 with EE news f/by JJ language lesson and 11880 via Chile at \*2100-2200\* opening PP language service. (D'Angelo, PA)

Radio Nikkei, 3925 in JJ at 1231. (Brossell, WI) 0747 in JJ and 3945 in JJ at 0747. (Sellers, BC) 9595 in JJ at 1330, audio out at 1501. (Strawman, IA)

**KUWAIT**—Radio Kuwait International, 11950 in AA at 2225 with possible Koran recitations. (Maxant, WV)

**LIBYA**—Radio Television Libye, 11600 at \*1636-1806\* with FF talk and light instl music, IDs and French pop. (Alexander, PA)

**MADAGASCAR**—Radio Madagasikara, 5010 at 0224 with carrier plus USB. Tune in to Afropop, f/by choral NA and opening anmts at 0231. (Alexander, PA) \*0130 with music opening, rooster crowing and more music, W in Malagasy, talk and vocals. (D'Angelo, PA)

**MALAYSIA**—Asyik FM, 6050 at 1432 in Bahasa Malay with pops, W/M talking phone calls. (Sellers, BC)

Sarawak FM, 9835 at 1454 in Bahasa Malay with Malaysian pops, time pips at 1500, fanfare and into RTM News. (Sellers, BC)

Wai FM (t) 11665 at 1107 with M in (p) Malay hosting a music pgm. (D'Angelo, PA)

**MALI**—RTV Malienne, 9635 at 0820 in vernacular talk, some rustic tribal music. (Alexander, PA)

**MAURITANIA**—RTV Mauritanie, 7245 in AA at 0022 but with ARO QRM. (Klauber, NY) 0207 in AA with apparent news by W and M, guitar instls at 0209. (Coady, ON)

**MEXICO**—Radio Mil, Mexico City (p), 6010 with M/W in SS at 0015. (Parker, PA)

Radio Educacion, Mexico City, 6185 at 0508 with M/W talk, opera. (Parker, PA) 0722 with several French songs from the 1930s. (Sellers, BC)

**MICRONEISA**—The Cross, Pohnpei, 4755 with an EE preacher at 0727, then a number of gospel songs. (Sellers, BC) 1015-1030 with religious messages. (Wilkner, FL)

**MOLDOVIA**—Radio PMR, 7290 at 2035 on relations with Pridnestrovia. (Fraser, ME) 2220 with ID and schedule, f/by contact info. (Strawman, IA)

**MONGOLIA**—Voice of Mongolia, 12085 at \*1029-1058\* with IS, M with ID in Mongolian and W with EE ID, news and mailbag pgm. (D'Angelo, PA)

**MOROCCO**—RTV Marocaine, 15349 in AA at 1636 with wailing W vocals and crowd applause. (Coady, ON) 2011 with M/W news in AA. (Sellers, BC)

Radio Medi-Un, 9575 in AA at 0330 with M/W ME vocals. (Coady, ON)

**MYANMAR**—Thazin Radio Broadcasting, 7110 at 1105 with local pop things and vernacular talk. (Alexander, PA) 1210 with M in (p) Burmese and local music, approximate eight minute break in pgm from 1214-1222 when music was heard again. (D'Angelo, PA) (There are still questions about the name and location of this one, but for now I'm going with the name as given here – gld.)

**NETHERLANDS**—Radio Nederland, 7360 via Philippines in DD at 1111 and 11655 at 1939 with *Global Perspective*. (Coady, ON) 11615 via Vatican with an African pop song; 11655 Madagascar Relay at 1910; and 11965 Madagascar Relay in DD at 1648. (Brossell, WI) 11615 on Japanese anniversaries. (Klauber, NY) 2025 with *Earthbeat* pgm at 2025. (Fraser, ME) 11655 on Africa's economy. (Goodman, IA) 1939. (Coady, ON)

**NEW ZEALAND**—Radio New Zealand International, 9765 at 0628 with Cuban salsa music. Also, 15720 with news at 0400. (Coady, ON) 11725 on a high court in Auckland. (Maxant, WV) 1516 with business news. (Goodman, IA)

**NIGER**—La Voix du Sahel, 9705 at 2101 after Ethiopia signs off at 2101. Weak but readable by 2140 with FF and vernacular talk, Koran at 2255 and off at 1201. (Alexander, PA)

**NIGERIA**—Voice of Nigeria, 7255 in FF at 2029. (Klauber, NY) 6090 in (I) Hausa with some local music, into English at 0900 with news. (Alexander, PA) 15120 at 1900 with discussions on Somalia. (Linonis, PA)

Radio Nigeria, Kaduna, 6090 at 2206 in Hausa until Anguilla took over around at 2209 and 7255, Ikorodu, at 2230 in Hausa. Closedown anmts and orch. anthem at 2259. (D'Angelo, PA)

**NORTH KOREA**—Voice of Korea, 6285 in FF at 1137 and 6400 in KK at 1143. (Strawman, IA) 1218 with M/W in KK. (D'Angelo, PA) 9345 with talk in KK at 1206. (Brossell, WI) 11710 at 1504 with W introducing patriotic choruses. (Coady, ON) 11735 in SS at 0250 with local pops and into FF at 0300. (Goodman, IA) 13760, Kujang, in EE with martial music. ID. (Parker, PA)

**OMAN**—Radio Sultanate of Oman, 15140 with AA talk at 1948. (Brossell, WI)

**OPPOSITION**—Democratic Voice of Burma, 7510 via Armenia at 2330 with talk in (I) Burmese and some short breaks of local music and many mentions of Myanmar. (Alexander, PA)

Sound of Hope (to China), 11760 via Taiwan at 1609 with talks and songs in CC. (Brossell, WI)

Radio Republica (to Cuba), 5954 at 0106 with Cuban NA, ID and SS talk. (Alexander, PA) 9965 in SS at 2004. (Brossell, WI)

Denge Mezopotamia (to Iran), 11530 in Kurdish at 1300. (Klauber, NY) 1320 with Kurdish talk and music. (Alexander, PA) 1511 with Kurdish vocals. (Strawman, IA)

Echo of Hope (to North Korea), 6348 in KK at 1142. (Strawman, IA)

Voice of the People (to North Korea), 4450 in KK at 1418. (Sellers, BC) 6518 in KK at 1149 and 6600 in KK at 1150. (Strawman, IA)

Radio Dabanga (to Sudan), 7315 in AA at 0539 with African pops. (Goodman, IA)

**PAKISTAN**—Radio Pakistan, 11600 at 0107 in Urdu with songs, M talk. Checked for listed sign on at 0045 but unheard then. //15490 which was barely audible. (Sellers, BC) 0144 with Urdu vocals but with low modulation and signal varying between just inaudible and audible. Off at 0212. (Strawman, IA)

**PAPUA NEW GUINEA**—Radio East New Britain (New Britain), 3385 at 0808 in Tok Pisin with W anc and songs with several EE words understood. (Sellers, BC)

**PERU**—Ondas del Huallaga, Huanuco, 3329.5 at 1042 in SS at 1042 with hyper anmts, no ID around 1100. (Wilkner, FL)

Radio Huanta 2000, Huanta, 4747 at 1040 in SS with M anc, OA vocals. (D'Angelo, PA)

Radio Tarma, Tarma, 4775 at 1051 with pgm of huaynos with M anc in SS, air raid siren SFX at TOH. (D'Angelo, PA)

Radio Sicuani, Sicuani, 4827 in SS at 2353. (Wilkner, FL)

Radio Libertad, Junin, 5039.1 at 1023 with OA vocals, M SS host, nice huaynos with lots of shouting. (D'Angelo, PA)

(p) Ondas del Surorinte, Quillabamba at 1057 with two SS ancs, choral huaynos, time check at 1101. By 1110 was getting lost in a sea of static. No ID caught but am quite sure this was the one. (Perry, IL)

Radio Bethel, Arequipa, 5921 at 0000 in SS. (Wilkner, FL)

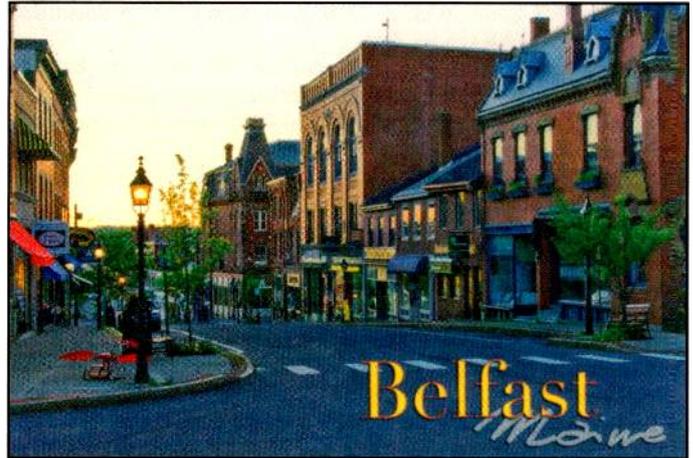
Radio Tawantinsuyu, Cusco, 6173.9 in SS at 1008. Best using the narrowest bandwidth. (Perry, IL) (p) at 1023 with fast talk M in SS, possible news-type pgm. (D'Angelo, PA)

**PHILIPPINES**—Far East Broadcasting Co., 9430 at 1320 in Mandarin with apparent sermon and religious music. (Strawman, IA)

Radio Veritas Asia, 9520 in (I) Tamil service at 1415. (Strawman, IA) 9615 at 1129 in Mandarin with a radio drama. (Coady, ON) 15350 via Italy in Tagalog at 1508. (Klauber, NY)

**PIRATES**—Captain Morgan Shortwave, 6925 at 0100 with rock to 0130 close. (Linonis, PA) 0202-0236 with Twilight Zone music, country things, '80s new age. Email to: <captainron6955@hotmail.com>. (Hassig, IL) 0203-0215. (Alexander, PA) \*0204-0237\*. (Zeller, OH) 0210-0240\*. (D'Angelo, PA) 0219, ID at 0225. (Coady, ON)

WBNY, 6900 at 2337 with fake ads, talk by Commander Bunny,



Here's Main Street in Belfast, Maine — a familiar scene in GIG Reporter Bob Fraser's home town.

mention of WBNY talent contest and 6925 at \*0615 sign on with piano IS. (Alexander, PA)

Radio Ronin Shortwave, 6925 at \*0121 with IS, ID at 0124. Also, 6950 at 0040 with pop/rock. (Alexander, PA)

Radio Gaga, 6925u at 0023 with classic rock, SSTV xmsn prior to vocal ID at 0125 close. (Zeller, OH) 0029. <radiogaga6925@gmail.com>. (Hassig, IL) 6935u at 0000-0010 with pops. (Alexander, PA)

Wolverine Radio, 6925 at 0127 with rock/pop, several IDs. Off at 0201. (Coady, ON) \*0112-0201 with classic rock, brief SSTV near close. (Zeller, OH) 0144 with rock and numerous IDs, FAX machine sounds. (D'Angelo, PA) 0240 with pop/rock. (Strawman, IA) 0220-0240 with oldies. (Alexander, PA) 0225 with songs on a lonely theme, SSTV/FAX. (Hassig, IL)

WMPR, 6925 at 2345 with pgm of dance music. (Hassig, IL; Alexander, PA)

