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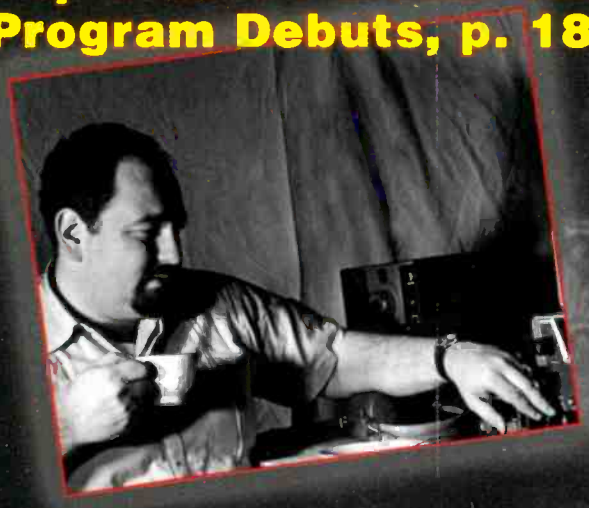
POPULAR COMMUNICATIONS

JANUARY 2012

Shortwave Listening • Scanning • AM & FM • Radio History

Dawn of a New Monitoring Day

***Pop'Comm's* Monitoring Station Program Debuts, p. 18**



PLUS:

- **Listening Community Loses a Giant: Bruce Elving, 'Mr. FM', p. 22**
- **How to Get Started in AM Broadcast DXing, p. 24**

GRECOM

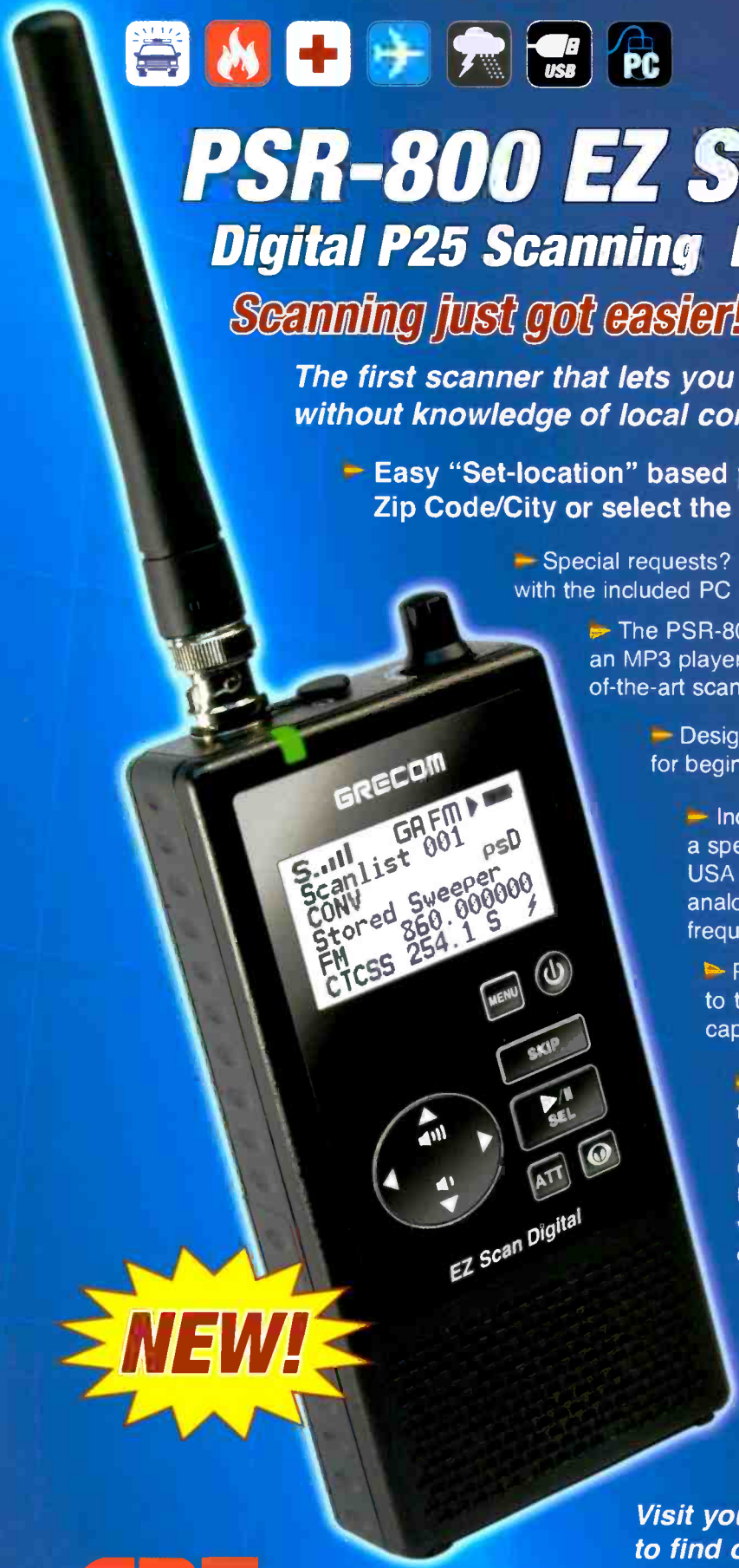
PSR-800 EZ Scan

Digital P25 Scanning Receiver

Scanning just got easier!

The first scanner that lets you hear what you want to hear without knowledge of local communication systems!

- **Easy "Set-location" based programming - simply enter Zip Code/City or select the local systems you want to monitor!**
- Special requests? No problem – you can add favorite frequencies with the included PC software.
- The PSR-800 combines simple controls like those used in an MP3 player with the power and sophistication of a state-of-the-art scanning receiver!
- Designed to provide unprecedented ease of use, for beginners and experts!
- Includes a 2GB micro SD Card equipped with a special onboard library containing the entire USA and Canada database for all known digital & analog trunking systems and many conventional frequencies.
- Record up to 50hrs of Incoming Transmissions on to the 2GB MicroSD Memory card with expending capacity of up to 32GB.
- The media player type menu allows you to instantly access trunking systems and conventional frequencies used by Public Safety, Government, and Businesses throughout the United States (and Canada) without training, without a manual - even if you have never operated a scanner before.
- Select your state, your county and view a list of objects you can monitor. Select the boxes of the items you want to hear. It is very much like using a MP3 player - that is, if you could buy an MP3 player with all music already installed!



NEW!

Visit your favorite GRE dealer today to find out more about the PSR-800!

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Mobile use of this device maybe unlawful, or require a permit, in some areas. Cellular frequencies blocked. Check with local authorities for regulations in your area Product may vary from depiction.

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ICOM IC-R75

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Enjoy exciting international radio reception with the **Icom IC-R75**-22 communications receiver. With full coverage from 30 kHz to 60 MHz; all longwave, medium wave and shortwave frequencies are supported plus extended coverage to include the 6 meter amateur band. Some innovative features of the R75 include: FM Mode Detection (but not the FM broadcast band), Twin Passband Tuning, Two Level Preamp, 99 Alphanumeric Memories, four Scan Modes, Noise Blanker, Selectable AGC (FAST/SLOW/OFF), Clock-Timer, Squelch, Attenuator and backlit LCD display. Tuning may be selected at 1 Hz or 10 Hz steps plus there is a 1 MHz quick tuning step and tuning Lock. The front-firing speaker provides solid, clear audio. The back panel has a Record Output jack and Tape Recorder Activation jack. The supplied 2.1 kHz SSB filter is suitable for utility, amateur, or broadcast SSB. However, two optional CW/SSB filter positions are available (one per I.F.). The formerly optional **UT-106 DSP board** is now included and factory installed! Free Icom ball cap. *Order #0012* **$619.95**

R6

The **Icom IC-R6** covers 100 kHz to 1309.995 MHz (less cellular gaps) in: AM, FM Narrow and FM wide. Enjoy local VHF-UHF coverage plus international shortwave broadcast. 1300 memories store: frequency, mode, step size, duplex, CTCSS, tone squelch and skip settings. Other features include: attenuator, LCD lamp, AM ferrite bar antenna, auto power off, CTCSS decode, weather function and battery save. You can put the world in your pocket for under $200.00. **Call or visit website for price.**

R20

The **Icom IC-R20** covers an incredible 150 kHz to 3304.999 MHz (less cellular) with 1250 alphanumeric memories, bandscope and SSB/CW. It has: two VFOs, dual watch, voice scan control, NB, large two line LCD and CTCSS/DTCS/DTMF. A built-in IC **audio recorder** can record up to 4 hours of reception! With charger, Li-ion battery, belt clip and strap. **Call for price.**

IC-R9500

The **Icom IC-R9500** raises the bar for professional receivers. Enjoy unmatched performance from 5 kHz to 3335 MHz (less cellular, in consumer version). Visit the Universal website for full details on this state-of-the-art instrument.

YAESU FT-450D

The **Yaesu FT-450D** amateur transceiver operates 160 to 6 meters with 100 watts on all bands. The superb receiver covers 30 kHz to 54 MHz. Operating modes include USB, LSB, CW, AM and FM. A built-in TCXO provides outstanding stability. The Yaesu FT-450D expands on the success of the previous FT-450, providing features such as: built-in antenna tuning system, classically designed knobs, dedicated data jack for FSK-RTTY, CTCSS, user configurable functions, digital voice announcement of frequency, mode and S-meter, 500 regular memories and two voice memories, CW beacon function, 10 kHz roofing filter, key Illumination, foot stand plus 500 and 300 Hz CW filters. If you are in the market for a good shortwave receiver, with the idea of going into amateur radio in the future, this may be your ticket.
The FT-450D comes with: MH-31A8J hand mic, mic clip and DC power cord. This radio requires 13.8 VDC at 22 amps.

YAESU

FT-857D

FREE Yaesu orange mug with FT-857D/897D.

The **Yaesu FT-857D** is the world's smallest HF/VHF/UHF multimode amateur transceiver covering 160 m to 70 cm with 100 watts on HF. Now with 60 meters and DSP2 built-in.

FT-897D

The **Yaesu FT-897D** is a multi-mode high-power base/mobile transceiver covering 160 m to 70 cm including 60 meters. Now with TCXO.

FT-817ND

FREE Yaesu canvas urban case with **FT-817ND**.

The **Yaesu FT-817ND** is an improved, deluxe version of the hugely popular FT-817. It includes 60 meter coverage plus the new high capacity FNB-85 battery. This radio has an excellent shortwave receiver built-in and is a fully self-contained, battery-powered, low power amateur MF/HF/VHF/UHF QRP transceiver.

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POPULAR COMMUNICATIONS

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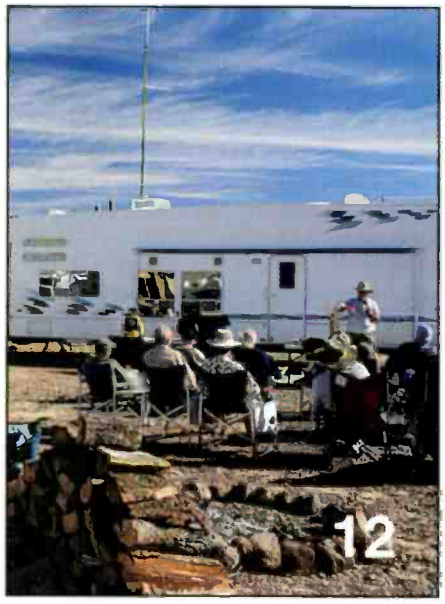
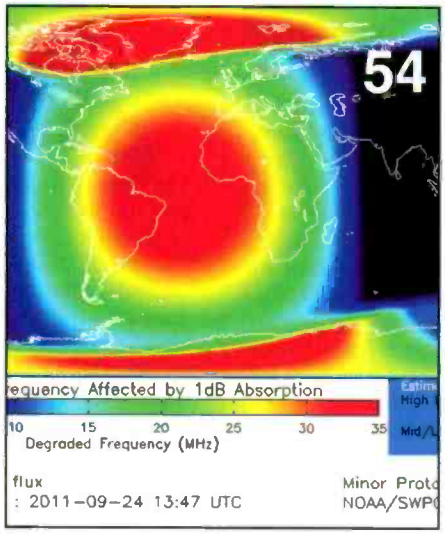
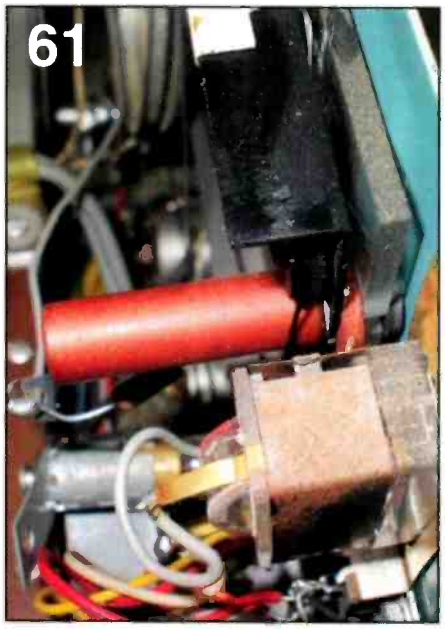






FEATURES

FEATURED COLUMNS

ON THE COVER

A period photograph from the National Archives provides the backdrop for this month's *Pop'Comm* cover as a father and son do some shortwave listening by the light of a kerosene lamp, circa 1940s. The inset picture is of Tom Kneitel, WPE2AB, *Pop'Comm* founding editor, whose inspiration helped fuel the launch this month of the *Pop'Comm Monitoring Station* program. A prototype of the new program's Certificate of Registration adds a splash of aqua-blue to this month's black and white motif. *(Illustrations courtesy of the National Archives, the Tom Kneitel Family and Katie Fisher.)*

COLUMNS

DEPARTMENTS

Tap into secret Shortwave Signals

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

MFJ-462B **$199.95**

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

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

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

Eavesdrop on the World

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

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

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

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

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

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

High Performance Modem

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

Easy to use, tune and read

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

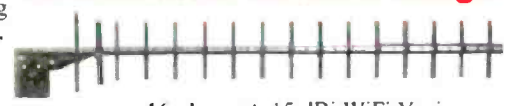
It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

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

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

Use 12 VDC or use 110 VAC with MFJ-1312D AC adapter, $15.95. 5¼Wx2½Hx5¼D inches.

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



MFJ-1800 **$29.95**

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

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

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

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

Super Active Antenna

MFJ-1024 **$159.95**

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

Indoor Active Antenna

MFJ-1020C **$99.95**

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

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

Compact Active Antenna

MFJ-1022 **$69.95**

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

Eliminate power line noise!

MFJ-1026 **$199.95**

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

MFJ Antenna Matcher

MFJ-959C **$119.95**

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

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

High-Gain Preselector

MFJ-1045C **$89.95**

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

Dual Tunable Audio Filter

MFJ-752D **$119.95**

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

MFJ Shortwave Headphones

MFJ-392B **$24.95**

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

High-Q Passive Preselector

MFJ-956 **$69.95**

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

Super Passive Preselector

MFJ-1046 **$119.95**

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

MFJ Shortwave Speaker

MFJ-281 **$12.95**

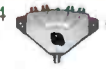
This MFJ *ClearTone*™ restores the broadcast quality sound of shortwave listening. Makes copying easier, enhances speech, improves intelligibility, reduces noise, static, hum. 3 in. speaker handles 8 Watts. 8 Ohm impedance. 6 foot cord.

MFJ All Band Doublet

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

MFJ-1777 **$59.95**

MFJ Antenna Switches



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

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

Morse Code Reader

MFJ-461 **$89.95**

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

MFJ 24/12 Hour Station Clock

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

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

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EDITORIAL

Tuning In

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

Back to the Future (Again): Let's Get This Party Started

We feel a lot like Marty McFly in the scene from *Back to the Future* where Michael J. Fox — time traveler from 1985 — is gazing at a 1955 billboard advertising Lyon Estates — the as-yet-unbuilt housing development where he'll grow up. "*Live in the Home of Tomorrow . . . Today,*" the advertisement says: <http://bit.ly/swoQsr>."*Ground-Breaking This Month!*"

As you've likely heard by now, January 1, 2012 is the ground breaking for *Pop'Comm Monitoring Station* program. Is this a *Happy New Year!* or what?

The program is an initiative hundreds of you have asked us to take on, and we're thrilled to oblige. It carries on the legacy of *Pop'Comm* founding editor **Tom Kneitel**, **WPE2AB**, who for years coalesced the shortwave monitoring community through the *Popular Electronics* WPE program beginning in the 1950s.

Our inaugural *Monitoring Stations* column, beginning on page 18 in this issue, has details on how to get in on Phase I (in real estate developer parlance) of this burgeoning community of *Pop'Comm* readers.

The idea started with a reader question on *Pop'Comm's* Facebook page: Are those old WPE, WRØ and WDX monitoring station identification sign programs still alive? Whatever happened to them? <https://www.facebook.com/PopComm>.

We sensed a clamor for bringing the concept back into the listening community — *Back to the Future*, so to speak.

In July 2011 we asked readers: *Should Pop'Comm launch a Monitoring Station program of its own?* Literally hundreds of emails and letters later, the jury's verdict was in: *Yes, indeed!* A selection of written responses from readers carried across four pages in *Pop'Comm's* October 2011 edition. The outpouring was overwhelmingly positive.

So, for about six months we've been putting together the pieces for the *Pop'Comm Monitoring Station* program's launch New Year's Day 2012. We're eager to see how many of you apply for a station identification sign and become an active — *enthusiastic* — member of what we promise will be a vibrant, collegial community of monitors. We want to share your challenges and successes with other *Pop'Comm Monitoring Stations* through our new monthly column and online via the new ***Pop'Comm Monitors On the Web* blog**: <http://popcommmonitors.blogspot.com>.

Jason Feldman, **WPC2COD**, is Director of *Pop'Comm Monitoring Station* Registration — managing station identification sign assignments and overseeing many other parts of this growing program. It's a big job, and he's the perfect guy for it.

You'll see in *Monitoring Stations* this month we've created an email address for all correspondence regarding the program: <PopCommMonitor@gmail.com>. Please feel free to use it often.

Mr. Kneitel has been posthumously awarded the *Pop'Comm Monitoring Station* identification sign **WPC4A**, selected from a 3 x 1 letter combination station ID pool reserved in part to honor those monitors who have contributed significantly to the art of listening. CQ Communications Publisher **Dick Ross**, who founded *Popular Communications* and named Mr. Kneitel its founding editor, has been awarded **WPC2A**. His enthusiasm for the *Pop'Comm Monitoring Station* program has been undying and fantastic.

Rich Moseson, editor of *CQ Amateur Radio* (*CQ* magazine) has been tremendously helpful in pulling together the pieces of thread necessary to make all of this happen. He has been awarded **WPC2RIY** to carry on the naming convention he started as a kid, with Certificates of Registration bearing the station ID signs **WPE2RIY** and **WDX2RIY**.

So, what station ID sign will be yours? We invite you to turn to page 18 and get this New Year's Monitoring Party started. We're going *back to the future*, and sure hope you come along for the ride.

Pop'Comm Adds a Digital Edition

Gosh, there's so much going on at *Pop'Comm*, it's hard to keep track. Have you checked out our new digital edition? It launched with the December 2011 *Pop'Comm* print edition.

Following *WorldRadio Online*, *CQ Amateur Radio* (*CQ* magazine) and *CQ VHF* to the Zinio *e-zine* portal <http://www.Zinio.com>, you'll find an online edition of *Pop'Comm* that goes anywhere you and your computer go, will never get dog-eared and takes up no space in that bulging bookshelf. *(You can't, however, wrap fish or line your birdcage with it. – Ed.)*

In a way, it's another rendition of *Back to the Future*, and we hope you like it as much as we do.

Of course, we'll continue to publish the print edition of *Popular Communications*, but the digital edition is at your disposal if you care to go that route.

For full details and subscription information about our new digital edition, as well as those of *WorldRadio Online*, *CQ* and *CQ VHF*, visit: <http://bit.ly/ve7fWj>.

Speaking Of Going Digital . . .

Pop'Comm's "The Loose Connection" columnist Bill Price, N3AVY, sends this observation: *"There are 10 kinds of people: Those who understand binary and those who don't."*

Happy New Year, everyone!

– Richard Fisher, KPC6PC/KI6SN

Icom has the receivers for the experts...

IC-R9500 The Ultimate Wide Band Receiver

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

For those just getting started...

IC-R75 Wide Band Receiver

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

AND for those on the go!

IC-R20 Advanced Ops

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

IC-RX7 Track Ready

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

IC-R6 Pocket Compact

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

IC-R2500 2 Wide Band RX in 1 Black Box

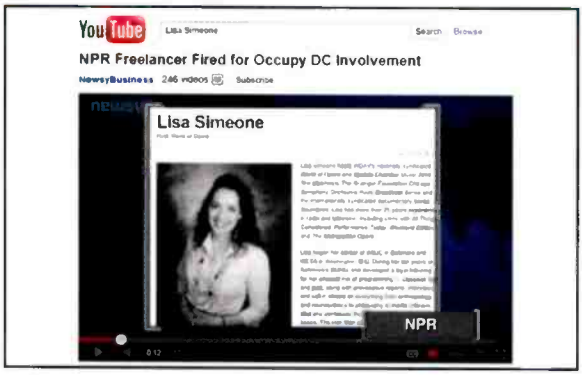
- 0.01–3299.99 MHz*
- AM, FM, WFM, SSB, CW (Main)
- AM, FM and WFM (Sub)
- 1000 Memory Channels
- Optional D-STAR (UT-118)
- Optional P25 (UT-122)
- Optional DSP (UT-106)
- PC Controllable

ICOM

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

The Weirder Side of Wireless

by Staff



Follow the bouncing ball as radio host Lisa Simone becomes involved with *Occupy* protests and finds herself in the NPR "house of dog." ***(WATCH**: The Newsy report and commentary on Lisa Simone by Adam Falk at: <http://bit.ly/tmiFoC>. – Ed). (YouTube screen grab)*

'World of Opera' Host Doth Protest Too Much

The Fat Lady has sung for National Public Radio's association with "World of Opera" after a dust-up with host Lisa Simone, who "helped organize an ongoing Washington protest," an NPR official said.

Read that: Occupy DC. NPR pulled the plug on its distribution of the program to 60 affiliated stations.

Simone said her political activity has no influence on her job as host of an opera show.

NPR spokeswoman Dana Davis Rehm told the Associated Press: "Our view is it's a potential conflict of interest for any journalist or any individual who plays a public role on behalf of NPR to take an active part in a political movement or advocacy campaign . . . Doing so has the potential to compromise our reputation as an organization that strives to be impartial and unbiased."

For her recent political activity, as well, Simone was fired as a host for NPR's "SoundPrint," a news-documentary program.

North Carolina-based classical music station WDAV, which produces "World of Opera," said it would distribute the nationally-syndicated program on its own.

***(WATCH**: A video report and commentary on the Lisa Simone saga from Newsy: <http://bit.ly/tmiFoC> and San Francisco street opera singer Litz Plummer perform "Ave Maria" on Maiden Lane: <http://bit.ly/s6XE3d>. – Ed.)*

– Published reports

Great Scot: Grenades At the Transmitter Site

A radio amateur "received the surprise of his life" at his new transmitter site in Wick, Highland, Scotland when he dug up 144 glass bottle grenades containing highly volatile white phosphorous.

James Duncan, MMØHDW, of Bank Row, had pushed his shovel into about a foot of soil when he "hit two zinc sheets that were covering six wooden boxes . . . When I opened them up, there were 24 bottles of white liquid inside each box. They looked like milk bottles . . . I immediately knew what it was and what it would have been used for."

News of the shocking find was carried in the *John O'Groat Journal and Caithness Courier* <http://bit.ly/ukkBTl>.

Duncan, a member of the Caithness Amateur Radio Society <http://bit.ly/u49muT> called police. They, in turn, called the specialist bomb disposal unit from the Royal Navy Northern Diving Group which called for the evacuation of a nearby municipal building while the nearly 70-year-old grenades were removed.

The evacuation resulted in the cancellation of a martial arts session and the Royal Burgh of Wick Community Council meeting.

A spokesman for the Royal Navy said the bottles looked "to still be in good condition and were possibly given to the Home Guard during the Second World War (in the event of Nazi invasion). They are . . . quite dangerous to handle."

– John O'Groat Journal and Caithness Courier

Tell 'Em What They Won! AK-47s, 2 Hand-Grenades and Cash

Speaking of grenades . . .

A radio station near Mogadishu, Somalia, held a contest to give young listeners the chance to win weapons and cash, according to a report on *DailyMail.co.uk*.

The Andulus Radio competition had young people between age 10 and 17 square-off in a Koran-reading and general knowledge quiz.

- First prize: An AK-47 semi-automatic rifle and $700
- Second prize: An AK-47 and $500
- Third prize: Two hand-grenades and $390

"I'm not making this up," writes Corey Deitz of About.com. "The station held the competition to celebrate Ramadan and the guns were awarded so the winners could 'defend Islam.'" *(Visit Corey Deitz' site at: <http://radio.about.com/>. – Ed.)*

– About.com, DailyMail.co.uk

Master of Radio Theater Tees Off On Management

"The radio business is following to the letter the model of failure the auto industry followed," radio broadcasting icon Phil Hendrie told Ed Ryan in an interview for *RadioInk*. ***(IN DEPTH**: Read the complete interview at: <http://bit.ly/tpz8p7>. – Ed.)*

Hendrie, today's undisputed master of radio theater and satire, has developed a cast of characters he deftly *becomes* on the air while simultaneously interviewing them . . . himself . . . errr. ***(LISTEN**: To Phil Hendrie moderate a conversation between RC Collins and an unwitting U.S. Air Force weapons instructor. CAUTION: Contains course language: <http://bit.ly/uk1Ens>. – Ed.)*

"Trying to tear a dollar in half to make two dollars is not making better cars or better radio shows," Hendrie told Ryan. "You make cow dung while you're chasing the art of manipulating the consumer into spending more for cow dung or inferior cow dung."

Hendrie said radio "will die the death of a thousand cuts unless it pays more attention to its product. And it's not cow dung, no matter how fresh. I don't think I've ever seen a business with more disdain for its own product than radio . . . The artist is doing his job. But the managers can't sell it, can't market it, can't promote it, can't pronounce it, can't protect it. The talent shortage is at that level."

– RadioInk.com

News, Trends, And Short Takes

by D.Prabakaran
<bcdxer@hotmail.com>

Running Out of Spares, BBC Radio 4 Says, 'Goodbye, Long Wave'

Mark Thompson, the director-general of the BBC, has signaled the beginning of the end for the 198-kHz, long-wave service of BBC Radio 4, which is still used by 90,000 homes in Britain to receive the signals in areas where short-range FM does not penetrate. *(IN DEPTH: Read Thompson's remarks in an October 6 story in The Guardian: <http://bit.ly/tTDVI8 >. – Ed.)*

BBC Radio 4 long wave relies on aging transmitter equipment that uses a pair of tubes that are no longer manufactured. The transmitter is at Droitwitch in Worcestershire.

The tubes are so rare, engineers say there are fewer than 10 in the world, and the BBC has been forced to buy the entire global supply. Each tube life is between one and 10 years — and when one of the last two blows the service will go quiet.

The 198-KHz signal is widely used in Europe for listening to the BBC while driving.

Radio 4 was traditionally broadcast on long wave, using frequencies used by the BBC since the 1930s, but the station has long been aired on FM and digital radio and online.

More recently, the long-wave service has been used to carry a handful of traditional programs deemed unsuitable for FM, while the range of the long-wave signal also ensured that ships could pick up shipping forecasts.

– Various sources

Israeli Radio Pirate Gets 3 Month Sentence

An Israeli District Court, sitting as the Criminal Appeals Court, has sentenced a man to three months' community service for broadcasting on a pirate radio station.

The court said Yehuda Sorogon had been originally convicted in the Hadera Magistrates' Court of making illegal broadcasts on Briza, an Israeli Haifa-area pirate radio station broadcasting on FM, between 2005 and 2008. However, the State Attorney's Office had appealed to the higher court against the original sentence of probation imposed on the defendant.

In its judgment, the panel of three judges said that pirate radio stations interfere with legal radio transmissions from civil and military aviation, and added that pirate broadcasters, as well as those responsible for managing pirate stations, must be punished.

This is not the first time the state appealed lower court rulings against pirate radio broadcasters. In March 2010, the State Attorney's Office successfully appealed against a sentence imposed on Rothschild Masalvai, the former director of the Briza pirate radio station. Following that appeal, Masalvai was sentenced to 18 months in prison and one of the heaviest fines imposed to date on pirate radio broadcasters.

– Source: Jerusalem Post

World's Youngest Nation Joins the ITU

The International Telecommunication Union has announced that the world's newest country, South Sudan, has joined the ITU to become the Union's 193rd member state, made effective October 3, 2011 <http://bit.ly/sxxosB>.

The country, which gained its independence on July 9, 2011, has already been allocated the international dialing code +211 by the ITU, following the country's recognition by the United Nations General Assembly. The dialing code became active on September 28.

– Various sources

Dutch Agencies Cooperate to Block Illegal Transmitter Trade

The Dutch Radiocommunications and Customs agencies have pledged to cooperate in tackling the trade of illegal broadcasting equipment in Europe. The goal of this collaboration is to stop at the border the import of transmitters that do not comply with European regulations.

(For a listing of Dutch radio stations, see the SHOUTcast Radio Directory: <http://www.shoutcast.com/radio/Dutch>. – Ed.)

The transmitters "interfere with the regular use of frequencies, such as radio or TV broadcasting, mobile phones and also the communications of police and firefighters. In some cases, radio traffic is made totally impossible. These include GSM and GPS jammers and transmitting devices that operate on illegal radio channels that are not permitted in the Netherlands and Europe. It's also about devices that do not meet European protection standards, and are therefore harmful to wireless networks and the health and safety for users," stated the Radiocommunications Agency on its website.

Through cooperation with Customs at an early stage it's hoped to prevent these dangerous transmitters entering the Netherlands, and/or being marketed and used elsewhere in Europe. Once in Europe, there is freedom of movement of goods between EU member states, so other countries are also working intensively with their customs authorities. There is also a close watch on devices being sold on the Internet.

The Radiocommunications Agency is also working with eBay and the Dutch site Marktplaats (Marketplace) to counter the illegal trade. The Agency also works closely with the supervisory authorities of other EU member states, the United States and Canada in this area.

– Source: RadioMagazine.nl

Taliban FM Radio On the Air in Afghanistan

Afghan Taliban has launched its own FM Radio inside Afghanistan and the broadcast was available in the Ghazni area.

According to residents in Afghanistan's southern province, Radio Shariah or "Shariat Ghag" could be heard in Ghazni and adjoining areas of Aab Band, Andar district, Waghaz, Deh Yak, Qarabagh and Giro areas. Local Afghanistan officials said that the mobile radio station was moved frequently from one area to another on motorcycles or in other vehicles.

Residents say that local listeners were instructed to tune in Radio Shariah, which reports actions against "occupation forces," and called for unity among the Afghan people "to free the nation from outside forces."

There are reports that Radio Shariah will also start its transmissions in other areas of Afghanistan.

– Source: Pakistan Observer

Capitol Hill And FCC Actions Affecting Communications

by Richard Fisher, KI6SN

San Francisco's 'Monkey Man' Slapped With $10,000 FCC Fine

Pirate Cat Radio founder Daniel "Monkey Man" Roberts has been fined $10,000 by the Federal Communications Commission for "willfully and repeatedly . . . operating an unlicensed radio broadcast station" in San Francisco.

Roberts told the Commission he wasn't involved with the broadcast transmissions of Pirate Cat Radio and was "financially unable" to pay the fine. *(**SEE**: Monkey Man's Facebook page: <http://on.fb.me/udakt9>. – Ed.)*

According to a posting on *RadioSurvivor.com*, the FCC "discounts Roberts' arguments and reiterates its finding that Pirate Cat Radio 'operated a radio broadcast station without a license on 87.9 MHz.'" *(For the full story, visit: <http://bit.ly/u0Kpp1>. – Ed.)*

The FCC alleges the station had been operated from the Pirate Cat Cafe and Studio in 2008 and that "the Enforcement Bureau's San Francisco Office issued numerous warnings and Notices of Unlicensed Operation ('NOUOs') to Roberts." *(**WATCH**: Anthony Bourdain of TV's "No Reservations" visits The Pirate Cat Café: <http://bit.ly/tiQrVM>. – Ed.)*

In his response to the FCC, Roberts argues that transmissions did not come from the Pirate Cat Radio studio and "alleges that the Internet-streamed program service from PCR is downloaded and broadcast by third parties." *(**VISIT**: The Pirate Cat Radio website: <http://www.piratecatradio.com/>. – Ed.)*

"The FCC refutes this and used statements from the Pirate Cat Radio website, Pirate Cat Radio press releases, and from press accounts to argue that Roberts knowingly operated a pirate radio station," the RadioSurvivor.com story reported. *(**IN DEPTH**: Read the FCC Forfeiture Order at: <http://bit.ly/tEtD2Q>. – Ed.)*

– FCC, RadioSurvivor.com, published reports

'Free TV' Coalition Offers Its Spectrum for Broadband

The Coalition for Free TV and Broadband is asking Congress to permit broadcasters to use some of its spectrum "to offer wireless services by altering the terms of their licenses and changing technical broadcast standards," a posting on *FierceBroadband Wireless.com* reported.

The coalition says its idea could bring $80 billion into the U.S. Treasury between 2014 and 2023. *(**IN DEPTH**: See the full story at: <http://bit.ly/utebAQ>. – Ed)*

"The coalition's plan is an alternative to the FCC taking spectrum from broadcasters on a voluntary basis, reallocating it for wireless broadband services and holding incentive auctions," the story said. "After that, plans are vague as to how broadcasters would offer wireless broadband services."

The National Association of Broadcasters said it's studying the proposal.

– FierceBroadbandWireless

Smartphone Strategy Used in Detroit-Ohio Interference War

A battle over FM interference in Detroit and Ohio has been resolved by the FCC with its ruling that the operator of a translator must "suspend operations immediately."

In addition, "this may be the first time an operator accused of causing interference has offered smartphones with iHeartRadio apps to consumers who complain," reports a story on *Radio-Info.com®*.

Clear Channel Communications complained in summer 2011 that *Smooth Jazz Oasis 104.7*, operated by Radio Power Inc. and broadcasting on translator W284BQ, was interfering with its rock WIOT, Toledo — on 104.7 MHz, as well.

RPI's Tim Martz argued WIOT "is a Toledo, Ohio station . . . does not promote itself or market itself in Detroit . . . (and) does not show up in the Detroit ratings."

According to the *Radio-Info.com®* story, Martz "has tried some novel strategies, including giving smartphones to WIOT listeners whose reception has been affected by the new Detroit translator signal."

Clear Channel doesn't like the smartphones strategy, nor that "Radio Power (is) making public the names of those WIOT listeners who complained."

The FCC weighed in, saying "that practice might make people less likely to complain in the future," *Radio-Info.com®* reported. "It also declines to get into the business of monitoring smartphone apps, and says the Radio Power approach would lead it into 'a quagmire of novel issues.'"

"In this case, the interference from W284BQ is actual and foreseeable," the FCC concluded. "RPI has failed to properly eliminate such interference. Accordingly, RPI must suspend W284BQ operations immediately."

*(**IN DEPTH**: Read the full FCC ruling at: <http://bit.ly/sT17YJ>. Visit the Radio-Info.com Smooth Jazz discussion board at: <http://bit.ly/uA30yq>. – Ed.)*

– Radio-Info.com®.

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'Things I Wish My Radio Did,' The Sequel

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<commhorizons
@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."

In the May 2009 issue of *WRO*, I offered some ideas of features I'd like to see in my radios. As we enter a new year, I have a new list of wishes. Some of these may be in the plans of manufacturers now and some may never see the light of day. A few are repeated with a new twist. New or reprised, here's my revisit of the wish list.

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 the just the whim of the designer or manufacturer that dictates what connectors are available. Can't we all just get along?

More Room

Almost every modern radio has some sort of semi-permanent or permanent memory. The size of that 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 readily available storage, why don't more devices allow you to add memory to them? A few do, but most don't. You didn't buy the 32-GB model? Tough, you can't turn the 16-GB version into a 32-GB version by buying a new SD card. Need more than 99 memories? Too bad, you can't increase it.

Better security

More and more of our devices have more and more information that is personal stored in them. Most of these devices could be made much more secure with small changes in design. It's speculative to say why that hasn't happened but probably the risk of inconveniencing legitimate users is part of it, and cost may be another. Some changes, such as biometric identification, shouldn't be too difficult to do. Given the increasing computing power, camera resolution, and touch screens, we should be closer to making this practical. *(For more information on biometric identification, visit: <http://bit.ly/vzOSxy>. – Ed.)*

Accessibility

So many modern devices are simply unusable 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/vpA3Fh>. – Ed.)*

Wireless Links

A few ham rigs now have Bluetooth capability <http://www.BlueTooth.com>, but it is of limited use on those radios. Expensive ham and SWL radios today still have virtually no awareness of Wi-Fi or other technologies such as local networks. In the era of rapidly changing technology, there are many possibilities for creative use of wireless connectivity but so far, the industry is lagging in adoption of them. You might be thinking "but I don't need Wi-Fi in my rig." You probably didn't need SSB radios, a personal computer, or a smartphone either, but may have one now. Once, a bit over a century ago, few thought they needed radio. I can imagine uses for many of the technologies I write about, but it is the ones I can't that may matter most in another century.

After SDRs

Where can we go with the Software Defined Radio (SDR) <http://bit.ly/s11Bni>? "Cognitive radio <http://bit.ly/rP8yiQ> and intelligent antennas" <http://bit.ly/tddfWd> show a possible direction. We'll explore cognitive radios more next month.

What do you want your radio to do that it doesn't do at present? I look forward to hearing from you. More on the new horizons in communications technology next month.

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Quartzfest©: Radio Camp on the Desert Floor

It's So 'Radio Quiet,' You Won't Believe Your Ears

By Gordon West, WB6NOA

If you enjoy RVing and radio reception with *absolutely no* power line noise, tune into Quartzfest© — a gathering of nearly 1,000 amateur radio operators, shortwave listeners, scanner fans and WiFi DXers during the last week of January <http://bit.ly/szhf8b>.

The event is located about five miles south of Quartzsite, Arizona, home of one of the largest recreational vehicle gatherings in the country — well over a million RVers take in the week-long Sports, Vacation and RV Show in downtown Quartzite <http://bit.ly/s8kIMB>.

The hams gather just south of town on Bureau of Land Management desert property. There is a 14-day limit on BLM property.

The 2012 Extravaganza

This year's Quartzfest© radio activity begins on Saturday, January 21, with radio events rolling the entire next week. A week later, Southern California radio operators on the way home can also take in the Palm Springs Desert Rats one-day radio event on Saturday, January 28.

"Quartzfest© is live radio action from sun up to star gazing at midnight," said Steve Weed, KO4QT, in his second year as Quartzfest© organizer.

"Our special event station, set up and run by Ward Wheaton, K7PO, will feature an ICOM IC-9100 from the WB6NOA shack,

QuartzFest© 2012: If You Go . . .

What: *Quartzfest*© is an annual amateur radio RVers event in late January coinciding with the *Quartzsite, Arizona Sports, Vacation and RV Show.*

When: January 21 through 28 (Saturday to Saturday)

Where: About 5 miles south of Quartzsite, Arizona on U.S. 95 at La Paz Valley Rd (53rd Street)

Detailed driving directions: <http://bit.ly/saysvh>

GPS: 33°35.12 N, 114°18.32 W.

Talk-In: 146.55 FM Simplex (2 meters)

Weather: T-shirt, according to organizers

Amenities: None. (No water, no dump station, no buildings, no nothing)

Note: This is an ARRL-sanctioned operating specialty convention with emphasis on live equipment training sessions.

More information: <http://bit.ly/szhf8b>

"Quartzfest© is live radio action from sun up to star gazing at midnight, January 21 to 28." – Steve Weed, KO4QT

Sun Up-to-Starlight Quartzfest© Activities

There will be radio seminars with live equipment run every day and evening, for seven days.

- Transmitter hunts
- WinLink 2000
- RV antenna walkabout
- VE and commercial radio exams
- Geocaching
- Working ham satellites
- Solar panel shootout
- RVing with D-Star and IRLP WIN System
- Amateur Television (ATV)
- DXing the Heavens
- VHF/UHF tropo ducting
- Metal detecting
- 20-meter MOXON beam building
- Digital interface
- Battery Technology
- ARRL: "What's new at HQ?"
- Basic soldering
- Choosing the right coax and connectors
- Building dipole antennas
- APRS, with the donated Kenwood D-72 going to a lucky winner
- Radio astronomy
- Yard Sale: Well-loved ham gear
- Antenna analyzer
- Antenna shootout
- RV noise elimination
- Working with Anderson connectors
- Emergency communications
- Automatic and manual tuners
- WiFi long-range shootout

using special event callsign, W7Q. *(To see the ICOM IC-9100, visit: <http://bit.ly/s0Y2Sw>. – Ed.)*

"If you can't make it to Quartzfest© this year, work us on the air!" Weed said, recommending the event's website: <http://www.quartzfest.org>.

The American Radio Relay League has sanctioned this gathering as an operating specialty convention, with emphasis on live equipment training sessions being presented all week long.

Quartzfest© is 15 years old, beginning in '97 as an encampment of ham radio-RV enthusiasts attending the big RV show in town. Quartzfest© is not a group, club or organization. There are no dues, officers or directors. Radio operators simply show up, sign in on the Bureau of Land Management roster, and enjoy day after day of free camping.

There are very few and very limited amenities. No water, no dump station, no buildings. Best of all, *no power lines* anywhere near the encampment, so radio reception is usually at its best.

A day is designated when radio operators can caravan up to the Quartzite Sports, Vacation and RV Show to take in all of the exhibits under the huge white tents. If you might be looking for quartz crystals or meteorites, there are 20 acres of rock hound displays, as well!

The CCrane EP radio with twin antennas for AM broadcast reception DX is a prime candidate for testing at Quartzfest© in its "radio quiet" environment. *(Courtesy of WB6NOA)*

It's a Monitoring Station's Dream

You don't need to be a radio amateur to enjoy Quartzfest© in your RV or tent camper. Shortwave listeners will bring out their MF/HF portables and do some after-dark broadcast-band DXing. Who will try to beat the new hot CCrane "EP" broadcast band twin-loop receiver? <http://bit.ly/uATDL5>.

Seen as a gathering spot just to the left-of-center in this aerial view is the main fire ring — check-in point for new arrivals. Once you are signed in, pick a cactus, park, set up your antenna, and set out the solar panels.

Broadcast band DX can be optimized — and QRM minimized — by adjusting the CCrane EP radio's twin coil antenna phasing.

Got Solar? Alfred Oxton, K1OIQ, shows off his *catmobile* bus at Quartzfest©. Every vehicle has a story, and if the door is open it means come on in for a look!

A portable 12-VDC PA lets everyone hear the seminar. Just be sure and bring your own chair and note pad!

For scanner listeners, there will be several seminars with demonstrations of the latest digital gear newly unveiled at the CES show <http://www.cesweb.org/>.

Also, take in some new scanner antennas for home and vehicle monitoring.

Bring those 2.4-GHz WiFi antennas! Several Quartzfest© hams will provide satellite broadband connections, and it's fun to see who can pick up the WiFi signals from the greatest distance.

If you are just there for the fresh air and the fabulous night skies, you will be treated to some of the *major size* telescopes — computer driven of course — on scene, and the night sky with just your eyes will dazzle you with constellations you may never have seen before. And, if you really want intrigue, come to the Galaxy seminar for some amazing graphics beamed onto the big white side of a large motorhome.

And, sure, movies every night on that same big screen, with a roaring campfire to keep you warm.

Tips On Getting There

The best way into Quartzfest© is by using the organization's recommended driving directions:

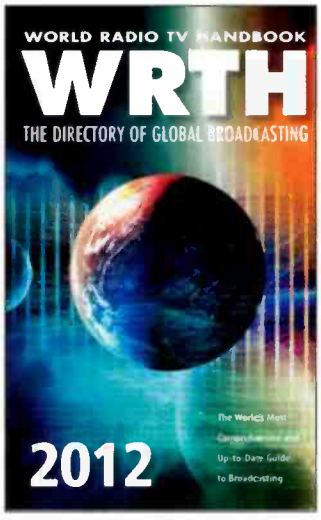
You enter off U.S. Highway 95, at

We are very pleased to announce the publication of the 2012 edition of *World Radio TV Handbook*, the bestselling directory of global broadcasting on LW, MW, SW & FM

The Features section has a history of radio on Tristan da Cunha, reviews of the latest equipment, an explanation of receiver testing terms and techniques, a visit to Radio Bulgaria, and more, including our regular *Digital Update*.

The remaining pages are, as usual, full of information on:

- National and International broadcasts and broadcasters by country with frequencies, powers, languages, contacts, and more, including Clandestine and other target broadcasters
- MW frequency listings by region. International and domestic SW frequency listings, as well as DRM listings
- International SW broadcasts in English, French, German, Portuguese & Spanish.
- Reference section with Transmitter locations, DX clubs, Internet Resources, and much more



Available December 2011

SOME COMMENTS ON WRTH 2011

With 50 years of WRTH under my belt I still look forward to the next year's volume appearing, thank you for your ongoing effort in producing this invaluable reference work – *Roger Bunney, UK*

The World Radio TV Handbook has consistently set the gold standard in broadcast reference information and it remains the very best, most authoritative, and comprehensive reference book in the broadcast world – *Gayle van Horn, Monitoring Times*

I still am convinced that your publication is awesome! – *Gérard Koopal, The Netherlands*

The handbook seems nearly perfect – *Wolfgang Bueschel, Germany*

As always, we highly recommend WRTH as excellent value for money, and a must-have for both the hobby listener and the broadcast professional – *Andy Sennitt, Radio Netherlands Worldwide*

WRTH was always and still is one of the most important sources of fresh broadcast information – *Mieczyslaw Pietruski, Poland*

Thanks for another excellent edition of our "bible" – *Günter Lorenz, Germany*

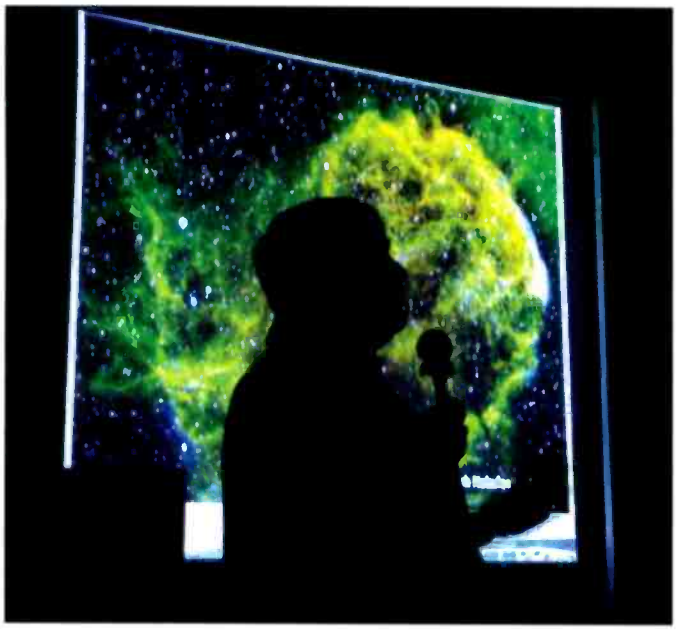
The WRTH is fantastic. You really stand alone in the data department – *Larry Beavers, USA*

Congratulations for WRTH 2011 - the definitive radio guide. It is fascinating and essential reading – *Mike Terry, UK*

"WRTH" has been my best friend in my radio adventures for the last 20 years and it will continue to be so for many years to come – *Gianfranco Buonomo*

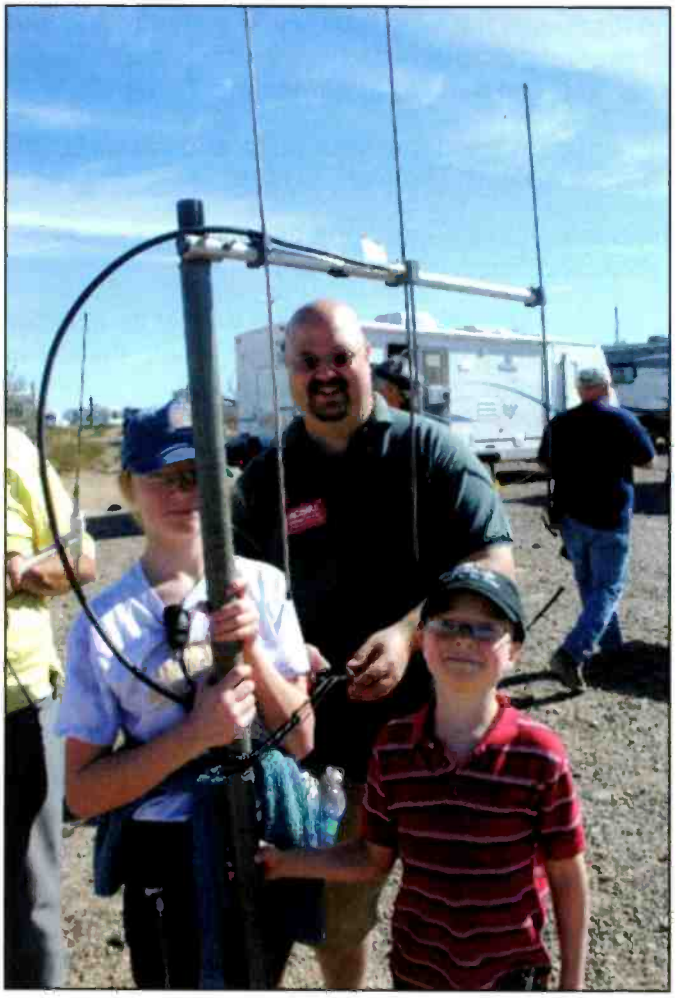
A "must have" reference for any SWL – *Randall Morrison, USA*

It's perfect – *Antonio Barrera, Spain*



Scientist/hams present an evening show on the side of a RV, and then take the talk/video to live nearby telescopes for all to view the heavens!

WiFi antennas will help pull in the many free Internet sites at Quartzfest©, thanks to the hams who provide the Web via satellite. There is good cell phone coverage, as well.



Kids at Quartzfest© can take part in antenna building and get in on a contact during an OSCAR pass.

about mile marker 99, La Paz Valley Road. Google Maps™ has it as 53rd St. ***(IN DEPTH**: For detailed driving directions with a map and photographs of key points, visit: <http://bit.ly/saysvh>. – Ed)*

If you turn in at exactly mile marker 99 signpost, it's a good shortcut, but *only* for vehicles with extra ground clearance. The entire area is hard packed sand, so there is little concern for getting bogged down — unless there is a *rainstorm of all rainstorms* — like the one two years ago!

Other Good Things to Know

Every morning and evening there is a campfire with cama-

Three separate seminar fire rings, each set up with a portable public address system, allow Quartzfesters to pick and choose the talk of their choice.

The Kenwood TH-D72 APRS radio, donated by Kenwood, is one of the prizes for those attendees who are on the check-in list.

raderie and conversation. Live music sometimes breaks out. Battery-operated PA systems for the next morning's presentations are around for those of us who *don't hear squat.*

Each morning at sun up we conduct a reveille net to go over the schedule for seminars to be offered and at which of the two or three seminar areas for each one.

There are still spots open for additional seminars. But remember, since Quartzfest© is on BLM land, commercial-product-push seminars are *not permitted.*

But, this *does not* mean you won't see RV radio attendees from the major manufacturers and dealers there, too. Anyone in radio will likely show up! For example, Fred Lloyd, AA7BQ, founder of QRZ.com will be one of the many special guests who are coming from all over the country to *talk ham radio.*

"There are plenty of daily activities for our YLs (young ladies), too. Quilting, quilling, IRIS-fold greeting cards, genealogy, beading projects, book discussions, and some of the ladies are actually into using the radios," said Julian Frost, N3JF, an avid Quartzfest© attendee. "There's also a morning coffee group every day. And more important for the guys, there are multiple cookout opportunities where the chili and sides can get *very* interesting. Ever have Hobo Stew?"

W7Q Special Event Station and More

If you can't make it, special event station W7Q, from Quartzfest©, will be on the air daily. You will possibly hear brand new hams working as net control during "Get On the Air" workshops, talking over the really cool ICOM 9100 transceiver.

"This year we hope to top 1,000 RVs around the perimeter. Anyone new can email me for added instruction: <organizer@Quartzfest.org>, KO4QT said.

It all starts Saturday morning, January 21, with many folks arriving earlier in order to park close to the main campfire. Bring firewood!

For those wishing to park in solitude, pick a patch of hard pack sand, set up your HF antenna, monitor 146.550 simplex FM and get set for a radio week you will never forget. Hear you on the air or see you in person at Quartzfest© 2012!

Step Right In: Welcome to the *Pop'Comm Monitoring Station Program!*

By Richard Fisher, KPC6PC/KI6SN

"Apply for a Pop'Comm Monitoring Station identification sign and help us make history."

January 1, 2012 marks the beginning of *Popular Communications'* bid to revitalize a shortwave listening community that was excited and vibrant 50 years ago, while creating a platform for exploration of the far reaches of today's communications technology.

We're referring, of course, to the *Pop'Comm Monitoring Station* program, an initiative that has been six months in preparation for its unveiling this New Year's Day.

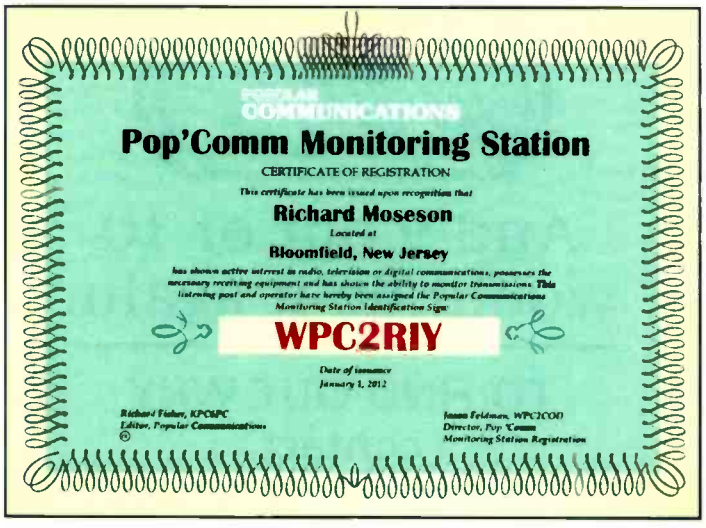
Prompted by a question on *Pop'Comm's* Facebook page last summer, and energized by hundreds of readers' warm memories of decades-old WRØ, WPE and WDX station identification signs, the idea caught fire and quickly answered our question: *"Should Pop'Comm launch a monitoring station identification sign program of its own?"*

Monitoring Stations is the first of what will be a monthly column tracking and expanding the *Pop'Comm Monitoring Station* (PCMS) program. Our vision is for a vibrant monitoring community to feed off its collective enthusiasm through magazine-sponsored achievement recognition and awards programs, contests and who-knows-what-else. That's for the community to decide.

To set the program's foundation, though, we designated January 1, 2012 as the date to invite you to apply for a *Pop-Comm*-issued *Monitoring Station* identification sign. You can see mine in the byline of this column.

With this inaugural column, we'll explain how to apply for your own, and once assigned how to instantly print out a Certificate of Registration to hang on your listening post wall.

And so, to that end . . .



Here is a prototype of the *Pop'Comm Monitoring Station* Certificate of Registration. At press time we were still refining it. Many of you will notice it takes elements of design from *Popular Electronics'* WPE certificate, circa 1959. The late Tom Kneitel, founding editor of *Popular Communications*, was responsible for the popularization of the WPE program 50 years ago. It's a legacy we continue today. *(Design courtesy of Katie Fisher, Word Ink.com)*

New On the Web

Email: A special email account has been established exclusively for *Pop'Comm Monitoring Station* participants. It's your conduit for all things regarding the program: <PopCommMonitor@gmail.com>.

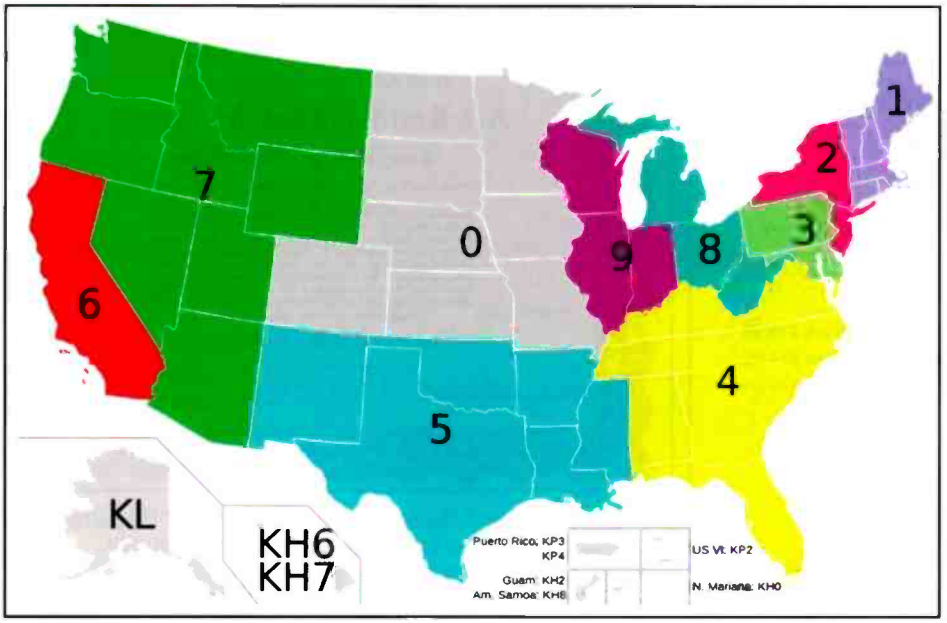
***Pop'Comm Monitors On the Web* Blog**: The program has its own blog, as well: <http://www.PopCommMonitors.blogspot.com>. It's the place to find information updates and quick links to important websites related to the program.

Instructional video: We've produced a video to help newcomers get started — *"Getting Your Pop'Comm Monitoring Station ID Sign."* It will show viewers:

- *How to access* the *Pop'Comm* Monitoring Station ID Sign Database for assistance in selecting your station ID.
- *How to know when* you're an officially-registered PC Monitoring Station.
- *How to fill out* your official *Pop'Comm Monitoring Station* Certificate of Registration — suitable for printing, framing and hanging on the wall at your listening post.

Those Station ID Signs: Let's Get Started

As you will see, every station ID, no matter where its listening post is located on the planet, has the letters PC — for *Popular Communications* — at its heart. **NOTE**: *Your station ID prefix must reflect the country in which your listening post is located.*



Pop'Comm's WPC-KPC monitoring station identification signs for listening posts in the contiguous United States will follow the amateur radio callsign districts established by the Federal Communications Commission. *(Courtesy of Chris Ruvolo via WikiMedia Commons)*

Short Wave Monitor

CERTIFICATE OF REGISTRATION

This certificate has been issued upon recognition that

JAMES PERRY

has shown active interest in radio communications, that he possesses the necessary equipment and has demonstrated the ability to monitor international radio transmissions. His registered monitoring station, located at

GREENFIELD, MASS.

is hereby assigned the station identification sign

WPE1EQ

Date of Issue MARCH 1, 1959

Certified by: Oliver Read W1ETI
Editor, Popular Electronics

Tom Kneitel W2AB
Director of Monitor Station Registration

Still showing the creases from being folded in an envelope for years, here is the WPE Short Wave Monitor Certificate of Registration issued to Jim Perry by *Popular Electronics* on March 1, 1959. *Pop'Comm's* Monitoring Station Certificate of Registration is modeled after this WPE certificate in honor of the program's Director of Monitor Station Registration, the late Tom Kneitel, WPE2AB. *(Courtesy of KJ3P)*

OK. Let's start with the United States — the contiguous kind — and broaden things from there.

Prefixes: WPC or KPC in the Contiguous U.S.

Monitoring stations in the *lower 48* United States have two prefixes from which to choose: WPC, generally designated for stations east of the Mississippi River, and KPC, generally for stations west.

Of course, given the vanity status of the *Pop'Comm* program, stations may choose either a WPC or KPC prefix — regardless of their location in the U.S. It's just an option if you wish to exercise it.

The numerical portion of the WPC-KPC station identification sign follows the call district convention established by the FCC for radio amateurs in the contiguous United States.

The accompanying map shows which number (Ø to 9) corresponds with the states covered in each district. Again, given the vanity status of our program, any single-digit number can be requested, without regard to your location.

Non-Contiguous U.S. States and Possessions

What about monitoring stations that do not fall inside *the lower 48?*

In these cases, the amateur radio prefix of the state or U.S. possession in which the monitor is located is used.

For example:

- KHPC7ABC—Hawaii has two callsign designations 6 and 7. This monitoring station corresponds with radio amateurs' KH7.
- KH2PCDEF—This listener, on the other hand, is on Guam. It's a U.S. island possession for which the KH2 prefix has been issued exclusively.

In Puerto Rico, however, where there are two numerical callsign designations within the island country, the monitoring station ID could be:

- KPPC3XYZ would be represent Puerto Rico's 3 callsigns, and . . .
- KPPC4QSO would represent PR's fourth. *Get it?*

DX Monitoring Station Prefixes: Alphabet Soup

Casting our monitoring station net more broadly into the DX world, we find the same kinds of variables. Take Canada, for example:

VEPC6ABC—This monitoring station is in the Canadian province of Alberta — the sixth of the country's eight call districts.

VO2PCDEF—VO2 is issued only to stations in Labrador, Canada, so the prefix is used in full in the prefix for the PC monitoring station ID.

MONITOR & DX HEADQUARTERS

All-Band Radio Monitor

Certificate of Registration

This certificate has been issued upon satisfactory evidence that

Richard S. Moseson

has shown active interest in radio communications, that he has in his possession the necessary equipment with which to pursue the hobby; that he is cognizant of the unwritten code of ethics of the Short-Wave Listener in that he will share his listening abilities and findings with others; that he has demonstrated the skill and dexterity that is required to monitor local, national, and international radio transmissions. He is also aware that this certificate is not valid for transmitting purposes of any kind.

Date of Issue: Oct. 1970

His registered monitoring station, located at

Spring Valley, New York

is hereby assigned the station identification sign . . .

Amelia J. Greenwald, WDX2BA
Director, Monitor Registration

WDX2RIY

Hank Bennett, WDX2FT
Director, Monitor & DX Headquarters

The WDX All-Band Radio Monitor Certificate of Registration brought a whole new look to the listening community. WDX2RIY was issued to Rich Moseson in October 1970 — a complement to his WPE2RIY station ID issued by *Pop'Tronics* in August of that year. *(Courtesy of WPC2RIY)*

A couple of other examples:

VKPC7RST—A listener in Australia's seventh call district.

VR2PCABC—This monitoring station is in Hong Kong, for which the VR2 prefix is exclusive.

If your mind is boggled, *worry not*. Given the variety of DX prefixes that span the globe, there are bound to be questions. We will work with all applicants to assure every listening post in every DX entity can be part of this program. Just drop an email with your question to: <PopCommMonitor@gmail.com>.

What is a Suffix?

Remember, the letter combination PC is the heart of each station ID sign. The suffix follows either a digit or the letters PC.

- In the case of WPC2COD on Long Island, the letters COD constitute the suffix.
- With VEPC6ABC in Alberta, Canada, the letters ABC are the suffix.
- For VR2PCXYZ in Hong Kong, the letters following PC — XYZ — make up the suffix.

Now, let's move on to selecting your *Pop'Comm Monitoring Station* identification sign.

Suffixes: Those Not Available for Open Selection

First a note of which suffixes *not* available: ***All with just one-letter***.

They are reserved for:

- **Highly-distinguished** members of the monitoring community — those alive and deceased. For example: CQ Communications Publisher **Dick Ross,** who founded *Popular Communications* magazine, holds **WPC2A**. The late **Tom Kneitel**, founding editor of *Pop'Comm* and the person responsible for the popularization of *Popular Electronics'* WPE *Short-Wave Monitor* program, has been posthumously awarded **WPC4A**.

- **Temporary special event** monitoring or contest stations: Say, for example, you embark on a listening DXpedition into the Arctic Circle, taking advantage of an opportunity like that presented in the November 2011 *Pop'Comm* feature *"Listening to a Dream: DXpedition to the Top of the World"* by Bruce A. Conti. Venture to the Artic in outer reaches of Finland and we'd be happy to issue you **OHPC2A** temporarily. If you or a team of listeners is participating in a *Pop'Comm* listening competition, one-letter suffixes will be issued for the contest period: **KPCØB**, for example.

Suffixes: Your Smorgasbord of Choices

Even with single-letter suffixes off the table, you'll not be for wont of great station ID sign choices. All two-letter and three-letter suffixes are fair game.

Here are some examples:

- Rich Moseson, Editor of *CQ Amateur Radio* (*CQ* magazine), for example, has chosen **WPC2RIY**, to complement his WPE2RIY and WDX2RIY monitoring station ID sign from programs he took part in as a kid.
- *Pop'Comm* Editorial Assistant Jason Feldman, an avid Long Island fisherman in the second amateur radio call district, has chosen **WPC2COD**.
- As editor of *Popular Communications*, I was compelled to select **KPC6PC**: First, KPC to indicate I'm west of the Mississippi river, 6 to indicate I'm in California and PC, a two-letter suffix to proudly fly our print and digital magazine's colors in abbreviated form.

The same two- and three-letter suffix guidelines apply for station ID signs issued to monitors outside the contiguous United States and DX stations.

How to Apply for Your PC Monitoring Station ID Sign

Pop'Comm Monitoring Station ID signs will be issued on a first-come basis, determined by the date and time on your application email or the postmark of the request you send via the U.S. Postal Service. You may choose a "vanity" station ID or simply say "No Preference," and we'll pick a station ID sign for you. **Any time after 12:00:01 a.m., January 1, 2012**:

- **Go to the blog**: <http://www.PopCommMonitors.blogspot.com>.
- **Watch the video**: "Getting Your *Pop'Comm Monitoring Station* ID Sign."
- **Read the written** instructions posted on the blog for each step in the application process.
- **Follow the instructions** for accessing and searching the *Pop'Comm Monitoring Station* database. Search for the availability of your station ID sign preferences following the instructions on the blog.
- **After determining** your top three station ID sign choices that are available, look at the sample email of application posted on the blog and follow the instructions. Create your application email and send it to: <PopCommMonitor@gmail.com>.
- **Return to the database** to see which station ID has been assigned you. We will process applications as quickly as possible. Please be patient.

This grainy black and white photo is of the late Tom Kneitel, WPE2AB, founding editor of *Pop'Comm and* the man who almost single-handedly built the monitoring station community dating to his time at *Popular Electronics* in the late 1950s. *(We will have much more on WPE2AB in an upcoming Monitoring Stations column. – Ed.) (Courtesy of Judy Kneitel)*

- **Only after your station** ID sign, name, location and date of issuance appear in the database, will you be officially certified as a *Pop'Comm Monitoring Station*. Only then may you download and fill in your colorful Certificate of Registration.
- **If you do not have access to the Internet**, send a self-addressed, stamped business-size envelope with your full name, mailing address, your top three station ID sign choices and a daytime phone number to: Popular Communications, Monitoring Station Program, 25 Newbridge Rd., Hicksville, NY 11801-2953 USA.

Until the next Monitoring Stations column, good listening and may your noise level be low and your spirits high! – KPC6PC

'He Was *Mr. FM*, From Head to Toe'

'FM Atlas' Author Dr. Bruce Elving, 1935-2011

By Richard Fisher, KI6SN

Dr. Bruce Elving, whose 21 editions of the *FM Atlas: A guide for travelers, hi-fi listeners, media people and hobbyists* for 40 years has been considered the FM DXer's bible, died of a heart attack July 24, 2011 in Loma Linda, California. He was 76.

His painstaking compilation has been published since 1971 — about every 18 months — giving readers detailed listings of about 10,000 FM radio stations and translators across the United States, Canada and Mexico.

"Bruce Elving was *Mr. FM* from head to toe," Gerry Dexter, *Pop'Comm Global Information Guide* and *World Band Tuning Tips* columnist said. "As early as the mid-'50s he already had some 400-500 FM stations logged from his home in Duluth, Minnesota. Eventually he published the first of many editions of his *FM Atlas*, and got into selling FM receivers and other supplies for FM broadcasters and for DXers. He was also an editor for some of the hobby club bulletins. His loss leaves an open FM channel we'll never see occupied again."

The 21st edition of the *FM Atlas* was published last year — presumably its last.

In addition to the *FM Atlas*, from 1987 to 2007, Dr. Elving published *FMedia* — a monthly newsletter informing readers of Federal Communications Commission and Canadian Radio-television and Telecommunications Commission actions affecting FM. His daughter, Kristine Stuart, took over as editor in 2008 and continued its production until 2010. It is now published as an Internet blog: <http://fmedianews.blogspot.com/>.

Dr. Elving held a bachelor's degree from the University of Minnesota-Duluth, a master's from Iowa State University and a Ph.D. from Syracuse University. He taught at the university level, as well.

"His interest in FM radio began while the technology was still in its infancy and AM was more popular," a Wikipedia posting dedicated to Dr. Elving said.

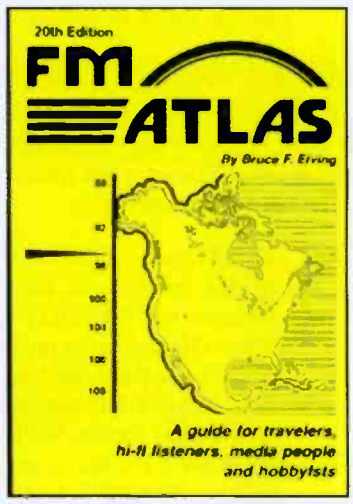
In 2007, Dr. Elving was honored with two fellow co-founders of KUMD-FM during the station's 40th anniversary celebration at the University of Minnesota-Duluth.

*(**SEE**: Photographs of Dr. Elving at the KUMD Anniversary dinner: <http://www.kumd.org/dinner> and **LISTEN**: To live streaming audio from KUMD, 103.9 FM: <http://www.kumd.org/>. – Ed.)*

He was twice named *DXer of the Year* by the Association of North American Radio Clubs — in 1973 and 1986.

Dr. Elving "advocated expanding the FM broadcast band below its current 88-MHz limit following the transition from analog to digital television," Wikipedia noted, "freeing up the frequencies used for television Channels 2-6, and even reinstating the original 40- to 50-MHz FM band for hobbyists and community broadcasting."

John Ebling, who considered Dr. Elving one of his closest friends, recalled, "back in the early days of the *FM Atlas* — around 1971 or so — I had keypunch operators (where I worked) punch in a mess of cards for Bruce to use for his (*Atlas*). I really don't recall how many cards were punched, or how I got the girls to do it on company time," but Ebling now wishes he'd kept some of those cards as a memento.



A commercial description of Dr. Bruce Elving's *FM Atlas*, describes it as *unique*. "Maps are included for each state (and Canadian province) showing call and location. You can also learn call letters, city of license, format, coverage, stereo capability, SCA, and even translator information. It also contains station listings by location and frequency." *(Internet screen grab)*

"Bruce was a person who tended to be frugal and we co-subscribed to several magazines," Ebling said. "We would meet in Cloquet (Minnesota) on the way home from our cabin to exchange the magazines and converse. We also hosted a WTFDA Convention many years ago at his home in Esko." *(**VISIT**: The Worldwide TV-FM DX Association, WTFDA, website: <http://bit.ly/rPTzAg>. – Ed.)*

In a blog posting, David "Doc" Searls, senior editor of *The Linux Journal*, said for Dr. Elving, "FM was a cause, forever the underdog, even after it became an overdog with his help." *(**READ**: Doc Searls' blog post tribute to Dr. Elving: <http://hvrd.me/vCnU9r>. **VISIT:** The Linux Journal homepage: <http://www.linuxjournal.com/> – Ed.)*

"Online tributes to him in the radio community reflect his impact on the DXing hobby and on the FM industry," Dr. Elving's Wikipedia posting said, "describing him as a 'professor of FM radio.'"

(Editor's Note — The WTFDA website noted the following: "With the 'FM Atlas' no longer published, FM DXers and listeners will need an updated, current database of North American FM station information. The FCC database at <http://www.FMList.org> is a logical choice. The FMList database is a fully searchable, fully customizable database of commercial, translator and LPFM stations in the U.S. and Canada. The entire database or part of it can be downloaded to your computer and/or printed." Visit the WTFDA website at: <http://bit.ly/rPTzAg>.)

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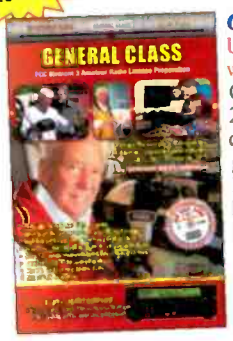

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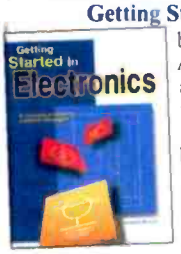
Getting Started in Electronics



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CQ

How to Get Started in AM Broadcast DXing

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

"Turn on the radio, any radio. You don't need sophisticated equipment to get started."

Maybe you first discovered DX (long distance) signals while listening to Top 40 music on AM radio during your childhood, but somehow the responsibilities of raising a family and building a career sidelined the radio hobby in adulthood. Now you're retired and the curious child in you is thinking about re-entering the hobby.

Or perhaps while on an overnight road trip it was difficult to find an FM signal reliable for more than a few miles, so you tried AM and locked on to an interesting talk program. At the top of the hour, you were surprised to hear station identification of a signal from hundreds of miles away!

Or possibly this month's launch of the *Popular Communications* Monitoring Station Program has provided the spark to give it a try for the very first time. Whatever the reason, the winter season is as good a time as any for AM broadcast DXing.

First, Become Familiar with the Territory

Turn on the radio, any radio. You don't need sophisticated equipment to get started. Whether it's a little transistor radio, shortwave portable, home stereo system, an amateur radio station, an antique tube radio, or even the car radio while stuck in commuter traffic, anyone can get in on the fun.