Big Boobs Radio, 0043-0054\* vocals with several IDs near close. (D'Angelo, PA) \*2356-00209\* with country songs. (Alexander, PA)

WEAK Radio, 6925 at 0108-0123\* with classic rock. (Zeller, OH) 0120-0123\* with M saying "we're in the Yellow Pages," jingle, ID, funeral march and off. (D'Angelo, PA) 0240-0250 rebroadcasting Renegade Radio. (Alexander, PA) 0040 past 0130 with various obscure rock. Reports to FRN or raveonradio@gmail.com. (Zeller, OH)

Radio Mushroom, 6925u at \*2323-2345\* with rock. (Alexander, PA) 2342-2344\* with rock. Reports to: <radiimushroom@gmail.com>. (D'Angelo, PA)

Radio Vixin Intl, 6925 at 2305-2315 with Etta James songs. (Alexander, PA)

Rave On Radio, 6925 at 0010-0020 with Neil Young song and ID. (Alexander, PA)

Red Mercury Labs, 6935 at 0430-0505 with DJ chatter, shoutouts, email address, ID and rock. (Alexander, PA)

Voice of Chaos, 6925u at \*0001-0015 with pops, email and talk about Bin Laden. (Alexander, PA)

Radio Jamba International, 6925u at 0130-0145 after Captain Morgan signed off. Lots of blues songs, rock, DJ. (Linonis, PA)

MAC Shortwave, 6925 at 1737 carrying *Dr. Who* pgm, Beatles, ID, email. (Alexander, PA)

Radio 1212 Intl, 6925 at \*2233 with technopop dance music. (Alexander, PA)

Underground Radio, 6925u at \*0233 with Dr. Benway testing frequency before opening an old pgm feature. Tried 1720 kHz for a time but it proved to be too noisy. (Alexander, PA) 0404-0430 with light music, IDs, contact info, shout-out to the MARE DXpedition group. Said this was their first anniversary pgm, featuring highlights of their 2003 season. (Alexander, PA)

Channel Z, 6925 at 2315-2318 with pop/rock. (Alexander, PA)

Radio Azteca, 6925 at 0330 with rock, talk by two men. (Alexander, PA)

(Euro) TRX Radio, 6305 at 2320, weak with pops. (p) Identified by Euro DXers, (Alexander, PA)

(Euro) Double Kilo Radio, 6306 at 0120-0209\* with pops, ballads, DJ chatter. Gave an address in the Netherlands. (Alexander, PA)

(Euro) Radio Tropiq, 6307.5u at 2320-2345\* with ID, pops, country songs. (Alexander, PA)

(Euro) FRS-Holland, 7600.5 at \*0752 with talk. Close Encounters theme. Barely audible at sign on. (Alexander, PA)

Black Bandit Radio, 6375 at 2250 with IDs, country songs. Off around 2258. (Alexander, PA)

**POLAND**—Radio Polonia, 7330 via England in Polish at 2213. (Klauber, NY)

**ROMANIA**—Radio Romania International, 6015 at 2320 on female leaders in the EU. (D'Angelo, PA) 2340-0000 with polka-like selections on violins. (Linonis, PA) 6130 with news at 0405, 7220 with news at 2300, 7310//7380 and 9435 opening with *Radio Newsreel*, 9535 in SS at 0019 and 15280 in AA at 1504. (Klauber, NY) 9580 at 0300 beginning *China Horizons* pgm. (Maxant, WV) 11870 in (I) Romanian at 1617 and 15310 in Romanian at 1806. (Brossell, WI) 17540 in AA with music, IS at 1556. (Goodman, IA)

**RUSSIA**—Voice of Russia, 4975 via Tajikistan at 1257 with W in (I) Pashto-Dari. (Brossell, WI) 7250 on jazz music at 0349; 7260 via Moldova at 0240 with RR music; 9450 in RR at 1238; 9750 via Armenia in RR at 0006. (Klauber, NY) 7290 on election and energy in Russia. (Linonis, PA) 7250 via Armavir with classical music at 0338 and 12030, Petropavlovsk, at 0314 with classical music. (Parker, PA)

**SAO TOME**—Voice of America Relay, 4960, Pinheira, at 0420 with news features about Africa and 15260 in FF at 2026. (D'Angelo, PA)

**SAUDI ARABIA**—Broadcasting Service of the Kingdom, 9555 in AA at 1959; 9675 with news in AA at 2011; 11820 with Holy Koran service at 2217; and 15435 at 1512. (Klauber, NY) 9675 in (I) Turkish at 1924; 15225 in AA at 1656; and 15435 in AA at 1649. (Brossell, WI)

**SEYCHELLES**—BBC Relay, 7385 at 0200 with news. (Klauber, NY) 0237 with discussion on African issues. Also, 9460 with *The World Today*. (Coady, ON) 12035 at 0316 with a discussion. (Parker, PA)

**SINGAPORE**—9740 with W hosting World Briefing at 2321. (Coady, ON)

**SOLOMON ISLANDS**—Solomon Islands Broadcasting Corp., 5019.9 at 1100-1112 hearing some audio with Cuba muted. (Wilkner, FL)

**SOUTH AFRICA**—Channel Africa, 3345 at 0348 with an African news roundup. (Brossell, WI)

Radio Sonder Grense, 3320 at 0303 in Afrikaans with apparent news and time pips. (Coady, ON)

TWR, 7215 at 0328 in vernacular with bells IS, repeated EE ID. (Parker, PA)

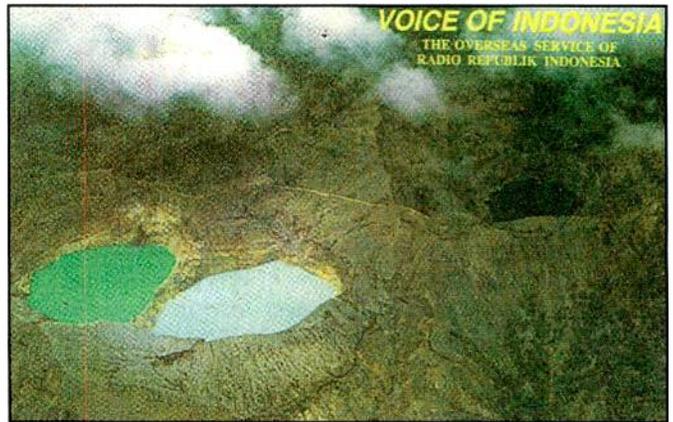
Adventist World Radio, 11750 at 1952 in (I) Igbo to Nigeria. (Brossell, WI) 15240 at 1900 with ID, f/by pan pipes, kalimba music and talks in (I) Fulfulde. (Goodman, IA) 11755 in (I) Yoruba at 2048. Also, 15240 in (I) Fuluni at 1915. (Klauber, NY)

**SOUTH KOREA**—KBS World Radio, 9580 on the Oscars at 0245. (Maxant, WV) 9650 via Canada with *Seoul Calling* at 1226. (Klauber, NY)

MND, Ministry of National Defense, 6300 at 1139. Schedule is 1100-1150 and occasional ute or jammer ruined the signal. (Coady, ON)

**SPAIN**—3350 Costa Rica Relay with M/W in apparent SS news. (Coady, ON) 6005 in EE at 0015; 6055 in EE at 0000; 9535 in SS at 0219; 15110 in SS at 1924; 17595 in SS at 1338; and 17850 in SS at 1745. (Klauber, NY) 9535 in SS at 0415; 9620 in SS at 0300; and 11860 in SS at 11680. (Goodman, IA) 15110 in SS with spots at 2031. (Sellers, BC)

**SRI LANKA**—Sri Lanka Broadcasting Corp., 11905 at \*0020 sign on with local drums, NA at 0021, f/by more drums and local music. Opening in Hindi at 0025 with recitations and Hindi vocals. //7189.8



The Voice of Indonesia erupts daily on 9525v. (Courtesy of Charles Maxant)

was very weak. (Alexander, PA) 15745 with early 20<sup>th</sup> Century orchestral music at 0145 but five minutes later it was too weak to understand. (Sellers, BC)

**SUDAN**—Sudan Radio TV Corp., 7200 at \*0235 on with local chants, AA talk, local music. Later mixing with Iran at their 0329 sign on. (Alexander, PA) 0300 in AA with HOA vocals, ID, time signal and M with apparent news. (Coady, ON) 0346 with ME vocals hosted by a W ancr with AA talks. (D'Angelo, PA)

**SURINAME**—Radio Apinte, Paramaribo, 4990 at 0537 with romantic music. (Parker, PA)

**SYRIA**—Radio Damascus, 9330 at 1906-1934\* with FF talk, local pops, abrupt off. Mixing with WBCQ which requires use of ECSS-LSB to avoid the QRM. Also \*2103-2204. Into SS at 2201. (Alexander, PA)

**TAIWAN**—9450 at 1215 and 9680 going off at 0300. (Klauber, NY) 11710 in Mandarin at 1205. (Coady, ON)

**TAJIKISTAN**—Tajik Radio, 4765, Dushanbe, at 0116 in Tajik with music and W ancr, possible news headlines at 0118 with music bridges. Fading out by 0153. (Sellers, BC)

**THAILAND**—Radio Thailand, 7255 at 1126-1129\* ending Khmer pgm, bells IS at 1129 and M with EE ID. 13745 at 0039 with M/W hosting news with ads and PSAs and a quote from the King prior to closedown. (D'Angelo, PA) 0025 with news items, 15275 with W doing world news at 0205. (Sellers, BC)

**TURKEY**—Voice of Turkey, 5960 with *Question of the Month* at 2123. (Fraser, ME) 5960 at 2315 in Turkish. (Linonis, PA) 9650 in SS with domestic music at 0220. (Goodman, IA) 11815 in TT at 1612. (Brossell, WI)

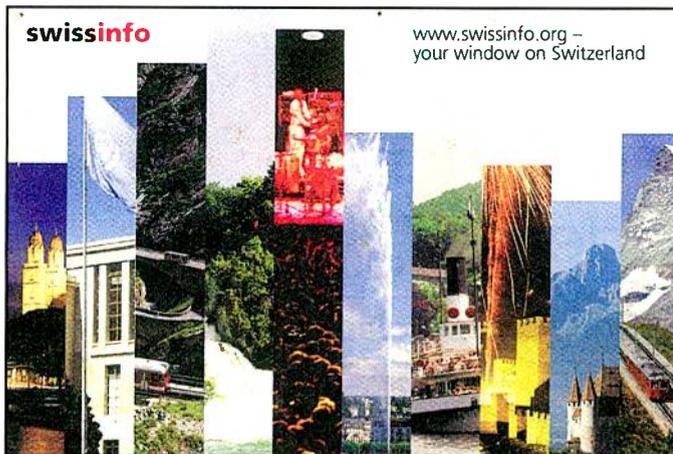
**TURKMENISTAN**—Turkmen Radio, Ashgabat, 5015 at 1306 in (p) Turkmen. Weak and not a regular visitor here. (Brossell, WI)

**TUNISIA**—RT Tunisienne, 7275 in AA at 0510 with domestic music. (Goodman, IA) 0535 and 7335 in AA at 0712. (Klauber, NY) 12005 at 1650 in AA. (Brossell, WI) 1900 in AA. (Linonis, PA)