To get started in AM broadcast DXing, just about any AM radio will do. This Zenith Royal 790 Super Navigator direction-finding radio — manufactured in the 1960s — is a perfect example. ***(WATCH and LISTEN**: To a demonstration of the Zenith Royal 790 <http://bit.ly/nBZUzZ>. – Ed.)*

Tune around to become familiar with the AM broadcast band. Listen day and night to get a feel for local versus distant signals. If reception is noisy, try re-orienting the receiver as most use a directional internal antenna, or move to another location where noise is less prevalent.

You'll probably notice typically strong signals on some frequencies while other frequencies are a jumble of stations. That's because specific frequencies are designated for either local, regional or long distance coverage.

AM radio stations on the local frequencies of 1230, 1240, 1340, 1400, 1450, and 1490 kHz operate with a maximum power of 1-kW non-directional (omnidirectional, to be more precise). With 200 or more stations assigned to each frequency in the U.S. alone, DXers refer to these local frequencies as the "graveyard" channels.

At the opposite end of the spectrum are the clear channels of 540, 640 to 780, 800 to 840, 860 to 900, 940, 1000 to 1140, 1160 to 1220, and 1500 to 1580 kHz. In the old days, only a couple of stations were allowed to operate full time with 50 kW on each frequency — providing coast-to-coast nighttime coverage for stations like 640 KFI Los Angeles and 870 WWL New Orleans. Today only 750-mile coverage is protected for the 50-kW clear channel stations, allowing a number of formerly daytime-only stations to remain on overnight with reduced power.

The 1610 to 1700 kHz segment, known as the "x-band," is the AM expanded band which was added to the broadcast band in 1992 in an attempt to relieve some of the more congested regional frequencies and give some daytime-limited stations the opportunity to relocate to a full-time frequency.

Additionally the FCC required all x-band stations to broadcast in AM stereo hoping to promote the technology. Although receivers like the Sony AM Stereo Walkman are no longer manufactured, most HD digital receivers are capable of decoding analog AM stereo. All stations on the x-band were originally to operate with 10-kW days, 1-kW nights, non-directional (omnidirec-

tional), although the FCC has since allowed a few exceptions. Only a few stations are assigned to each frequency.

The remaining frequencies are considered regional channels. Most full-time regional stations operate overnight at 5 kW, although the FCC has been allowing for higher power using highly directional antennas.

One more note: Remember that 10-kHz spacing between channels applies primarily to the Western Hemisphere. The rest of the world, for the most part, separates AM broadcast band channels by 9 kHz beginning at 531 kHz. This provides the opportunity for DXers in the Americas to catch trans-Atlantic or trans-Pacific signals between our stations with a highly selective receiver. A seaside location and unidirectional beam antenna also helps, although sometimes transoceanic signals will reach well inland, such as 585 Spain, 747 Japan, and 1521 Saudi Arabia.

DXers Do It in the Dark

No matter what the frequency, reception isn't always predictable. While most of us at least recognize the potential for long-distance AM reception at night, listening during sunrise and sunset when the atmosphere is in transition often produces the most interesting and surprising results.

Simply speaking, the atmosphere is actually the mechanism by which signals are carried over long distances on the AM broadcast band. During the day, energy from the sun charges the ionospheric layers of the atmosphere which absorb AM radio signals, preventing "skip," or skywave propagation. As the sun sets, the ionosphere starts to discharge and begins to reflect medium wavelength signals of the AM broadcast band from high in the sky back to ground level, much in the same way that shortwave and CB radio skips over long distances.

I'll leave the details about this phenomenon to *Propagation Corner* columnist Tomas Hood, NW7US, who often covers the topic of AM radio reception conditions. In the meantime, just remember that AM broadcast DXers do it in the dark!

AM Broadcast DX References

One of the more frustrating aspects of AM broadcast DXing is hearing positive station identification. With so many AM stations carrying nationally syndicated news/talk in lieu of local programming, especially overnight, station identifications can be few and far between, in some cases only at the top of the hour as required.

Others may only ID with generic slogans such as "Talk 1300" or "ESPN 1250" during commercial breaks. Then there's the infamous corollary of Murphy's Law that states a signal will fade on the hour, obscuring any chance of copying a full ID. *(For more on Murphy's Law, visit: <http://www.murphys-laws.com/>. – Ed.)*

Although not much can be done to prevent a perfectly-timed fade out, fortunately there are a number of excellent references available in print and online to help with station identification.

- **The National Radio Club (NRC)** "AM Radio Log," an invaluable reference, is a listing by frequency of all AM broadcast stations in the U.S. and Canada that includes formats and slogans to help with station identification. While listening to a specific frequency, take a look at the AM Radio Log to get an idea what might be received. The Log is available from the NRC at <http://www.nrcdxas.org> or from our friends at Universal Radio: <http://www.universal-radio.com>.

- **V-Soft Communications** offers an online AM/FM field strength calculator at: <http://www.v-soft.com/ZipSignal/default.htm>. The program will create a list of signals serving any given ZIP code, sorted by signal strength from strongest to weakest. Many AM radio stations operate with different power and antenna pattern between day and night, in which case V-Soft will list day and night field strengths separately. Just enter your postal ZIP code and within seconds you'll have a target list of stations to begin the hunt for signals. Entering my ZIP code resulted in a listing of 46 different signal strengths from 30 AM stations varying in field strength between 19.70 and 0.33 mV/m.


MONITOR & DX HEADQUARTERS

All-Band Radio Monitor

Certificate of Registration

This certificate has been issued upon satisfactory evidence that

[redacted]

has shown active interest in radio communications; that he has in his possession the necessary equipment with which to pursue the hobby; that he is cognizant of the unwritten code of ethics of the Short-Wave Listener in that he will share his listening abilities and findings with others; that he has demonstrated the skill and dexterity that is required to monitor local, national, and international radio transmissions. He is also aware that this certificate is not valid for transmitting purposes of any kind.

His registered monitoring station, located at

[redacted]

is hereby assigned the station identification sign . . .

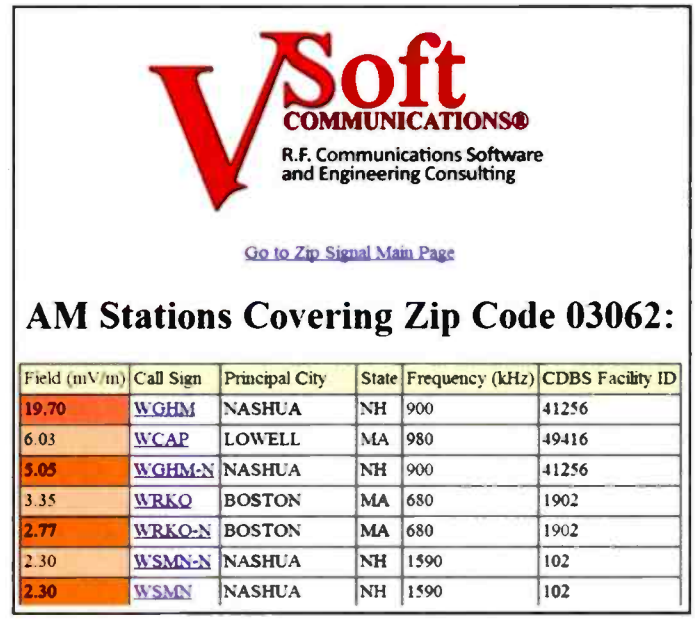
Date of Issue: MAY 1976

WDX1IEP

Amelia J. Greenwald, WDX2BA
Director, Station Registration

Hank Bennett, WDX2FT
Director, Monitor & DX Headquarters

Bruce A. Conti registered as an *All-Band Radio Monitor* with *Monitor and DX Headquarters* in May 1976, and has the certificate to prove it. His listening station was in Warwick, Rhode Island. *(Photographs courtesy of Bruce A. Conti).*


V-Soft COMMUNICATIONS®

R.F. Communications Software and Engineering Consulting

Go to Zip Signal Main Page

AM Stations Covering Zip Code 03062:

Field (mV/m)	Call Sign	Principal City	State	Frequency (kHz)	CDBS Facility ID
19.70	WGHM	NASHUA	NH	900	41256
6.03	WCAP	LOWELL	MA	980	49416
5.05	WGHM-N	NASHUA	NH	900	41256
3.35	WRKO	BOSTON	MA	680	1902
2.77	WRKO-N	BOSTON	MA	680	1902
2.30	WSMN-N	NASHUA	NH	1590	102
2.30	WSMN	NASHUA	NH	1590	102

V-Soft Communications offers an online AM/FM field strength calculator at: <http://www.v-soft.com/ZipSignal/default.htm>. The program will create a list of signals serving any given ZIP code, sorted by signal strength from strongest to weakest. *(Internet site screen grab)*

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-IQ 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-lapse "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, AR8200Mark 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, u tra-stable TCXO and up to four optional cards that can enhance certain functions, the AR8600Mark II covers 100kHz to 3GHz* with 1000 alphanumeric memories and free downloadable control software. Receives WFM, NFM, Super-narrow FM, Wide and Narrow AM, USB, LSB 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 addit on 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 carc, 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 d splays transmitted signals. PC control through RS232C serial port or LSB interface. With 12 VDC input, it's perfect for base, mobile or field use.

Whatever the monitoring need, AOR products deliver exceptional performance for use by federal, state and local law enforcement agencies, the military, emergency managers, diplomatic service, news-gathering operations, and home monitoring enthusiasts.

- **The IRCA Mexican Log**, published by the International Radio Club of America <http://www.ircaonline.org>, is a must-have if you hear signals from south of the border. Like the NRC Log, in addition to listing stations by frequency the Mexican Log provides valuable information including formats and slogans to help with station identification.
- If Cuba is blanketing the radio dial where you live, then you'll need the **Medium Wave Reallocation Plan 2009** compiled by Mauricio Molano. This list represents the most current AM radio station information available from Cuba. Go to: <http://bit.ly/q9kd8N>.
- For identification of signals beyond Canada, Cuba, Mexico and the U.S., the **World Radio TV Handbook (WRTH)** is the best overall resource for AM broadcast information worldwide. The WRTH is available from many booksellers and radio hobbyist retailers, including the *CQ* Online Store: <http://www.cqcomm.com/>.

Outstanding supplemental online resources for trans-Pacific and trans-Atlantic AM broadcast DXing include:

- **The Pacific-Asian Log** from the Radio Heritage Foundation: <http://www.radioheritage.net>.
- **The European Medium Wave Guide**, <http://www.emwg.info> from the Medium Wave Circle.

Join the Club

When you're ready to go to the next level, consider joining a broadcast DX club for camaraderie and to further enhance the DX experience. Two major clubs serve AM broadcast DXers in North America; the National Radio Club <http://www.nrcdxas.org>, and the International Radio Club of America <http://www.ircaonline.org>. Each publishes newsletters featuring log reports, station changes, technical papers, and articles of specific interest to AM broadcast DXers, and provide various member forums for sharing timely information over the internet. Each club organizes its own annual convention, giving DXers the opportunity to meet fellow hobbyists, share experiences, and discuss the latest happenings.

The Medium Wave Circle <http://www.mwcircle.org> is the premier European AM broadcast DX club for those interested in trans-Atlantic AM broadcast DXing. Of particular interest are the loggings of signals from Canada and the U.S. by our counterparts in Europe. However the monthly club bulletin also features the latest European radio station changes plus feature articles of interest.

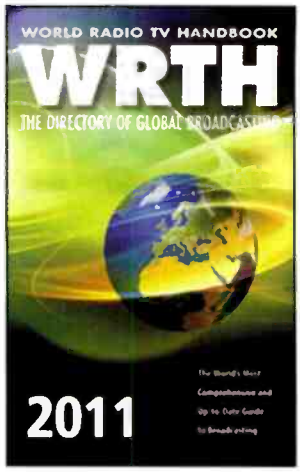
How I Got Started

As suggested earlier, many of us discovered DXing when Top 40 music dominated the AM dial. In his autobiography *"How I Got Started in Radio and Electronics,"* Mark Connelly, WA1ION, writes:

"In 1959, I received a 10th birthday gift of a 5-tube, AM table radio. Initially I just used it to listen to the Red Sox games (with Curt Gowdy announcing) on 850 WHDH and to the classical music my parents liked on 1330 WCRB.

"It didn't take too long to discover rock 'n' roll on 1150 WCOP, 1430 WHIL, and 1510 WMEX. There were also middle of the road pop stations WBZ and WHDH . . . By early 1960, I was noting other sources of rock 'n' roll: the 'stations between the stations,' the nighttime skip signals. Many were from New York City (WMCA, WABC, WINS and WMGM come to mind); others included 1540 WPTR, Albany; 1520, WKBW Buffalo; and 890, WLS Chicago. I was intrigued not only by the distances involved (and the 'weird' fading) but also by mixes of music that sometimes differed considerably from what the Boston locals were playing."

"The World Radio TV Handbook (WRTH) is the best overall resource for AM broadcast information worldwide," according to Bruce A. Conti. It is available from many booksellers and radio hobbyist retailers, including the *CQ* Online Store: <http://www.cqcomm.com/>.



Read the full story on Mark's website <http://www.qsl.net/wa1ion> where you'll also find a number of interesting AM radio antenna construction articles.

I followed a similar path, beginning with a crystal radio kit and a 50-foot wire antenna that would only receive Wolfman Jack <http://bit.ly/oCi6t7> on XERB <http://www.xerbradio.com/>.

Then I graduated to a Heathkit portable and learned that there was more to hear than the local AM stations for the latest music: 550, WGNG; 630, WPRO; 660, WNBC; and 1520, WKBW were all still playing the Top 40 songs during the '70s when I got started.

While I managed to stay tuned into radio as a hobby over the decades — and it too led to a "high-paying job in electronics" (HPJIE) as *The Loose Connection* columnist Bill Price, N3AVY, would say — I never expected that it would lead to a columnist position here at *Popular Communications.*

"In my late 40s to current 50s, I am rediscovering AM radio," writes Norman W. Hill of Arlington, Virginia. "My favorite stations are mostly Cuban and Canadian: AM 740, CFZM; and 860, CJBC, from Canada; and Radio Progreso and Radio Enciclopedia, Cuba.

"I have owned various small AM/FM and shortwave radios since the 1960s (especially Sony, Panasonic, Sangean, GE and Grundig).

"Today I use three Sangean radios: DT-110, DT-400W, and SR-35. My interest in radio has extended to a broadcasting and journalism career and public safety work." *(For information on Sangean's line of radios, visit: <http://bit.ly/ousjre>. – Ed.)*

Broadcast Loggings

This month's selected logs are a good example of what can be heard on the AM broadcast band with a variety of receiving equipment, including signals heard by Norman Hill on his Sangean radios. Rick Barton in Mirage, Arizona, logged signals on a classic Hammarlund HQ-200 receiver with an outdoor slinky antenna. The slinky concept allows for a long wire to be compressed into a shorter length, hopefully providing more gain than a straight wire in the same space. Mark Connelly, WA1ION; and Chris Black, N1CP, both from Cape Cod, Massachusetts, report signals captured using the latest software defined radio

(SDR) technology and terminated broadband loop antennas. I'm also DXing on an SDR in New Hampshire. All times are UTC.

530 Radio Enciclopedia, Cuba, at 0059 typical easy listening music, theme and woman. "Transmite CMBQ Radio Enciclopedia desde la Habana, Cuba." Good. (Black-MA) At 0930 Beatles instrumental songs, rooster crowing at 1000 into more easy listening music. (Hill-VA)

560 Radio Rebelde, Ciego Avila, Cuba, at 0213 parallel 670 et al. with Radio Rebelde ID, sporting event coverage, 9-note Rebelde sounder; under WGAN Maine. (Connelly-MA)

600 KOGO San Diego, California, at 0500 local spots including "Valley View Casino." (Barton-AZ)

600 Radio Rebelde, San Germán, Cuba, at 0400 parallel 610, 670 and 710 kHz with national anthem into "Mamma Mia" by Abba . . . from revolution to rock 'n' roll. (Hill-VA). At 2359 parallel 610 and 620 kHz, organ fanfare and man with "Rebelde la Habana, emisora de la revolución" and additional organ theme; very good. (Black-MA)

610 CKTB St. Catherines, Ontario, at 2245 entertainment news chatter and a promo for Ronald Mc Donald house. News at 6:00 p.m. local time. Mention of a local hockey game in Hamilton, Ontario. (Hill-VA)

630 KHOW Denver, Colorado, at 0505 "K-How Talk Radio 630" to Coast to Coast program. (Barton-AZ)

657 RNE5 Madrid, Spain, at 2259 pips and theme music, "Radio Nacional de España, informativos." Poor. (Black-MA)

700 ZYK686 Radio Eldorado AM, São Paulo, Brazil, at 0217 muffled Portuguese talk by man; fair with 710 WOR HD digital interference nulled. (Connelly-MA)

730 HJCU Melodia Radio Líder, Bogotá, Colombia, at 2358 fanfare then man with "en la cadena melodia de Colombia" and "Radio Melodia." Fair. (Black-MA)

760 KFMB San Diego, California, at 0550 break from "Savage Nation" to ID, "Hey, we're talkin' to YOU! AM 750, KFMB." (Barton-AZ)

800 PJB TransWorld Radio, Bonaire, Netherlands Antilles, at 0230 Radio Transmundial ID. Spanish talk with U.S. phone number for ministry program; dominant. (Connelly-MA)

819 Radio Euskadi, San Sebastián, Spain, at 2259 pips, woman with "Radio Euskadi y Radio Vitoria" IDs, then woman in Spanish; fair. (Black-MA)

820 TBN Radio Paradise, Charlestown, St. Kitts & Nevis, at 2300 ID, "This is the Trinity Broadcasting Network, reaching the whole world for 38 years," over 819 kHz het. (Connelly-MA)

880 KRVN Lexington, Nebraska, at 1135 mixing with two unidentified signals, heard weather for Nebraska panhandle. (Barton-AZ)

890 Radio Progreso, Chambas, Cuba, at 0239 booming ID, "Radio Progreso, Cadena Nacional, Onda de la Alegria," popped up over WAMG Massachusetts. (Connelly-MA)

900 ZY1533 Rádio CBN, Belém, Brazil, at 2257 sports talk in Portuguese about Brazilian futebol "Carioca" championship

This Month in Radio History

75 Years Ago (1937): The daytime soap opera Guiding Light, cited in the Guinness Book of World Records as the longest-running television drama, began as a radio drama on the NBC network. ***(LISTEN**: To a radio broadcast of "The Guiding Light" from June 10, 1941: <http://bit.ly/qArsuC>. – Ed.)* Spain's public radio network Radio Nacional de España signed on its first transmitter, and continues to operate today with a nationwide network of synchronized transmitters <http://www.rtve.es/radio/>.

50 Years Ago (1962): RTE One television in Ireland broadcast its first weather forecast. The Voice of the People local talk radio program began what would be a 20-year run on WDEL Wilmington, Delaware. "I'm Blue" by the Ikettes reached number one on the 1230 WCOL Columbus, Ohio, "Music Meter" survey. ***(LISTEN**: To the 45-rpm version of The Ikettes' "I'm Blue:" <http://bit.ly/nNd1mY>. – Ed)*

25 Years Ago (1987): "Radio Days" premiered in movie theaters, a film about the golden age of radio written and directed by Woody Allen. ***(WATCH**: The movie trailer for "Radio Days:" <http://bit.ly/raEaUj>. – Ed.)*

– Bruce A. Conti

with mentions of leading main teams Botafogo, Fluminense, Vasco de Gama, Corinthias, São Paulo, Flamenco . . . Faded on the hour. Good. Thanks to Alessandro via RealDX for translation. Although not normal fare for this station, fellow DXer Sylvain Naud reported soccer on this frequency recently, originating from CBN Recife per Rocco Cotroneo. Although not listed in WRTH, this station is shown in listings from Radio Club of Brazil and Internet. (Black-MA)

940 WIPR San Juan, Puerto Rico, at 2359 ID, "Esta es WIPR AM . . . en San Juan, Puerto Rico" and jingle ID; good. (Black-MA)

980 KMIN Grants, New Mexico, at 1335 heard "K-Mine Country Weather." (Barton-AZ)

1140 KNWQ Palm Springs, California, at 0450 suddenly rising up over the pop "Kid's Radio" KYDZ Las Vegas, heard with morning trivia, break to local spot. (Barton-AZ)

1160 VSB3 Hamilton, Bermuda, at 2300 talk about a book review, BBC ID, pips, world news; good/dominant. (Connelly-MA)

1160 XEQIN San Quentin, Mexico, at 1345 strong with "trios norteño" and just burying KSL Salt Lake City heard weakly underneath. (Barton-AZ)

1170 Radio Capodistria, Beli Kriz, Slovenia, at 2300 fair; ethnic music into time marker, woman with ID in Italian. 2316 jazz vocal now in a mix with two other stations. (Conti-NH)

1179 România Actualitati, Romania, at 2232 good; pop music parallel streaming audio. (Conti-NH)

1188 IRIB Radio Payam, Tehran, Iran, at 2325 good, but subject to deep fades; vocal accompanied by setar parallel <www.radio-payam.ir/live.php> streaming audio. (Conti-NH)

1230 WMML Glens Falls, New York, at 2400 fair; "Dan Patrick is back in the building from 9 to noon weekdays on Fox Sports Radio 1230 WMML," ex-ESPN. (Conti-NH)

1230 WHUC Hudson, New York, at 2300 fair; jingle and ID, " . . . great songs and great memories, 1230 WHUC." (Conti-NH)

1296 SNBC Reiba, Sudan, at 0100 good; Koranic vocals through the hour. 0109 now loud with talk in Arabic, 0125 distinctive Koranic vocals with drumming. SNBC 91.0 FM streaming audio via tunein.com parallel but delayed by a couple minutes. (Conti-NH)

1350 KTDD San Bernardino, California, at 1235 "AM 1350, The Toad" and country music until wiped out by splash from local 1360 KPXQ Glendale, Arizona. (Barton-AZ)

1440 KFNY Riverside, California, at 0640 good and alone on the channel with stand-up comedy. (Barton-AZ)

1449 Voice of Great Homeland, Misurata, Libya, at 2230 reverberated male Arabic Koranic vocal; loud, creaming 1450 WNBP Massachusetts. (Connelly-MA)

1521 SER Radio Castellón, Castellón, Spain, at 2231 fast Spanish talk parallel 1485 kHz; about even with Saudi Arabia. (Connelly-MA)

1540 CHIN Toronto, Ontario, at 0104 weather and ID (boasting 39 languages), possibly into CRI program on BRICS summit in China. (Hill-VA)

To further investigate this fascinating segment of the radio hobby, please visit my ¡BAMLog! website at <http://www.bamlog.com> for links, logs, antennas and more items of interest to the AM broadcast DXer. Then turn on the radio and let us know what you're hearing. *73 and Good DX!*

This Month's Feedback from *Pop'Comm* Readers

More On Solving DTV Reception Problems

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, KI6SN

Eureka! Indoor DTV Antenna Supplements His Outdoor Beam

Editor, *Pop'Comm*,

First of all, great work with *Popular Communications*. I love the magazine — and have for many years — especially (Shannon's Broadcast Classics). A great read, and I look forward to my issue every month.

Regarding the DTV antenna article by Richard Fisher, KI6SN (*"Seeing is Believing: A Simple DTV Antenna You Can Build," August 2011 Pop'Comm, page 20 – Ed.):* What a great and easy project to try.

I built one in about a half-hour using materials I had in my garage — following the article's instructions. I already have an outdoor antenna that works well for most of the sets in my house, and I have quite a few. I do a lot of TV DX also and have logged many stations from several states via tropospheric ducting. I think the best so far being some stations in Kansas City, Missouri and Omaha, Nebraska.

I have one TV set in my house, however, that has a long run of coax to it. It's not easy to replace the cable but there is one local station that has drop-outs even with my outdoor antenna because of the cable loss. So I thought the *Pop'Comm* antenna might be a good solution for that TV for that particular station.

As if standing watch over two mighty sailing vessels in his living room, Larry Shaunce's homemade DTV antenna serves as a great supplement to his outdoor beam. Between the two, he gets great over-the-air reception in his Albert Lea, Minnesota home. *(Courtesy of WDOAKX)*

What I did was to continue to use the outdoor antenna for most of the stations that it receives fine but for the local station I had a problem with, I put a switch in-line and switch over to the *Pop'Comm* antenna that I have in the room. I pick up the one local station just fine now.

This works well and now I can get all the normal stations on that set without replacing the coax run to it. I was able to find a *sweet spot* for the indoor antenna that works well.

Since there are some stations about 100 miles away that I receive a lot of the time, I still must use the outdoor antenna with pre-amp for that, of course.

I did try to have both antennas in line at once but phasing problems made things worse. Thus, the antenna switch. I wonder if there is an electronic phasing device out there that would automatically put the signals from two cables in phase electronically — like in a little box, so the signals would add and not take away from each other? If not, there is an idea for someone!

Instead of using the coat hangers for the elements, I had on hand some copper-coated welding rods from my local farm supply store. I keep these on hand since they make great antenna elements for small Yagis or antenna projects and are very easy to bend, cut and work with.

I use RG-45 (3/32 inch) by KT Industries, model number 1-5132. They come in 36-inch lengths and there are probably a dozen rods or more in each tube for around six or seven bucks.

I have made several small UHF antennas and a VHF Yagi for one DTV channel using these, along with wooden dowels. Very easy. Just drill holes and insert elements! They are cheap antennas to build and have good performance. They are great for experimenting.

One thing I thought of trying is to add an element for a VHF channel since there is one in the area here also. I am thinking I might be able to just add a dipole element cut for that channel off the center screws where the balun is hooked up but not sure if that would mess up the UHF section or not. I might experiment. It could make for an article for a future edition of *Pop'Comm*.

Thanks for all the great articles and keep it up! You have a subscriber for life here.

– Larry Shaunce, WDØAKX
Albert Lea, Minnesota

(Larry: Congratulations on your DTV reception success. From the accompanying photograph, your indoor DTV antenna fits right in with your décor. Beautiful job. Please keep us posted on your experimentation, and happy viewing! Thanks, as well, for loving us for life! – Richard Fisher, KI6SN)

Pop'Comm January 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.

As I look ahead into 2012, my main communications focus will be . . . (Choose all that apply):

Upgrading my radio and/or computer gear 1
Establishing achievable monitoring goals and going for them 2
Expanding my communications technology horizons 3
Improving my antenna(s) 4
Becoming more involved in the monitoring community 5
Better appreciating the gear I have and using it more 6
The same as it has always been. Resolutions aren't for me 7

I plan to participate in the *Pop'Comm Monitoring Station* program:

With great enthusiasm 8
With mild interest — it's not going to consume me 9
With some interest that might grow after I get *into it.* 10
Only because I like new things, and a station ID sign would be cool 11
Not at all. It's a dumb idea 12

To which digital editions of CQ Communications magazines have you subscribed? Choose all that apply:

Popular Communications 13
CQ Amateur Radio (*CQ* magazine) 14
CQ VHF 15
WorldRadio Online 16

What do you think of the digital editions of all CQ Communications' magazines? Please tell us why you like or dislike them. (Use the comment line.)

Take This Reader Survey Online

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

And the Winner Is . . .

For participating in the *Pop'Comm Readership Survey*, the winner of a free subscription or extension is **Randall Adams, KC8JTG**, of **Massillon, Ohio**. *(Hooray, Randall! And thanks for letting us know you want more of Gordon West, WB6NOA, (see Quartzfest® on page 12) and a story on Leo Laporte, W6TWT, (see RF Bits on page 35). You're welcome! – Richard Fisher, KPC6PC/KI6SN)*

TV for TWITs and a YL Engineer's Online Techsploits

by Dan Srebnick, K2DLS
<k2dls.rfbits at gmail.com>

"What is TWIT? It stands for 'This Week in Technology' and is an online network of programming for techno twits."

Let's kick off the new year by looking at some online content to supplement your hobby interests.

Jeri Ellsworth is a name I see popping up a lot online. I first heard of her when a radio friend posted a link to one of her YouTube videos. I then found that she has her own video blog and has been a guest on Bob Heil's *Ham Nation* online program. She's not a ham but she is a self-taught engineer. And she loves radio, computers and experimentation. She has an online blog with electronics Q & A. So she's our kind of gal. And what is this *Ham Nation* thing, you ask?

Are Hams a Bunch of TWITs?

If you're reading *Pop'Comm*, you definitely know what a ham is. You likely know some hams or are one yourself. But what is **TWIT**? It stands for "**This Week In Technology**" and is an online network of programming for techno twits. The website of TWIT.TV <http://www.twit.tv> offers this primer:

The TWiT.tv Story

"It all started in 1998 with a small cable network called ZDTV, a channel dedicated to covering computers, the Internet, and personal technology. Many of the people behind this site worked on that network as hosts, reporters or producers.

"In 2004, ZDTV, then called TechTV, was sold and dismantled. Former TechTV hosts, Leo Laporte, Patrick Norton, Kevin Rose, and John C. Dvorak, and producers Robert Heron, David Prager, and Roger Chang went on to other jobs, but we stayed in touch, with each other, and with fans of the late TechTV. Those fans told us again and again how important TechTV had been in their lives, and how much they missed the channel. We missed working with each other, too.

"On a rainy evening in January, 2005 a few of us got together for dinner after spending the day covering Macworld Expo in San Francisco. Leo, who was working as a radio host, happened to have a microphone and recorder. He turned it on

Figure 1: Leo Laporte's *Ham Nation* on TWIT.tv is co-hosted by Gordon West, WB6NOA; and Bob Heil, K9EIL — well-known and respected names in the amateur radio world. *(Internet screen grab)*

and recorded 20 minutes of idle chatter about the Expo and the tech world in general. He posted that recording <http://bit.ly/tENlO2> on his web site. Within a few days tens of thousands of people had downloaded the recording. TechTV fans began clamoring for more. A few months later, TWIT was born."

Online TV for Technology Buffs

The TWIT.tv website is extensive, with online programs covering computing, networks, audio, radio, mobile devices, Google, Macs, security . . . if it's tech, it's probably on TWIT. What brought me to TWIT was the announcement last spring that Bob Heil, K9EID; Gordon West, WB6NOA; and Leo Laporte, now W6TWT, would be launching a weekly program called *Ham Nation*. Bob and Gordon are well known hams and Gordon is well known to *Pop'Comm* readers as one of our regular columnists. As part of the series, Bob and Gordon put Leo through ham radio school and viewers followed Leo as he obtained his Technician and then his General class licenses.

The program has evolved nicely, as has Leo's understanding of — and appreciation for — the ham radio hobby.

Figure 2: Leo Laporte, W6TWT, in the TWIT.tv studios during an episode of *Ham Nation. (Internet screen grab)*

Episode One kicked off the series with a special guest known to both music lovers and hams, Joe Walsh, WB6ACU, of The Eagles. *(**WATCH**: WB6ACU performing "In the City" live with The Eagles: <http://bit.ly/ulMKgp>. – Ed.)*

WB6ACU and K9EID have been friends for many years, and they shared great stories about Bob's involvement as an audio engineer and supplier to many musicians over the years.

The stories really exemplify to me the way that amateur radio brings together folks of all types and backgrounds with

Figure 3: Jeri Ellsworth demonstrates her homebrew SDR, which makes use of Winrad software. *(Internet screen grab)*

Snapshots of *Ham Nation* Episodes: May through October

No. 20: MFJ Factory Tour <http://twit.tv/show/ham-nation/20>
Shelby Hamfest tour, the MFJ Enterprise factory, a transmitter with one part, and more.

No. 19: Martin Jue, MFJ Enterprises <http://twit.tv/show/ham-nation/19>
Huntsville Hamfest, Martin Jue's career, analog Volt-Ohm meters, and more.

No. 18: Leo Works A 20-Meter Pile-Up <http://twit.tv/show/ham-nation/18>.
World Trade Center antennas, insurance for portable gear, DVOM vs. AVOM, remote calling, and more.

No. 17: Amateur Radio Newsline Joins Ham Nation <http://twit.tv/show/ham-nation/17>2
Buddy Holly trivia, history of Amateur Radio Newsline, tips to prevent RFI, and more.

No. 16: N7HPR And ARISSat-1 <http://twit.tv/show/ham-nation/16>
Elecraft's new toy, more about ARISSat-1, adding a regulator to George's DC power supply, and more.

No. 15: When All Else Fails <http://twit.tv/show/ham-nation/15>
Irene response, AIRSSat-1, APRS tracking, and more.

No. 14: Leo Builds A Dipole <http://twit.tv/show/ham-nation/14>
The gang shows Leo how to build a dipole, George builds a power supply, viewer questions, and more.

No. 13: Leo Laporte Makes Contact <http://twit.tv/show/ham-nation/13>
W6TWT unveils his new setup and makes his first QSO, Shorty explains the WIN System, George shows one of the most valuable things in ham radio, and more.

No. 12: Amateur Radio Television <http://twit.tv/show/ham-nation/12>
Leo shows off his shiny new callsign, Don explains amateur radio television, George shows us the proper tools that every person needs, and more.

No. 11: Ham Radio Communicates Via Satellite <http://twit.tv/show/ham-nation/11>
Carole Perry talks about teaching ham radio to students, Clint is working with satellites, George tests the crystal radio he built last week, and more.

No. 10: Ham Radio Aboard The Queen Mary <http://twit.tv/show/ham-nation/10>
Special guest Nate Brightman talks about working in the wireless room aboard the Queen Mary, George builds a crystal radio kit, Bob answers your questions, and more.

No. 9: Carole Perry Teaches Ham Radio In The Classroom <http://twit.tv/show/ham-nation/9>
Teaching ham radio to kids in school, comparing ham radio to modern Internet services, and George shows us the dos and don'ts of soldering.

No. 8: A World-Class Amateur Radio Station <http://twit.tv/show/ham-nation/8>
Leo continues his studies, Jeri shows off her software-defined radio, Tim explains what a four-square array is, and George talks about soldering.

No. 7: W3AO Breaks A 30-Year Record <http://twit.tv/show/ham-nation/7>
Field Day debriefing with Frank and Rol, Bob shows us how to solder, Gordon goes over some test questions, and more.

No. 6: Smoke And Solder <http://twit.tv/show/ham-nation/6>
Leo begins studying, Bob builds a code oscillator, back to school with Gordon, and more.

No. 5: Field Day <http://twit.tv/show/ham-nation/5>
Emergency preparedness and having fun at amateur radio field day.

No. 4: Larry Junstrom From "38 Special" <http://twit.tv/show/ham-nation/4>
Soldering extravagance, radio on the road, excellent bass, and more.

No. 3: Ham Radio Basics <http://twit.tv/show/ham-nation/3>
Frequencies, handy-talkies, making antennas, terminating cables, soldering, and more.

No. 2: Emergency Communications <http://twit.tv/show/ham-nation/2>
The vital role of ham radio in emergency communications.

No. 1: Joe Walsh, WB6ACU <http://twit.tv/show/ham-nation/1>
This premiere episode explores the fascination with ham radio, a little rock and roll, and more.

Figure 4: Jeri Ellsworth shows a burned finger. While many of us have burned a finger while soldering, her's is from rocket fuel! *(Courtesy of K2DLS)*

one thing in common — our appreciation of the magic of radio.

The program has covered K3LR's world class contest station, satellite contacts, how to solder, and amateur television (ATV).

Episode 13 captures the excitement of W6TWT making his first contact while on camera.

Episode 15 covered the amateur radio response to Hurricane Irene.

Episode 20 includes a tour of the MFJ Enterprises plant. A partial episode list will be found to the left.

TWIT.tv is television that you can watch online **(Figure 1)**, so *Ham Nation* is there anytime you want it. What I like about TWIT is the recognition that the amateur radio hobby is inextricably linked to technology. *Ham Nation* is introducing modern amateur radio to thousands of technology buffs around the world.

If you're a ham or you're not, watch a couple of episodes and you'll quickly agree that that amateur radio is alive and well in the 21st century and that rumors of its death have been greatly exaggerated.

Give *Ham Nation* a view at <http://twit.tv/hn>. TWIT.tv streams content **(Figure 2)** via the Apple Quicktime player, also available for Windows. The TWIT motto is "Netcasts you love from people you trust."

Steve Jobs, former CEO of Apple Computer.

There are several ways to watch TWIT in addition to the usual web browser navigation. On the main page there is a link to an RSS feed, which creates a dynamic bookmark list of published content.

You can subscribe via iTunes or watch via YouTube, but there does not yet seem to be an Android app. There is also a calendar-based schedule that can be merged with your email client's calendar capabilities. *Ham Nation* airs live on Tuesdays at 6 p.m. Pacific time (0200 UTC Wednesdays).

There is a very detailed online guide on how to listen to or watch TWIT. You will find it at <http://wiki.twit.tv/wiki/How_to_Watch_and_Listen_to_TWiT>.

What's the story, Jeri?

In **Episode 8**, I was surprised — and pleased — to see Jeri Ellsworth. She's not a ham but truly has the "Maker" spirit that once was at the core of the amateur radio hobby. She is a largely self-taught engineer and was showing off her design for a software defined radio (SDR).

Jeri is a bit of a rebel. She dropped out of high school, and then college. She drove race cars. At age 21, she established and built a small chain of four computer stores.

She designed the chip for a clone of a Commodore 64 computer that fit in a Joystick and sold 500,000 units. In 2010, she released details of how to build your own TSA-style full body scanner out of surplus satellite antenna parts. She's really smart. And she loves radio.

I first heard of Jeri through her YouTube channels. They are an amazing video collection of electronics experiments and education. There are some basics such as "Batteries A to Z" or "Capacitors A to Z" and some more advanced material. Her main YouTube channel is found at <http://www.youtube.com/user/jeriellsworth>.

There are videos on home brewing your own transistors and silicon wafers, and how to safely etch circuit boards at home. If you like to see things explode, be sure to check out Jeri's video on electrolytic capacitors. There's a series of videos documenting experiments that can be done with household chemicals. She also takes a shot at making her own rocket fuel **(Figure 4)**.

Watch the VLOG

Instead of writing about her SDR experiments, Jeri has been producing a video blog or VLOG **(Figure 3)**. Her VLOG channel is found at <http://www.youtube.com/user/JeriEllsworthJabber>. This allows the viewer to follow the progress of the project, from a non-working circuit board all the way through a working direct conversion SDR.

Along the way, she does a great job of explaining some of the theory behind I/Q detection. As the project progresses, Jeri deals with filtering and shielding to suppress outside noise and unwanted artifacts in the signal.

Dennis Ritchie, co-inventor of the Unix operating system and the C programming language, right, with colleague Ken Thompson. *(Photograph by Hoshie, via WikiMedia Commons)*

She replaces a crystal oscillator by adding an FPGA (field-programmable gate array) circuit. She makes use of the free Winrad SDR software <http://www.winrad.org> as part of her project. So far, seven episodes have been produced.

The series will entertain any radio enthusiast and really shows off Jeri's engineering skills. I became very engaged as she addressed issues and improved her project incrementally.

And if you find some of the technical details of Jeri's project hard to understand, you could always go over to the *Make Magazine* blog and watch videos of Jeri rebuilding a 1981 Camaro <http://blog.makezine.com/archive/maker/jeri-ellsworth>.

Now if the guys from *Ham Nation* could only get her to take the test, I bet she'd invent the next great digital radio protocol.

Steve Jobs and Dennis Ritchie

Last fall, the world said goodbye to two men who left their imprint on the world of technology.

Steve Jobs was a visionary who helped to change the way that many use technology. Less known was Dennis Ritchie, who helped develop the Unix operating system and the C programming language. Dennis helped to lay the foundation for much of what Steve later brought to market.

The very successful Mac OS X, Linux, and the Android platform owe their roots to the work Dennis did for AT&T Bell Labs on early Unix.

Both of these men helped to change our lives. If you are reading these words on a computer, tablet or smartphone, give a nod and a wink to Steve and Dennis.

– 73 de K2DLS

We Can At Least Talk About the End of the World!

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

"The latest phenomenon to stir my latent curiosity . . . is the hype and mystery surrounding 2012"

When I was 17, I could only look forward, imagining the wonders we'd experience as calendar year 2000 — 21 far-off years in the future — ticked its historical first seconds. I wasn't naive enough to think we'd be flying around like the Jetsons, or that the Minnesota Vikings would have finally won a Super Bowl, but my imagination was definitely working overtime. *(**WATCH**: The opening of "The Jetsons Movie": <http://bit.ly/onWwCC>. – Ed.)*

Y2K fizzled and went, of course, and now that I'm pushing 50 — yikes! — I still have an active imagination, but my unbridled wonder about the future has been tempered a bit by accumulated bits of experience and reality. Despite that, now that it's 2012, at least on the cover of the magazine, the latest phenomenon to stir my latent curiosity to near-youthful levels is the hype and mystery surrounding 2012.

2012: Fasten Your Seatbelt

The most dynamic events "scheduled" for 2012 are the apocalyptic prophesies coinciding with the end of the present Great Cycle of the Mesoamerican calendar, used by pre-Columbian Mayans and others (presumably because Google Calendar wasn't yet available). Mainstream scientists consider these dire predictions to be utter sensationalism, but judging by the amount of coverage provided by 24-hour cable news and various entertainment networks, somebody, somewhere is expecting cataclysm!

Less threatening, but still interesting, events for leap year 2012 include the first Winter Youth Olympics, set for January in Austria <http://www.innsbruck2012.com/en>; the 60th anniversary of Queen Elizabeth II's accession to the thrones of the UK, Canada, Australia and New Zealand; and the 2012 Summer Olympics in London (which will become the first city in history to host the Olympic Games three times) <http://bit.ly/oZ6UU0>.

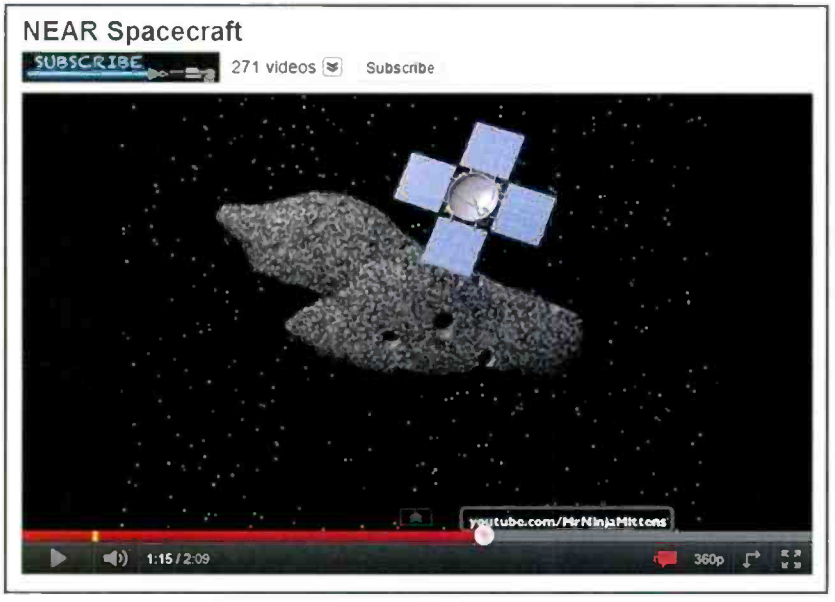
After 50 long years of unresolved "conflict" in South Korea, the U.S. military is set to radically change its command operations there, just before South Korea hosts the 2012 World Expo.

In January, 433 Eros, <http://nineplanets.org/eros.html> the second-largest, near-earth object on record (a chunky 13 km x 33 km in size) will pass within a mere 16 million miles of our planet. One wrong turn here and — poof — 2012 apocalypse!

Supercomputers built by Intel, NASA and IBM are expected to be completed this year and reach computational speeds of between 10 and 20 Petaflops (10-20 quadrillion floating point operations per second). A fitting coincidence in the hundredth anniversary of the birth of mathematician, cryptographer and pioneering computer scientist Alan Turing <http://www.turing.org.uk/turing/>.

And last, but hopefully not least, Solar Cycle 24 is expected to peak, reversing the polarity of the sun's magnetic poles. Where have we heard that before? Let's hope the present cycle builds on the sharp progress it made during the last three months of 2011!

But even if Cycle 24 continues on its bizarre and mostly feeble path, with all of the aforementioned excitement surrounding 2012, hams should never be at a loss for interesting stuff to talk about. We'd have to really try to be boring and predictable in such a tumultuous year!



The NEAR Shoemaker landed on 433 Eros February 12, 2001. It was the first spacecraft to make a "soft landing" on an asteroid. It passes within 16 million miles of Earth this month. *(**WATCH**: Animation of the NEAR mission to 433 Eros: <http://bit.ly/q92Qgh>. – Ed.) (YouTube video screen grab.)*

Stuck In My Own Rut

My on-air conversations — or a distinct lack

of them — rose to prominence after a recent conversation with some beginning hams. Because I mostly operate in stealth mode from my condo shack, CW is my mainstay, with a little PSK/RTTY thrown in for good measure. I don't use SSB much from my home QTH because I don't want my name or my voice to come out of a neighbor's clock radio, even at 5 watts output, inadvertently identifying me as *the ham!*

To maximize my DX potential and operating efficiency, in recent years I've sort of defaulted to working contests and ARRL Field Day, which don't get too chatty. My new ham buddies called me out on this, wondering how satisfying it could be to never really connect with other operators beyond rapid-fire contest QSOs.

I explained about contest operation and its emphasis on speed, efficiency and accuracy, and how DX stations don't always have time to chat, especially at QRP signal levels, and so on. I did my best to rationalize my stealthy practices, but I suddenly knew that I had been missing out on an aspect of amateur radio that I used to enjoy. It wouldn't kill me to break out of my rut and be more conversational, at least some of the time.

Many hams are stuck in a similar rut, limiting their conversations to radios, antennas, signal reports, the weather, and the latest trends in knee replacement and gall bladder surgeries! These are interesting topics, one and all, but there's no reason why we can't loosen up a little and have more real and meaningful conversations.

Many hams see our hobby as a purely technical pursuit that incorporates complicated concepts and technologies. And with the tests we're required to pass to get licensed, you'd think that the entirety of our hobby is technological. About knowing when 6 meters will be open to the Caribbean, how PSK31 works its warbling magic, or how to send halfway decent Morse code with a semi-automatic bug.

But you'd be wrong!

Different Strokes . . .

It's more than a little ironic that, for most of us, the technology of amateur radio is simply a vehicle for an underlying, deeper reason for participating: communicating with other people who share similar interests, whether local or faraway.

The price of admission to this community is learning about the technology involved and how to correctly communicate with others using that technology. But once that's accomplished we're faced with the prospect of simply talking to someone else and sharing something personal with the person on the other end of the microphone, key or keyboard (and vice-versa).

Some hams are primarily "technical." They build software-defined radios, study the vagaries of tropospheric propagation or build linear amplifiers from flea market parts — whatever. But even these hams love to talk to other hams who share the same interests. Just listen to two "special interest" hams talk about "their special stuff" and you'll be convinced (if you *can* even get a word in edgewise).

DYI For Getting On the Air: Two How-To Guides

For many beginning hams, being comfortable with radio protocols and the "mechanics" of using radio as a communication medium makes more personal communication possible. A new ham friend was recently working other operators at ARRL Field Day. During contest-style exchanges he was doing just fine, but when other ops would try to engage him in a bit of back and forth banter during slow periods, he froze up a bit. When I asked him about his experience, he explained that because he was unfamiliar with the mechanics and protocols of chatting via ham radio, he was unsure of how to respond and what to say. This from a guy who is a veritable chatterbox under non-radio conditions!

So, it stands to reason that knowing how to use amateur radio to communicate is a good first step to becoming comfortable and becoming a good communicator. And a great way to start that process correctly is to get a recent copy of the ARRL or RSGB *Operating Manual.*

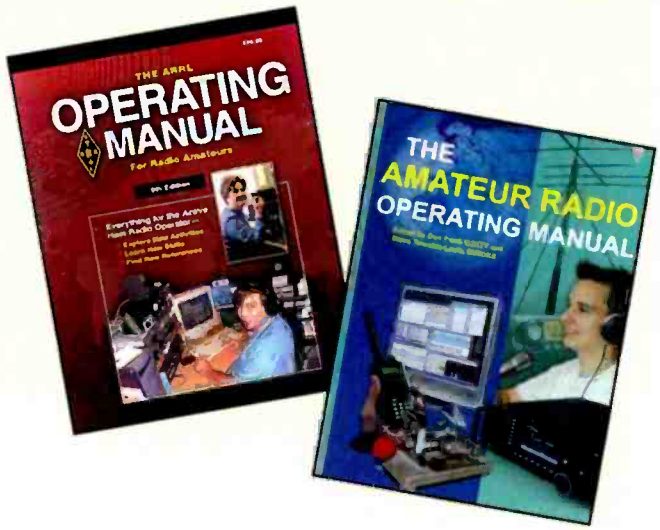
Beginners will benefit greatly from learning how to do things right from day one, and veterans can refer to these guides on an ongoing basis. A refresher course in proper procedure never hurts anyone!

Perhaps the most popular guide of its type is the *ARRL Operating Manual*, 352 pages, now in its ninth edition. Simply stated, this is the most complete book about amateur radio operating ever compiled. More than 80 percent of the latest edition was written from the ground up. Detailed contents cover HF, VHF, UHF, FM, repeaters, digital, DXing, contesting — you name it. Also included is a whole bunch of extras — prefix lists, abbreviations, FCC rules, awards, antenna bearing maps, and more. Honestly, the *ARRL Operating Manual* is so thick and sturdy that, in a pinch, I've used it as a stepladder and as a PC monitor support! You will undoubtedly find many ways to use this book, and what's inside it, in your shack!

If you live across the pond or simply want to get the British perspective on ham radio operating, the Radio Society of Great Britain (RSGB), the ARRL's sister society, has just released an updated 224-page edition of the *RSGB Amateur Radio Operating Manual,* which covers similar topics, including the RSGB's popular IOTA awards program.

Both books list for $29.95 and are available from your favorite amateur radio bookseller or from <http://www.arrl.org>.

– Kirk Kleinschmidt, NTØZ



Basically, despite its technical trappings, amateur radio is really about communicating. And to maximize your enjoyment, you need to be a good communicator. As with anything else, a little practice goes a long way.

Instead of relying on the usual rapid-fire exchanges, quick signal reports and a canned rundown of your station's goodies, why not expand your ham radio horizons? There are millions of interesting individuals out there disguised as ham operators! You just may have to tease them out of their shells.

It's Just Like Dating!

Creating truly memorable QSOs is a lot like attracting the opposite sex in the dating game: You can't be boring, you can't be shy and you have to be different enough to stand out from the crowd.

Within the boundaries of good taste and FCC regulations, put yourself out there and take the first step to strike up a conversation that's interesting and offbeat. Pretend you're at the local watering hole and not on the radio.

Asking questions about almost any topic can often spice up an otherwise routine exchange. Be tactful, but ask away. Ask people what they do for a living (or what they did back in the day). Ask about nearby sporting teams, where they went to college, if they're ever been to the Dayton Hamvention®, and so on. The answers you get will often surprise you.

Have fun, but avoid needlessly controversial and potentially divisive subjects such as politics, religion, sex, graphite fly rods and farm-raised catfish. Amateur radio *is* diverse, but it's also tolerant and accepting, and the best ham radio discussions build on a common ground of shared interests.

Rely On Your 'Resources' and Imagination

The ubiquitous Internet, with detailed maps of every inch of the planet's surface and powerful search engines at your fingertips, is the handiest tool for ham radio conversationalists. Clicking around Google Maps <http://maps.google.com/> or Google Earth <http://www.google.com/earth/index.html> will instantly provide dozens of interesting QSO topics. When you figure out where the other operator lives, check out his QTH on the map. And then talk about that stuff. It's easy, and chances are good that your QSO partner will be ready and willing to talk about interesting local stuff if you bring it up.

If you or your QSO partner live somewhere famous (or even infamous), there's QSO gold to be mined aplenty. Chatting with someone in New Orleans might spark a conversation about hurricanes — or jazz, Bourbon street, or Mardi Gras. Little Falls, Minnesota, is the perfect cue to talk about Charles Lindbergh, just as Winterset, Iowa, inevitably leads to a conversation about John Wayne. Fill in the blanks!

If you're the strong, silent (nonverbal) type, take advantage of PSK31 or its digital cousins <http://bit.ly/pnMm1g>. These keyboard-to-keyboard modes are a lot like chatting on the Internet, and the extra anonymity can sometimes make all the difference. Besides, PSK31 is a great beginner mode. Low power works wonders, and digi-mode operators tend to be friendly and welcoming to beginners.

Use your imagination to find your own ways to *get real* on the bands. You will definitely make ham radio more enjoyable. You will certainly learn stuff you'd otherwise gloss over. You will make more friends. And if all else fails, because it's 2012 we can always talk about the end of the world!

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

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

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

UTC	Freq.	Station/Country	Notes
0000	9700	Radio Bulgaria	BB
0000	15190	Radio Inconfidencia, Brazil	PP
0000	11665	CVC-La Voz, Chile	SS
0000	9420	Voice of Greece	Greek
0000	5460	Radio Bolivar, Peru	SS
0000	5954	Radio Republica (to Cuba)	SS
0000	7365	Radio Marti, USA	SS
0000	9265	WINB, Pennsylvania	
0000	9685	International Radio of Serbia, via Bosnia	
0000	9740	BBC, Singapore Relay	
0000	9665	Voice of Russia, via Moldova	
0000	9430	Voice of Russia	
0000	5952	Radio Pio Doce, Bolivia	SS
0100	6010	Radio Inconfidencia, Brazil	PP
0100	9905	Islamic Rep. of Iran Broadcasting	SS
0100	9780	VOA, Philippines Relay	
0100	6025	Radio Amanecer, Dominican Republic	SS
0200	7375	Voice of Croatia, via Germany	
0200	9570	China Radio International	CC
0200	11710	Radio Argentina Exterior	
0200	9235	Galei Zahal, Israel	HH
0300	9620	Radio Havana Cuba	SS
0300	3985	Voice of Croatia	Croatian
0300	4780	Radio Djibouti	AA
0300	4885	Radio Clube do Para, Brazil	PP
0300	11780	Radio Nacional Amazonia, Brazil	PP
0300	9690	China Radio International, via Spain	
0300	9790	China Radio International, via Cuba	
0300	11940	Islamic Rep. of Iran Broadcasting	
0300	11920	Islamic Rep. of Iran Broadcasting	
0300	7475	Voice of Greece	Greek
0300	11965	Deutsche Welle, Germany, via England	Swahili
0300	6030	Radio Oromiya, Ethiopia	Oromiya
0300	7180	Voice of the Broad Masses, Eritrea	vernacular
0300	11855	BBC, Cyprus Relay	Farsi
0300	11995	BBC, via UAE	Urdu
0300	15720	Radio New Zealand International	
0300	5960	Radio Japan, via Canada	JJ
0300	11935	Radio Japan, via Bonaire	
0300	5010	Radio Madagasikara, Madagascar	Malagasy
0300	5915	Zambia National Broadcasting	veernacxular
0300	9515	Voice of Turkey	
0300	3350	Radio Exterior Espana, via Costa Rica	SS
0300	7200	Sudan Radio TV	AA
0300	15415	Voice of Russia	
0300	9735	Voice of Russia	SS
0300	11895	Radio Romania International	
0300	7335	Vatican Radio	Lithuanaian
0300	6105	Radio Cancao Nova, Brazil	PP
0300	6110	Radio Fana, Ethiopia	Amharic
0300	7110	Voice of the Broad Masses, Eritrea	
0300	9505	Adventist World Radio, via Germany	vernacuar
0300	9645	Radio Bandeirantes, Brazil	PP
0300	9780	Republic of Yemen Radio	AA
0400	6165	Radio Nederland, Bonaire Relay	DD
0400	6090	Caribbean Beacon	
0400	9805	Radio France International	
0400	3290	Voice of Guyana	DD
0400	11820	BBC, Oman Relay	
0400	11690	Radio Okapi, Congo, via South Africa	FF
0400	6175	Voice of Vietnam, via Canada	SS
0400	6125	Radio Exterior Espana, Costa Rica Relay	SS
0400	4775	Trans World Radio, Swaziland	GG, vern.
0400	6155	All India Radio	
0400	11960	Radio Jordan	AA
0500	11755	BBC, Ascension Island Relay	
0500	4055	Radio Verdad, Guatemala	SS
0500	11725	Radio New Zealand International	
0500	11970	Radio Japan	
0500	9760	Radio Nikkei, Japan	JJ
0500	6185	Radio Educacion	AA
0500	9630	Radio Exterior Espana, Costa Rica Relay	SS
0500	7230	Channel Africa, South Africa	
0500	9500	Trans World Radio, Swaziland	
0500	7275	RTV Tunisienne, Tunis	AA
0500	7285	Radio Sonder Grense, South Africa	Afrikaans
0500	15120	Voice of Nigeria	
0600	6160	CKZN, Canada	
0600	5910	Radio Alcaravan, Colombia	SS
0600	7245	Radio Mauritanie, Mauritania	AA
0600	13590	CVC-One Africa, Zambia	
0800	5995	Radio Australia	

Scan Our Web Site

UTC	Freq.	Station/Country	Notes
0800	4755	The Cross, Micronesia	
0900	4805	Radio Difusora Amazonas, Brazil	PP
0900	5990	Radio Senado, Brazil	PP
0900	2485	VL8K, Australia	
0900	3310	Radio Mosoj Chaska	SS
0900	3330	Ondas del Huallaga, Peru	SS
0900	5765	AFN/AFRTS, Guam	
0900	6135	Radio Santa Cruz, Bolivia	SS
0900	9920	T8WH, Palau	
1000	11870	KNLS, Alaska	
1000	11945	Radio Australia	
1000	6070	CFRX, Canada	
1000	4717	Radio Yura, Bolivia	SS
1000	9595	All India Radio	
1000	4815	Radio El Buena Pastor, Ecuador	SS
1000	3205	Radio Sandaun, PNG	Tok Pisin
1000	12065	Radio Nederland, via Philippines	
1000	9840	Radio Japan	
1000	3925	Radio Nikkei	JJ
1000	15180	Voice of Korea, North Korea	
1000	9840	Radio Japan	
1000	12085	Voice of Mongolia	
1000	3945	Radio Vanuatu	
1000	5010	Solomon Islands Broadcasting Corp.	
1000	4990	Radio Apinte, Suriname	DD
1100	9440	China Radio International	CC
1100	9645	China Radio International	Cantonese
1100	9975	Trans World Radio, Guam	unid
1100	9910	Trans World Radio, Guam	CC
1100	9430	Far East Broadcasting, Philippines	CC
1100	2285	Radio E. New Britain, Papua New Guinea	Tok Pisin
1100	5040	Radio Libertad, Peru	SS
1100	5960	Radio Fly, PNG	
1100	6170	Radio New Zealand International	
1100	9720	Radio Nederland, via Northern Marianas	Indonesian
1100	6185	Radio Japan	RR
1100	11625	Radio Taiwan International	Cantonese
1100	7320	Magadan Radio, Russia	RR
1100	9615	Radio Veritas, Philippines	CC
1200	11750	BBC, Thailand Relay	
1200	9920	Far East Broadcasting, Philippines	unid
1200	9655	Radio New Zealand International	
1200	9835	RT Malaysia	Malay
1200	15450	Voice of Turkey	
1200	12020	Voice of Vietnam	
1200	12133.5	AFN/AFRTS, Florida	
1200	11785	Voice of America	CC
1200	17705	BSKSA, Saudi Arabia	AA
1200	9650	KBS World Radio, South Korea	
1200	11935	Kyzyl Radio, via China	
1200	5965	RTM, Malaysia	
1200	9525	Voice of Indonesia	
1200	9580	Radio Australia	
1230	9890	Radio Thailand	
1300	15610	IRRS, Italy, via Romania	
1300	9840	Voice of Vietnam	
1400	9690	All India Radio	
1560	9625	Radio Canada International	
1600	17605	Radio France International	PP
1600	15690	BBC, England	Sinhalese
1600	12040	Voice of Russia	
1700	11670	All India Radio	
1700	9455	RDP International, Portugal	PP
1700	9770	Polish Radio, via Germany	
1700	15190	Radio Philippines	Tagalog
1700	15410	Radio Y'Abaganda, (to Uganda)	Swahili
1700	9835	Radio Japan	JJ
1700	15570	Vatican Radio	FF
1700	9665	Radio Exterior Espana, Costa Rica Relay	SS
1700	17560	BSKSA, Saudi Arabia	AA
1700	11735	Radio Romania International	Romanian
1800	17680	CVC-La Voz, Chile	SS
1800	17610	Deutsche Welle, German, via Portugal	GG
1800	15630	Voice of Greece	Greek
1800	21690	Radio France Intl, French Guiana Relay	FF
1800	15300	Radio France International	FF
1800	15215	Radio Jamahiriya, Libya, via France	Hausa
1800	15345	RTV Marocaine, Morocco	AA
1800	15570	Vatican Radio	PP
1800	15360	KBS World Radio, South Korea, via England	RR
1800	117850	Radio Exterior Espana, Costa Rica Relay	SS
1800	15310	Radio Romania International	Romanian
1900	15270	Radio Cairo, Egypt	
1900	15155	Polish Radio via Germany	RR
1900	15540	Radio Kuwait	
1900	11820	Broadcasting Svc. of Kingdom, S. Arabia	AA
1900	12015	Radio Exterior Espana	AA
1999	6172	Radio Tawantinsuyo, Peru	SS
2000	9780	Islamic Rep. of Iran Broadcasting	
2000	9705	Radio Ethiopia	Amharic
2000	11615	Radio Nederland, Rwanda Relay	
2000	12005	RT Tunisienne, Tunisia	AA
2100	15345	Radio Argentina Exterior	SS
2100	15330	Radio Canada International	FF
2100	9860	Radio Tirana, Albania	Albanian
2100	9915	BBC, Ascension Is. Relay	
2100	15640	Deutsche Welle, Germany, Rwanda Relay	
2100	15275	Deutsche Welle, Germany, Portugal Relay	
2100	15580	VOA, Botswana Relay	
2100	15110	Radio Exterior Espana	SS
2200	15540	Radio Nederland, Bonaire Relay	DD
2200	15560	Radio Australia	
2200	6165	Radio National Tchadienne, Chad	FF
2200	7125	Radio Diffusion Nationale, Guinee	FF
2200	9705	La Voix du Sahel, Niger	FF
2300	12040	Radio Havana Cuba	SS
2300	15370	Radio Havana Cuba	SS
2300	11700	Radio Bulgaria	
2300	11840	China Radio International	
2300	7210	RadioTirana, Albania	SS
2300	17550	Radio Kuwait	AA
2300	5995	RTV Malienne, Mali	FF
2300	17725	Radio Taiwan, via Florida	SS
2300	17725	Radio Taiwan, via Florida	SS
2300	15585	Radio Free Asia, No. Marianas Relay	CC

Communications Trivia

by R.B. Sturtevant, AD7IL

Q: You mentioned recently that Western Union is moving major amounts of money around the world. Does that give them information on business and global conspiracies that our Intelligence Agencies might want?

A: Yes it does. How do you think that the CIA keeps track of all the money terrorists are moving back and forth across the world? It has been reported that secret meetings have been held between Western Union, the FBI and CIA. Whatever was said or agreed to isn't for public consumption. But the government does seem to know a lot about where money is moving. Check out "*The One Percent Doctrine: Deep Inside America's Pursuit of Its Enemies Since 9/11*," by Ron Suskind. (***READ**: The New York Times Book Review of Suskind's "One Percent Doctrine," at: <http://nyti.ms/uNaE1d>. – Ed)*

Q: On Star Trek and a lot of other space-related shows communications seems to be better than ours. They tool around in spacecraft that go multiples of the speed of light yet can call and talk to folks that are three or four light years away. That should mean that the poor souls out there sent their message three or four years ago and have been waiting for an answer a long time. How does that work?

A: That is a really good question. Commander Uhura is due to be teaching Communications at the Star Fleet Academy in 2277 and I am planning to take a couple of classes. Classes like "Introduction to Space-Time Compression 101." Until then I'll just have to believe the FCC that we are stuck with light speed. Believe the government? Right! There has got to be something they are not telling us. (***WATCH**: A commercial for the Mego Star Trek Command Communications Console, circa 1976: <http://bit.ly/rNRkmh>. – Ed.)*

*Q: I've heard that the first radio station to go on the air was Pittsburgh's KDKA, which went on the air November 2, 1920. Wasn't there another station earlier? (**WATCH**: A 6+ minute photo-essay on KDKA Radio, Pittsburgh: <http://bit.ly/v7f72i>. – Ed.)*

A: In 1921, RCA historian George Clark stated that all broadcasting before 1920 was done by private citizens. He meant folks did not usually have commercial messages or regular schedules.

Specifically, he was aiming his remarks at Charles Herrold and Lee DeForest who were first in the market but started broadcasting to amateur radio operators. He went on to say that KDKA was the first modern radio station, which was set up by his employer RCA. (***LISTEN**: To KDKA Radio live streaming audio: <http://cbsloc.al/uOzYJY>. – Ed.)*

Actually Clark dismissed an earlier effort that took off as early as 1910 in San Jose, California. Charles Herrold ran the Herrold College of Wireless and Engineering at 50 W. San Fernando Street in San Jose. He taught electrical and radio science to a generation awakening to new possibilities. In order to give his students practical experience he began broadcasting a weekly show to train amateur operators and attract students to his college.

Every Wednesday at 9 p.m. Herrold's wife, Sybil, would read newspaper articles, play records, tell stories and did generally everything a young audience of mostly boys would like to hear. The records Sybil played were borrowed from a local music store that was glad to loan them to her.

Then next week they usually sold out their entire stock of the records played. Herrold continued his broadcasting until 1917 when all radio transmission and broadcasting was stopped because of World War I.

After the war Herrold obtained a license as KQW and went back on the air. Eventually Herrold went on to other interests and sold his radio station to what is now KCBS in San Francisco. (***READ**: The History of KQW Radio: <http://bit.ly/vel0ey>. **LISTEN**: To KCBS AM live streaming audio: <http://sanfrancisco.cbslocal.com/>. – Ed.)*

by Jason Feldman

New, Interesting and Useful Communications Products

MFJ Universal Antenna Tilt Base

MFJ Enterprises promises that vertical antennas "have gotten easier to take down and put up now that MFJ has introduced the MFJ-1903 vertical tilt base. The unique design allows the tilt base to fit most vertical antennas with or without a base bracket," the company said.

The MFJ-1903 provides pre-punched holes to mount many different types of verticals such as the Hygain's AV18VS/14VS/18AVQ/640/620/AV-6160; Cushcraft's R8/R6000; and MFJ's 1796/1798/2990 verticals and other tube bases or mast pipes up to 2.5 inches of outside diameter.

The MFJ-1903 vertical tilt base is made with 1/8-inch-thick aluminum and promises to make raising and lowering antennas a snap, said MFJ. *(Courtesy of MFJ Enterprises)*

MFJ provides ground radial holes, as well, "to make grounding your vertical antenna easy," said the company. The MFJ-1903 is constructed of 1/8-inch-thick aluminum and includes two, 2.25-inch U-bolts, mast saddles, and stainless steel nuts and bolts.

The MSRP of the MFJ-1903 is $69.95. Visit: <http://www.mfjenterprises.com> and <http://bit.ly/vXez3X>.

Tele-Titan™ Crimp Tool

Platinum Tools has announced the launch of the new Tele-Titan™ modular crimp tool.

"This new, rugged, and very compact tool fits easily in a pocket as well as the hand," said John Phillips, Platinum Tools product manager. "The straight action termination delivers even pressure on each of the modular plug's pins ensuring precise termination. Just add scissors and you're ready to tackle the modular plug crimp jobs for your next data and voice projects," Phillips said.

Platinum Tools latest crimping tool, the Tele-Titan™. (Courtesy of Platinum Tools)

Features of the Tele-Titan™ include:

- Compact, balanced and easy to use — fits your hand well
- Crimps with minimal hand force
- Crimps RJ45 (8 x 8) RJ12 (6 x 6), RJ11 (6 x 4), standard style modular plugs — solid or stranded
- Uses true parallel vertical crimp force for precise termination
- Precisely seats, or terminates, all pins to industry specified crimp heights
- Gun safety lock-style design
- Built-in cable cutter and strippers for round and flat cables
- Easily adjust and control depth of the blade when stripping Cat 5e/6 cables

The Tele-Titan™ has an MSRP of $34.95. Visit: <http://www.platinumtools.com>.

The Media Broker's Littlest Listing

by Shannon Huniwell
<melodyfm@yahoo.com>

"Curt was never a radio expert — rather simply someone who feels linked to broadcasting through decades of faithful listenership."

That squeaky slam of the blue mailbox's hatch door seemed to scold Curt Wensen for sending off such a stupid request. Although the 27-year-old Delaware school teacher couldn't have quickly scraped together more than about a thousand bucks, he found himself answering a *Broadcasting* magazine advertisement in which some Seattle area media broker listed various radio stations for sale at 15 to 30 times that amount.

Relatively speaking, none of these modest Western properties were particularly expensive when compared to other mid-1980s prices being paid for outlets with recognizable call letters or in places someone might have heard of. While they were all *way above* Wensen's budget, however, each of the peanut whistles being offered was well within his dream of someday owning/operating a friendly hometown broadcast facility — the kind of station on which he could determine the programming, lead a modest but loyal staff, be a friend to the community, and maybe bank a few dollars from the advertising sales that'd come in as his station helped local merchants sell their stuff.

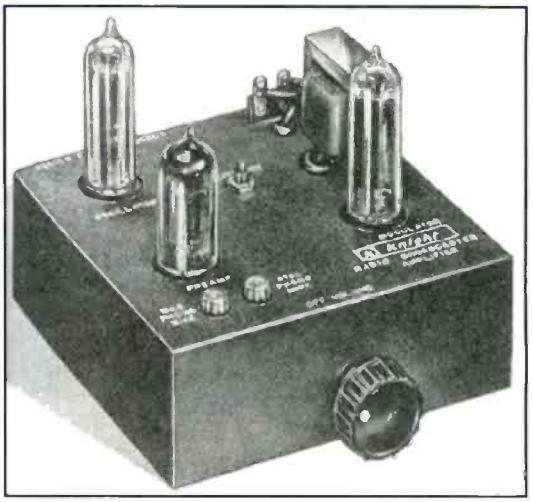
Honest to a fault, Wensen made certain that the response to the broker's 2- x 2-inch ad at least briefly admitted that his long-held ambition was greater than his current fiscal holdings. Curt also wanted me to be sure to mention that he has never been a radio expert — rather simply someone who feels linked to broadcasting through decades of faithful listenership of FM and AM stations large and small. Especially those in the latter categories which sound like they're on their last legs.

Curt's Broadcasting Story Begins

Besides this "loyal audience" qualification, his broadcasting story begins in a little Wilmington area church on the Sunday after Thanksgiving 1985. After the service, Wensen lined up with other members of the congregation waiting to shake the minister's hand and be dismissed into the remainder of the holiday weekend.

He happened to be in back of a woman who was in the process of telling the pastor that she wished she could have more clearly heard the sermon. "My left ear is no good," she complained, "and I'd feel pretty odd if I have to keep my head turned to the right while you're preaching!"

"Edna Casey," the minister smiled as if the Good Lord had just prompted a remedy to come to mind, "I'd like to you to meet Curt Wensen, a young man who has a keen interest in electronics. He might just be able to help you — and anybody else with hearing challenges — clearly catch every word uttered from the pulpit."



A catalog image of the triple-tubed *Knight Kit* Radio Broadcaster/Amplifier. Once clicked on, that front-mounted on/off-switch/volume control was dedicated to the amp side of the circuit, arguably a section for which few electronics buffs purchased this kit. Like Curt Wensen, those enthusiastic about the possibilities of a phono oscillator-type, low-power AM transmitter mainly wanted to figure out ways how it could be hot-rodded. This unit possessed two inputs, one for the basic crystal microphones and phonograph pick-ups, and a jack for more sophisticated high-impedance magnetic mikes and tone arm needles. While conventional wisdom (and often the manufacturer's instructions) suggested the transmitting frequency should be tuned to a locally vacant frequency well under 1,000 kHz, some experimenters with room for a significantly long wire antenna and a sense of attempting to hit a particular frequency's quarter-wave status, found dial positions in the standard broadcast band's old attic worked remarkably well . . . for a daring personal radio station proprietor.

"Oh that would be wonderful," the woman beamed. "Son," she pointed at Wensen, "I do believe you're an answer to a prayer."

The lady's compliment struck Wensen as undeserved, and the nonplussed look on his face cued the minister to offer clarification. "Curt, I'm thinking of last spring's church-wide garage sale

THE popularity of recorded music as an entertainment medium for all ages—the junior members of the family as well as mother and dad—continues at a high level. The average family usually has several radios about the house or apartment: a set in the living or dining room; perhaps a clock radio in one or more of the bedrooms, and probably a small a.c.-d.c. set in the kitchen.

A compact, inexpensive unit, which will utilize all of these sets to provide phonograph entertainment for all members of

WIRELESS BROADCASTER

FOR FAMILY RECORD ENTERTAINMENT

By

OTTO FRIED

The "Wireless Broadcaster" assembled. Microphone and phono jacks are at left front, knob for volume control and power switch on apron, and frequency adjustment behind middle tube.

the family, is described here. By connecting a microphone to the unit, broadcasts may be made to a radio located anywhere in the house or apartment for party fun, family celebrations, etc. "Special news broadcasts," "signals from outer space," and a host of other gags will liven up any dull party or celebration. The "Broadcaster" can be used with any receiver, even though it does not have a phonograph input. The tedious job of installing and wiring phonograph input jacks on every set in the household is completely avoided.

Another unique, useful application is operating the unit as a radio nurse or an electronic baby sitter. It is only necessary to be within listening distance of a radio set. A high gain microphone or any five-inch PM speaker with its output transformer connected to the unit will monitor the necessary area. The "Wireless Broadcaster" is mounted in an out-of-reach place. Continuous operation over a long period of time will not damage the unit.