**UNITED STATES**—Voice of America, 5890 in SS at 0037; 7575 Sri Lanka Relay at 1212 with news reports; 9435 Sri Lanka Relay at 0105. VOA/Deewa Radio Service 9730, Sri Lanka, in Pashto at 0108; 12045, Philippines Relay, in CC at 1250; 13580 via Germany in Kurdish at 1439; 13750 in SS at 1323; 15125, Northern Marianas Relay, in CC at 0035; 15385, Philippines, in CC at 0041; and 15580 via Bonaire at 2056. (Klauber, NY) 7560, Kuwait Relay, with usual news pgm at 2106 and 9435, Sri Lanka Relay, at \*0100-0200\*. Special English news at 0143. (D'Angelo, PA) 9520 Aap Ki Duniya service in listed Urdu at 0155. (Coady, ON) 11840 in (I) Georgian at 1644. (Brossell, WI)

Radio Free Asia, 9905 in (I) Mandarin at 1605. (Brossell, WI) 9920 (p) in VV at 0006, 11695 via UAE in (p) Tibetan at 0101. (Sellers, BC)

Radio Free Europe/Radio Liberty, 7435, UAE Relay, in RR at 0411. (Parker, PA)



Swiss Info closed the window on shortwave years ago.  
(Courtesy of Charles Maxant)

Radio Marti, 6030 in SS at 0047; 11930 in SS at 1958; and 15330 in SS at 1802. (Klauber, NY)

Afir Darfur Radio, 9780 via Vatican in AA at 1926. Off at 1930. (Brossell, WI)

Radio Farda, 5860 at 0000 sign on with talk in (I) Farsi, ID and wide variety of local and indigenous vocals and US pops. (D'Angelo, PA) 7520 at 2345 in Farsi (Linonis, PA) 9965 at 1938 in Farsi. (Brossell, WI)

Armed Forces Network/AFRTS, Key West, 5446.5 at 0412. (Parker, PA)

Sudan Radio Service, 15500 via Skelton at 1628 in AA with M/W talk, woodwind music, ID at 1630 and apparent radio drama. (Coady, ON) 17745 via Wooferton at \*1456-1659\* with stringed instl IS, several nice IDs and opening in AA by W and into AA news. EE pgm at 1630. (D'Angelo, PA) 1620 to past 1653 with vernacular talk, into EE at 1630 with IDs, contact info, news. (Alexander, PA)

Family Radio/WYFR, 6220 via Taiwan in (I) Burmese at 1132 and 6280 in EE at 1514; 11610 via UAE at 1510. (Sellers, BC) 6115 via French Guiana at 0000; 9930 in SS at 0422; and 15195 at 2107. (Klauber, NY) 9310 via Kazakhstan at 1316 and 9390 also via Almaty at 1320 with EE service. (Strawman, IA) 9885 via UAE at 1933; 9925 via Germany in (I) Somali at 1955; 15195 via Ascension at 2020; and 13660 via France in Oromo at 1655. (Brossell, WI)

WTTW, Tennessee, 1215 at 2113. (Goodman, IA) 2125. (Klauber, NY)

WTJC, North Carolina, 9370 at 2317 and 12105 at 2125. (Klauber, NY)

WWRB, Tennessee, 9385 at 1415. (Maxant, WV)

WHRI, 5920 at 0100 on world ending with war against Iran. (Klauber, NY) 9840 at 1435. (Maxant, WV)

WINB, Pennsylvania, 9265 at 0050. (Maxant, WV) 13570 at 2048. Off before 2100. (Sellers, BC)

WBCQ, Maine, 9330 at 2003. (Fraser, ME) 2319. (Klauber, NY) 15420 at 1820. (Maxant, WV)

WRMI, Florida, with SS preacher at 1430. (Maxant, WV)

WEWN, Alabama, 11520 at 0250 and 15610 at 1410. (Maxant, WV) 11550 in SS at 1309; 12050 in SS at 2122; and 15610 at 1746. (Klauber, NY)

WWCR, Tennessee, 4840 at 0021; 13845 at 2109; and 15825 at 1745. (Klauber, NY) 15825 at 1618. (Goodman, IA)

KOA, Denver, Studio-transmitter link, 25950 at 1700 with Fox news, local traffic, ID. Tends to fade in and out a lot. (D'Angelo, PA) 1925 with promo for Colorado Rockies baseball. (Alexander, PA)

WBAP, Dallas, STL, 25910 at 1825 with news, local traffic, weather. (Alexander, PA) 2146 with IDs during breaks in Shaun Hannity pgm. (D'Angelo, PA)

KLIF, Dallas, 25990 STL at 1825 with local comls, call-in show. (Alexander, PA)

**VATICAN**—Vatican Radio, 5990 via Philippines at 2219 with long talks in Mandarin. Closed with IS at 2245 and 6185 at \*0358 with IS and opening Ukrainian pgm. (D'Angelo, PA) 6075 at 2123; 7250 in SS at 2125; and 7385 in RR at 2128 close; 9660 in Swahili at 0357 to 0400\*. (Klauber, NY) 15570 in (I) Tigrinya at 1652. (Brossell, WI) 9660 at 0515. (Maxant, WV) 11625 via Madagascar at 0327. (Parker, PA) 13765 with their African service at 1739. (Coady, ON)

**VIETNAM**—Voice of Vietnam, 6175 via Canada at 0226. EE news began at 0230. (Klauber, NY) 0255 with interviews. (Maxant, WV) In VV at 0503. (Parker, PA) 9840 with M/W in EE at 1345. (Sellers, BC)

**ZAMBIA**—ZNBC, 5915 at \*0241 sign on with the Fish Eagle IS and choral anthem at 0247, local music and vernacular talk. (Alexander, PA) 6165 in EE at 0611. (Klauber, NY)

CVC-One Africa, 13590 at 2106. (Klauber, NY) 2014 with Bible message and Christian song. Also, 17695 at 1825. (Klauber, NY) 1611 with FF-accented W and South African accented W with brief youth talk and into Christian hip-hop. (Coady, ON) 1850-1900 with lively Christian music. (Linonis, PA)

And that'll do it for this month, except to offer the usual thanks and high fives to the following good guys who did the right thing this month: Brian Alexander, Mechanicsburg, PA; Rich D'Angelo, Wyomissing, PA; Robert Wilkner, Pampano Beach, FL; Richard Parker, Pennsburg, PA; Harold Sellers, Vernon, BC; Alex Klauber, Oneida, NY; Mark Coady, Peterborough, ON; Ralph Perry, Wheaton, IL; George Zeller, Cleveland, OH; Jerry Strawman, Des Moines, IA; William Hassig, Mt. Pleasant, IL; Joel Goodman, Stanwood, IA; Robert Fraser, Belfast, ME; Charles Maxant, Hinton, WV; Jack Linonis, Hermitage, PA; and Robert Brossell, Pewaukee, WI.

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# This Month's Feedback from Pop'Comm Readers

## A High-Five On Radio Accessibility and a Voice From 'The Boonies' Wants Help in Finding Radio Gear

*Pop'Comm appreciates and encourages comment and feedback from our readers. Via email, please write: <editor@popular-communications.com>. Our postal service address is: Editor, Popular Communications, CQ Communications, Inc., 25 Newbridge Rd., Hicksville, NY 11801-2953 USA. – Richard Fisher, K16SN*

### 'Horizons' Touches Beautifully On Radio Accessibility Issues

Editor, *Pop'Comm*

Let me begin by saying that I am a huge fan of *Popular Communications*.

I am writing this to thank Rob de Santos, K8RKD, for pointing out in his *Horizons* column an often-overlooked feature in ham radio gear — accessibility (*SEE: "Things I Wish My Radio Did, The Sequel" in January 2012's Pop'Comm, page 10, Photo A. – KPC6PC*).

I have been a ham for almost 20 years, and have had experience with many different radios. Being totally blind, I have seen the best and worst in radios when it comes to ease of use for visually impaired individuals like myself.

Fortunately, the rigs that grace my shack are all very easy for me to program and operate with little

or no sighted assistance. I am glad Rob recognizes that accessibility is an important component for radios of the future.

Thank you for reading this, and kudos on a wonderful magazine! My favorite column is "Shannon's Broadcast Classics." I will definitely keep reading!

– Nick Rothermel, N8WLE,  
Rootstown, Ohio

*(Nick: We're so glad K8RKD's "Horizons" struck a chord with you. He's a communications visionary who really has the pulse of radio listeners' — as well as transmitters' — concerns. Pop'Comm strongly supports initiatives that increase use and accessibility of radio equipment in general, but especially for operators with physical disabilities. As radio further advances, we believe accessibility will be more and more a part of manufacturers' design plan. Thank you for underscoring the importance of keeping such issues front of mind. – KPC6PC)*

### Pop'Comm Advertisers Are Great Sources of Information

Editor, *Pop'Comm*,

I live in Maine about as far east as you can get. I want to DX AM-band broadcasters from Ireland and the United Kingdom.

I don't use computers and this is *the boondocks* and we have no equipment dealers.

So, if you know anybody with suitable equipment and *know how* that puts out a print catalog, I want one. I already have a Universal catalog.

– Tony Hammond,  
Danforth, Maine

*(Tony: We were curious as to just where Danforth is situated in Maine, and Google Maps confirms your assertion that "Welcome to The Boondocks" could be a sign on the edge of town, Photo B. That can be a great thing when you're a broadcast band DXer or SWLer as sometimes interference can be at a minimum in rural settings. So we congratulate you on that, and applaud you on your quest for some good*

**NEWSWORTHY**  
Horizons

### 'Things I Wish My Radio Did,' The Sequel

by Rob de Santos, K8RKD  
<comhorizons@gmail.com>  
Twitter @shuttleman58

*"Whether you are an SWL or a ham, a smarter radio might be the tool you need to get things done."*

**Connections!**  
I spend some of my time away from the keyboard in the sales department of a well-known company selling radios and associated hardware. Perhaps nothing is so time-consuming as helping a customer figure out how to connect two items the manufacturers never thought (or wanted) someone to connect. Whether it is an antenna and a radio or getting the audio from device A to device B, the issue often revolves around incompatible connectors. While there are often sound reasons for using one type of connector over another, often it is just the whim of the designer or manufacturer that dictates what connectors are available. Can we all just get along?

**More Room**  
Almost every modern radio has some sort of semi-permanent or permanent memory. The size of this storage is often determined by manufacturing cost or marketing. It doesn't have to be that way. It might be tilting at windmills, but in this era of read-

by those with disabilities. It doesn't have to be that way. If you have one of the new smartphones, would you be able to use it if you lost your sight? The value of features such as tactile feedback and voice recognition cannot be over-estimated. We don't need governments to tell us to do this. It should be good business. As the population ages, accessibility will be increasingly important.