The *Knight* "Wireless Broadcaster" (available as a kit from *Allied Radio Corporation*) will work with almost any record player. A high impedance input for a crystal phono cartridge or a tuner and a high-gain input for a magnetic cartridge (*G-E, Pickering, Audax*) are provided. A crystal or high-impedance dynamic microphone may be connected to the high-gain input. A separate modulator stage permits almost

For party fun, to "keep an ear" on the baby, or to page the family

May, 1955

31

The May 1955 edition of *Popular Electronics* included an article about how a wireless broadcaster could be employed "for party fun, to keep an ear on the baby, or to page the family." According to the piece's author, such a transmitter can reach "a radio in any room of the house or apartment (to send) special news broadcasts, signals from outer space, and a host of other gags (that) will liven up any dull party or (family) celebration." Seldom considered just a gag, the 100-miliwatt transmissions that most young owners of such gear sent through the airwaves were serious entry-level forays into a desired radio disc jockey career. Note that component highlighted in the Eisenhower-era article is a *Knight Kit*, albeit a version some 10 years older than our story's rummage sale find.

fundraiser . . . You remember what you bought and then showed me your interesting find?"

Oh, Holy Knight

At that point, Wensen did put two and two together. Amidst the benefit sale's folding tables piled with recycled baby clothes, kitchenware, VHS tapes, LP record albums, and slightly used exercise bike, the middle school science teacher had found a 20+ year old *Knight Kit* radio broadcaster that was still in its original box. He had just gladly donated $4 for the pint-sized AM transmitter when the pastor, delegated as cashier, picked up on Wensen's enthusiasm and asked him what the thing was. *(For more information on the Knight Kit Broadcaster, visit its Fan Page: <http://www.knightkit.com/>. – Ed.)*

"It's essentially a miniature radio station," he noted while again opening the carton in order to show off the find. "Looks like somebody got about halfway finished building it and then quit. Anyway, I think all of the main parts are still in the box, and here are the instructions and schematic diagram of the circuit!"

"How far of a signal will something like that send?" the minister wondered and then tagged the question with a query as to how Wensen got interested in radio, plus a request for thoughts about the state of the radio industry. This resulted a conversation in which the school teacher mentioned having wanted to build a personal-size broadcast station in his youth, as well as a rough estimate that — if correctly constructed — the *Knight Kit's* output might be heard a couple hundred feet from a short wire antenna.

By the time the two men started calculating coverage area, their discourse had gotten so focused that the sale's co-chairperson politely moved the minister away from the checkout so the backed-up line of customers could be more quickly cashed-out. "Absolutely fascinating!" the pastor concluded after Wensen's musings on the radio business, and Wensen's fast departure following his sudden recollection of a Saturday junior varsity track event he was slated to help coach.

Asking the Lord (and FCC) For Forgiveness

Fast-forwarding to Edna Casey's *answer to prayer* pronouncement, Wensen updated the minister on his progress with the garage sale *Knight Kit* and readily agreed to see if it might work as a short-range sender of the Gospel throughout the church sanctuary. By mid-December 1985, he'd spent time on ladders inside the church steeple and rigged-up an end-insulated longwire from top to bottom of the 75-foot structure.

Once connected to the rebuilt *Knight Kit* radio broadcaster, the antenna's performance pleasantly surprised Wensen and the pastor, who suggested that they might need to ask the Lord *and* the Federal Communications Commission for forgiveness.

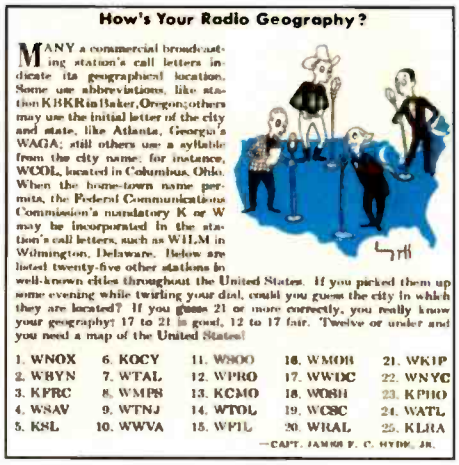
A portable cassette tape machine playing *Favorite Old Hymns* into the podium's *Electrovoice* 635A microphone could be clearly recognized on the minister's car radio as the vehicle passed a small shopping center nearly a mile from the church. "You've been given a great talent in electronics, my boy," the minister nodded to Curt Wensen as the two made their *signal strength* test drive. ***(WATCH and LISTEN**: To some Old Favorite Hymns: <http://bit.ly/uwL9t9> and the Electrovice 635A microphone: <http://bit.ly/tlRHkv>.– Ed.)*

"I just hope I'm not also given a great fine by the FCC!" the surprised school teacher commented as he clicked off the radio and added that he didn't need any more convincing that the little system was sending out a big footprint. The mini station's debut was pre-publicized from the pulpit and then took place during the Christmas Eve service.

Not only was Edna Casey and several other hearing-impaired parishioners able to decipher every word through earphones jacked to the Church's newly purchased fleet of RadioShack® *Realistic* pocket portable AMs, but a church deacon stuck in bed recovering from a nasty cold reported "fine reception" in a housing development on the other side of town. ***(GALLERY**: To see pocket portable radios from the '70s-'80s era, visit: <http://bit.ly/umiu2Q>. – Ed.)*

Reconsidering the *Knight Kit* Broadcaster

The *Knight Kit* performed admirably for about a year and could have done so longer had Wensen and his pastor not



How's Your Radio Geography?

MANY a commercial broadcasting station's call letters indicate its geographical location. Some use abbreviations, like station KBKR in Baker, Oregon; others may use the initial letter of the city and state, like Atlanta, Georgia's WAGA; still others use a syllable from the city name; for instance, WCOL, located in Columbus, Ohio. When the home-town name permits, the Federal Communications Commission's mandatory K or W may be incorporated in the station's call letters, such as WILM in Wilmington, Delaware. Below are listed twenty-five other stations in well-known cities throughout the United States. If you picked them up some evening while twirling your dial, could you guess the city in which they are located? If you guess 21 or more correctly, you really know your geography; 17 to 21 is good, 12 to 17 fair. Twelve or under and you need a map of the United States!

1. WNOX	6. KOCY	11. WSOO	16. WMOH	21. WKIP
2. WBYN	7. WTAL	12. WPRO	17. WWDC	22. WNYC
3. KFRC	8. WMPS	13. KCMO	18. WOSH	23. KPHO
4. WSAV	9. WTNJ	14. WTOL	19. WCSC	24. WATL
5. KSL	10. WWVA	15. WPTL	20. WRAL	25. KLRA

—CAPT. JAMES F. C. HYDE, JR.

An inveterate magazine saver, Edna Casey was able to clip this *Radio Geography* article from a handy copy of the August 25, 1945 *Saturday Evening Post* . . . in 1988! She brought it on the five-day, cross-country road trip undertaken with her unofficial chauffeur, Curt Wensen, and quizzed him with five call letter questions per day. Because a few call-signs (such as KRLA) from 1945 have been used by more than one station to ID its city-of-license or market, and/or have long since been switched, I'll identify the answers here: 1. Knoxville, Tennessee; 2. Brooklyn, New York; 3. San Francisco, California; 4. Savannah, Georgia; 5. Salt Lake City, Utah; 6. Oklahoma City, Oklahoma; 7. Tallahassee, Florida; 8. Memphis, Tennessee; 9. Trenton, New Jersey; 10. Wheeling, West Virginia; 11. Sault St. Marie, Michigan; 12. Providence, Rhode Island; 13. Kansas City, Missouri; 14. Toledo, Ohio; 15. Philadelphia, Pennsylvania; 16. Mobile, Alabama; 17. Washington, DC; 18. Oshkosh, Wisconsin; 19. Charleston, South Carolina; 20. Raleigh, North Carolina; 21. Poughkeepsie, New York; 22. New York City; 23. Phoenix, Arizona; 24. Atlanta, Georgia; 25. Little Rock, Arkansas.

received a letter addressed to "AM Radio Station" in care of their church. Its return address pinpointed the envelope's origin in Franklin, New Jersey — an undeniably illegally long way from the steeple antenna. The sender had snagged approximately three minutes of a Sunday evening service on a very cold February night. His report indicated hearing the station's locale "from a female who was giving some church events announcements before introducing a guest speaker who talked about a Valentine's Day dinner in the fellowship hall where all couples are invited to attend, and then read a Bible verse about love."

Because he would have hated putting the minister in a position where he'd be forced to explain why the church broke the Communications Act of 1934, Wensen proposed quickly replacing the roving *Knight Kit* with an undeniably kosher mini-FM transmitter hooked to a "leaky wire" antenna system. The early 1987 change was made within a few weeks of the Deacons Committee approving the purchase (not to exceed $35) of a printed circuit board, semiconductors, wire, and the other components outlined in a *Communications World* magazine.

Edna Casey was delighted. She described the sound in her SONY *FM Walkman* headphones <http://bit.ly/tj49Ni> as "heavenly crystal clear!" Had a Yagi-equipped FM DX'er set up his gear more than several dozen yards from the Church balcony (where the new frequency modulation transmitter was situated), however, he wouldn't even know such an inspirational signal existed.

A Station 'For Sale' Response and Radio Road Trip

While Wensen felt relieved that this new "station" was operating safely, it would be fair to say that he still hankered to have a real one with actual FCC-granted call letters. That's what he admitted to Edna Casey when the 70-year old had him over to her house for Sunday dinner sometime in early June 1988.

Remember the *Broadcasting* advertisement in this story's opening paragraph? Wensen's longing had recently been recharged by an out-of-the-blue response to that ad. Edna listened intently as he explained how a hand-addressed manila envelope, covered with two lines of single-digit stamps, appeared at his apartment door some three years after he'd written to the sender. "Well, what was in it?" she wanted to know.

"That's the strange thing," Wensen shrugged. "There was no letter or detailed explanation inside, just a coverage map that shows where some radio station reached and where it could go if the FCC let it increase its power."

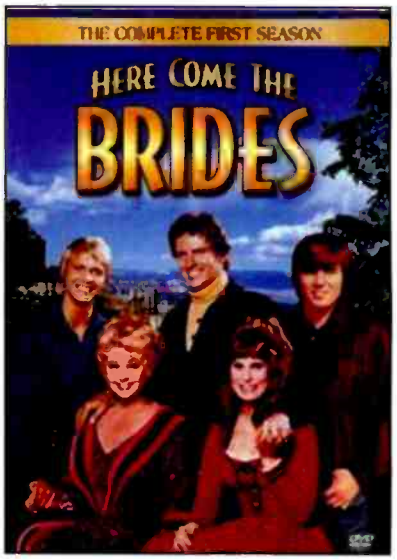
"Is it for sale?" Edna Casey wondered.

"Must be," Wensen noted. "On the back of the envelope, there were two words that gives me the impression that this station could *be had* quite reasonably."

"Which two words?"

"Make offer."

"Sounds like there could be a bargain there," Edna recognized. She didn't miss a beat before asking where the station value was located.



Set in the 19th Century Pacific Northwest, ABC's 1968-1970 series, *Here Come The Brides*, introduced many Americans in other parts of the U.S. to the natural beauty of the Seattle area. Cast members, Bobby Sherman and David Soul each had Top-40 hits resulting from the start the show provided them. The show's theme song, "Seattle," became a chart-reacher for crooner Perry Como. It was a favorite of both of this month's main characters and contributed to an interesting radio station wild goose chase. ***(WATCH and LISTEN**: To Bobby Sherman's "Little Woman" <http://bit.ly/vVLSEJ>, and David Soul's "Don't Give Up On Us" <http://bit.ly/t96z70>. – Ed.)*

"A place called Mountlake Terrace, Washington," Wensen revealed. "The map says it's just a few miles north of Seattle" — <http://bit.ly/rIvDjN>.

"The bluest skies you ever saw are in Seattle," the old woman sang.

"And the hills are the greenest green in Seattle," Wensen continued in song. He smiled broadly as she finished the rest of the unofficial theme of the late 1960s TV series, *Here Come The Brides*, then the two agreed it was certainly a happy coincidence that they both counted that relatively obscure program as one of their all-time favorites. ***(WATCH and LISTEN**: To the classic TV series "Here Comes The Brides" opening theme: <http://bit.ly/tyVVCL>. – Ed.)*

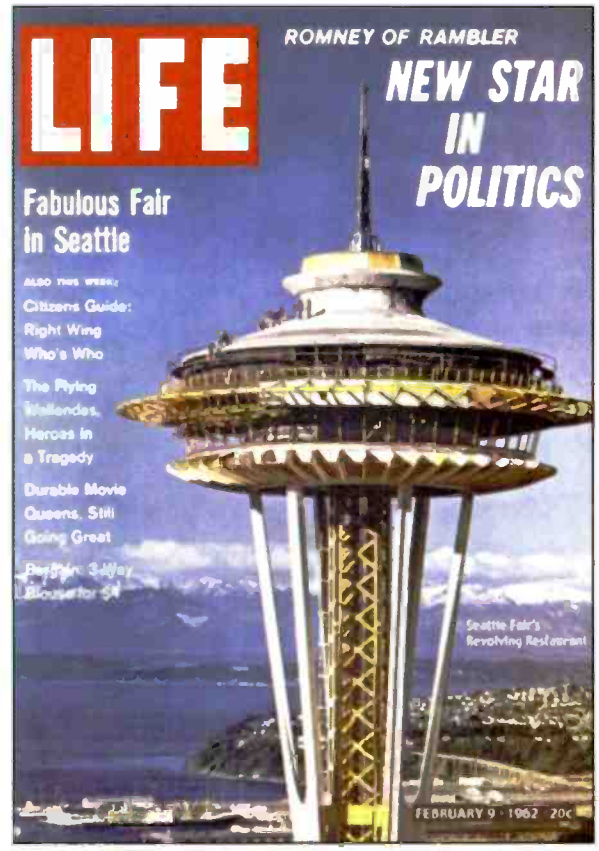
Wensen indicated he'd really like to see Seattle for himself. Edna Casey reported that she had a daughter and son-in-law out that way. "They want me to move closer to them," she said, and then paused before blurting out the following proposal:

Curt Wensen swears that the pre-owned 1982 Plymouth *Champ* he and Edna Casey drove from Delaware to Seattle a half-dozen years after it rolled off of a Japanese assembly line often got 45 miles per gallon highway mileage. "Of course, that's probably because I had to drive at 55 mph or less," Wensen smiles, remembering how his passenger used to begin praying out loud for the road to be clear of state troopers whenever he ventured past the then maximum double nickel mark. "It was a neat little car and had an amazingly sensitive AM radio," he recalls. No matter, it never received the radio station he drove out West to specifically hear. Sharp-eyed readers will have noted that this ad touts the 1986 edition of the Colt, by then available from either Plymouth or Dodge. Though the *Colt* was the same "badge-engineered" Mitsubishi-built car as *Champ*, Chrysler's Plymouth division dropped the *Champ* model name so that further standardization could be had at Chrysler's dealerships.

"Here's the deal. I'll buy a decent used car and pay for gas if you agree to drive us to Seattle so I can see if I want to stay there and you can make an offer on your mystery bargain station."

Wensen thought out loud about his school district's summer vacation fast approaching, considered things silently for about 30-seconds, and then simply smiled, "OK."

A summary of their road trip includes the facts that Edna relocated to suburban Seattle and Curt Wensen found no trace of the radio station highlighted in that interesting coverage map. She seemed more disappointed than he about the obscure AM's apparent evaporation and said so when driving Wensen to Sea-Tac airport in her perky 1982 Plymouth Champ <http://bit.ly/uORXAT>. "Oh well," Wensen shrugged, "the broker not knowing that the station had disappeared was kind of a bad sign, anyway."



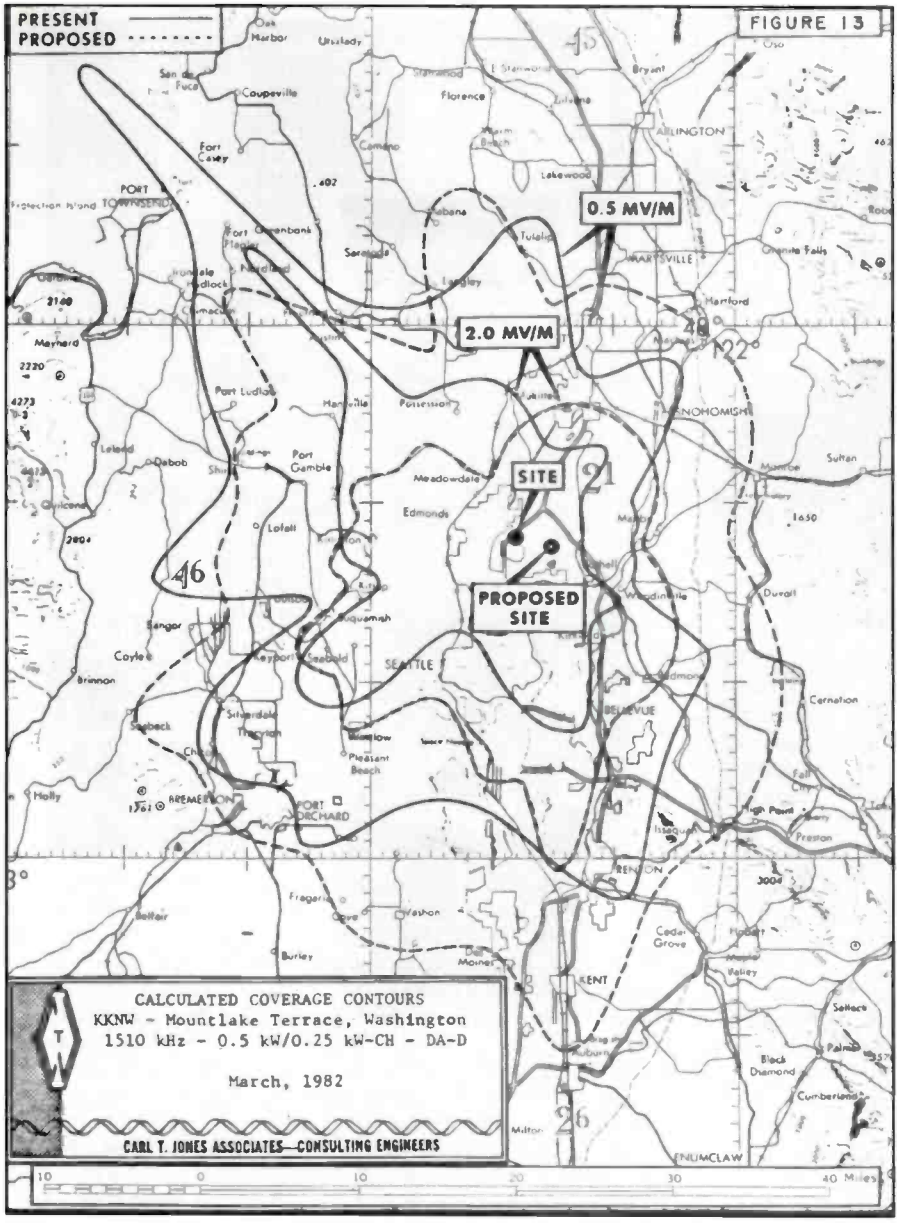
Edna Casey made good on her promise to treat her "young radio friend," Curt Wensen, to a nice dinner atop Seattle's Space needle. Her first glimpse of it had been on the cover of a 1962 LIFE magazine introducing the iconic architectural symbol of the city's famous fair. "From our seats in the Space Needle's revolving restaurant," muses Wensen, "we could clearly see most of Seattle's broadcast antennas. As night fell while we were being served dessert, I pointed out several stately AM arrays, their lights faithfully blinking red warnings to air traffic." Edna remarked that Curt seemed to admire them as if they were beautiful women dressed in diamonds. "Well," he admitted, "I suppose that's the sign of a real radio nut." *(**SEE**: A 360-degree view of Seattle from the world renowned Space Needle: <http://bit.ly/scgO5G>. – Ed.)*

Anything In the Books About This Vanishing RF Mist?

And for 22 years, the schoolteacher remained curious about the invisible daytimer once licensed to Mountlake Terrace. Brought to my attention, his fascination with the blip on broadcast history's radar screen became sufficiently contagious to get me to bug radio historian, Jan Lowry, for anything he could dig up on the erstwhile Seattle area signal.

"Well, you got me curious, too," Jan kindly replied by email after spending several hours digging into the *Broadcasting Yearbooks* placed chronologically along his living room wall, and then coming up with what is arguably the most detailed treatise on a radio station with which very few Seattle-area media buffs are familiar:

"In early 1968, the Federal Communications Commission granted a construction permit for a new AM broadcast station



"Sort of looks like a picture of a dog's breakfast," one wise old broadcast engineer remarked to Curt Wensen after he showed the tech the coverage map received in an out-of-the-blue response to a "Stations For Sale" ad. The 1982 document sought FCC permission to move then KKNW's transmitter site east a few miles and "jump" from 250 to 500 watts during "non-critical" or mid-day operating hours. The directional antenna array resulting from the Commission's subsequent OK barely had a chance to take to the air before its disappointing coverage and other difficulties experienced by the ill-fated daytimer's owners caused the station to vanish from the market. Its significance was so limited that even some Seattle area broadcasters, who Curt Wensen queried in 1988 regarding the AM's whereabouts, had virtually no more than a few anecdotes about the outlet's crummy signal and hard-luck reputation.

at Mountlake Terrace (Snoqualmish County) Washington to Mount-Ed-Linn Inc., for 250-watt daytime-only operation on 1510 kilocycles. It was required to operate directionally to protect KGA at Spokane. The call letters K-U-R-B were soon assigned.

Airdate of KURB was September 22, 1968. It was originally located at 21401 52nd Avenue West in Mountlake Terrace. This original site of KURB's two-tower directional array was later cleared to make way for a housing development. President of the station's licensee was Patrick D. McMahan. The independent station's first General Manager was Ted Hiker. *(**SEE**: A satellite view of KURB's Mountlake Terrace address: <http://bit.ly/uJStld>. – Ed.)*

In 1969, Elliott Boisen was named President of KURB's licensee. Doug Setterberg replaced Ted Hiker as General Manager in 1970. A year later, F.E. "Gene" Nagel became general manager. By 1972, the station was airing a country and western music format. That changed to a talk format in 1973, the year Mike Lonergan took over as general manager of KURB.

The small AM's call letters were changed from KURB to KAAR during 1975. In 1976, it switched back to country music. KAAR changed call letters to KKNW in 1980, the year the station was purchased by the Radio Northwest Broadcasting Company. Burt Ketcham then took over as president and general manager and relocated KKNW to new studios at 22002 64th Avenue West. KKNW adopted a "Personality Adult Contemporary" music format in 1981. *(**SEE**: A satellite view of the KKNW location: <http://bit.ly/tI7VN8>. – Ed.)*

Due to unknown reasons, the station's owners removed it from the air but held on to the KKNW federal license. Its new studio location was shuttered in 1982 with its mailing address changed to a Post Office box at Lynnwood, Washington.

While off, KKNW changed call letters to KKZW. (This is a clue that someone had planned to feature a *zoo* type of edgy personality hot-hits format on the AM, something that, by the late 1980's, only an FM would be able to pull off. For more information on the zoo format, visit: <http://bit.ly/usM04e>)

An FCC permit to raise day power to 500 watts (still 250 watts critical hours) was issued in 1983. The KKZW license was transferred to Richard Cole (whose offices were located at 120 2nd Avenue South, Edmonds, Washington) in 1987. Due to its off-air status, the FCC canceled the station's license and deleted the KKZU call letters in 1988.

'Another Valuable Glimpse' of the 'Ill-Fated 1510'

Just as Curt Wensen and I were musing over the "unknown reasons," in Jan's exposé, for KKNW's owners taking their station dark, respected Pacific Northwest broadcast engineering consultant Ben Dawson contacted me about something he'd seen in one of my columns. I took advantage of this serendipity to ask Mr. Dawson if he had ever heard of the ill-fated 1510.

His insight, gathered from first-hand experience with the facility, gives us another valuable glimpse of a flea-power, hopelessly, directional, daytime-only

AM radio shoehorned into an already crowded marketplace during the rise of FM listenership. He notes that "the Mountlake Terrace station was originally put on the air by a partnership of local businessmen in Mountlake Terrace, Edmonds, and Lynwood, (hence the original licensee name: Mount-Ed-Linn, Inc.) all of which are suburbs of Seattle, but located in the very southern portion of Snohomish County, the next county north of King County, the location of Seattle.

"It was never a commercial success. At some point the transmitter site lease came to an end (or perhaps one or more of the original partners sold it) and the station was forced to move to a new site somewhat to the east of the original.

"It was built (and my partner Jim Hatfield and I actually tuned up the directional antenna for the license application) but somehow there was some ownership or other problem that resulted in it not ever being licensed from that new site, and it eventually became deleted.

"I don't remember if it was the original facility or the replacement facility, but I think the original facility not the new one, had its hardware auctioned, and one of our clients and our firm went together and bought the transmitter and studio equipment.

"We ended up with the antenna hardware and some other items and I still have a Techniques turntable in my stereo equipment at home that came from that package. We retuned the transmitter for our client and he used it for several years for his station, KONP, Port Angeles. I don't know what happened to the hardware at the replacement site, but I think it was all leased and so got repossessed by the lessor." ***(LISTEN**: To KONP's live online streaming audio: <http://www.konp.com/>. – Ed.)*

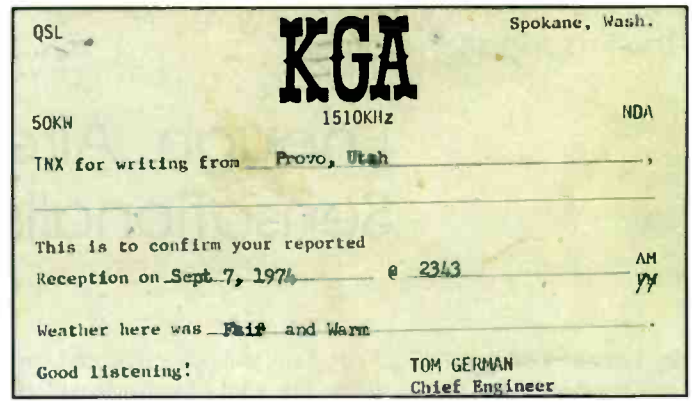
'Probably Never Should Have Been Built'

(After considering these details, Curt Wensen, Jan Lowry, and I concur with Mr. Dawson that the Mountlake Terrace facility) was one of those AMs that probably never should have been built. It got hammered in the morning and afternoon by the critical hours skywave from Spokane, and the ground conductivity in the area is so poor — 1 mS/m at best — that its coverage was pretty poor under the best of circumstances."

Even in terms of a Web search using the Mountlake Terrace city-of-license and any of the 1510's four sets of call letters, one doesn't get much coverage of our subject station. But a bit like an instantaneous slice of decent signal in an otherwise spiky directional pattern, a few brief paragraphs of a 2006 blog about the little also-ran Seattle area station surfaced on a site called Radioinfo.com <http://www.Radio-info.com>.

In it, the writer — identified as Nostalgic Dick — recalled his "misspent days at (the original Mountlake Terrace incarnation) KURB, back in the early/mid 70s. The place was always desperately broke," he noted, and then credited the place's general manager with "being filled with great ideas (but) no cash to set things into motion."

Dick said the KURB studio/transmitter site was razed to accommodate "a condo development, which (one) can see on the east side of the I-5 overpass as (one) heads through Mountlake Terrace. Back then, there were two stubby towers behind the station," he recollected and also remembers the general manager "attempting to tweak the directional pattern of this 500-watt (during non-critical hours in December, for example, as short as 9 a.m. to 3 p.m.) 'fire-starter' to get a little more coverage in Seattle." The blogger smiles that he "could *almost* hear KURB in (his) downtown (Seattle) apartment. ***(SEE**: Nostalgic Dick's full posting: <http://bit.ly/vhZimm>. – Ed.)*


QSL

KGA

Spokane, Wash.

50KW 1510KHz NDA

TNX for writing from Provo, Utah ,

This is to confirm your reported

Reception on Sept. 7, 1974 @ 2343 AM

Weather here was Fair and Warm .

Good listening!

TOM GERMAN
Chief Engineer

While the recipient of this QSL was undoubtedly pleased to receive KGA in his Utah radio shack, DJs hearing the 50-kilowatt Spokane giant on their headphones in the air-studio of a 250-watt suburban Seattle AM, also authorized for 1510 kilohertz, were — at best — quite chagrined. During the "critical hours," FCC defined as the time near sunrise and sunset when AM signals are not particularly confined to ground wave travel, KGA sometimes jumped across Washington State and overtook the efforts of its modest Mountlake Terrace channel mate. ***(LISTEN**: To KGA Sports Talk via live streaming on the station's website: <http://www.1510kga.com/>. – Ed)*

And what might one have heard there through the static circa 1975? According to Dick, music with taped voice-tracked introductions by talent otherwise too costly to have on staff. Apparently, the entry-level radio personnel at KURB — and its other incarnations — were happy to be at least a small cog in the broadcast industry so were amenable to "spinning some records for a couple hours, then get on the phone and make cold calls to anybody in the Yellow Pages. It was a tough sell," he says while realizing he "burned up more gas going to (sales) appointments than (he) ever made back from the sponsors — (advertisers who) weren't any better at paying their bills than KURB was."

The former 1510 employee remembers his more experienced colleagues speeding to the local bank on payday, sometimes leaving him back at the humble station with one of the checks that couldn't be cashed. When I shared Nostalgic Dick's impecunious AM nostalgia with Curt Wensen, he expressed relief for the Mountlake Terrace property having faded into history before he had a chance to walk through it with a broker. "No doubt I would've been naive enough to take a chance on becoming the owner of a real Seattle area radio station," he laughed. "Then I would really need to get back to church to pray for a ratings miracle!"

A Gift For Her 'Adopted Radio Son'

Still, Wensen's dream of running a little AM stick has stayed with him. Perhaps this long-held yearning may come true thanks to a trend of decreasing small market radio station prices and something else that Wensen recently heard . . .

About a week prior to this article being written, the now-retired Delaware teacher's doorbell rang at about the time when the mail typically arrived. It was the rural carrier who wanted Wensen to sign for a certified letter from an attorney in the Seattle suburb of Federal Way, Washington. Edna Casey had died, the correspondence stated, and she bequeathed her "adopted radio son" the funds to make about 1,000 watts of that dream come true.

And so ends another day of AM history on Pop' Comm . . .

Enough, Already: Fear and Sensationalism

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

"The media's attention and spin has changed. And Hollywood has helped promote a culture of fear."

Fear. Fear and often *repeated sensational headlines*: For a lot of news providers, that's what's good for drawing in a readership or viewership. It is even useful for stirring up interest in funding your latest science research project or government agency.

An astute reader of this column knows that Solar Cycle 24 is alive and well, and was making great progress late in 2011. It comes as no surprise, and certainly not as a fear-inducing discovery, that with the increase in solar activity come space weather events.

Readers of this column know, as well, that space weather is normal and that x-ray flares can occur quite frequently even on the same day, one after another. Certainly, with this normal increase in x-ray flare activity, readers know that it is likely that coronal mass ejections will be hurled away from the Sun, often toward the Earth, in turn triggering geomagnetic storms and aurora.

These events do not cause you, the educated reader, to worry that your Prius won't start after a solar storm, or lead you to conclude that your WiFi network was "going in and out" last night because of the Northern Lights. You don't think that the End of the World is upon us because Cycle 24 is finally underway and we're seeing the usual increase in space weather.

But, the news media needs readership. Television networks need ratings. Hollywood enjoyed the prophecies of the End of the World by 2011's close. That's just good entertainment value. *(**WATCH**: WTYW-TV anchor Gillian Sheridan asks: "Should you expect the End of the World in 2012?"<http://bit.ly/ueK37x>. – Ed.)*

A Good Example

Witness October 24, 2011: A coronal mass ejection that was unleashed by an erupting filament (and not by any x-ray flare, mind you) gave Earth's magnetosphere a glancing blow. While only a partial "hit," the magnetic configuration of this huge plasma cloud was strongly oriented southward when it met up with the Earth's magnetic force field. The two magnetic "bubbles" recombined, effectively opening a "window" into our atmosphere into which some of that solar plasma flowed.

This CME plasma rained down along the Earth's magnetic field lines toward both magnetic poles, and triggered strong visual aurora. *(**WATCH**: A graphic depiction of the October 24 CME impact: <http://bit.ly/vQLfDD>. – Ed.)*

Because the sky was clear over much of northeastern and central America, and because this CME arrived just as darkness fell on this region, the resulting aurora was easily seen across the region. This made headlines. *(**WATCH**: A slideshow of aurora activity associated with the coronal mass ejection that hit Earth October 24: <http://bit.ly/vZn00r>. – Ed.)*

The auroral event of October 24 was called *epic* while Twitter was alive with declarations of *never-seen before aurora* and questions of fear and fulfillment of end-of-days prophesies. And, this author received many questions about how unusual all of this new solar activity is, and how they've heard the predictions of *the big solar storm that will wipe out our infrastructure.*

Back during the peak years of Sunspot Cycle 23 — let's say, between 1999 and 2003 — these *epic* light shows were actually quite common. Usually, they would be more likely to occur during the Spring and Autumnal Equinoctial periods, but sometimes even during non-peak seasons each year. Perhaps, though, because these *epic* light shows occurred so very long ago, they no longer qualify in the context of the *news cycle*. Today's new light show must now be *epic*.

The Most Troubling Part

What has this columnist worried, though, is the fear factor. It has been troubling me, lately, because I am receiving both questions based on fear, and then repeated expressions of relief and gratitude once I explain the cyclic nature of our Sun and how space weather is a rather normal and typical aspect of our living with a star.

When I explain what the reader already knows — that sunspot cycles come and go on an average cycle of 11 years, with quiet periods and then with a few years of intense activity — the response is one of relief. This relief comes when it is realized that we've been subject to proton storms, geomagnetic storms, and the instantaneous flashes of x-ray flares for all of our lives, and we've never blinked an eye nor worried about it.

What's changed? The media's attention and spin has changed. And, Hollywood has helped promote a culture of fear. If you are reading this after December 2011, it is likely you either survived the End of the World as prophesized, or, all

of the hype was for naught. But, why else would the media be on this bandwagon of highlighting the risks and re-iterating the possible disasters that could ensue if ever the Sun unleashed "the big one?"

Perhaps it is because of the great push by solar scientists in the last few years to promote the idea that Space Weather *(yes, in caps)* should now be given the same budget and priority, if not more, than terrestrial weather. They need line items in the federal budget. They need grant money. They need to justify research, and more space exploration. How do they generate the "need factor" if not by generating "concern and public awareness" about Space Weather?

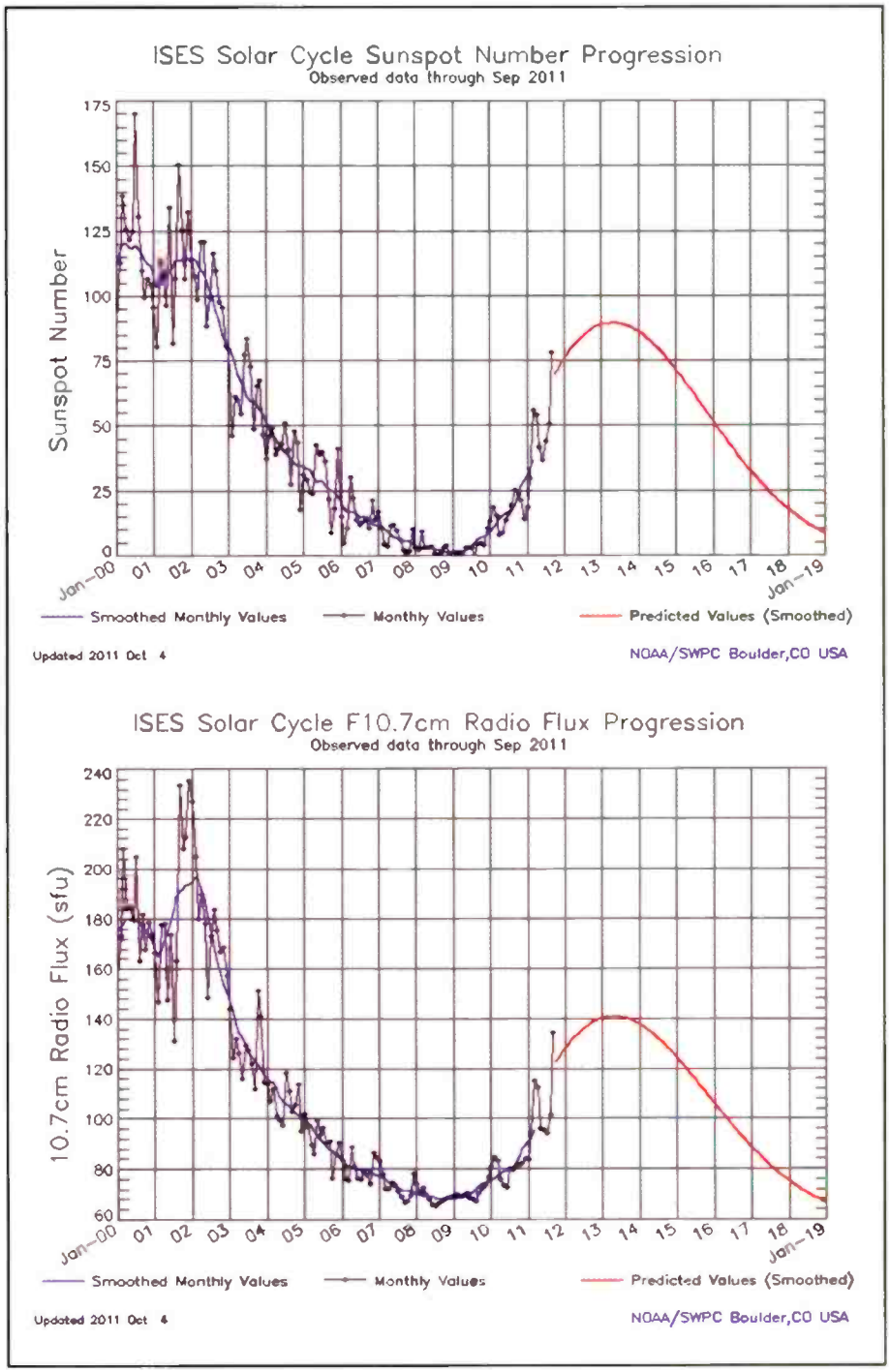


Figure 1: Sunspot Cycle 24 progression charts showing the huge, sharp rise beginning in September 2011. There was a lot of discussion about the variable nature of the Sun, and the dismal conditions from May through August, but this sort of variability is quite normal during any sunspot cycle. It is clear that this sunspot cycle is on its rise. The last quarter of 2011 was alive with solar activity and resulted in the higher shortwave spectrum offering plenty of world-wide radio propagation. *(Courtesy of Space Weather Prediction Center and NOAA)*

Our Best Defense: Knowledge

The careful reader of this column has noted that a good dose of education about Space Weather helps keep all of this in perspective. This column reports, monthly, on the progress of the current sunspot cycle, and highlights of recent space weather. Additionally, this column helps sort through all of this and ties it to a practical application: *How does all this knowledge help in radio communications?*

It is worthwhile to fund space weather research. It is useful to have a handle on space weather so we can forecast geomagnetic storms, x-ray flares and coronal mass ejections. We should be prepared for "the big one." But, we don't have to live in constant fear, either. This column will continue to put a perspective on space weather that should help the reader understand that space weather is a normal daily part of our environment, and we humans have lived under the influence of space weather ever since we can remember.