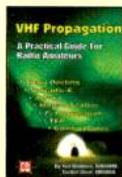
**Radio Reception vs. Propagation**  
In the midst of this slowly rising solar cycle, what if your radio did the checking of beacons and propagation data and helped you find the right bands on which to listen or transmit? There is ongoing research in "smart radios" that use RF interference analysis and propagation information to help ensure the message gets through. While some of the motivation for current research may be for military or commercial applications, this is an area where SWLs and hams stand to benefit. Our radios can be smarter. *For more information from the National Institute of Justice on smart radios and their practicality in public service, visit <http://bit.ly/1Vfhh> – Ed*

**Wireless Links**  
A few ham rigs now have Bluetooth capability <http://www.BlueTooth.com>, but it is of limited use on these radios, expensive ham and SWL radios today still have virtually no awareness of

**Photo A.** In January 2012's *Horizons*, columnist Rob de Santos, K8RKD, pointed out that "it is worthwhile to ask where we are and if that affects where we thought we were going" when tracking trends in radio communications development.

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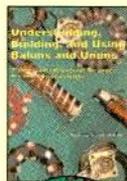
by Jerry Sevick, W2FMI

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by Sevick, W2FMI

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By Juergen A. Weigl, OE5CWL

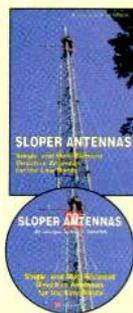
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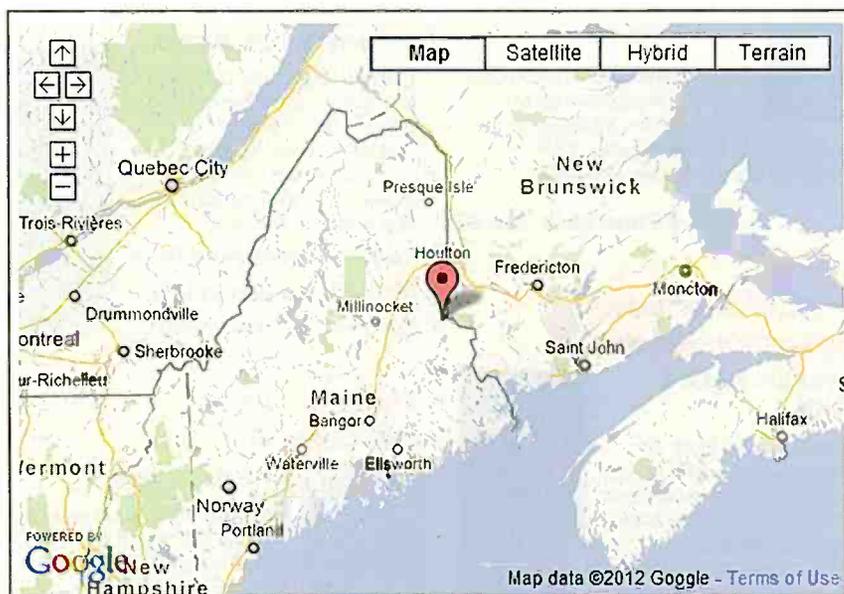
**WWW.READY.GOV**

**1-800-BE-READY**



gear. Actually, you're holding in your hands perhaps the best source for tracking down equipment dealers — the advertisements in the pages of Pop'Comm. Most equipment dealers list their mailing address in their ad. You can write and

request a catalog. If there isn't a mailing address, call the phone number listed and request a catalog. They'll be happy to send you one. Good luck on your equipment hunt and keep us posted on how things go. — KPC6PC)



**Photo B.** This Internet screen grab from Google Maps shows Tony Hammond's listening post in Danforth, Maine, is just a stone's throw from the Canadian province of New Brunswick. (Courtesy of Google Maps)

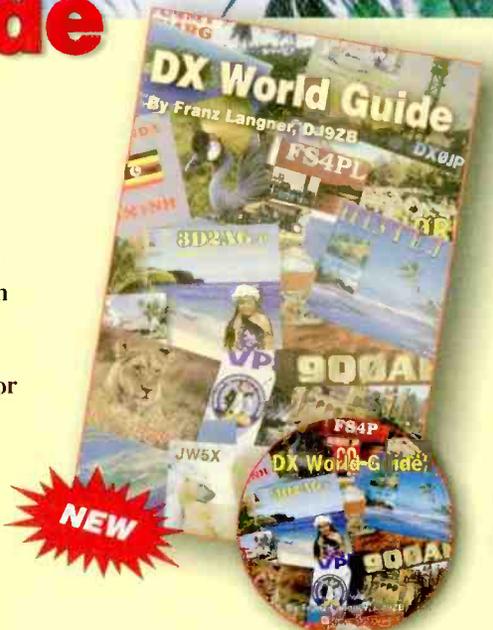
# DX World Guide

By Franz Langner, D19ZB

Known throughout the DX and DXpedition world as a meticulous and tireless operator, Franz Langner, D19ZB, is also noted as one of the most knowledgeable individuals in Amateur Radio in terms of documenting DXCC entities. This is the third edition in his series of books bearing the title *DX World Guide*, first published in Germany in 1988, and then in a second edition, also in Germany in 1997. This edition is the first to use color throughout, and includes information on well over 300 DX entities. Whether used as a desk reference for the DXer of any level of proficiency or as a "wish book" for DXers just starting his or her DXCC journey, the new *DX World Guide* is a worthy and pleasant companion.

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## The Radio Box

by Shannon Huniwell,  
WPC2HUN  
<melodyfm@yahoo.com>

*“Whoever Beverly and Brad were, they had a 100-kilowatt impact on Mark Grantham.”*

Out of a tear-stained corner of one eye, Mark Grantham noticed a small block of wood floating near the Lake Superior shoreline. It reminded him how very much he felt adrift. The teen was sitting on a rock not far from his grandparents' Michigan summer cottage contemplating life and slowly recuperating from a broken heart.

At first, he didn't much care about the curious flotsam, but the way in which it seemed to suddenly change course and head for a little nearby cove made the kid consider that the thing might be looking particularly for him.

He broke off a length of a convenient branch and, with the increasing resolve one might muster while attempting to rescue a drowning kitten from some flood-swollen torrent, raked vigorously towards the driftwood until eventually sliding from his precarious perch and into the chilly water.

The splash started the wooden brick bobbing away. Already soaked to his thighs, Mark resolved to wade within striking distance and snag the object with the end of his makeshift tree branch hook. It was a decision that changed his life.

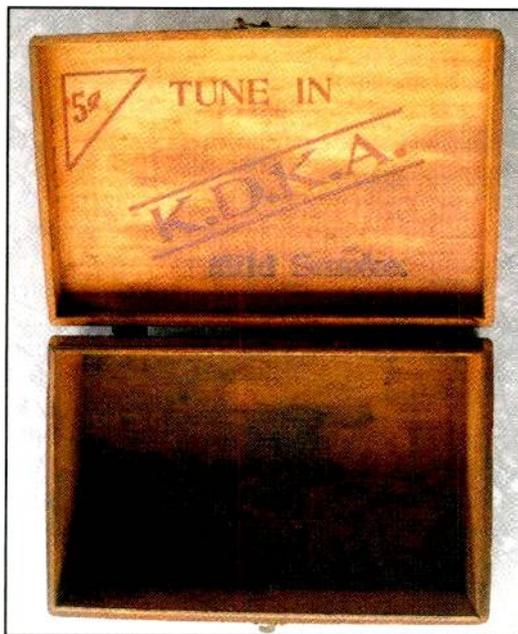
That retrieved chunk of lumber turned out to be something entirely different than what Mark had figured from the perspective of his shore-bound solitude. He began forgetting both the pain of having been unceremoniously dumped by Lynne Mitchell and the shivers from early April Great Lakes water while becoming far more fascinated with the wooden cigar box in his hands and any of a hundred unknown reasons why someone had sealed its lid with dripped candle wax in order to give the poor thing a chance when sent afloat — enigmas that were amplified by the sound of something inside as the box was shaken.

It may have been 15 minutes later when Mark snapped out of running through the possibilities and pulled a cherished knife from the little side pocket in his Levis. He dried each of its three diminutive blades with a tail from his flannel shirt and then selected the smallest to surgically slice through the wax protecting the box's mystery.

The top flipped open on its tiny hinges, revealing that it had originally held five-cent cigars branded with a counterintuitive connection to Westinghouse's pioneering broadcast outlet, KDKA. At dinner, a much sunnier Mark recounted the adventure for his grandparents and listed the vintage refugee's contents: A collection of colorful postcards depicting various old radio stations and a map showing the coverage of an AM facility in Connecticut.

The senior Granthams listened intently to their grandson's detailed explanation of the note inscribed on the reverse side of that cartography, never guessing that he was keeping a secret about a young woman's letter also found inside the box. Mark said “goodnight” at least an hour earlier than normal so he could get ready for bed and reread her innermost feelings, dated February 15, 1967.

*To My Beloved Brad*, the carefully folded and scented note began in what Mark believed to be a pretty 20-something's tight little feminine cursive.



If the cigars once in this box had been distributed for promotional purposes by the owners of famed pioneer broadcast station, KDKA, Westinghouse would have probably given them away free, as opposed to charging a nickel for the smokes. Perhaps, circa 1921, some official of a small tobacco company was a radio nut and sufficiently enchanted by the fledgling Pittsburgh station to brand a line of his products with the KDKA moniker and then satisfy Westinghouse lawyers by including the directive to “TUNE IN.” Also up for speculation is where our story's Brad found the novel container and why his sweetheart (and/or young wife?) Beverly chose it for shipping her departed lover's DX relics to ports unknown. Its recipient, Mark Grantham, figures that the periods of each of those seminal call letters were designed to have those unfamiliar with radio protocols read each character separately instead of thinking KDKA was some sort of foreign word.

“Ever since being cut to the heart with the terrible news, I knew this day would come when I’d have to part with the last of your things. For several years now, my folks and our friends have been suggesting I do this. Anyway, I trust that you somehow already know and were there with me when I sold our Suzuki X-6.

“Remember how much fun we had just riding it to . . . wherever? I think you’d be pleased to know that your big Collins receiver went to a good home, too. A high school kid from some suburb west of Duluth saw my ad in the paper and was thrilled with that *boat anchor radio*, as you called it. His father came with him to check it out and agreed that you’d nicely maintained it. You’d probably remind me of the times when I impatiently waited for you to come to bed as you were sitting in your pajamas and headphones trying to hear the ID of just one more far-away station.

“When the boy and his dad were disconnecting the antenna lead and then toted the Collins to their car, I closed my eyes and wished that I could simply open them and see you there at its dials again . . . Then I’d grab you and not take just one more minute, ‘*It’s almost the top of the hour, Honey,*’ for an answer.

“The other day, I found myself driving past our old apartment just to catch a glimpse of the long wire you strung for the Collins radio all the way from that huge oak to the top of the house. I haven’t done that in a while. Maybe there was a bit of it left, dangling through the leaves. I really couldn’t tell for sure. Please understand if I don’t try again.

“Do you know that I’ve met somebody? You probably guessed that, in many ways, he reminds me of you. Even your mom tells me it’s for the best if I move on.

“Of course, you already have all of our letters, but not long ago, when finally being able to part with that antique dresser we refinished together and shared, I happened upon this cigar box and envelope filled with your radio post cards. They represent my final few keepsakes that I must now let go. Rather than bury them, as your mother suggested, I fondly recalled that wonderful Fourth of July weekend when Cindy and Bill introduced us on the beach at Two Harbors, so I will set these memories of you free on the Lake Superior waves that witnessed our first kiss.”

All my LOVE.

Yours forever,

Beverly

## In the 25 mv/m Coverage of a Mysterious Stranger’s Radio Hobby

Whoever Beverly and Brad were, they had a 100-kilowatt impact on Mark Grantham. For a kid who’d never given much thought to what happens when one turned on a radio — other than as a sort of utility that generated Top-40 music and occasional no-school announcements the way in which a switch turns on a light — Mark suddenly developed an interest in broadcasting.

He framed Brad’s colorful station cards and sufficiently straightened-up his room in order to provide them with some decent wall space. Though never finding out for sure, Mark came to terms with the assumption that Brad had probably been killed in Vietnam.

Out of respect, the boy meticulously polished the fallen soldier’s prized KDKA cigar box and made it a shrine for Beverly’s three-year-old letter.

Admittedly, he started out feeling a bit guilty about that, as the high school junior found himself thinking about Beverly a

whole lot more than that stuck-up Lynne Mitchell ever caressed his thoughts. He credited the unknown woman with showing him what true love was all about and resolved to find someone like her — even if it didn’t happen until college or perhaps at a radio station where he might someday be on the air. She’d be worth waiting for . . . and she would surely like radio, he assured himself.

And in the meantime, Mark picked-up where Brad had left off. He took a job at a local donut shop to earn money for a nice Collins receiver. Although the letter hadn’t specifically described it other than *big*, in his local Upper Peninsula paper’s classified section, Mark’s ad read: *WANTED, Large Collins brand communications receiver.*

Some wealthy vacationer from the Chicago area, who’d dabbled in ham radio during the late 1950s, noticed the ad and phoned Mark about a model 51J-4 he had long relegated to storage. “I tell you what,” the guy promised after hearing the boy’s enthusiasm, “I’ll get that Collins down from the attic, dust it off, and heft it into the trunk, so when I’m back up at my camp next week, you can take a look. If we can get the old gal to fire-up and you like what you hear . . . Well, how does 25 bucks sound?”

Mark’s grandfather knew little about electronics, but agreed that the 1957 Collins with matching speaker looked and sounded fine, even with just a short run of wire antenna jerry rigged from a robust connector on the unit’s chassis to a handy kitchen cabinet knob.

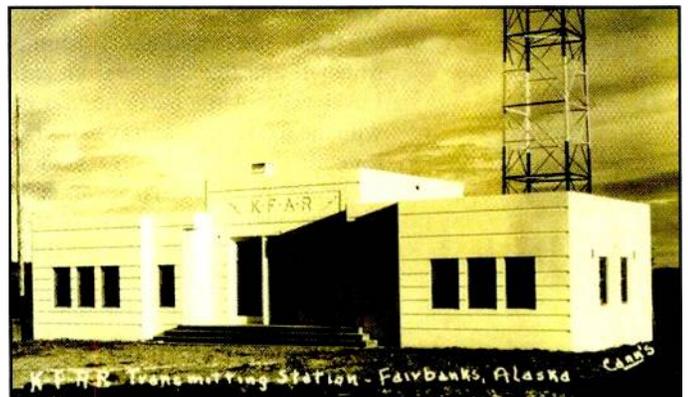
The pleased seller repeated the \$25 asking price, but said he expected Mark to make him an offer. “But it’s worth the \$25,” the boy noted.

“Son,” he pointed at Mark while winking at Grandpa Grantham, “I hope you’re not going to deprive me of the joy of haggling with my customer.”

“Would \$20 be enough, then, sir?”

“Didn’t you notice that scratch on the speaker grill, son?”

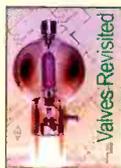
“It’s not too bad.”



Inside the KDKA cigar box and rubber-banded atop of a stack radio-related postcards was this neat shot of the K-F-A-R transmitter site at Fairbanks, Alaska. The picture was probably snapped shortly after the station took to the then U.S. territory’s frigid air in 1939. Broadcast buffs would agree that the concrete embossed K-F-A-R and electronic waves signage over the front door are almost as impressive as the hefty four-legged self-supporting tower out back. A random check of the 1960 Radio Annual/Television Yearbook shows K-F-A-R with 10 kilowatts on 660 kilohertz. It featured network programming from Mutual, NBC and ABC. K-F-A-R’s cross town rival, K-F-R-B, also ran 10,000 watts, operated on 900 kHz, and offered fare from the lower 48 only via CBS.

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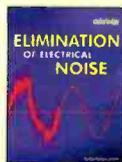
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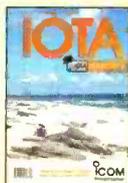
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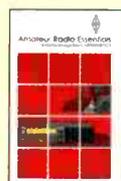


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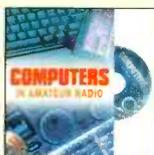


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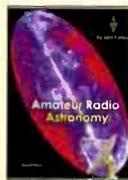


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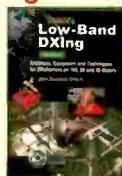
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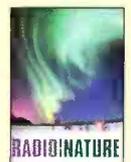


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## Radio Nature

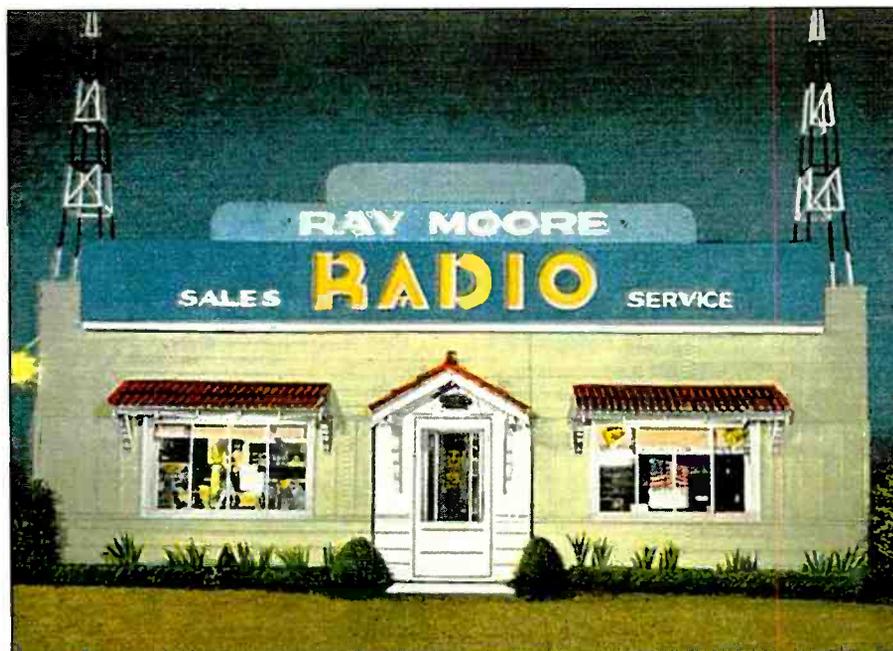
By Renato Romeno, IK1QFK  
256 pages

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

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Another nice card in the box lot, this KGNF scene is evidence that somebody in the early licensee's Great Plains Broadcasting Company loved shrubs and flowers more than guy wires and towers. He or she, however, was otherwise parsimonious in the signage beautification department, as he or she didn't order a banner large enough to keep from having to hyphenate the keyword "broadcasting." We'll have to ask Jan Lowry for some detailed history of KGNF, as little is found online or in my records. It appears, though, that the North Platte, Nebraska AM was founded in 1930 with 500 watts on 1430, moved to 1460 in 1942, and then became KODY with an additional frequency shift to 1240 sometime during World War II. The latter metamorphosis apparently has some connection with its purchase and updating by Omaha's legendary WOW-AM.



Though not a QSL, this card is one Brad must have really liked because it not only reveals the patriotism (see U.S. flag in right window) of radio shop owner, Ray Moore, but those iconic (and presumably ornamental) towers standing guard on either end of the roof really shout, "I'm 100 percent serious about AM & FM!" From the "fully equipped" look of Mr. Moore's test gear proudly displayed through the establishment's picture windows, anyone with an ailing set would likely feel confident that it could be quickly cured in that brightly colored, clean-as-a-whistle Salem, Oregon electronics hospital. The venue would be a great place to buy a new radio, too.

"What do you mean? Looks like at least a \$2 scratch to me!"

"Well, I wouldn't pretend that it bothers me \$2 worth, Sir."

"Son!" the businessman lectured, "you're not very good at this!"

"Uh," Mark began nervously. "I'd like to offer you . . . uh . . . I'll give you 18 bucks for this relic *and not a penny more!*"

"You're hurtin' me! You're hurtin' me! But I guess I'd better sell while the sellin' is good!" the fellow smiled with the satisfaction that the heavy Collins was heading to a place where it would be truly appreciated. And that's exactly what happened.

Since being united with the big receiver in 1970, Mark has enjoyed countless hours at its dials and coaxed several thousand stations through its ample circuitry. He reports that through nearly a dozen moves over the years, the recently retubed and re-capped rig is still active.

Mark's wife Wendy says the two of them — one on each end — have practically made a science out of lugging the almost 50-pound receiver into the designated "radio room" of the various homes where they resided during Mark's dynamic pharmaceutical sales career.

Newly retired, he and Wendy now get *Pop Comm* delivered to their "mini dream house" built for just them and an occasional grandkid visit. That venue's "shack" is a cozy little HQ over the garage where the Collins 51J-4 takes center stage within easy reach of feeds from several well-planned antennas.

## 250 Eager Watts and a Low-Power Relationship With A Somehow Familiar New England AM

Like Brad before him, Mark loves broadcast band DX. His best catch? "It was a long time ago," he nodded, "but I remember the thrill of hearing some very unfamiliar call letters and excitedly searching for them halfway down the White's Radio Log listing for 1490 kilohertz.

"That's where I had the Collins parked around sunrise on a frigid January 1971 morning. It'd snowed like crazy overnight, so I got up early to hear if school might be cancelled. My good luck ritual involved tuning to each of the old Class IV or graveyard local channels for exactly one minute before getting the school closing lowdown at 1230 kHz on our Sault Ste. Marie station, WSOO.

"Anyhow, all of a sudden, the hash on 1490 was completely overridden by the

tail end of "I Think I Love You," by The Partridge Family. Then, clear as that proverbial bell, the Top-40 hit got mated onto a shotgun jingle that sang from fast to slow, W-T-X-L . . . West Springfield, and into James Taylor's "You've Got A Friend." No more than a couple of seconds after the vocal started, chatter from a ton of other 1490s pushed *Sweet Baby James* and WTXL back to Massachusetts. Even so, I officially logged the perky 250-watter, rock solid, from some 700 miles away," Mark beams.