Where Are We in Sunspot Cycle 24?

Remember that the original forecast for Cycle 24 — published by the expert solar scientists back in 2007 — predicted that the current cycle would be very energetic, if not the most energetic in 400 years.

Of course, we now know that this prediction may no longer become fact. The panel has revised its prediction several times, since. Why? They have been modifying their cycle prediction mostly because of the first major failure of all their models and forecasts: The prolonged sunspot minimum between Cycle 23 and Cycle 24.

Instead of an expected "typical" solar cycle minimum lasting a year — or at most two — as seen during recent cycles, a prolonged minimum period lasting some four or so years ensued.

Astronomers and solar scientists have been counting sunspots ever since Galileo began to record these solar events. As these records were made, it became clear that solar activity rises and falls approximately every 11 years. More accurately, sunspot cycles can range from a short nine years to nearly 14 years in duration. Taking an average of the 23 cycles on

Optimum Working Frequencies (MHz) - For January 2012 - Flux = 127, Created by NW7US

UTC TO/FROM US WEST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	22	18	14	13	12	12	12	11	11	11	11	10	10	10	15	20	22	24	24	25	25	25	24	24
NORTHERN SOUTH AMERICA	31	28	24	18	17	16	16	15	15	14	14	14	14	14	15	26	29	31	33	34	34	34	33	32
CENTRAL SOUTH AMERICA	30	27	22	18	17	16	16	15	15	15	14	14	14	14	19	27	30	32	33	34	34	34	33	32
SOUTHERN SOUTH AMERICA	32	30	27	19	18	17	16	16	15	15	15	14	14	14	14	25	29	31	32	33	34	34	35	34
WESTERN EUROPE	10	10	10	10	10	9	9	9	9	9	10	10	9	9	9	13	15	15	14	13	11	10	10	10
EASTERN EUROPE	10	10	10	10	9	9	9	9	9	10	10	9	9	9	9	9	13	12	11	11	11	10	10	10
EASTERN NORTH AMERICA	24	21	15	14	14	13	13	13	12	12	12	12	12	12	16	22	24	26	27	27	27	27	26	25
CENTRAL NORTH AMERICA	14	13	11	8	8	8	7	7	7	7	7	7	6	6	6	10	12	13	14	15	15	15	15	14
WESTERN NORTH AMERICA	7	7	6	5	4	4	4	4	3	3	3	3	3	3	3	3	6	7	7	8	8	8	8	8
SOUTHERN NORTH AMERICA	24	22	19	14	13	13	12	12	11	11	11	11	11	11	11	18	22	23	25	25	26	26	25	25
HAWAII	22	22	21	19	17	12	12	11	11	10	10	10	9	9	9	9	9	15	18	20	21	22	22	22
NORTHERN AFRICA	11	10	10	10	10	10	10	10	10	10	10	10	10	9	9	14	16	18	18	16	12	12	11	11
CENTRAL AFRICA	13	12	11	11	11	10	10	10	10	10	10	10	9	9	9	13	16	17	18	15	15	14	13	13
SOUTH AFRICA	21	18	14	14	13	13	12	12	12	12	11	11	11	11	16	21	23	24	25	25	25	25	24	23
MIDDLE EAST	10	10	10	10	10	10	10	10	10	10	10	10	9	9	9	9	13	14	12	11	11	11	10	10
JAPAN	20	20	19	18	16	12	11	11	11	10	10	10	10	10	10	10	9	9	10	10	10	13	18	19
CENTRAL ASIA	20	20	19	18	16	12	11	11	11	10	10	10	10	10	10	10	10	9	9	12	12	12	12	20
INDIA	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
THAILAND	19	19	18	17	15	12	11	11	10	10	10	10	10	10	10	10	9	9	13	12	12	12	12	12
AUSTRALIA	29	30	32	30	26	19	18	17	16	16	15	15	14	14	14	14	14	19	18	17	19	22	25	27
CHINA	17	18	18	16	14	11	11	11	10	10	10	10	10	10	10	10	9	9	10	10	10	10	10	12
SOUTH PACIFIC	32	33	32	29	25	18	18	17	16	15	15	15	14	14	14	14	14	18	19	23	25	27	29	31

UTC TO/FROM US MIDWEST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	24	19	15	15	14	13	13	13	12	12	12	12	12	18	24	26	28	29	29	30	29	29	28	26
NORTHERN SOUTH AMERICA	27	23	18	17	16	15	15	14	14	13	13	13	13	17	25	28	30	31	32	32	32	32	31	29
CENTRAL SOUTH AMERICA	28	22	18	17	16	16	15	15	15	14	14	14	14	23	28	30	32	33	34	35	35	34	33	31
SOUTHERN SOUTH AMERICA	31	28	21	19	18	17	17	16	15	15	15	14	14	14	26	28	29	31	32	33	34	34	35	33
WESTERN EUROPE	10	10	10	10	10	9	9	9	9	9	9	9	9	12	16	18	18	17	17	15	13	11	11	10
EASTERN EUROPE	10	10	10	9	9	9	9	9	9	10	10	9	9	9	14	16	15	14	13	11	10	10	10	10
EASTERN NORTH AMERICA	16	13	11	10	10	10	9	9	9	9	9	9	8	8	15	17	19	20	20	20	20	20	19	18
CENTRAL NORTH AMERICA	8	7	5	5	4	4	4	4	4	4	4	4	4	4	5	7	8	9	9	9	9	9	9	8
WESTERN NORTH AMERICA	14	13	11	8	8	8	7	7	7	7	7	7	7	7	6	10	12	14	14	15	15	15	15	15
SOUTHERN NORTH AMERICA	16	15	11	10	9	9	8	8	8	8	8	8	8	7	12	15	16	17	18	18	18	18	18	17
HAWAII	25	24	22	19	14	13	13	12	12	12	11	11	11	11	11	11	11	19	23	25	26	26	26	26
NORTHERN AFRICA	13	12	11	11	11	10	10	10	10	10	10	10	9	15	18	19	20	21	21	21	15	15	14	13
CENTRAL AFRICA	13	12	11	11	11	10	10	10	10	10	10	10	9	15	17	19	20	21	21	16	15	14	14	13
SOUTH AFRICA	23	18	17	16	16	15	15	15	14	14	14	14	14	25	29	31	32	33	33	33	33	32	29	26
MIDDLE EAST	10	10	10	10	10	10	10	10	10	10	10	10	9	11	16	18	19	17	12	12	11	11	11	10
JAPAN	19	18	16	13	12	11	11	10	10	10	10	10	10	10	10	9	10	10	10	10	10	11	17	19
CENTRAL ASIA	19	18	16	12	11	11	11	10	10	10	10	10	10	10	9	9	13	12	12	12	12	12	12	19
INDIA	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
THAILAND	18	16	14	11	11	11	10	10	10	10	10	10	10	10	9	9	13	13	13	12	12	12	12	12
AUSTRALIA	29	31	29	24	18	17	16	16	15	15	15	14	14	14	14	14	20	19	18	17	20	23	25	27
CHINA	15	16	14	11	11	11	10	10	10	10	10	10	10	9	9	9	10	10	10	10	10	10	10	9
SOUTH PACIFIC	32	31	29	23	18	17	17	16	15	15	15	14	14	14	14	20	19	19	21	24	26	28	30	31

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

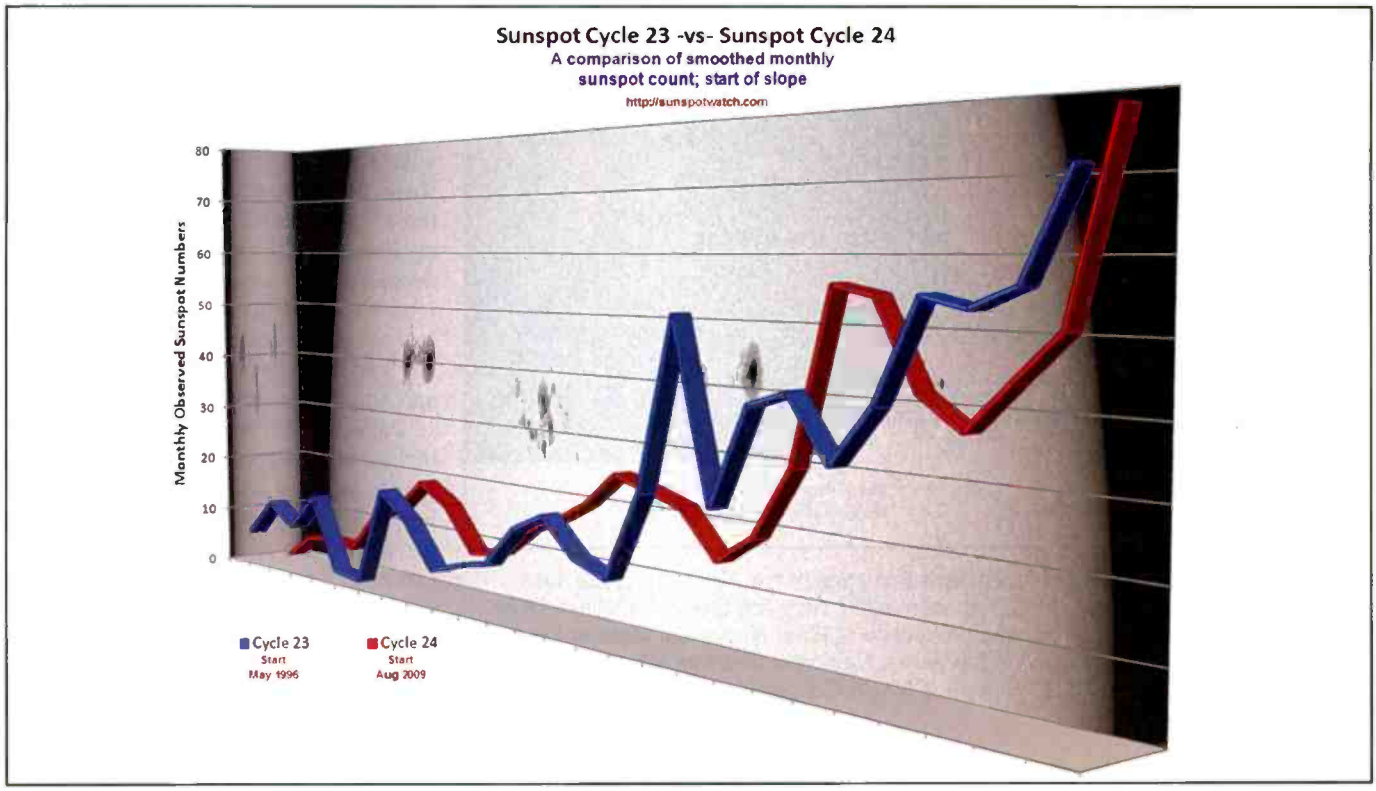


Figure 2: When we look at the smoothed monthly sunspot numbers for each month during the last sunspot cycle, Solar Cycle 23, and compare the same number of months in the current Solar Cycle 24, starting at the month with the lowest sunspot number in the series in question, we have a way to compare the two sunspot cycle rising slopes. This comparison (starting with May 1996 for Cycle 23, and August 2009 for Cycle 24) reveals that the current cycle is actually progressing quite "normally" and is neither sluggish nor weak as has been speculated. Most speculation is based on the prolonged solar cycle minimum that transpired between the two cycles. When comparing each cycle by matching them up in this way, each cycle appears to have very similar growth in activity. Based on this, it might be that we'll see this current cycle peaking at a reasonably high point much like that of Cycle 23, and yet a few years from now — a 2014? *(Courtesy of NW7US)*

record since March 1755, the mean cycle length is 10.6 years.

This past cycle minimum caused alarm rooted in the extended length of Solar Cycle 23 and the associated deep quiet period (QP) between cycles 23 and 24. This period can be measured based on a beginning and ending mean monthly threshold value of less than 10 for the sunspot number.

The length of Cycle 23, 153 months, is second only to Cycle 4 (September 1784 to May 1798), 164 months, while an average of 132.5 months is known as the so-called "11-year sunspot cycle" (remember, the common "11-year" sunspot cycle is an approximate average of all recorded sunspot cycles).

The length of the QP between cycles 23 and 24 ranks eighth of all recorded cycles, extending from October 2005 through November 2009, although there is some debate yet on the exact month marking the start of Cycle 24. There is the statistical start of the cycle, and there is the start based on the latest month with the lowest monthly smoothed sunspot count, prior to the rise in monthly numbers.

Based on a predicted statistical start of Cycle 24, the number of spotless days achieved within this QP was 751. For all days within the transition from Cycle 23 to Cycle24, a record number of 801 spotless days had been observed through May 2010. *(Note: This is based on the second method of determining the start of Cycle 24, the new cycle began in August 2009.)*

Because of the shortcomings and failures of the various solar cycle predictions contemplated by researchers, the official panel of experts modified its predictions several times since 2007. The panel has tried to fit various models to better forecast the unexpected behavior of the Sun.

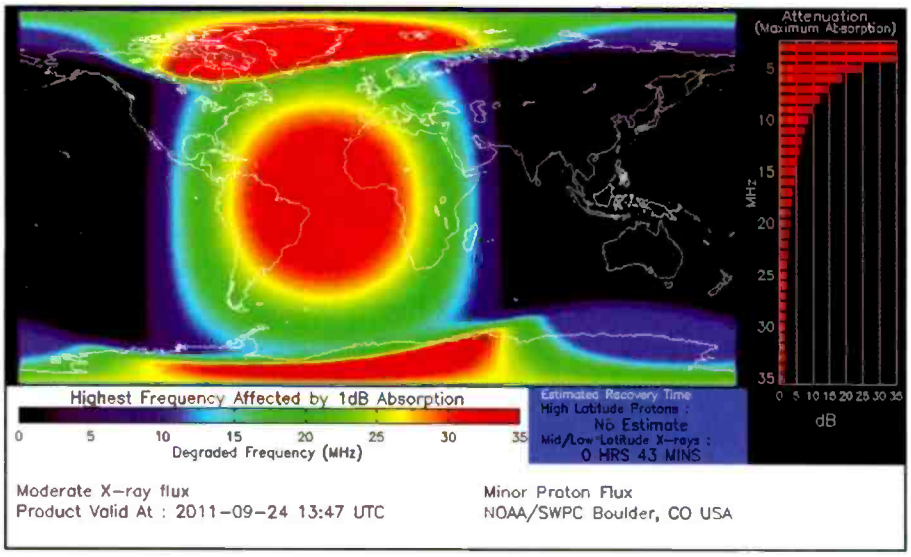


Figure 3: Nighttime visual and multispectral images of the Aurora Borealis over eastern Canada and the United States were taken from the DMSP satellite F18 on October 25, 2011. This imagery was processed at Fleet Numerical Meteorology and Oceanography Center (FNMOC) in Monterey, California and was taken by the weather satellite DMSP-F18. *(Courtesy of NASA Coupled Ion-Neutral Dynamics Investigation Mission)*

The latest forecast presented in May 2009 by the international panel of experts, led by NOAA and sponsored by NASA, enjoys nearly unanimous favor from all panel participants. Solar Cycle 24 will peak, they say, in May 2013 with a below-average number of sunspots: 90, the lowest of any cycle since 1928 when Sunspot Cycle 16 peaked at 78.

The panel is quick to warn that a low sunspot count does not necessarily translate to a mild, quiet cycle of solar activity, however. Severe space weather, which includes proton storms, coronal mass ejections and related geomagnetic storms, as well as x-ray flares of widely-varying strengths with their related sudden ionospheric disturbances (also known as radio blackouts), are very likely to occur at any time during the active months of a sunspot cycle. Cycle 24 will have its fair share of space weather.

Au Contraire, Mon Frere

This columnist disagrees, though. Since none of the models have ever been accurate in forecasting neither the minimum nor any maximum, at any time in the past, how can we put any weight on these models now?

The idea that a couple more years of analysis and data somehow strengthens the model seems to fall short. We'll see. In the meantime, if we compare Cycle 23 with Cycle 24, purely on the rising slope (by starting each cycle at the month prior to the clear rise, at the lowest month prior to each cycle's slope upward), we see that Cycle 24 is actually quite normal. It does not show itself to be moving slowly, now that it is in motion.

Yes, there was a prolonged minimum. But, if we remove that statistical element, we see a clear rise that is on track to compete well with the last cycle. And this is good news for radio enthusiasts who rely on the F_2-region of the ionosphere for propagating their radio signals around the world.

High-Frequency Propagation

This month, though, readers in the Northern Hemisphere are in the heart of the winter season, with very short daylight hours. Average daily Maximum Usable Frequencies (MUFs) are at their seasonal lowest, but so are noise levels.

During the winter months the maximum usable frequencies are generally higher during the daylight hours than during the summer daylight hours. This provides short but strong openings on higher shortwave bands during the winter day. Then, at night, the MUF dips down much lower than what would be seen during the summer nights.

Summertime MUFs are generally higher during the night hours than during the winter nights, due in part because the ionosphere stays energized through the short nights. Winter nights are longer, so recombination of the ionosphere (which results in a lowering of the MUF) is more complete.

This also means that the D-region of the ionosphere is less ionized during the winter, allowing medium wave and shortwave frequencies to propagate through the D-region and off of the E- and F-regions. Additionally, the seasonal decrease in weather-related noise makes it easier to hear the weaker DX signals on lower frequencies. With thunderstorms few and far between, storm-related static and noise is greatly reduced.

Paths on 31 through 15 meters remain in their seasonal peak, especially between North America and Europe in the morning, and between North America and Asia during the late afternoon hours. Twenty-two and 19 meters continue to be the best daytime DX bands, with 31 and 25 running a close second.

Plenty of surprises are possible on 31 meters during the morning and evening hours, and well into the hours of darkness. North/south paths on 25 through 15 meters will be reliable and open for most of the daylight hours, especially where paths terminate in the Southern Hemisphere. Nighttime conditions on these higher frequencies remain short and weak, with mostly north/south path openings since the Southern Hemisphere has longer daylight hours.

Signals are strong on 90 through 41 meters this year, and seasonally they are at their nighttime peak. DX activity tends to increase later in the evening toward midnight. Look for Africa and South Pacific (Australia, Papua New Guinea, and so on) on 90 through 60 meters throughout the night. On 41, 49 and 60 meters, long-path DX is possible along the gray line.

Seventy-five through 120 meters continue to remain stable, with very low noise levels. Some high noise may occur during regional snowstorms, but on average you can expect great nighttime DX conditions with the longer hours of darkness. Look for Europe and Africa around sunset until the middle of the night, and then Asia, the Pacific, and the South Pacific as morning approaches.

Signals below 120 meters are also greatly improved, unless we experience those intense CME events, where conditions will become degraded. Medium wave DX is really hot during this season.

VHF and Above

Sporadic-E (E_s) activity can appear

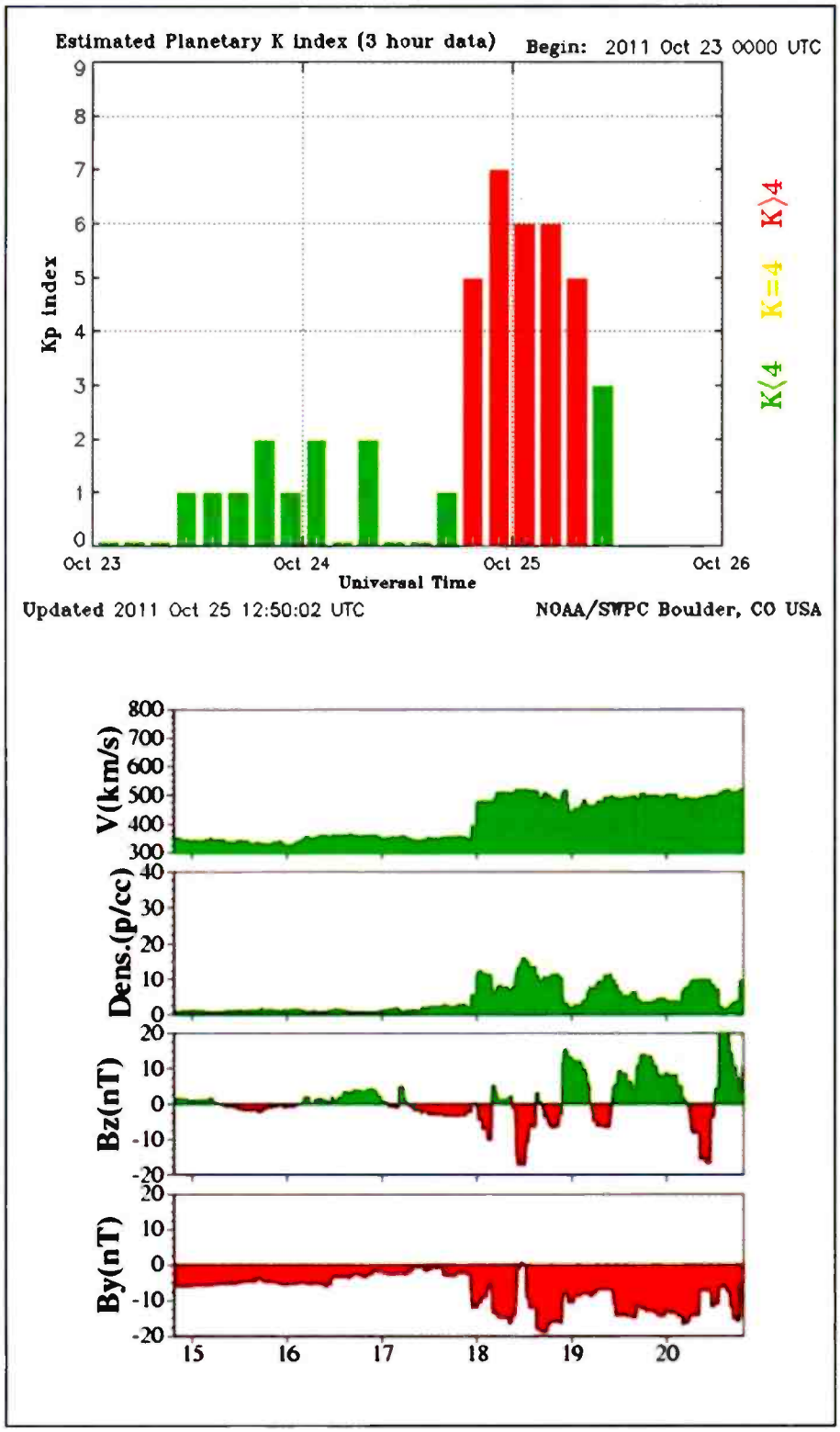


Figure 4: The glancing blow on October 24, 2011 by a coronal mass ejection (see text) resulted in a moderate (G2-level by the NOAA scale) geomagnetic storm, triggering aurora. The planetary K index (K_p) reached a peak of 7. During the last sunspot cycle, Cycle 23, there were geomagnetic storms where the K_p reached 9, and stayed there for several of the three-hour reporting periods. Those geomagnetic storms and resulting auroral events were truly "epic." In the plot of the solar wind, you can clearly see the arrival of the coronal mass ejection, as a sharp increase in solar wind density, pressure, and in the orientation (B_z) of the magnetic field. *(Courtesy of NOAA/SWPC and NICT/Japan)*

three to four days during January on the low VHF frequencies for stations in the Northern Hemisphere. The average opening may last an hour or two with distances of up to 1,000 km.

A particularly good time to monitor for E_s activity is during the ARRL VHF Sweepstakes contest, which begins at 1900 UTC January 21 and ends at 0359 UTC January 23. A surprise one- or two-hour opening has been known to occur during the contest period in the past and this has led to increased multiplier counts for contest efforts. This contest is on 50 MHz and higher amateur radio bands.

The Quantrantids meteor shower is the major meteor shower for January and it can appear any time during the first week of January. This can sometimes be quite intense, so it may be a good idea for setting up some 2- and 6-meter schedules. Morning meteor scatter openings may be the best bet during this month.

Current Solar Cycle 24 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for September 2011 is

78.0 (compare that to one year ago, when it was 25.2), higher than August's 50.6, and the highest monthly recorded so far in 2011 and since the start of Cycle 24.

The lowest daily sunspot value of 35 was recorded for September 8. It is interesting to note that exactly one year ago, it was on the very same day — September 8, 2010 — that the lowest of that month occurred; last year the lowest daily sunspot count was zero (0).

The highest daily sunspot count in 2011 was 124 on September 15 and 16. The 12-month running smoothed sunspot number centered on March 2011 is 36.9, compared with 2010's 12.3. A smoothed sunspot count of 74, give or take about 9 points is expected for January 2012.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 134.5 for September 2011, compared with 2010's 81.1. The 12-month smoothed 10.7-cm flux centered on March 2011 is 95.8, while last year's is 77.5. The predicted smoothed 10.7-cm solar flux for January 2012 is 127, give or take about 9 points.

The observed monthly mean planetary A-Index (A_p) for September 2011 is 13, up from August's 8, showing a clear indication that the Sun is becoming much more active. The 12-month smoothed A_p index centered on March 2011 is 7.2. Expect the overall geomagnetic activity to be varying greatly between quiet to active during most days in January, with a few periods of storm-level activity due to recurring coronal holes and other space weather. Refer to the Last Minute Forecast published in *CQ* Magazine or on the author's website <http://sunspotwatch.com> for the outlook on what days that this might occur.

I'd Like to Hear From You

I welcome your thoughts, questions and experiences regarding this fascinating science of propagation. You may 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* 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,

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The Last of the Mohicans (Well, Not Really)

The Restoration of Heathkit's Classic GC-1A General Coverage Receiver, Part I

by Peter J. Bertini
<radioconnection@juno.com>

"It was a handsomely appointed piece of eye candy that would stylishly adorn any ham shack or SWL listening post!"

I was perhaps 10 years old when my interest in electronics gelled into what would eventually lead to a lifetime career in electronics. In part, the transition can be credited to the seasonal Heathkit catalogs that arrived with regularity via the mail.

The HX-10 Marauder SSB transmitter was one of the first large ham transmitters I owned as a newly licensed ham. (***WATCH and LISTEN**: To the HX-10 transmitter in action: <http://bit.ly/vSRkks>. – Ed.)*

In the late '50s and early '60s many of the Heath amateur radio products had Native American tribal names besides catalog numbers. A not-too-complete list included the Apache, Cheyenne, Mohawk, Warrior and Chippewa. For a time, they ruled the HF bands. VHF operators had the Seneca, Pawnee and Shawnee rigs to lust over. And, finally, there was the Mohican portable transistorized communications receiver nestled in the shortwave receiver section. (***SEE**: A comprehensive list of Heathkit radios with details on each: <http://bit.ly/vWXYx5>. – Ed.)*

Figure 1: This page for the GC-1A communications receiver was scanned from a 1966-era Heathkit catalog. *(All images courtesy of K1ZJH)*

The Mohican receiver sported the traditional Heathkit green paint scheme, and the equally luxurious chrome-plated-cast metal knobs that were reserved for the Heath amateur gear lineup. It was a handsomely appointed piece of eye candy that would stylishly adorn any ham shack or SWL listening post!

*(**IN DEPTH**: Get details on the Mohician receiver in the Heathkit Virtual Museum: <http://bit.ly/spSKZJ>. **WATCH and LISTEN**: To a GC-1A in action: <http://bit.ly/tCFxkY>. – Ed.)*

The little Mohican was Heath's initial offering for an all solid-state communications receiver. The Mohican GC-1 was first offered in 1960, and was quickly replaced by the upgraded GC-1A, which incorporated improvements in the audio section. Although selling for $109.95 initially, the price dropped to $89.50 in later catalogs. A factory-assembled version, the GCW-1A sold for $193.50.

The Mohican featured a 10-transistor circuit; calibrated ham-band band spread tuning; and a BFO and anti-noise limiter. Coverage spanned from 550 kHz through 32 MHz in five band ranges. Heathkit noted that the Mohican would be equally popular with both ham and shortwave enthusiasts. Today, a Mohican would make a fine companion paired with a small QRP (low power) amateur radio CW transmitter project. It even has a standby muting input for that purpose.

Radio Dreams In a 1966 Heathkit Catalog

The Mohican advertisement, scanned from the Heathkit 1966 catalog, can be seen in **Figure 1**. When I was a young teenager I dreamed about owning one. This is one of those treasures you always lusted over as a kid! I wore out many catalogs! But, there were the realities of being a

Photo A: My newly-arrived Mohican GC-1A perched near the *Wireless Connection* editorial desk.

newly arrived teen with scant financial resources. Things come full circle. Several weeks ago I was given a Heathkit Mohican shortwave receiver!

I had just finished several restorations for a friend, and when he picked up them he left me with my newly acquired treasure, which is shown in **Photo A**.

The radio was in decent condition — no pitting on the chrome, and only light scratches on the paint. Best of all it was free of external rust damage! I hope to be able to buff out the scratches using an automotive rubbing compound. My friend found the radio on eBay, and reported that it was dead on arrival. It sat in my friend's barn for several years before finding a home in my shop.

Another Milestone: Capturing A Missed Treasure

Undoubtedly its performance will be a mere shadow of what I had anticipated as a youngster. The joy is often more in the quest than the final acquisition. Nonetheless, it marks another milestone in capturing another missed treasure from my youth. It wasn't working, but outwardly it showed a lot of promise.

The whip antenna was present and not

Photo B: The covers are off, and the inner workings of the GC-1A are revealed for the technically curious. The receiver marked a transitional period between tube and solid-state technology for Heathkit, as demonstrated by the use of heavy metal chassis construction. The only printed circuit board assembly is for the 455-kHz IF section.

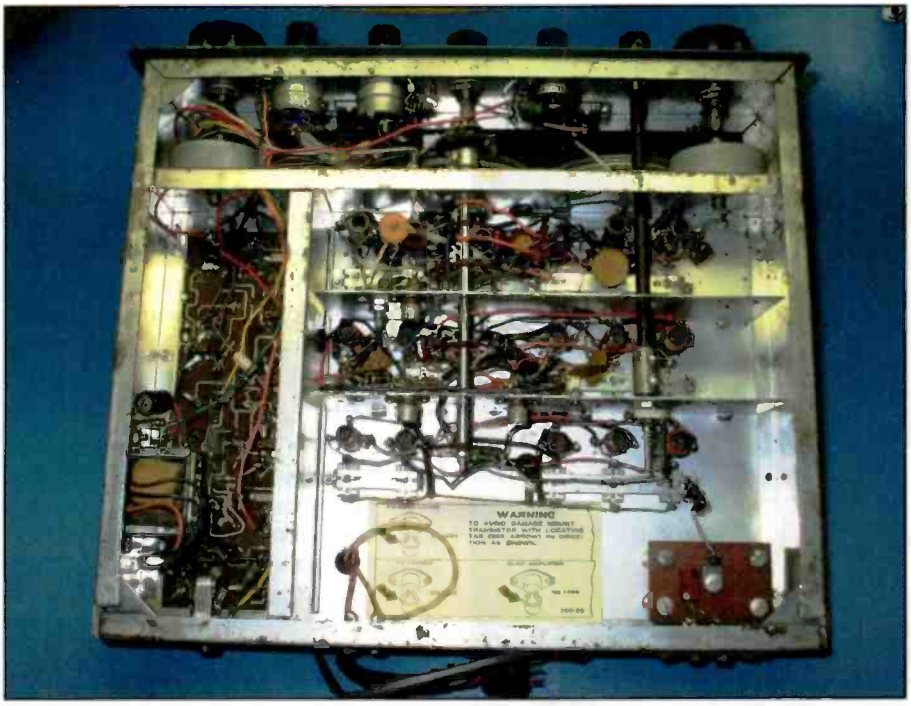

Photo C: The under chassis view shows the same mix of old and new technologies. The RF section is assembled using point-to-point wiring techniques, reminiscent of what would be seen in a vacuum tube design. By the 1970s a similar receiver would probably be built on printed circuit boards and relied more on plastic than steel.

damaged, the chrome knobs were shiny with no pitting, and there were only light scratches on the cabinet paint. It even had the optional XP-2 AC power supply, another plus. When the XP-2 is present it often means the supplied C-cell battery tray is missing, since it is removed from the radio when the AC supply is installed in the cabinet housing.

Mohicans are very popular with collectors, and demand exceeds the supply causing prices to continually rise. These sets do not store well in garages and in damp cellars. A Mohican in premium collectable condition commands a premium price. I was pleased to locate one that is essentially in presentable condition without needing major cabinet restoration.

Besides, a gift from a friend is always more enjoyable than a conquest won in an auction bidding war!

Let's Get Started

This column will deal the mechanical and wiring problems I noted when the restoration work began. Since this is our first foray into vintage transistorized

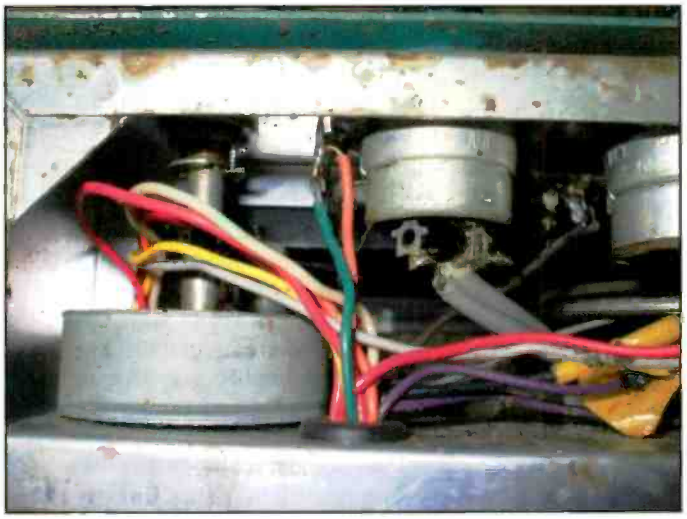

Photo D: Wiring and cable clearances can conflict with mechanical moving parts, as seen in this photo. The flywheel is rubbing against nearby wiring when turned. The flywheel was also loose on the shaft, permitting considerable endplay in the tuning shaft.

Photo E: Kits are more challenging than factory-assembled equipment. The builder didn't adequately tighten the mounting hardware for the bandspread tuning assembly, resulting in considerable bandspread tuning backlash and mechanical instability. Other loose hardware was tightened, and several nuts and screws were also missing.

equipment, the electrical restoration, troubleshooting suggestions, and alignment will be covered in subsequent columns.

I should note that I probably take a restoration much further than is necessary in many instances. It probably isn't unreasonable to find a vintage Mohican works reliably and that needs very little restoration or repair. I assume worst case, and restore to where I feel the radio is as reliable, or even more reliable than when it left the factory.

The engineers who designed Heathkit's first transistorized communications receiver faced many challenges as they explored new uncharted waters. The Mohican is unique in that the design has traits that are obvious carry-overs from the Heathkit tube-based equipment. A rugged metal cabinet, a heavy metal chassis, and circuitry that makes sparse use of printed circuit technology while relying on more traditional point-to-point wiring techniques belie the traditional heritage. Fortunately, it is those traits that in part make this hefty, but handsome receiver so unique and desirable!