He doesn't sound so happy, though, when admitting that the prized QSL letter received from a delighted WTXL promotions manager was long ago misplaced. Reportedly, it consisted of four pithy paragraphs: The first expressing incredulity that the

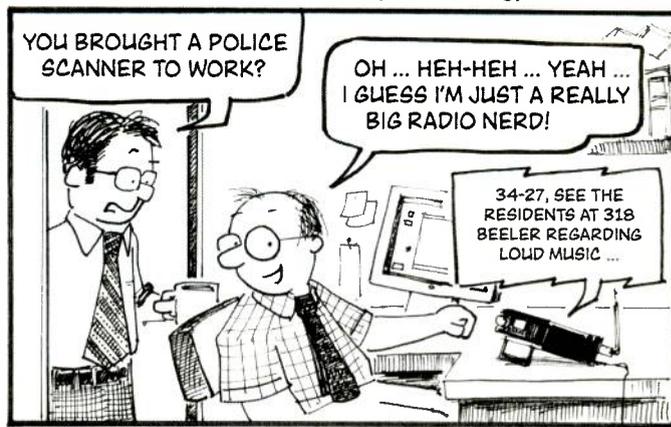
**MARKET DATA**

Audience Projection	254,000	800,000	800,000
Household	78,000	290,000	290,000
With-AM Ratio	17,700	256,100	256,100
Advertising Potential	17,700	162,000	162,000
Estimated Income, \$000	968,000	1,491,000	1,491,000
Market TOTAL RETAIL SALES	109,000	1,213,000	1,213,000
Fair Share Sales	56,000	285,000	285,000
Foodstore, Drinking Place	23,000	81,000	81,000
Drug Stores	18,400	46,000	46,000
General Merchandise Stores	36,400	152,000	152,000
Automotive Stores	11,000	38,500	38,500
Home Furnishings Stores	11,000	31,000	31,000
Automotive Sales Dealers	64,700	219,000	219,000
Custom Service Stations	27,100	78,000	78,000
Hardware & Building Supplies	17,000	63,000	63,000
TOTAL SERVICE RECEIPTS	27,000	125,000	125,000
Professional Services	16,000	56,500	56,500
Gasoline	4,000	16,000	16,000
TOTAL WHOLESALE SALES	118,000	1,044,000	1,044,000
Manufacturers	127,000	1,044,000	1,044,000
All Other Types	118,000	1,044,000	1,044,000
Farm Total Audience-Farm Type	100,000	300,000	300,000
Number Operated	1,000	3,000	3,000
Production Long and Extra	100,000	300,000	300,000
Output-Domestic With AM	100,000	300,000	300,000
Value of Farm Products	100,000	300,000	300,000
Farm Income Per Farm	100,000	300,000	300,000
Output of Farm Products	100,000	300,000	300,000
Output of Farm Products	100,000	300,000	300,000

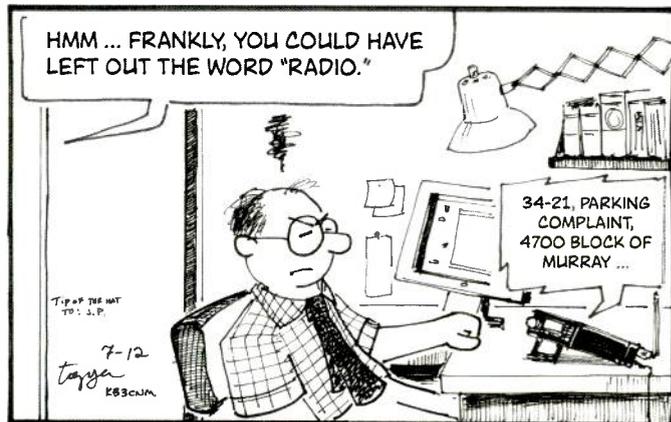
There was no need for me to scan the WBZY coverage that Mark inherited from Brad, because one just like it exists online <<http://bit.ly/IndEqc>>. The Torrington, Connecticut day-timer had a much better signal than its local 250-watt competitor, WTOR. In fact, WBZY was an easy catch for DXers throughout New England, Eastern upstate New York, and even portions of northeastern New Jersey. It boasted nearly 900,000 people within a three state 0.5 MV/M footprint, though only folks in its city-of-license and a few other surrounding towns would have much interest in the 1,000-watter's local music, news, sports and merchandising programming. Speaking of the latter, check out all of the promotional plugs the station claimed on this advertising document: Torrington's first station (by several months, anyway), Dominates the market, New-Sound Radio, Your best Connecticut [media] buy, and possessing a superior signal and earned listener loyalty. When a decline in audience and advertiser support caused the ownership to liquidate WBZY in 1964, broadcast hopefuls all over the Nutmeg and Bay States mused about how the defunct AM's enviable dial position might be more profitably put to work in their particular community.

## SPURIOUS SIGNALS

By Jason Togyer KB3CNM



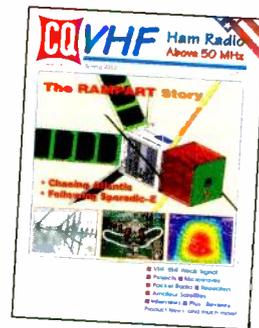
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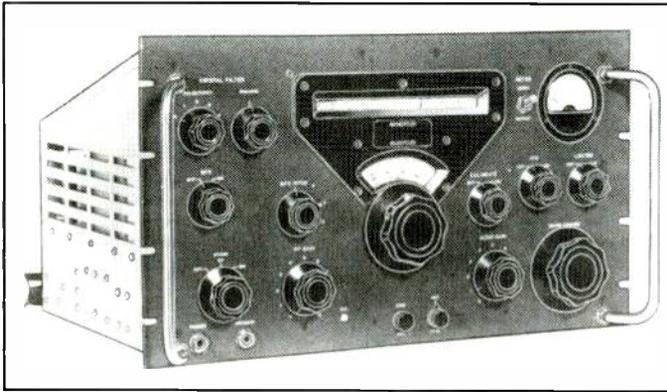
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"It looks military," Mark Grantham's grandfather remarked when seeing the Collins model 51J-4 receiver displayed for sale on a lakeside cabin kitchen table. That perception contained more than a grain of truth, as Collins had a penchant for giving all of its radios the brand of "government-specs quality" construction that went into the units it did produce for Uncle Sam. This one has Collins' unique mechanical IF filters. Instead of the rack-mount version shown in this 1957 Collins catalog image, Mark's 51J-4 resided in a cabinet designed for tabletop operation. His 540-kHz to 30.5-MHz receiver still lives next to its matching Collins speaker. By the way, a military edition of model 51J-4 wore the designation R-388A. See and hear a radio like Mark's go through the broadcast and ham bands online: <<http://bit.ly/K7ykTv>>.

humble AM's quarter-kilowatt made it to the Midwest, another that offered a thumbnail station history and programming schedule, the third noting tower height and transmitter make and model, and a couple of closing sentences congratulating Mark and his "powerful Collins," as well as the customary polite but hyperbolic hope that he will tune in again.

Along the same lines of that brain-teasing party game, *The Six Degrees of Kevin Bacon*, in which participants try to establish even the most peripheral movie credits connection — within six steps — between Hollywood star Kevin Bacon and any other actor who has graced the big screen since the 1980s, Mark discovered a relationship between his favorite DX score and one that apparently meant a great deal to Brad, the mysterious DXer mentioned in the cigar box.

Mark's teenaged fascination with that 1971 WTXL catch caused him to find its city of license on a Connecticut & Massachusetts road map found — for 25 cents — at a church rummage sale and bundled with a bunch of other gas station literature.

Cross referencing various map locales with place names in White's Radio Log, he hit upon the fact that not only did WTXL, 1490, West Springfield have an adjacent channel (1480 kHz) 500-watt daytimer dogging it about 10 miles south in Windsor, Connecticut, but the little Massachusetts graveyarder had an incredibly close neighbor sharing its 1490 kHz spot. That co-channel outlet, hardly 30 miles away, was WTOR at Torrington, Connecticut. Somewhere, Mark had heard of that city-of-license . . . Not far into his map quest, it dawned on him: Torrington was the location of WBZY, the daytime AM station featured on that coverage map lovingly folded by Beverly and placed in the farewell radio cigar box. WBZY must have been Brad's best DX, as its relative broadcast band neighbor, WTXL was Mark's superheterodyne superlative.

This realization kindled a renewed interest in the WBZY map

and narrative scribbled on its reverse side. The modest exposé had been penned in mid-January 1964 by a presumably young fellow identifying himself as "On-Air Talent (mostly after school and weekends)." He noted that WBZY's air studio sported an RCA control board, a trio of turntables, and a couple of reel-to-reel tape machines — on which commercials and syndicated programming were played.

There was another studio, but its electronic gear simply included several microphones for piping into the board live or to the tape recorders. The transmitter was housed in a cinder block building not far from WBZY's downtown Torrington headquarters.

W-L-C-R, signifying Litchfield County Radio, were the 1947 founding call letters of what would be renamed WBZY about a decade later. With a kilowatt on 990 kilocycles — a frequency nicely free of any other signals for many a country mile from Torrington — the station could be easily detected throughout much of Connecticut and Massachusetts.

A few months after its debut, a second AM opened up shop in town. That was WTOR, the little 1490 facility. Though offering only a modest footprint compared to WBZY's daytime-only coverage, WTOR did not have to sign-off at sunset. This consistency made the full-timer the station for local advertisers and kept WBZY playing second fiddle.

At least twice, its ownership attempted to relocate WBZY in a more appreciative community. Circa 1963, regularly-scheduled remote broadcasts were tried in Winstead (about eight miles north) with the wish that, without having to do much except lease a broadcast-quality phone line, WBZY could quickly establish a Winstead audience and become the small manufacturing city's de facto voice. And according to the person who verified Brad's reception report, WBZY officials had devised a plan to move WBZY lock-stock-and-barrel 20 miles east so that its city-of-license could be changed to West Hartford, a well-heeled suburb to the state capital.

Perhaps due to the Federal Communication Commission's then-recent approval for another applicant's new AM (1kW-Day @ 1550 kHz) at West Hartford, or for whatever reason, the Commission told WBZY licensee to stay put.

The tone of the candid early 1964 verbiage on the back of the WBZY map painted a desperate picture in explaining, "Our rival WTOR has just been OK'd to boost power four-fold and shift down the dial from 1490 to a beautiful 610 kHz! Things are kinda depressing for us at WBZY and we sure could use some better luck with listeners and advertisers. We're a loyal crew here and your letter telling of our reception in Wisconsin really gave us a boost!"

Sometime the following week, WTOR made their power and frequency modification, vastly improving coverage day and night. Concurrently, the fortunate competitor bought WBZY's equipment and took the station dark.

Later, WTOR was relabeled, WSNB, while the defunct WBZY's best asset — its clear channel 990 dial position — went back into the FCC's domain, eventually being authorized as the operating frequency for a new AM (WNTY) in Southington, Connecticut about 20 miles southeast of Torrington.

It's curious why WBZY's last owners didn't request that revamp themselves. Maybe, though, with the descending disappointments of getting their West Hartford application nixed by the FCC, as well as being increasingly marginalized by a crosstown rival, hometown residents, and the Torrington business community — themselves suffering from a local economic downturn — WBZY simply died of a broken heart.

# Test Equipment Basics Around the Workshop

## *What You Need (and Don't) to Get a Restoration Started*

By Peter Bertini, K1ZJH

*“Here’s some advice on what piece of test equipment might be best, how much to spend and what to look for.”*

**Y**ou can’t always get what you want . . . but if you try sometimes, you just might find, you get what you need.”

Those Rolling Stones lyrics hold a lot of truth for this month’s column. Based on reader feedback, test equipment is one of the most popular topics I can write about! I receive a lot of email from beginners, and some old timers, asking for advice on what piece of test equipment is best, or how much to spend and what to look for.

Unfortunately, there is no quick and easy answer, except for “it depends . . .” It depends on what you wish to do, what kind of equipment

you will be repairing or restoring, and it *always* comes down to cost and *need* in the end.

### **Easing Into the Test Bench Scene**

A beginner who is testing the waters probably shouldn’t be spending thousands of dollars on high-end, lab-grade gear before he or she has a need for that type of equipment, some familiarity with how to use the equipment, and at least a basic understanding of electronic theory and troubleshooting techniques. Equipment needs will vary greatly between a novice restorer who is



**Photo A.** This is my current workbench setup. The most used test equipment is positioned so it is at eye level and easy to reach. (Photography by K1ZDH)

starting off fixing up simple AC/DC table-top radios, while trying to learn restoration techniques and some theory, as compared to a more experienced technician who may be servicing complicated communications equipment or ham gear.

I became a licensed radio amateur in my early teens during the 1960s, and I quickly found that I enjoyed building — or *homebrewing* in ham radio parlance — my own equipment more than getting on the air and operating. I built a bit of gear in those early years using a very minimal assortment of extremely modest test equipment.

My workbench consisted of a Lafayette TE-30 signal generator, an EICO grid dip meter, a Heathkit OM-1 oscilloscope, and a Heathkit VTVM along with a few inexpensive analog volt ohmmeters. It was a good lesson to carry forward in this column. You don't need the best equipment to do a lot.

Experience, a good understanding of how things work, and hands-on experience can often bridge the gap when test equipment is lacking.

### Step Into My Laboratory

My current workshop is shown in Photos A and B. Visitors have com-



Photo B. More test equipment is stacked on my tool cart, which is located adjacent to the main workbench.

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Photo C. My Fluke 177 digital voltmeter is one of the most often used tools on my bench.



Photo D. The Fluke 8800A digital voltmeter is a bench model and runs on AC power.

mented that it is a bewildering array of equipment. Remember what you're seeing represents a career in professional electronics that spanned almost 45 years. A lot of the fancier equipment was purchased *as is* and required many hours to restore to operating condition.

Let's suppose I'm on a tight budget and I am forced to pick three pieces of test equipment from that pile. What would stay, and what would go? There is no universal answer for everyone, but here are my three personal choices of *must have* test gear for anyone involved in radio repair or restoration. In no particular order: A means to measure voltage, current and resistance; next would be a good signal generator; and last, a good oscilloscope.

### VTVM, VOM . . . Or Both?

A basic volt ohmmeter (VOM) will let you measure resistances, both AC and DC voltages, and also DC current. These are

the variables for Ohm's Law, and form the basic building blocks for understanding electronics. Being able to measure and interpret resistance, current and voltage measurements is the start to basic troubleshooting.

One of the first meters I owned was an EICO volt ohmmeter (VOM) built from a kit. It was very similar to the Simpson 260 in style and function.

*(READ: About the Simpson 260 at <http://simpson260.com/>. It is the gold standard: Rugged and extremely well respected meters. I've owned several over the years. - K1ZJH)*

The modern equivalent of the VOM is the DVM, or digital voltmeter. The analog meter movement has been replaced with a digital display. While the digital display offers better precision, the displays don't update quickly enough to reflect changing voltage levels. Most restorers prefer an analog meter for align-



Photo E. My Heathkit IM-28 VTVM comes in handy when an analog meter is needed for alignments.

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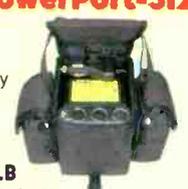
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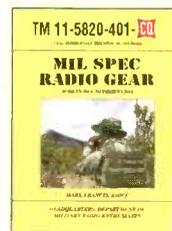
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by Mark Francis, K1ØPF



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**Photo F.** Here's a 1975 vintage RadioShack® Micronta Model 22-201 volt ohmmeter. It was an inexpensive yard sale find, but it will do the job for a beginning electronics hobbyist!

ment procedures, since the analog meter instantly reflects small changes in voltage.

The most often used meter in my shop is the Fluke 177 shown in **Photo C**. It replaced an older Fluke 77. A Fluke model 8800A bench meter, **Photo D**, is the shop standard when the calibration for my other meters is in doubt. It was purchased on an Internet auction site for about \$50 and was calibrated by the seller. Flukes have a reputation of being almost indestructible. Yes, there is a bit of duplication in my shop.

The Heathkit model IM-28 bench VTVM (vacuum-tube voltmeter), shown in **Photo E**, was one of the first pieces of test equipment I built when I was a young teen. The drawback with most VTVMs is due to the ground lead on the test probe is often connected directly to the VTVM case. This limits the IM-28's ability to safely measure voltages that are not referenced to the chassis ground.

Yet, VTVMs have advantages over their analog counterparts. Most VTVMs use a probe that switches in a resistor when measuring DC voltages. The resistor provides isolation, allowing the meter to read tube grid bias in RF, oscillator and IF stages without loading or detuning the circuit. The resistor isolates the meter leads from the RF while allowing DC voltages to pass.

## Voltmeters: What You Need

Even the most basic digital voltmeter sold by Harbor Freight or Sears will do 90 percent of what you need to do — and for



**Photo G.** The RCA WV-98A VTVM and later models in the series were very popular with industrial and service shop technicians. It's a rugged and reliable workhorse! (Courtesy of Jerry McCarty)

a cost that ranges from \$4 to \$20. Watch for sales and discounts to get the most from your dollars. An inexpensive and vintage RadioShack® Micronta analog meter is shown in **Photo F**. This was bought at a yard sale for a few dollars. I used a very similar meter as a teen, and it did the job.

If you can afford one, a good, used Fluke meter is always a solid investment and will last you a lifetime. Look for a Fluke model 77 or a surplus military-grade model 27 to get the most bang for your buck.

Add a good VTVM — I suggest the RCA model WV-98A or a later revision, **Photo G**, to enjoy the best of both worlds. These instruments will serve both seasoned and novice restorers. Total cost for both should be under \$170. A good bench meter is the first piece of test equipment you should own, and I suggest getting the best you can afford. If you get a VTVM, make sure that the probe is included and that it is working properly.

## Signal Generators

A good signal generator will be needed sooner or later. If you buy one, don't go for the lowest-priced generator that you can find. I suggest avoiding the lower-end units, and that includes Heathkit, EICO, Conar or anything that was sold in kit form for hobbyists. Even if the kit was touted as being professional, it probably wasn't! Kits were for the hobbyist market. Companies like RCA, Hickok, Leader, and others sold the better-grade service shop test gear.

A good example is my vintage Hickok model 188X shown in **Photo H**. This is an AM-only generator and covers from 100 kHz to 110 MHz, and has sweep provision for aligning IF stages. I rarely use it, and mostly held on to it because the style appealed

to me. Hickok also made a later 288 model. If you find one for fewer than \$50 it is a good generator for beginners.

Because of its age, expect to spend time and money doing a full restoration. They are full of wax paper caps and aging carbon composition resistors. A Sencore Model 165 is shown in



**Photo H.** My Hickok model 188X has the same machined front panel styling that drew me to the Hickok Indicating Traceometer! The Traceometer restoration was featured in a previous column. Despite its age, the 188X is as a good service shop grade instrument.



**Photo I.** The Sencore Model 165 signal generator covers the AM and FM bands, and features a FM stereo modulator.

**Photo I.** This unit covers the AM and FM bands, and features an FM stereo modulator. It also has provisions for sweeping the 10.7-MHz IF stages commonly used in FM receivers.

It is a very popular unit that is favored by restorers involved in FM radio repairs. A good clean unit, with all of the accessories, usually runs between \$150 and \$200. I rarely use mine. My least-used gear sits on the highest shelves, furthest from eyesight and reach.

## Higher-End Signal Generators

Let take a look at some higher-end units. **Photo J** shows my Boonton 102F and one of my HP-8640B signal generators. These are high performance lab-quality units dating from the early 1970s. They are excellent generators, but they are much more hardware than is needed to get started in the hobby! One neat feature is that their digital displays also function as a frequency counter, making them two pieces of useful test gear in one box.

A really neat generator is the Clemens SG-83C solid-state unit shown in **Photo K**. This nifty generator will operate on line voltage, or from an internal 9-volt battery. It is stable, and has a fairly decent attenuator system and provides a calibrated RF output level.

It covers from 50 kHz through 54 MHz and gets an extra plus mark for going down to 50 kHz — that is a very popular last IF frequency in many communications receivers, and very few signal generators go that low. Alas, very few were made, and I've managed to hold onto two of three I've owned over the years.

They occasionally show up on the auction sites. Expect to pay about \$100 for a working and clean example. They are very easy to calibrate and service. If you can find one, I recommend grabbing it.

## The Final Four Countdown!

Besides the Clemens, I'd suggest looking for a good used RCA WR-50 series signal generator. These are very popular with hobbyists, and a good used one should be very easy to locate on the used market. The earlier WR-50B used vacuum tubes, <<http://bit.ly/IdCkPu>>, while the later WR-50C was solid state and marketed under the RCA WIZ brand.

These are small units, and they will hold resale value while providing many years of service. They are good units to start with, but eventually you may want to upgrade to something better.

## What I'd Suggest

I'd recommend either of these two generators for someone starting off in radio repair or restoration who is a bit more serious and willing to spend a bit more. In a close race, the URM-25D signal generator makes second place. These AM generators cover from 10 kHz to 50 MHz. (**READ: More about the URM-25D,** <<http://bit.ly/lgF00i>>. – K1ZDH.) This cold-war era workhorse provides a constant level output for use with a frequency counter. A decent, working URM-25D runs between \$100 and \$150 and it may need some minimal restoration work.

If I were forced to choose one tube-era generator for my shop the HP 606 would be at the top my list, <<http://bit.ly/K6V9Xr>>. These are excellent lab-quality generators — or at least back in 1957 they were! Like most tube-era equipment, they require a warm-up period before they stabilize, and they take up a fairly large area on a workbench. On the plus side, the HP-606 reaches 50 kHz. Expect to pay around \$80 to \$150 for

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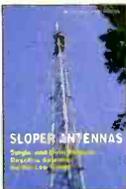
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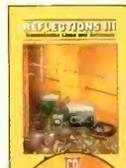
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Photo J. The Boonton 102F, and the HP 8640B below it, are the best generators I own. Although the 8640B generators are nearing, or past, their sunset years, they can be kept running thanks to the availability of parts from donor units.

one in good working condition. Folks that own them tend to hold on to them.

## An Oscilloscope

I often raise a few eyebrows when adding an oscilloscope to my must need list for the top three pieces of test equipment. I don't recommend that a new

beginner should buy one before learning some theory and having some experience under his or her belt.

There is a considerable learning curve before a new owner will be able to fully utilize the oscilloscope to its fullest potential. A good scope in the right hands is a very powerful diagnostic tool. A good



Photo K. I remember seeing the Clemens signal generators in the back of QST back in the early 1960s. About 20 years ago, I was fortunate to snag three for my shop. Although I seldom use them, it would be hard to find anything else that would operate from a 9-volt transistor battery in the field!