Lifting the Hood

Let's take a peek under the covers and see what secrets lurk inside of that cabinet! The first exploration of the workings of a new piece of gear is part of the enjoyment, and the Mohican doesn't disappoint the technically curious! **Photo B** shows the rear of the chassis. The printed circuit board to the right contains the 455-kHz IF section. The remaining two-thirds of the chassis to the left is used for the tuning section. Note the numerous slug-tuned coils and openings in the chassis to access the RF trimmer capacitors!

Peeking beneath the chassis (**Photo C**) reveals the sectionalized RF tuning sections for the local oscillator, RF amplifier and mixer sections. Note the extensive use of metal shield partitions between those stages! The Mohican layout is surprisingly mechanically complex and on a par with many of Heath's amateur tube receivers that were in production at that time. The 10 transistors are in sockets.

Here a few of the issues I noticed in my Mohican. **Photo D** shows the flywheel for the main tuning shaft. The flywheel was rubbing against the wire bundle emerging from the front sub panel. Wiring and cables should be dressed to prevent contact with moving parts. There are two flywheels: One on the main tuning shaft and the other on the bandspread tuning shaft. These are mounted using setscrews, and the flywheels should be positioned on the shaft to minimize shaft endplay.

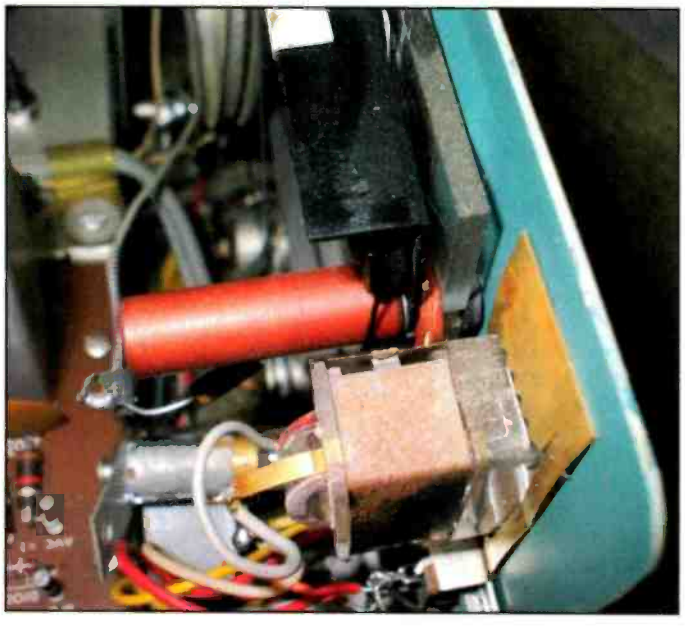

Photo F: The dial cord for the main tuning dial scale pointer rubs against the Phenolic standoff supporting one of the pilot lamps. This is a minor problem, and doesn't introduce noticeable drag or wear on the cord.

Tuning Backlash

In **Photo E** I'm holding the bracket that supports the bandspread tuning gears and variable capacitor. This bracket is mounted using a spade bolt. Under the chassis the mounting nut was loose, and the entire assembly was free to move when the bandspread tuning was used, resulting in considerable tuning backlash and mechanical tuning instability!

The spade bolt is sited directly below

Photo G: Purists may wish to remove enough Phenolic material so the dial cord no longer rides against the standoff. This was done using a rattail file held against the standoff, as it rotated while chucked in my drill press.

my two fingers and isn't clearly visible in the photo. Check that all of the mounting hardware, including shaft bushings, is snug and properly secured. Check for unexpected play in the tuning assemblies when using either the main or bandspread tuning. Bearings and gears can be lubricated by sparingly applying synthetic oil or clock oil to those points. The RF chassis plate is secured to the main chassis using 4-40 screws and nuts. A few of these were missing in my radio and needed to be replaced.

Photo H: Replacement feet are available at your local hardware store.

Dial Cord Clearance

Sharp-eyed owners eventually note that the dial cord for the main tuning dial pointer rubs against the Phenolic standoff used to support one of the pilot lamps. This can be seen in **Photo F**. The engineers probably noticed this gaff after the fact, but it is minor and doesn't cause problems.

If you wish, the standoff can be chucked in a drill press while using a rat-tail file to remove enough material to prevent contact between the cord and standoff. This is being done in **Photo G**.

Plastic Feet

I've never seen a Mohican that still had its original plastic feet! These little radios are often seen perched on fleamarket tables, hobbling about on little broken pieces of plastic stubble.

Apparently the feet became brittle and broke off, and few survived. The solution is as simple as a visit to the local ACE hardware store, as shown in **Photo H**. The originals may have been black plastic, but the white rubber replacements work well and are out of sight.

Hitting the Road — Back In March

I'm embarking on a long-anticipated vacation. *Wireless Connection* will be back in March's *Popular Communications* with the continuation of our Mohican restoration saga.

Until then, keep those old tubes glowing and those soldering irons warm!

Software Defined Radios In the Time Domain

By Kent Britain, WA5VJB
<wa5vjb@cq-amateur-radio.com>

"A good SDR station . . . would know the exact location of uranium centrifuges, how many are at each site, and their production status."

This month we're going to take several pieces of seemingly-disjunct technologies, tie them together and use them to keep an eye on "the crazies."

So, To Start . . .

In the world of waveforms there are two ways to look at waves. First, in the *frequency domain*. That is where the radio is tuned to a particular frequency and you listen to, or demodulate the signal on that frequency.

A new way to look at signals in the frequency domain is with a Software Defined Radio (SDR) like the SDRIQ in **Photo A**. A spectrum analyzer, though, is still the most common way. In **Photo B**, I have a spectrum analyzer look at the UHF TV band. On this display, lower-frequency UHF TV stations are on the left, and the higher-frequency UHF TV stations are on the right.

The other way is to look at the waveforms in the *time domain*. We do this using an oscilloscope. In **Photo C** is a vintage Tektronix SC504 scope looking at some short pulses, not unlike the kind of pulses we will be talking about in a moment. And yes, photographing CRTs and LCDs is tricky.

The SDR receiver is taking in and digitizing all the waveforms from an antenna, then computer processing this information into your desired format. For those of us who like to cruise the ham bands or SWL, we usually pick out a hunk of frequency and set the SDR to AM, SSB or CW and demodulate the signal. And at the same time have a frequency domain display of other signals 100 kHz above and below the signal.

Now for a bit of speculation about what might be done in the time domain. Take a common AM radio, tune it to a blank spot on the dial, then put it near a DC or DC brushless motor. You can easily hear the pulses controlling the motor and the RPM of the motor.

Headed In the Right Direction

Next let's talk about direction finding (DF).

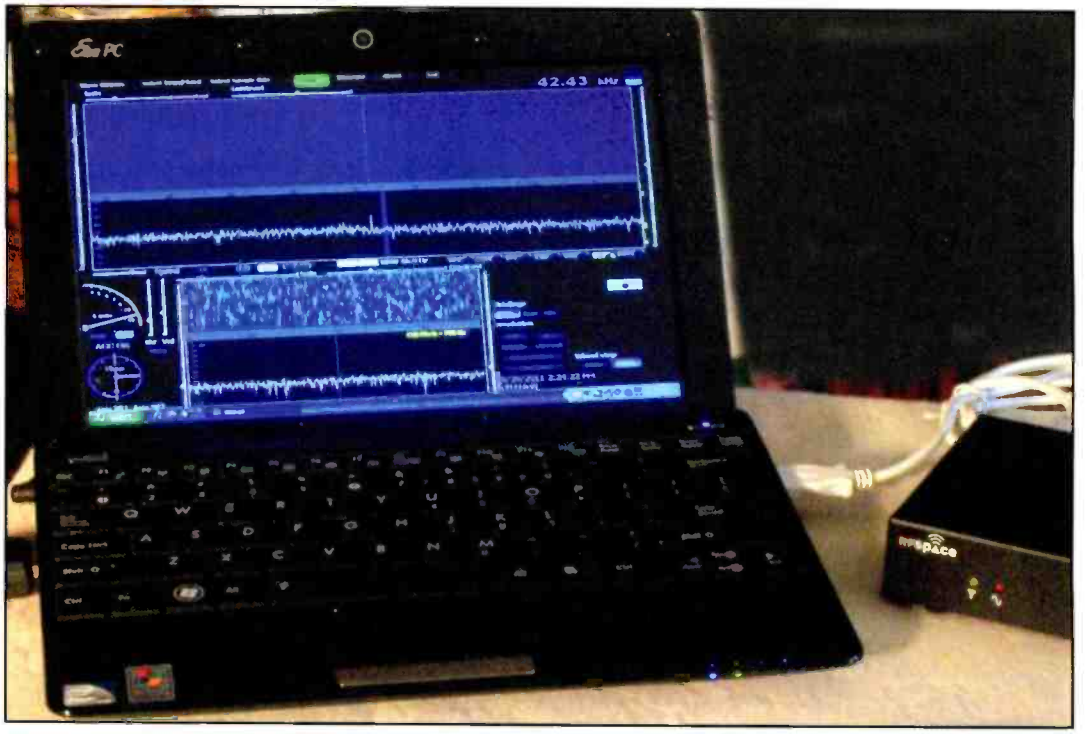

Photo A: A new way to look at signals in the *frequency domain* is with a Software Defined Radio (SDR) like the SDRIQ. *(Photography and graphics courtesy of WA5VJB)*

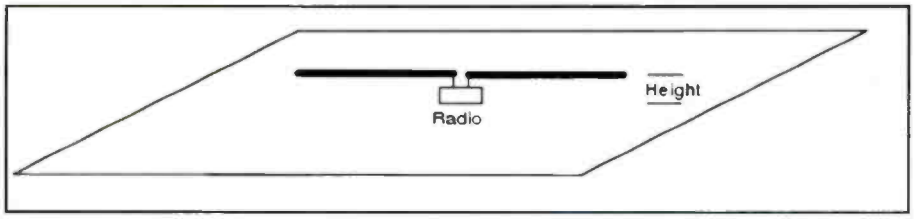

Figure 1: One common NVIS antenna is just a dipole a few feet off the ground.

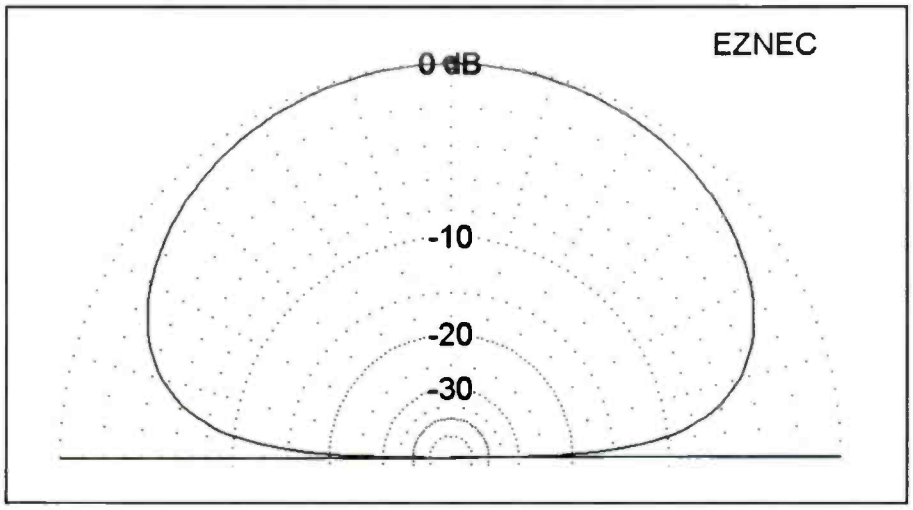

Figure 2: The typical pattern for the NVIS antenna is shown here.

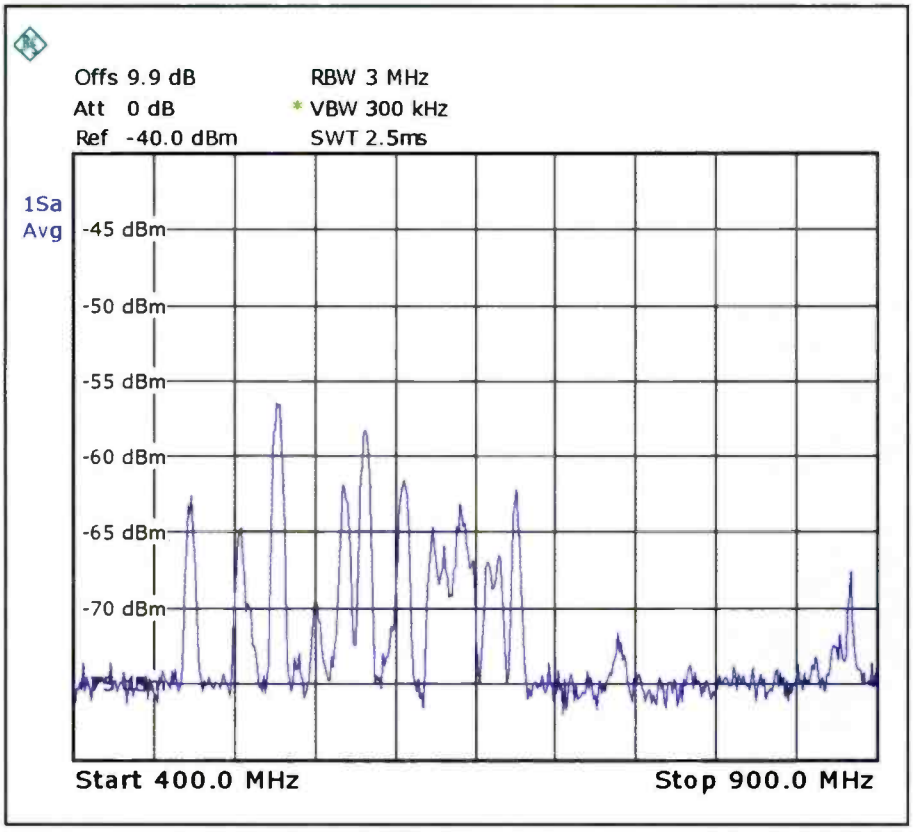

Photo B: A spectrum analyzer look at the UHF TV band shows lower-frequency UHF TV stations on the left, and the higher-frequency UHF TV stations on the right.

During World War II the U.S. had a series of DF sites along the East Coast and some ships equipped with DF technology known as Huff Duff. They spent much of their time listening to U-boat shortwave radio traffic. *(**WATCH**: An explanation and demonstration of Huff Duff aboard the USS Slater: <http://bit.ly/uWGGvb>. – Ed)*

Even when we couldn't crack the Enigma codes, we could still accurately DF and locate the U-boat's location. Often the U.S. knew the U-boat's latitude and longitude to a greater degree of accuracy than the U-boat's navigator did. Patrol planes or naval destroyers could then be told where there was a good place to hunt for a U-boat.

NVIS: Near Vertical Incidence Skywave Radiator

The Near Vertical Incidence Skywave (NVIS) radiator — antenna — is one optimized for the low end of the shortwave bands. The antenna is positioned such that the maximum signal part of the antenna pattern is almost straight up. In **Figure 1** you can see that one common NVIS antenna is just a dipole a few feet off the ground. The typical pattern for this kind of antenna is shown in **Figure 2**.

Again, it's a lobe basically going straight up. The NVIS antenna has become very popular in the military for intermediate distances. It's that 100- to 200-mile distance that can be the most difficult.

Vertical antennas have a nice main lobe near the horizon — good for long DX work, but not as good on shortwave for stations only 100 miles away. At the same time, 100 miles is a pretty long haul for VHF and UHF radios. Thus, the popularity of NVIS antenna. Physics says that this would be especially good in the 2- to 10-MHz region.

Harmonic Convergence to Save the World

Now, let's put the SDR, time domain, 2 MHz to 10 MHz, the NVIS antenna, and Huff Duff together.

For many years the easiest way to build an atomic bomb has been to run a few tons of uranium hexafluoride gas through a series of centrifuges. The slightly lighter U235 is separated from the slightly heavier U238. Collect enough U235 and you can build a bomb similar to the one that was dropped on Hiroshima.

These centrifuges run at a very specific speed, about 40,000 RPM and are using motors of many horse power (hp). Chains of up to 8,000 centrifuges are used in the uranium separation process. Now, how far away do you think your little AM radio could hear these motors? Do you really think they have put ferrite beads on all those 8,000 motors to keep down the radio frequency (RF) noise?

A few years ago, an incredibly sophisticated Trojan program known as Stuxnet was introduced into the Iranian nuclear facilities. The program appears to be carefully designed to muck up the works at the Iranian Bushehr and Natanz nuclear facilities. *(For more information on Iran's nuclear facilities, visit: <http://bit.ly/ut2RQX>. – Ed)*

The Trojan program manipulated the speed controllers to the centrifuges from an over-speed condition that damaged the centrifuges, to an under speed condition that allowed the uranium hexafluoride to backflow through the system. And all the while, the control panels showed that everything was working perfectly. Oh what one old fashioned pressure gauge could have done for them. And I won't even start on the wisdom of basing an entire factory on pirated copies of Windows.

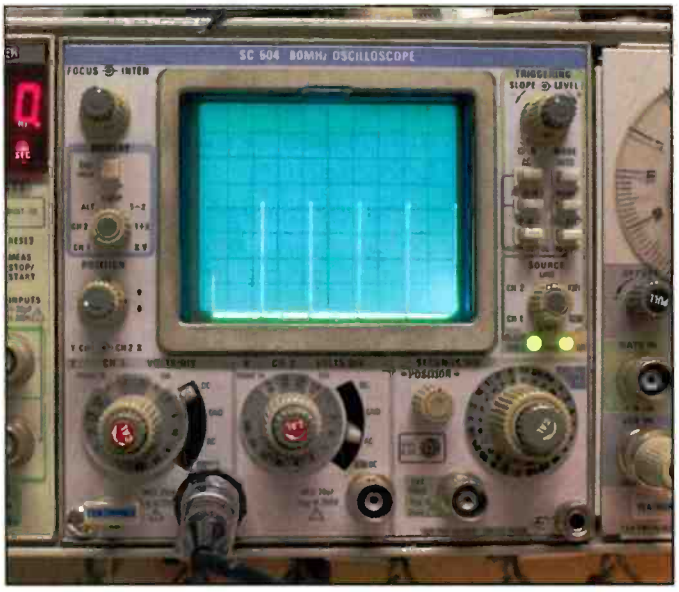

Photo C: This vintage Tektronix SC504 scope looks at some short pulses.

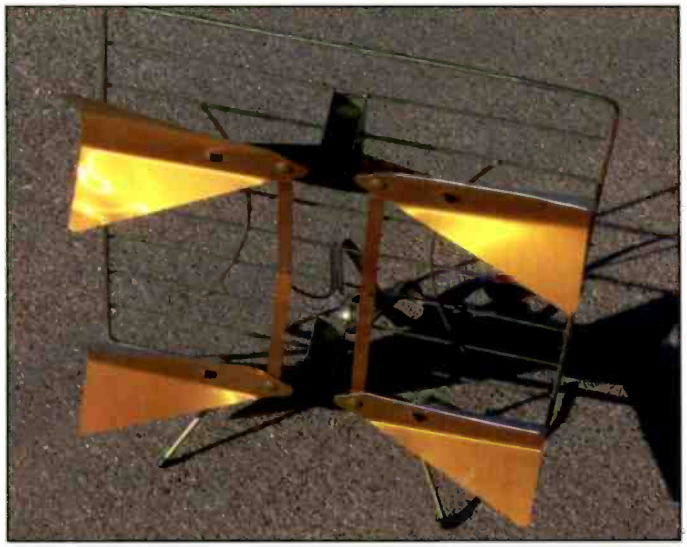

Photo D: This is a classic, commercially-produced UHF collinear antenna. Note the reflector screen behind the elements. There are *a lot* of advantages to that screen.

Now an SDR radio connected to a NVIS antenna several hundred miles away and programmed to look in the time domain could monitor those 8,000 synchronized motors. The changes in RPM would show up in the time domain display. The number of working centrifuges would be monitored as well as the number that had gone offline.

And lastly, direction-finding techniques could accurately place the latitude and longitude coordinates of the uranium separation facility. A good SDR station with the right software would know the exact location of all uranium centrifuges, how many are at each location, and their production status. Not bad intelligence work.

One of those *just wondering* questions: With all the technical cooperation between North Korea and Iran, one wonders if Stuxnet found its way into the North Korean centrifuge facility. I'm sure there are people who know!

Improving Those Homemade DTV Antennas

In its August and September 2011 editions, *Popular Communications* had a pair of articles by Richard Fisher, KI6SN, for simple collinear digital television antenna construction projects. *("Seeing Is Believing: Build a Simple DTV Antenna," August, page 20; and "Sending a Homemade DTV Antenna Outside," September, page 30. – Ed.)*

Adding one more piece to the DTV antenna puzzle could significantly improve their performance. **Photo D** shows a classic, commercially-produced UHF collinear antenna. Note the reflector screen behind the elements. There are *a lot* of advantages to that screen.

First it makes the antenna directional. High-definition TVs do not like getting two data streams arriving at the same time. They prefer getting one of the bit streams time delayed. That multipath signal that gave you a ghost on your old analog TVs really messes up a digital TV.

Second, the reflector screen also increases the gain of the antenna. With a reflector screen your TV will see about 300 percent more signal. The screen needs to extend about 2 inches beyond the elements.

So about 2 inches above the top element, about 2 inches below the bottom element, and 2 extra inches on each side. The reflector can be window screen, chicken wire, or even a big cookie sheet.

Let's Hear From You . . .

Again we welcome your questions, suggested construction projects, and possible topics for future columns. Just drop me an email: <wa5vjb@cq-vhf.com>. Also, for other antenna projects, visit: <http://www.wa5vjb.com>.

For an upcoming column, I'm looking at the ultimate DX: A system that would allow you to listen to pulsars around 406 MHz.

We always look forward to hearing from our readers.

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Radio Nacional de Venezuela to Broadcast From . . . Venezuela!

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

"And, fear not, there will still be plenty of Chavez to keep you entertained."

Let's start the New Year with a dish of shortwave tossed salad and see what we can find 'mongst the croutons!

There is mention of the long-awaited Radio Nacional de Venezuela gearing up to actually transmit from Venezuela, rather than being relayed from Radio Havana Cuba's facilities. RNV will be designed to cover the whole continent with programs in Spanish, English, Portuguese, French — and later Guarani and Quechua. The English program will make believers out of those nasty Americans.

And, fear not, there will still be plenty of Chavez to keep you entertained. All this exciting stuff could be a reality by the time you read this. Apparently, the big event is about to happen. ***(LISTEN**: To Radio Nacional de Veneuela by visiting <http://www.rnv.gov.ve/noticias/> and click on the link "Escuche al Sistema Nacional de Medios Publicos." – Ed.)*

WCB-KNLS Madagascar Update

Also moving closer to reality is the World Christian Broadcasters (KNLS) station in Madagascar <http://bit.ly/oNyFdC>. The operators were hoping to have the station in operation by late 2011 or early this year. This one has also been a long time coming. The Madagascar World Voice will provide service to Africa, Latin America and the Arabic Middle East using high-power transmitters.

Here's the shack of John T. Arthur (K2DVS) in Belfast, NY. John uses the popular ICOM R-75 receiver.

VOA Service to China to Continue

The Senate Appropriations Committee has turned down the Broadcast Board of Governors idea, which would have ended VOA service to China. The BBG proposal would also have meant cutbacks in services to Russia, Iran, Iraq, North Korea and Vietnam. The knives, however, are sheathed only temporarily. You can bet they'll be in-hand again next time the cutters feel the time is right. *(**IN DEPTH**: For more details on the Senate Appropriations Committee ruling, see the BBG Watch online report: <http://bit.ly/ovHvDG>. —Ed.)*

Whither RDP International?

We keep hearing rumors, threats and other negative notions regarding RDP International's status. In short, Portugal's national shortwave broadcaster seems to be under constant, probably increasing, pressure to commit suicide. RDP's chairman is saying that the facility is technically obsolete, is received poorly and is too expensive to operate. The station announced a temporary suspension of broadcasts as of June 1 last year but this column continued to receive reports on RDP International through the remainder of the year. We are left wondering "how much longer?" *(Visit the RDP International website: <http://www.rtp.pt/radio/>. – Ed.)*

Indonesia, Mayak and Cairo Calling

The **Voice of Indonesia** <http://en.voi.co.id/> is said to have fixed its frequency problem on 9525 so that it no longer varies, or at least not as much. It used to go up or down as much as a 1 kHz either way.

Back in mid-September the Russian relay station in Samara did some low-power testing on 4400 and 6510 for unannounced purposes. In addition to running test tones it also briefly relayed **Radio Mayak** <http://bit.ly/pO5Cqw>, which had not been carried on shortwave since shortly after the fall of the old USSR.

TWR's QSL sports these towers, supposedly at their Swaziland location. *(Courtesy of Rich D'Angelo)*

Reader Bob McCarthy heard from **Radio Cairo**, which sent schedules for East Coast North America on 6270 from 0215 to 0330 daily and for the West Coast on 9315 at 0500 to 0630. Bob makes note of their well-known modulation problem, although its communication did not mention such a difficulty. *(Visit: <http://radiocairofm.tripod.com/>. – Ed.)*

Let's Hear From You . . .

Remember, your shortwave broadcast station logs are always welcome. But please be sure to double or triple space between the items, list each logging according to its home country and include your last name and state abbreviation after each. Also needed are spare QSLs or good copies you don't need returned, station schedules, brochures, pennants, station photos and anything else you think would be of interest. And how about sending a photo of you at your listening post? It's your turn to grace these pages!

Here are this month's logs. All times are in UTC. Double capital letters are language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is mentioned, English (EE) is assumed.

ALASKA—KNLS, Anchor Point, 11870 at 1014 with man mentioning the Bible and W with ID and song. (Sellers, BC)

ALBANIA—Radio Tirana, 9860 heard in (l) Albanian at 2135. (Brossell, WI)

ANGUILLA—Caribbean Beacon, 6090 at 0432 with a sermon and Greek translation. (MacKenzie, CA) 11775 with religious talk in AA at 1845. (Briden, ON)

ARGENTINA—Radio Argentina Exterior, 11710.6 at 0200 with multilingual ID and M/W with news highlights. (Coady, ON) 0208 with EE segment and *DX Special*, IS and into FF pgm at 0300. (D'Angelo, PA) 15345 in SS at 2122. (MacKenzie, CA) 2130 in GG. (Briden, ON)

ASCENSION ISLAND—BBC South Atlantic Relay, 6035 in FF at 0440. (MacKenzie, CA) 9915 with news headlines at 2137. (Brossell, WI) 11735 (p) with news features at 0515-0539. (Parker, PA)

AUSTRALIA—Radio Australia, 5995 with world news at 0805 and 15160 with world news at 0700. (Maxant, WV) 11945-Shepparton with news at 1016, //9580 and 15160 at 0508 with interviews of a former PNG prime minister. (Sellers, BC) 15560 at 2305 with world news. (Brossell, WI) 15560-Shepparton with features at 2207, 17795 with comments at 2322 and 21725 at 0306. (MacKenzie, CA)

ABC Northern Territories Service: 2310-Alice Springs at 0940 and 2485-Katherine from 0930-1000. (Wilkner, FL)

Help Wanted

We believe the Global Information Guide — month after month — offers more logs than any other monthly SW publication! (355 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.*

BOLIVIA—Radio Mosoj Chaski, Cochabamba, 3310 in SS at 0930. (Wilkner, FL)

Radio Yura, Yura, 4716.2 at 1015 with morning pgm, W hosting pgm of good music. (Wilkner, FL)

Radio Lipez, Uyuni, 4796 at 1000-1040 reactivated after a fortnight's silence. (Wilkner, FL)

Radio Pio Doce (XII), Siglo XX, 5952.4 In SS at 0035 in Aymara and Quechua. (Coady, ON) 0120 in SS with some Spanish pops. Weak but readable and best in ECSS-LSB mode. (Alexander, PA) Good at 1041. (Wilkner, FL)

BONAIRE—Radio Nederland Relay, 6165 in DD at 0423, 15540 in DD at 2205 and 17605 via Bonaire in DD at 2318 to 2337 close after anthem. (MacKenzie, CA)

BRAZIL—(All in PP)

Radio Municipal, Sao Gabriel da Cachoeira, 3375.2 at 0900. (Wilkner, FL)

Radio Difusora Amazonas, Manaus, 4805 at 0900 with M and selections, seems irregular. (Wilkner, FL)

Radio Alvorada, (t) Londrina, 4815 at 0946, with pgm of man preaching but very under-modulated. (Perry, IL)

Radio Clube do Para, Belem, 4885 at 0310 with upbeat pops. (Parker, PA)

Radio Educacao Rural, Tefe, 4925 currently being heard in the early AM with best signal in the band, often with telephone interviews with listeners but IDs were elusive. (Perry, IL)

Radio Senado, Brasilia, 5990 at 0943 with Brazilian pops and W ancr, ID at 1001 then more pops. (D'Angelo, PA)

Radio Nacional Amazonia, 11780 at 0319 with singing. (MacKenzie, CA)

Radio Inconfidencia, Belo Horizonte, 6020 at 0115 with local ballads. (Alexander, PA) 15190 at 1700 until 2200 when Family Radio comes on. (Arthur, NY)

BULGARIA—Radio Bulgaria, 9700 in BB at 0028. (MacKenzie, CA) 11700 at 2317 on TV in Bulgaria. (Brossell, WI)

CANADA—Radio Canada International, 15180 via Rampisham in AA at 1921. (Brossell, WI) 15330 in FF at 2125 and 17810 via England at 1820. (MacKenzie, CA)

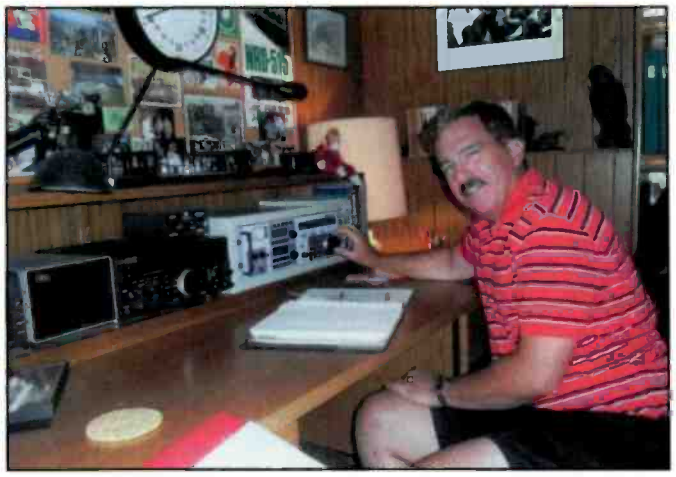
CBC Northern Service, 9625 at 1505 about orbiting satellite debris. (Maxant, WV)

CFRX, Toronto, at 0620 with a comedy pgm. (Sellers, BC) 0815 with a call-in show. (Maxant, WV) 1810 with a talk show. (Briden, ON)

CKZU, Vancouver, 6160 at 0618 carrying *Quirks and Quarks* pgm. (Sellers, BC)

CHU, Ottawa, 7850 at 0544 with EE/FF anmts. (MacKenzie, CA) 0820. (Maxant, WV)

CHAD—Radio Nationale Tchadienne, 6165 at 2220 with FF talk and Afropops. Off with anthem at 2230. Irregular of late and also has been slightly off frequency. (Alexander, PA) 2221 with FF pop vocals. ID and sign off anmts from 1119. (D'Angelo, PA)



The man himself (Rich D'Angelo) pays a rare visit to GIG HQ last August.

CHINA—China Radio International, 6020 via Canada in EE at 0446, 6145 via Canada at 2340, 6190 via Canada in CC at 0554, 9570 via Cuba in CC at 0338, 9690 via Spain at 0325, 9790 via Cuba at 0313, 11840 via Canada at 11840, 11895 at 1810, 11895 at 1824 in listed Chaozhon dialect. Also 11900 at 1752, 15785 in EE and CC at 0345 and 21680 in CC at 0315. (MacKenzie, CA) 7210 via Albania at 2312 in SS, 7390-Hohot in (l) Mongolian at 1147, 9440-Kunming in CC at 1152, 9645-Beijing in (l) Cantonese at 1155, 11640-Xi'an in CC at 1228 and 13600-Xi'an in RR at 1237. (Brossell, WI) 9710-Kashi at 0012, 9595//9800 at 0010 and 9710 in SS at 0121. (Padazopulos, Greece) 9785-Kunming in (l) Laotian at 1245. (Parker, PA) 11635 at 1007, //11610. (Sellers, BC) 13640 at 2230 with a pop pgm in JJ. (Barton, AZ)

Beibu Bay Radio, 9820-Nanning in VV at 1228. (Parker, PA)

Firedrake music jammer, 7970 at 1020, //11500, 12500 and 13300. (Barton, AZ) 9690 at 1823. (MacKenzie, CA)

CHILE—CVC-La Voz, 11665 with Christian pops in SS at 0010. (Barton, AZ) 17680 in SS at 1835 with Christian pops. (MacKenzie, CA)

COLOMBIA—Radio Alcaravan, 5910 in SS at 0624. (Sellers, BC) 0930. (Wilkner, FL)

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 Pennsylvania's **Brian Alexander** who receivers a free copy of *Buying a Used Shortwave Receiver (4th Edition)*. That's one of dozens of fascinating radio books on the shelves at Universal. Not to mention receivers, transmitters, transceivers, antennas, clocks and dozens of other items. Check their complete catalog and an endless list of used equipment at <www.universal-radio.com>. You can also call them for a free copy (614)-8660-4267. You can also drop them a line at 6830 Americana Parkway, Reynoldsburg, OH 43068.

CONGO (Dem. Rep.)—Radio Okapi, 11690 via Meyerton at 0451 with pop vocals, W in FF with ID and off at 0459. (D'Angelo, PA)

CROATIA—Voice of Croatia, 7375 at 0200 with M/W presenting *Croatia Today*. (Coady, ON) 9925 via Germany in Croatian at 0325. (MacKenzie, CA)

CUBA—Radio Havana Cuba, 9620 in SS at 0334, 12040 in SS at 2307 and 15370 in SS at 2343. (MacKenzie, CA)

DJIBOUTI—Radio Djibouti, 4780 at *0300 with NA, AA anmts, local flute and Koran. More AA talk at 0314. (Alexander, PA) 0304 with Koran and AA talk. (D'Angelo, PA)

ECUADOR—HCJB Global, 6950-Pinchincha, at 2355 in PP and 11920 via Chile. (Padazopulos, Greece)

Radio El Buen Pastor, Saraguro, 4815 with pasillos at 1030, talk and sermon in SS. (Barton, AZ)

EGYPT—Radio Cairo, 15270 with a news bulletin at 1925 but with poor modulation. (Brossell, WI)

ENGLAND—BBC, 11750 Thailand at 1230, 15470 Thailand Relay in (l) Urdu at 1516 and 15690-Skelton in (l) Sinhalese at 1635. (Brossell, WI) 11820 Oman Relay in AA at 0457, 11855 Cyprus Relay in Farsi at 0352 and 11995 via UAE in Urdu at 0323. (Parker, PA) 17795 at 1820. (MacKenzie, CA)

ERITREA—Voice of the Broad Masses, 7180 at 0333 here instead of 7175 with vernacular talk and HOA music. Also, 9830 at 0304 with vernacular talk and HOA music, //7175. (Alexander, PA)

ETHIOPIA—Radio Ethiopia, 9705 at *0258 sign on and short IS on electronic keyboard, NA, gongs at 0300 f/by Amharic talk, local HOA pops at 0303. (Alexander, PA)

Radio Oromiya, 6030 at *0321 with xylophone IS with ID at 0329, Oromo language anmts, music bridge and HOA music. (Alexander, PA)

FRANCE—Radio France International, 9805 with *Paris Live* pgm, and into world news. (Maxant, WV) 17605-Issoudun with news in PP at 1605. (Padazopulos, Greece)

FRENCH GUIANA—Radio France Intl. Relay, 15300 in FF at 1809. (Brossell, WI) 21690 in FF at 1805. (MacKenzie, CA)

GERMANY—Deutsche Welle, 7430 at 0515 with news. (Maxant, WV) 11965 via Rampisham in Swahili at 0327. (Parker, PA) 15275 Sines Relay with news at 2119 and 15640 Rwanda Relay with news at 2145. (Briden, ON) 15410 in (l) Farsi at 1816 and 15620 in (l) Hausa at 1822. (Brossell, WI) 15275 Portugal Relay at 2138, 15610 Sri Lanka Relay at 1728 and 17610 via England in GG at 1829. (MacKenzie, CA)

GREECE—Voice of Greece, 7475 in Greek at 0345, 9420 in Greek at 0018 and 15630 in Greek at 1840. (MacKenzie, CA) 15650 in Greek at 2310. (Brossell, WI)

GUAM—Trans World Radio/KTWR, 9910 in CC at 1112. (Brossell, WI) 9975 in an Asian language to close at 1200. (Parker, PA)

GUATEMALA—Radio Verdad, Chiquimula, 4055 in SS at 0528

Rich D'Angelo sends this QSL from the IBB transmitting station in Udon Thani, Thailand. This facility airs programming from the Voice of America, Radio Free Asia, Radio Farda, and Radio Sawa.