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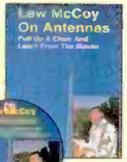
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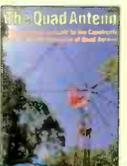
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**Photo L.** I picked up this Tektronix 2213 scope 10 years ago for around \$50 at a tag sale. It is a dual channel, 60-MHz scope with triggered sweep. The 2213 is a good basic scope for beginners. It lacks delayed sweep, which keeps the price way down!

scope has a calibrated input attenuator, a calibrated time base, AC and DC inputs, and a stable, triggered sweep.

A scope is many tools in one package. You can see if there is distortion on a waveform. It can be used to measure peak AC voltages, and with DC coupling it will also let you measure DC voltages. The scope trace can be used in lieu of an analog meter to do alignments. The calibrated time-base allows the user to roughly calculate the frequency of a waveform.

A scope can trace a signal from a receiver antenna through the audio stages

— they are powerful signal tracers! A scope is also necessary for anyone who will be using a sweep generator to do IF stage alignments.

I have three scopes in the shop. The most basic scope is a Tektronix model 2213. This is an inexpensive dual-channel scope with a 60-MHz bandwidth. It has triggered sweep, but it doesn't have delayed sweep. I keep the scope under the bench and use it when working in the field. My 2213 is shown in **Photo L.**

Next is my Tektronix 2235A. This is a fully featured 100-MHz, dual-channel scope with delayed sweep. It sits on a



**Photo M.** The Tektronix 2235A scope was picked up to replace my older Tek 465 scope, which is rapidly reaching retirement age. I still use both scopes, and they have very similar characteristics. The 2235A features dual channel inputs, 100-MHz bandwidth, as well as triggered and delayed sweep.



**Photo N.** The Tektronix 465 arrived in my shop about 30 years ago. The 465 was extremely popular and well respected scope. I probably have too many scopes!

shelf, at eye level; in the center of workbench since it is one my most used instruments, **Photo M.**

My other scope is an earlier Tek' 465, which shares most of the same features as the 2235A but it is a much older model. I've owned the 465 since the early 1980s. It has its own scope cart, so it can scoot around the shop to be used where needed, **Photo N.** I probably have too many scopes!

The 2213 is a decent scope for beginners. Surprisingly, a good working 2213 shouldn't run more than \$75 — there is a glut of scopes on the used market, and it is a buyer's paradise! I paid \$50 for the 2213 about 10 years ago. A tested and guaranteed 2235A will probably run closer to \$200. A good set of probes should be included with the instrument!

Scope probes have a bandwidth, and to get the most from your scope the probe bandwidth should exceed the scope's rated BW. To be honest, most of us could get by with a single channel scope with a 35-MHz bandwidth. But why bother, since better scopes are so cheaply available?

If you have a limited budget there are always the off brands: Look for Leader, Hameg, Philips, B&K or other brands for deeper bargains. Avoid the HP oscilloscopes unless you are familiar with the failure rates associated with some models!

Quite often one can find early tube-based Tektronix scopes free for the taking, especially at the larger hamfests — where they often end up in dumpsters when there are no takers!

Unfortunately, many of these early tube-based scopes use large quantities of very popular audio tubes, and they are often stripped for the tubes and their carcasses discarded. Avoid *digital* scopes unless you know what you are buying!

### The List Goes On . . .

I didn't mention other must have items, such as isolation transformers or other safety-related equipment. I'll cover these in future columns.

*Until then, keep those old tubes glowing, and those soldering irons warm!*

## WorldRadio Online

**Here's a peek at a few of the columns scheduled for the October issue of WorldRadio Online**

- \* Trail-Friendly Radio
- \* DX World
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### Unwired (from page 6)

#### Radio aka: By Many Other Names . . .

You know, we didn't always call radio *radio*. In its checkered past, "electromagnetic radiation" was variously referred to as *electric waves*, *ether waves*, *spark telegraphy*, *space telegraphy*, *aerography* and, of course, *wireless*.

Even *atomgraphy* was suggested by G.C. Dietz in the November 30, 1901 edition of *Electrical Review*. (Source: "United States Early Radio History" by Thomas H. White, <<http://bit.ly/IgYeGc>>)

#### 'The 5 Creepiest, Unexplained Broadcasts'

"As we speak, broadcast signals are moving invisibly through the air all around you, from millions of sources," notes *Cracked.com*. "And some of them are really, really freaking weird."

Web managers say they know this because from time to time "somebody with a shortwave radio, or a special antenna or even a common household television, will capture one of these mysterious signals."

In its "5 Creepiest, Unexplained Broadcasts" posting, *Cracked.com* asks: "Where do these signals come from?" Well, heck if *Pop'Comm* knows.

The list includes strange signals believed to be coming from Russia, pre-school TV programming hijacked by adult video, a backward music station and more.

For the complete list of creepy signals, visit <<http://bit.ly/lcnITz>>. (Source: *Cracked.com*)

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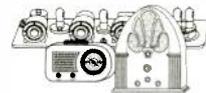
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## Surviving the Crashes of 2012

by Bill Price, N3AVY  
<chrodoc@gmail.com>

*“... The computer, the car, the water-heater — even one of my air rifles. All are now back up and walking, which is what old stuff and old people do.”*

**T**esting one, two, three . . . *SQUEEEEEEEEEAAAAALL!* . . . Oooooops. A little feedback, there. Sorry. It's a new computer (borrowed) and I'm not used to the settings. I've never had a laptop before — at least not one that ran anything higher than DOS.

There have been some major crashes here at the Price household: The computer, the car, the water-heater — even one of my air rifles. All are now back up and running, or at least walking, which is what old stuff and old people do.

By the time you read this, I'll have turned 65 — in human years. I keep receiving junk mail offering to supplement my Medicare. My vet tells me I'm getting white in the muzzle (Mrs. N3AVY says so, too, and suggests I look into something to darken my face-fur).

And my friends have not let up on getting me on the air.

Norm and Beezer continue, as always. Another very good friend has joined the chorus to get me up on HF, while David G. (my friend in Sharon, Massachusetts) would go so far as to send me his older HT if only I'd agree to get on the air with it. I have better friends than I deserve.

I'm a little fearful of getting onto 2 meters and actually speaking to someone. I've got a long commute (which keeps getting longer) and I'm concerned that I wouldn't pay full attention to those intent on doing harm to me and my faithful van. I've never been a talker. I stay off the cell phone while driving and it concerns me that what's left of my mind might wander as I talk and drive.

I do pass a few folks with ham call signs on their license plates, and other signs of radio activity, and it would be nice to say *hello*. Waving just won't seem to do it. The horn button is just not conducive to sending CW.

As to the HF activity, I just know one of these guys is going to want me to find a microphone and figure how to modulate a signal. Back in the Coast Guard, the only time I modulated a carrier was when we transmitted safety traffic broadcasts to all shipping in our immediate area, and that was MCW (modulated continuous wave). I never was too sophisticated about modulation.

With the memory being the second thing to go (I can never remember what the first thing is), I never remember that I qualify for *senior* discounts at some of the eateries and shops in the area, and end up paying full price. The merchants probably count on that when they offer senior discounts.

I've always had trouble remembering all the little things that I should take to work with me each day, and all the little routines (like taking 78 pills each morning) that I need to complete before leaving the house each day.

Not long ago I walked into the office of my HPJIE\* and our accounts receivable person asked me if I knew I was still wearing my bedroom slippers. I told her that I wasn't planning on doing any climbing that day and they felt more comfortable than my shoes. She looked over her glasses at me. I knew that she knew I forgot to put my shoes on before I left the house.

My boss (our chief engineer) is a few years younger than I am. I'm fortunate that he is also showing signs of age. It usually takes the two of us to remember all the tools and test equipment that we need when we go to a remote site for maintenance or repairs.

It's reassuring to get correspondence from readers who share some of my strange habits (such as spending more time setting clocks than watching television) and then to find out they are older than I am.

*Pop'Comm* reader Russ Rothbard, a former recording engineer and a former member of the U.S. Army Signal Corps wrote and told me that I am not alone, and he's got a year or two on me. He also sent me a couple of interesting links for finding out what time it really is.

If any of you readers are crazier than I am (and you're willing to admit it), drop a line and let me know what kind of fun you get from your radios or whatever communication devices you enjoy. And if you've done anything really silly or embarrassing during your lifetime in communications, be sure to let me know so I can tell the rest of the readers that they're not alone.

\* *High-Paying Job in Electronics*

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**Available in professional and consumer versions, the AR2300 covers 40 KHz to 3.15 GHz\***

*With the new AR2300 "black box" receiver from AOR, up to three channels can be monitored simultaneously. Fast Fourier Transform algorithms provide a very fast and high level of signal processing, allowing the receiver to scan through large frequency segments quickly and accurately. All functions can be controlled through a PC running Windows XP or higher. The AR2300 features advanced signal detection capabilities which can detect hidden transmitters. An optional external IP control unit enables the AR2300 to be fully controlled from a remote location and send received signals to the control point via the internet. It can also be used for unattended long-term monitoring by an internal SD audio recorder or spectrum recording with optional AR-IQ software for laboratory signal analysis. The AR2300 appeals to federal, state and local law enforcement agencies, the military, emergency managers, diplomatic service, news-gathering operations, and home monitoring enthusiasts.*

*Discover exceptional performance, state of the art specifications and a receiver with a menu of optional extras that can be configured to your own needs and specifications.*

- Receives AM, wide and narrow FM, upper and lower sideband, CW modes, and optional APCO-25
- Up to 2000 memory channels (50 channels X 40 banks) can be stored in the receiver
- Alphanumeric channel labels
- Fast Fourier Transform algorithms
- Operated by a Windows XP or higher computer through a USB interface using a provided software package that controls all receiver functions
- An I/Q output port that allows the user to capture up to 1 MHz of bandwidth onto a computer hard drive or external storage device
- An SD memory card port that can be used to store recorded audio
- Analog composite video output connector
- CTCSS and DCS squelch operation
- Two selectable Type N antenna input ports
- Adjustable analog 45 MHz IF output with 15 MHz bandwidth
- Optional AR-I/Q Windows software facilitates the easy storage and playback of transmissions captured within up to 1 MHz bandwidth or, signals can be subjected to further analysis.
- An optional GPS board can be used for an accurate time base and for time stamping digital I/Q data.
- The triple-conversion receiver exhibits excellent sensitivity across its tuning range.
- Powered by 12 volts DC (AC Adapter included), it may be operated as a base or mobile unit.
- Software-driven operating selections include IF bandwidth, frequency, mode, filters, a screen-displayed graphical "S-meter," memory inputs, volume and squelch settings and more
- Professional (government) version is equipped with a standard voice-inversion monitoring feature



**AOR**® 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

*\*Cellular blocked for US consumer version. Unblocked version available to qualified purchasers with documentation. Specifications subject to change without notice or obligation.*

# EchoLink® Ready



## TM-V71A

With the Kenwood TM-V71A you have a choice of where you want your speaker on the top or on the bottom of the radio. Simply remove the faceplate and flip the main body, then reattach the faceplate that's that simple! Yet another Kenwood 1st, this dual band transceiver has ten dedicated EchoLink® memory channels as well as EchoLink sysop-mode operation. EchoLink connection to your PC via the optional PG-5H cable kit is easy with no expensive interface needed.

EchoLink® is a registered trademark of Synergenics, L.C. For more information please see: [www.echolink.org](http://www.echolink.org).



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