Here's Your "Blast From the Past" For This Month:

Lakeland Radio, Blantyre, Malawi, 9515 at 2043 on January 21. A private US-owned commercial broadcaster.

with choirs, 0552 with many anmts, contact info, xylophone and anmts in JJ, NA at 0500 and off. (Perry, IL)

GUINEA—Radiodiffusion Nationale, 7125 at 2215 with hilife music, local vocals, rustic tribal music, vernacular and FF talk. Off abruptly at 2251. (Alexander, PA) 2224 to 2300 with FF talk to close at 2300. (D'Angelo, PA)

GUYANA—Voice of Guyana, 3290 at 0411 with instl music and smooth jazz numbers. (D'Angelo, PA) 0850 with birthday greetings and sub-continental music and a Dave Brubeck number. (Wilkner, FL)

INDIA—All India Radio, 9595 with a music pgm featuring mostly strings and drums. (Barton, AZ) 9690 at 1405 with sports results. (Sellers, BC) 11670-Bangaluru at 1750 with frequency anmt and domestic news. (Maxant, WV)

IRAN—IRIB, 9780 with a discussion of Ramadan then into news, also 15190 in CC to 1257 close. (Arthur, NY) 9905-Kalamabad, //11760 at 0110 with commentary in SS, also 17765 in II at 0700 with listener letters. (Padazopulos, Greece) 11920-Sirjan with "Voice of Justice" service at 0343 with W, music and Koran recitations, 11940-Kalamabad in Dari at 0330. (Parker, PA)

ITALY—Italian Radio Relay Service, 15610 via Romania at 1249-1400 close. Talks on events in San Francisco, women in Afghanistan, Israel-Palestine. Mixing with WEWN at their 1359 sign on. (Alexander, PA)

JAPAN—Radio Japan, 5960 via Canada in JJ at 0452 and 9835 in JJ at 1752. (MacKenzie, CA) 6165 in RR at 1150. (Brossell, WI) 9840 at 1000 EE sign on and 11970 with news at 0506. (Sellers, BC) 9840 at 1010. (Barton, AZ) 11935 via Bonaire in JJ at 0333. (Parker, PA)

Radio Nikkei, 3925 in JJ at 1050. (Brossell, WI) 9760 in JJ at 0525. (MacKenzie, CA)

KUWAIT—Radio Kuwait, 15540 on Islam and Koran at 1820. (Brossell, WI) 1850 in AA. (Briden, ON) 1900 with US pops. (Arthur, NY) 17550 in AA at 2328. (MacKenzie, CA)

LIBYA—Radio Jamahiriya, 15215 in (l) Hausa at 1807. (Brossell, WI)

MADAGASCAR—Radio Madagasikara, 4910 at 0348 on this frequency with pops, ID and news at 0400, then more pops. 5010, at 0302 with song and man with long religious talk over instl music in (p) Malalgasy, M/W with news at 0440. 5010 at 0231 with IS, choral anthem, African choral selections and talk in Malagasy. (D'Angelo, PA)

MALAYSIA—RTM Sarawak FM, Kajang, 9835 at 1221 in Malay with slow pops. (Parker, PA)

MALI—RTV Malienne, 5995 at 2326-2359 with W in FF with call-in pgm. Closed at 2356 with ID and NA. (D'Angelo, PA) 0623 with indigenous song. (Sellers, BC)

MAURITANIA—ORTM/Radio Mauritanie, 7245 at 0558. Seeming 24-hour operation on this channel currently, with AA talks, local music, and long discussions but few IDs. (D'Angelo, PA) *0607 abrupt sign on with Koran. (Alexander, PA)

MEXICO—Radio Educacion, Mexico City, 6185 in SS with classical music at 0820. (Maxant, WV) 1055 in SS. (Brossell, WI)

MICRONESIA—The Cross, Phonpei, 4755.4 at 0805. (Wilkner FL) 1047 with Gospel songs and M ancr in EE. (Sellers, BC)

MONGOLIA—Voice of Mongolia, (p) 12085 at 1029 with IS, possible anthem and talk. Just above the noise level and very weak. (Sellers, BC)

MOROCCO—RTV Marocaine, 15345 at 1811 with AA talk. (Brossell, WI)

NETHERLANDS—Radio Nederland, 9445 via Portugal in DD at 0021. (MacKenzie, CA) 9800 with *Earthbeat* pgm at 1413 and 12065 at 1027 with *Earthbeat*. (Sellers, BC) 9720 via Northern Marianas in (l) Indonesian at 1155 to close at 1158, 11615 via Rwanda with news at 2006, 15495 via Germany on terrorism at 1818 and 15720 in DD at 1725. (Brossell, WI)

Bob Brossell (WI) introduces his first grandson to shortwave though William Franklin isn't quite big enough yet to reach Bob's NRD-545.

NEW ZEALAND—Radio New Zealand International, 6170 at 1050 with *Music from the Best and Worst of Times*. (Brossell, WI) 0705 with world news, 9655 at 1230 with QRM from South Korea and 11725 at 0520 on scientists there. (Maxant, WV) 15720 at 0346 with country songs. (MacKenzie, CA)

NIGER—La Voix du Sahel, 9705 at 2235-2257* with a variety of Euro and Afro-pop. Reggae things, FF anmts and indigenous vocals. (Alexander, PA) 2248-2258 with male vocals and ancr in FF. brief flute music at 2255 f/by coral anthem. (D'Angelo, PA)

NORTH KOREA—Voice of Korea, 15180 at 1005 with EE for Latin America, //11710 and 11735 for Asia. (Sellers, BC) 1130 with anthem and into FF. Seems to be active Sundays only. (Arthur, NY)

OPPOSITION—Radio Republica (to Cuba), 5954 in SS at 0000 under jamming. (Wilkner, FL)

Radio Hamada International (to Nigeria), 9610 via Wertachtal at *0530-0558* with IS, M in Hausa and news on Nigeria. (D'Angelo, PA)

Radio Y'Abadanga (to Uganda), 15410 via France at *1700-1715* local African music with in (l) Swahili with local music. Abruptly off at 1710. This is Saturdays only. (Alexander, PA)

PAPUA NEW GUINEA—Radio Sanduan (New Guinea), 3205 fades up between 1000-1100. (Wilkner, FL) 1255 with W in Tok Pisin, pop number, NBC news. (Sellers, BC)

Radio East New Britain, Rabaul (New Britain), noted 1114-1140 with PNG island-style choral pops and anmts. (Perry, IL)

Rich D'Angelo QSL'd the outlet in Xining, one of China National Radio's outlets.

Portugal's RDP International marked its 75th year in 2010. Now, like so many others — it's on the way out. *(Courtesy of Rich D'Angelo)*

The Voice of Turkey sent this QSL to Paul Gager (Austria) showing the Sirkci Train Station built in 1890.

Radio Fly, Kiunga, 5960 at 1050 with country and pop songs, mention of Radio Fly at 1106. (Sellers, BC) 1050. (Wilkner, FL)

PERU—Ondas del Huallaga, Huallaga, 3329.5 in SS at 0920. (Wilkner, FL) 4955 unid but likely Radio Cultural Amauta, Huanta, at 1038 with segued instls and SS anmts at 1045. (Perry, IL)

Radio Libertad de Junin, Junin, 5039.2 at 1051 with mellow Andean instls. (Perry, IL) 1010 with OA music and ancr with time checks. (Wilkner, FL)

Ondas del Suroriente, Quillabamba, (t) 5120.4 at 0053. (Wilkner, FL)

Radio Bolivar, Ciudad Bolivar, 5460 with music at 1010. (Wilkner, FL)

Radio Tawantinsuyo, Cusco, in SS at 2350. (Wilkner, FL)

PIRATES—Captain Morgan Shortwave, 6925u at 0238 with heavy metal. Reports to: <cptainmorgan6955@hotmail.com>. (Hassig, IL) 2240 with rock oldies and classics, occasional Twilight Zone theme. (Zeller, OH)

WAZU, 6950.5 at 0050 with heavy metal, hyper DJ and a fake ad. Reports to <wazu@mail.com> (Hassig, IL)

WBOG, 6935 at 0115 with pops, ID at 0122 close. (Alexander, PA)

Wolverine Radio, 6925u at 0020 with old rock and other late 60s and 70s numbers. SSTV/FAX tones at close. (Hassig, IL)

PHILIPPINES—Radio Pilipinas, 15190 in Tagalog at 1735 weak but readable. (Arthur, NY)

Far East Broadcasting, 9430 in CC at 1153. (Brossell, WI) 9920 at 1205 in presumed listed Hre language with a hymn. (Parker, PA)

POLAND—Polish Radio, 9770 on funding in Poland. (What site? – gld) (Maxant, WV) 15155 via Germany in RR at 1920. (Brossell, WI)

PORTUGAL—RDP International, 9455 in PP at 1743. (MacKenzie, CA)

ROMANIA—Radio Romania International, 9525-Galbeni with a news analysis at 0000. (Padazopulos, Greece) 11735 at 1701 in RR in sign on to Europe. (Maxant, WV) 11895-Galbeni at 0345. (Parker, PA) 15195 to 1400 sign off in Romanian. (Arthur, NY) 15310 in Romanian at 1810. (Brossell, WI)

RUSSIA—Voice of Russia, 4975 via Tajikistan poor with EE news at 1401. (Sellers, BC) 9430-Kishinev at 0011, 9800-Krasnodar at 0121 and 9810 via French Guiana in SS at 0120. (Padazopulos, Greece) 9665 via Moldova at 0015 beginning a newscast. (Barton, AZ) 9735 in SS at 0316 and 15425 at 0350. (MacKenzie, CA) 12040 at 1600 on Russians in Ukraine. (Maxant, WV) 13775-Pertropavlovsk-Kamchatka at 0457. (Sellers, BC)

Magadan Radio, 7320 in RR at 1147. (Brossell, WI)

Kyzyl Radio, 1935 in RR at 1207, seemingly via Shijiazhuang, China, and //6100. (Brossell, WI)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 11820 with Koran recitations in AA at 1900. (Briden, ON) 17560 with Koran at 1722. (MacKenzie, CA) 17705 at 1234 with an AA call-in pgm. (Brossell, WI)

SERBIA—International Radio of Serbia, 9685 via Bijeljina at 0033 with EE news and features to close down at 0058. (D'Angelo, PA)

SINGAPORE—BBC Far East Relay, 9740-Kranji at 0013. (Padazopulos, Greece)

SOLOMON ISLANDS—Solomon Islands Broadcasting Corp., 5020 at 1020 with the Cuban QRM in brief remission. (Wilkner, FL)

SOUTH AFRICA—Channel Africa, 7230 with news and feature at 0518. (Sellers, BC)

SOUTH KOREA—KBS World Radio, 9560 via Sackville becoming predominant around 1240. (Barton, AZ) 9650 on electric power plants there. (Maxant, WV) 15360-via Rampisham in RR at 1813. (Brossell, WI)

SPAIN—Radio Exterior Espana, 3350 Costa Rica Relay in SS at 0338, 6125 Costa Rica in SS at 0427, 9630 Costa Rica in SS at 0328, 9665 in SS at 1750 and 17850 Costa Rica in SS at 1812. (MacKenzie, CA) 11660 in SS at 2355. (Padazopulos, Greece) 12015 in AA at 1921 and 15110 in SS at 2100. (Briden, ON) 21610 in AA at 1735. (Mitchell, NC)

SURINAME—Radio Apinte, Paramaribo, 4990 in DD around 0900. (Wilkner, FL)

SUDAN—Sudan Radio TV, 7200 at *0325 sign-on with AA talk, Koran, local tribal music. (Alexander, PA)

SWAZILAND—Trans World Radio, Manzini, 4775 at 0347 with M/W in (l) Lomwe with choirs, then EE ID and into GG. (D'Angelo, PA) 9500 with EE preacher at 0522. (Sellers, BC) 0525. (Maxant, WV)

TAIWAN—Radio Taiwan International, 11625 in (l) Cantonese at 1153. (Brossell, WI) 17725 via Florida in SS at 2315. (MacKenzie, CA)

THAILAND—Radio Thailand, 9890 with EE sign on at 1230. (Sellers, BC)

TUNISIA—RTT Tunisienne, 12005-Sfax in AA with M/W relating a story with AA music. (Parker, PA) 2010 with AA talks. (Brossell, WI)

TURKEY—Voice of Turkey, 9515 with TT music and ID at 0315. (Maxant, WV) 15450 with news in EE at 1232. (Brossell, WI)

UNITED STATES—Voice of America, 9780 Philippine Relay with news at 0133. (Padazopulos, Greece) 11785 Thailand Relay in CC at 1203. (Brossell, WI) 15580 Thailand Relay with commentary at 2139. (Briden, OH)

Radio Free Asia, 9540 Northern Marianas Relay, 9540 in CC at 1747, 11540 via Tajikistan in CC at 1807, 13800 Northern Marianas in CC at 1740 and 15585 Northern Marianas in CC at 2340. (MacKenzie, CA)

Radio Farda - Biblis Relay in Farsi at 0220. (Padazopulos, Greece)

Radio Marti, 7365-Greenville in SS at 0004. (MacKenzie, CA) 11930 in SS at 1914. (Briden, ON)

An arch fronting a temple is featured in this QSL from China Radio International, sent to Paul Gager, Austria.

Armed Forces Network, 5765-Guam with news at 0940. (Wilkner, FL) 12133.5u-Key West at 1216 on child rearing, f/by NPR news. (Brossell, WI)

Family Radio, 11535 via Taiwan in CC at 1206 and 12060 via Ascension at 2013. 15195 via Ascension from *2000 to 2100*. (Arthur, NY)

WWCR, Tennessee, 3215 at 0515, 4840 at 0600, 5935 at 0348, 7465 at 0006, 9980 at 1803 and 13845 at 1738. (MacKenzie, CA)

KJES, New Mexico, 11715 at 1315. (Maxant, WV)

WWRB, Tennessee, 3185 at 0330. (MacKenzie, CA) 5051 at 0252. (D'Angelo, PA)

WTWW, Tennessee, 12100 in AA at 1214. (Brossell, WI) 2350 in SS. (MacKenzie, CA)

A QSL from Radio Cairo for a reception on 6270.

WTJC, North Carolina, 9370 at 0540. (MacKenzie, CA)

WTWN, Tennessee, 12100 in SS at 2259. (MacKenzie, CA)

WEWN, Alabama, 12050 in SS at 1930 and 13830 in SS at 2053. (Briden, ON) 13850 at 1320 and 15610 at 1650. (Maxant, WV)

VANUATU—Radio Vanuatu, 3945 at 1046, but barely above the noise level. (Brossell, WI)

VATICAN—Vatican Radio, 7335 in (l) Lithuanian at 0350, 15570 in PP at 1813. (MacKenzie, CA) 9660 with EE interview at 0511. (Sellers, BC) 15570 in FF at 1724. (Brossell, WI) 9660 at 0530 to IS and closing. Also, 15570 at 1745. (Maxant, WV)

VIETNAM—Voice of Vietnam, 6175 via Canada in SS at 0418. (MacKenzie, CA) 9840 at 1345 with music until close at TOH. (Barton, AZ) 12020 at 1232 with W and news, //9840. (Sellers, BC)

ZAMBIA—ZNBC Radio, 5915 at 0242 with Fish Eagle IS, choral anthem, vernacular anmts, and local tribal music. (Alexander, PA)

CVC One Africa, 13590 at 0610 giving email address for their *African Workshop* pgm. (Maxant, WV)

And that's a wrap! High fives to the following good guys who checked in for this issue: Brian Alexander, Mechanics burg, PA; Harold Sellers, Vernon, BC; Rich Mitchell, Raleigh, NC (welcome!); Rich D'Angelo, Wyomissing, PA; Mark Coady, Peterborough, ON; Charles Maxant, Hinton, WV; William Hassig, Mt. Pleasant, IL; Robert Wilkner, Pompano Beach, FL; John T. Arthur, Belfast, NY (again, welcome!); Stewart MacKenzie, CA; Ralph Perry, Wheaton, IL; George Zeller, Cleveland, OH; Fotios Padazopulos, Zaharo, Greece; Robert Brossell, Pewaukee, WI; Rich Parker, Pennsburg, PA and Rick Barton, El Mirage, AZ.

Thanks to each of you — and, until next month — good listening!

With a Rich History, the Iowa State Patrol Hits the Roads — and Airways

by Ken Reiss
<radioken@earthlink.net>

After the number of traffic fatalities spiked in the state in 1935, Iowa quickly took action to bring that number down. It made history at the same time: That's when the Iowa Highway Safety Patrol — known today as the Iowa State Patrol — was formed.

Fifty motorcycle officers fanned across the state with a mission to save lives and prevent accidents.

After Patrolman Oran Pape was murdered in the line of duty in 1936, the organization developed the handgun technique known as the "cross draw" — where the officer wears his or her sidearm on the opposite side of the shooting arm. It was used by officers in the ISP for many more years. *(**WATCH**: A video explanation of "cross draw": <http://bit.ly/vdVHwo>. – Ed.)*

Like all state police agencies, the duties have been considerably expanded since the 1930s. *(**WATCH**: A YouTube slideshow of the ISP today: <http://bit.ly/swrTjf >. – Ed .)*

Much of the Davenport, Iowa area's public safety communications is handled by a system called RAMCOM, a multi-state EDACS trunked system. *(For an explanation of EDACS, visit: <http://bit.ly/rMNhX6>. – Ed.)* ISP headquarters is in Davenport.

Today there are more than 350 officers in the ISP. There are more than 112,000 miles of roadway in Iowa — a vast area to cover under Iowa's public service communications umbrella.

"There are more than 112,000 miles of roadway in Iowa — a vast area to cover under the ISP's communications umbrella."

Iowa Statewide Department of Public Safety

Albia

Frequency	Tone	Description
155.56500	146.2 PL	Base (Area 3B)
155.70000	146.2 PL	LEA (Area 3B)

Atlantic

Frequency	Tone	Description
155.65500	146.2 PL	Base (Area 2B)
155.68500	146.2 PL	LEA (Area 2B)

Beaverdale

Frequency	Tone	Description
155.56500	127.3 PL	Base (Area 3A)
155.70000	127.3 PL	LEA (Area 3A)

Belmond

Frequency	Tone	Description
155.65500	127.3 PL	Base (Area 2A)
155.68500	127.3 PL	LEA (Area 2A)

Blairsburg

Frequency	Tone	Description
155.65500	146.2 PL	Base (Area 2B)
155.68500	146.2 PL	LEA (Area 2B)

Brooklyn

Frequency	Tone	Description
155.65500	192.8 PL	Base (Area 2D)
155.68500	192.8 PL	LEA (Area 2D)

Cedar Falls

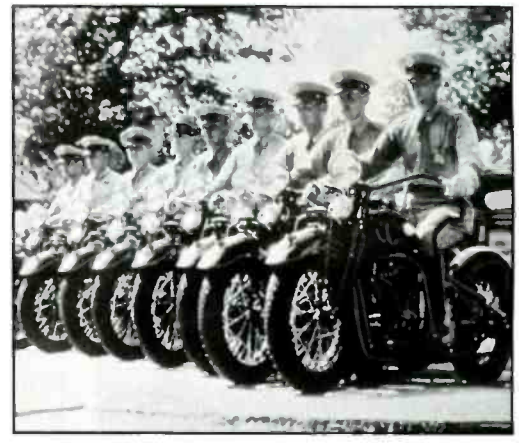
Frequency	Tone	Description
155.56500	146.2 PL	Base (Area 3B)
155.70000	146.2 PL	LEA (Area 3B)

Cedar Rapids

Frequency	Tone	Description
155.65500	167.9 PL	Base (Area 2C)
155.68500	167.9 PL	LEA (Area 2C)

Denison

Frequency	Tone	Description
155.56500	127.3 PL	Base (Area 3A)
155.70000	127.3 PL	LEA (Area 3A)



In 1935, the Iowa Highway Safety Patrol assigned 50 motorcycle patrolmen to duty across the state in an effort to bring the number of traffic fatalities down. Things have changed a bit since then.
(All photographs courtesy of Ken Reiss).

The headquarters building for the Iowa State Patrol is in Davenport. The bridge to the left is called the "Bridge of Sighs" as it leads directly to the court house building.

Des Moines		
Frequency	**Tone**	**Description**
155.64000	146.2 PL	Base (Area 1B)
155.79000	146.2 PL	LEA (Area 1B)

Fairfield		
Frequency	**Tone**	**Description**
155.56500	167.9 PL	Base (Area 3C)
155.70000	167.9 PL	LEA (Area 3C)

Glenwood		
Frequency	**Tone**	**Description**
155.65500	192.8 PL	Base (Area 2D)
155.68500	192.8 PL	LEA (Area 2D)

Gunder		
Frequency	**Tone**	**Description**
155.56500	192.8 PL	Base (Area 3D)
155.70000	192.8 PL	LEA (Area 3D)

Harpers Ferry		
Frequency	**Tone**	**Description**
155.56500	127.3 PL	Base (Area 3A)
155.70000	127.3 PL	LEA (Area 3A)

Holy Cross		
Frequency	**Tone**	**Description**
155.56500	127.3 PL	Base (Area 3A)
155.70000	127.3 PL	LEA (Area 3A)

Laurel		
Frequency	**Tone**	**Description**
155.64000	192.8 PL	Base (Area 1D)
155.79000	192.8 PL	LEA (Area 1D)

Lourdes		
Frequency	**Tone**	**Description**
155.56500	167.9 PL	Base (Area 3C)
155.70000	167.9 PL	LEA (Area 3C)

Maquoketa		
Frequency	**Tone**	**Description**
155.64000	167.9 PL	Base (Area 1C)
155.79000	167.9 PL	LEA (Area 1C)

Matlock		
Frequency	**Tone**	**Description**
155.64000	167.9 PL	Base (Area 1C)
155.79000	167.9 PL	LEA (Area 1C)

Merrill		
Frequency	**Tone**	**Description**
155.64000	146.2 PL	Base (Area 1B)
155.79000	146.2 PL	LEA (Area 1B)

Moorhead		
Frequency	**Tone**	**Description**
155.56500	146.2 PL	Base (Area 3B)
155.70000	146.2 PL	LEA (Area 3B)

Muscatine		
Frequency	**Tone**	**Description**
155.64000	127.3 PL	Base (Area 1A)
155.79000	127.3 PL	LEA (Area 1A)

New Market		
Frequency	**Tone**	**Description**
155.65500	167.9 PL	Base (Area 2C)
155.68500	167.9 PL	LEA (Area 2C)

Saint Mary's		
Frequency	**Tone**	**Description**
155.64000	167.9 PL	Base (Area 1C)
155.79000	167.9 PL	LEA (Area 1C)

Springbrook		
Frequency	**Tone**	**Description**
155.56500	192.8 PL	Base (Area 3D)
155.70000	192.8 PL	LEA (Area 3D)

Storm Lake		
Frequency	**Tone**	**Description**
155.64000	127.3 PL	Base (Area 1A)
155.79000	127.3 PL	LEA (Area 1A)

Terrill		
Frequency	**Tone**	**Description**
155.64000	192.8 PL	Base (Area 1D)
155.79000	192.8 PL	LEA (Area 1D)

Van Wert

Frequency	Tone	Description
155.64000	127.3 PL	Base (Area 1A)
155.79000	127.3 PL	LEA (Area 1A)

Department of Public Safety Tactical/Simplex Channels

Used for interagency and for communicating with other law enforcement agencies. State Patrol dispatchers do not have access to Law Aid (155.475), LEA used by county agencies needed to talk to State Patrol dispatchers.

Frequency	Tone	Description
155.50500		AIR
155.44500		CIS (Command, Intelligence, Surveillance)
155.43000	293 NAC	Car To Car-P25 Digital
154.92000	CSQ	DCI (Division Criminal Investigation)-Purple Analog
154.92000	127 NAC	DCI (Division Criminal Investigation)-Purple P25
151.47500	167.9 PL	Iowa Channel
155.47500	CSQ	Mutual Aid

Both the U.S. Army and the Iowa National Guard were called into service when flooding damaged parts of Cedar Rapids. Here members assist with crowd control and traffic in the flood of 2008.

Iowa State Capital Police

VHF/UHF linked together

Frequency	Tone	Description
155.67000	146.2 PL	Iowa State Capital Police
453.62500	146.2 PL	Iowa State Capital Police

ISP uses VHF Hi for statewide coverage. The patrol cars are equipped with a cross band repeater and a UHF handheld so that the officers have communications out of the car. The UHF is received by the car and relayed to the dispatcher on the VHF radio at full power.

Frequency	Tone	Description
453.62500	151.4 PL	ISP Mobile Extender-Car to Handheld (F1-F6 on UHF radio)
458.62500	151.4 PL	ISP Mobile Extender-Car to Handheld (F1-F6 on UHF radio)
458.62500	82.5 PL	Handheld to Car Radio-EMERGENCY CALL
458.62500	141.3 PL	Handheld to Car Radio-Iowa Channel 151.475 (167.9)
458.62500	156.7 PL	Handheld to Car Radio-Mutual Aid 155.475
458.62500	173.8 PL	Handheld to Car Radio-P25 Car to Car 155.430 (NAC293)
458.62500	192.8 PL	Handheld to Car Radio-Base 155.640, 155.565 or 155.655
458.95000	CSQ	Air-to-Car Speed Enforcement-127.3 PL sometimes used (F7 on UHF Handheld)
458.70000	127.3 PL	Air-to-Car Speed Enforcement (F8 on UHF Handheld)
453.95000		Special Events-Portable Repeater (F9 on UHF Handheld)
453.70000		Special Events-Portable Repeater (F10 on UHF Handheld)

Des Moines Area

Polk County

County Fire Operations are conducted on VHF
Westcom is used by Clive, Urbandale, and West Des Moines Police and Fire. Polk County roads, conservation, building maintenance, and utilities on RACOM

RACOM - IL, WI, MN, NE, SD, IA
EDACS Networked Standard

Frequency	Tone	Description
154.31000	CSQ	Fire Dispatch (Countywide)-Patched to RACOM
155.53500	146.2 PL	EMS Dispatch
154.81500		Fire West
155.74500		Fire East
154.07000		Fireground Red
154.01000		Fireground White
153.77000	186.2 PL	Fireground Blue
156.01500		Fireground Green
154.17500		Altoona Fireground
151.20500		Bondurant Fireground
154.11500		Johnston Fireground
155.92500		Mitchellville Fireground
153.90500		Saylor Township Fireground
151.16000		Polk City Fireground
151.22000	146.2 PL	Polk County Conservation

Des Moines Police Department

Frequency	Tone	Description
460.02500	203.5 PL	Dispatch
460.32500	203.5 PL	F2-Information
460.15000	203.5 PL	F3
460.40000	203.5 PL	F4
460.22500	203.5 PL	F5
156.21000	131.8 PL	VHF Link
460.50000	203.5 PL	UHF Link

An Iowa State Patrol Crown Victoria automobile is ready for duty.

453.92500	131.8 PL	F7 Tactical
453.97500	131.8 PL	F8 Tactical
453.75000	131.8 PL	F9 Animal Control, PD & FD Backup

Fire Department

Frequency	Tone	Description
460.62500	173.8 PL	Dispatch
460.57500	173.8 PL	F2
460.60000	173.8 PL	F3

Services

Frequency	Tone	Description
155.10000		Public Works Department
158.88000	203.5 PL	Street Department
453.47500	156 DPL	Solid Waste-Recycling
855.46250	156 DPL	Solid Waste
453.80000	179.9 PL	Des Moines Area Regional Transit Buses
453.38750	311 DPL	Des Moines Area Regional Transit Buses

Midwest Ambulance Service
RACOM - IL, WI, MN, NE, SD, IA
EDACS Networked Standard

Municipalities

Altoona

Frequency	Tone	Description
153.93500	174 DPL	Altoona Services

Ankeny Police/Fire
Police dispatched through Polk County Sheriff's Office. RACOM Patch TG (14-065) to UHF

Story County
Motorola Type IIi Hybrid

Frequency	Tone	Description
460.27500	203.5 PL	Police Dispatch
460.17500	203.5 PL	Police F2
460.30000	203.5 PL	Police F3
154.13000	146.2 PL	Fire Dispatch

Clive
Westcom
Motorola Type II Smartnet

Frequency	Tone	Description
155.94000		Fire Dispatch

Urbandale
Westcom
Motorola Type II Smartnet

Frequency	Tone	Description
154.25000	82.5 PL	Fire Dispatch

West Des Moines
Westcom
Motorola Type II Smartnet

Frequency	Tone	Description
154.16000		Fire Dispatch
155.53500		EMS Dispatch
859.21250		Public Safety (May Be Part of RACOM or Westcom)
860.21250		Public Safety (May Be Part of RACOM or Westcom)

Westcom System

The Westcom Trunked Radio system is used by the cities of West Des Moines, Clive and Urbandale.

MDT Frequency-860.96250
System Frequencies

Site	Freqs		
1	854.1375	854.9625	855.96250c
	856.96250c	857.96250c	858.96250c
	859.9625		

Systemwide Talkgroups

DEC	Description
368	LEA-155.790
400	Mutual Aid-155.475
1008	Fire Aid
2576	Public Safety 1
2608	Public Safety 2
2640	Public Safety 3
2672	Public Safety 4
3792	National Weather Service-Des Monies

West Des Moines Talkgroups

DEC	Description
16	Police Channel 1
48	Police Channel 2
80	Police Channel 3
112	Police Channel 4
144	Police Channel 5
656	Fire/EMS Dispatch
1296	Paramedics CH 1
1328	Paramedics CH 2
1360	Paramedics CH 3
1392	Paramedics CH 4
1808	Westcom EMS (West Des Moines EMS to Hospitals)
1904	Page
2800	Westcom Fire Ops 1
2832	Westcom Fire Ops 2
2864	Westcom Fire Ops 3
2896	Westcom Fire Ops 4
2928	Westcom Fire Ops 5
2960	Westcom Fire Ops 6
24576	Parks Emergency Call Box
1936	Human Services
2256	Parks & Recreation
3856	Streets
3920	Streets
4464	Public Works
5136	Public Works
3248	City 2
5168	Bus Operations
5200	School Operations
5232	School Operations
5296	School Operations
5424	School Operations

Clive Talkgroups

DEC	Description
5808	Police Channel 1
5840	Police Channel 2

5872	Police Channel 3
5904	Police Channel 4
5936	Police Channel 5
6064	Fire Page (Dispatch)
6096	Fire Chat
6512	Public Works Ch. 1
6544	Public Works Ch. 2
6736	Parks Ch. 1

Urbandale Talkgroups

DEC	Description
7344	Police Channel 1
7376	Police Channel 2
7408	Police Channel 3
7440	Police Channel 4
7472	Police Channel 5
7600	Fire Dispatch/Response
7632	Fire Chat

Cedar Rapids:

The city of Cedar Rapids is covered by a Motorola Type II trunked system

System Frequencies

Site	Freqs		
1	855.2375	855.4625	855.7375
	855.98750c	856.48750c	856.73750c
	856.9875	857.7375	857.9875
	858.4875	858.9375	858.9875
	859.4875	859.9875	860.4875
	860.9375	860.9625	

System Talkgroups

Cedar Rapids Police Talkgroups

DEC	Description
1776	Dispatch
1936	F-2
2096	F-3 Warrants Check/Info
2256	F-4
2416	F-5 & Animal Control
2896	F-6-Special Response Team Announcement
2576	Airport 1
2736	Airport 2
1616	Announcement
3376	Assault
3536	Snipers
4816	Detectives Announcement
4976	Detectives 1
5136	Detectives 2
6416	Narcotics Announcement
6576	Narcotics 1
6736	Narcotics 2
8016	Internal Affairs
14576	Disaster 1
20976	ICS 1
34416	Area 11 Patch to 155.835 (167.9) & 460.550(167.9)

Cedar Rapids Fire Talkgroups

DEC	Description
17760	Announcement
17776	Dispatch
17936	Fire 2
18096	Fire 3
18256	Fire 4
18416	Fire 5
18576	Administration
34096	State Fire Link
34736	Hazmat

Cedar Rapids AREA Ambulance Talkgroups

DEC	Description
19216	Dispatch
19536	St. Lukes Trauma
19856	Mercy Trauma
20176	Med-1
20208	Med-2
20240	Med-3
20272	Med-4

Five Seasons Transportation Talkgroups

DEC	Description
64656	CRT Buses Channel A (aka Five Seasons Transportation)
64560	CRT Buses Channel B (aka Five Seasons Transportation)
64496	CRT Buses Channel C (aka Five Seasons Transportation)
64816	CRT Garage
64976	Unk Transportation
64608	Unknown use

Cedar Rapids Public Works/Utilities Talkgroups

DEC	Description
35376	CID Maintenance
48080	Public Works
48112	Public Works
48144	Street Department
48176	Street Department
48208	Street Department
48240	Lawn Care/Mowing Department
48368	Public Works
48400	Water Department
48432	Public Works
48592	Water/Sewer Department
48624	Water/Sewer Department
48656	Water/Sewer Department
48848	Trash Collection
49008	Parks and Recreation
49040	Parks and Recreation
49200	Traffic Signal Repair
49296	Paint Crew
49392	Streets Department (snow plows)
49456	Public Works
49520	Fleet Maintenance/Mechanics/Shop

Agency Inerop Talkgroups

DEC	Description
64176	City Wide

Conventional Frequencies in the Cedar Rapids Area:

Linn County

Linn County
County Sheriff and Fire use VHF conventional frequencies
County Fire is paged by alpha pager

Frequency	Tone	Description
155.14500	192.8 PL	Sheriff Dispatch-Cedar Rapids metro area
155.74500	167.9 PL	Sheriff Dispatch F2-Rural Areas
155.62500	192.8 PL	Sheriff F-3
155.61000	192.8 PL	Sheriff Car-to-Car (encryption used sometimes)
155.85000		Sheriff Tactical
154.43000	192.8 PL	Fire Response
154.07000	CSQ	Fire Tactical (192.8 PL used on some radios)
154.26500	192.8 PL	Fire Search and Rescue / Emergency Management
158.76000	210.7 PL	Emergency Management Repeater
159.13500	131.8 PL	Road Department Repeater
153.86000	103.5 PL	Road Department Simplex
151.23500	146.2 PL	Conservation
158.85000	118.8 PL	County Licensed Repeater
460.20000		County Alpha Pager Data

Cedar Rapids
Cedar Rapids
800MHz conventional frequencies are used as a back-up to the Cedar Rapids TRS

Cedar Rapids
Motorola Type II SmartZone

Frequency	Tone	Description
851.01250	156.7 PL	8CALL90
852.01250	156.7 PL	Tactical
460.11250		Police Bomb Disposal
465.11250		Police Bomb Disposal
453.52500		Correctional Data
460.17500		AVL for Public Safety and Transit vehicles
460.25000		AVL for Public Safety and Transit vehicles

Cedar Rapids Metro Area Law Enforcement Mutual Aid
Both frequencies crosslinked to 800Mhz Mutual Aid in Cedar Rapids. Cedar Rapids TRS is patched to AREA 11

Frequency	Tone	Description
155.83500	167.9 PL	AREA 11 VHF
460.55000	167.9 PL	AREA 11 UHF

Emergency Medical Services
St Lukes, Mercy ER, and Lifeguard Helicopter

Frequency	Tone	Description
155.22000	192.8 PL	Regional EMS-Lifeguard Dispatch
155.28000	192.8 PL	EMS F-3
155.34000	192.8 PL	Statewide EMS

Municipalities
Hiawatha
Dispatched by Linn County Sheriff

Frequency	Tone	Description
150.99500	100.0 PL	Fireground
453.10000	94.8 PL	Public Works-PD Car to Car

Lisbon
Dispatched by Linn County Sheriff

Frequency	Tone	Description
155.92500		Public Works-PD Car to Car

Marion
Marion Police and Fire dispatched by Marion themselves

Frequency	Tone	Description
460.47500	167.9 PL	Police Dispatch
460.50000	167.9 PL	Police Information
460.40000	156.7 PL	Police "Blue"
460.27500	192.8 PL	Police Link-Linked to Linn Co F4
857.98750		Marion PD-MDT
154.16000	192.8 PL	Fire Dispatch (input tone 71.9)
151.46000	192.8 PL	Fireground
460.52500	167.9 PL	Fire cross-band of 154.160, except pages
451.10000	151.4 PL	Water Department
453.15000	146.2 PL	Streets
453.75000	131.8 PL	Public Works

Mount Vernon
Dispatched by Linn County Sheriff

Frequency	Tone	Description
153.80000	85.4 PL	Police Car-to-Car

Iowa City:

Johnson County
Johnson County Public Safety (Project 25) System Johnson County Sheriff, Fire, and EMS; including Coralville and North Liberty Police

Frequency	Tone	Description
158.82000	CSQ	Fire Dispatch
154.34000	167.9 PL	Old Fire Dispatch
155.29500	167.9 PL	Fireground/Emergency Management
155.73000	167.9 PL	Jail
159.10500	114.8 PL	Road Department

Iowa City
Emergency Medical Services
University of Iowa Hospitals and Clinics
RACOM - IL, WI, MN, NE, SD, IA

Frequency	Tone	Description
463.07500	192.8 PL	Aircare Disptach
155.22000	192.8 PL	Regional EMS
155.80500	192.8 PL	C-MED to Helicopters
155.20500	192.8 PL	C-MED to Ambulances
155.28000	192.8 PL	EMS
155.34000	192.8 PL	State EMS/Reports
453.02500		Data

Southeast Iowa Ambulance

Frequency	Tone	Description
152.43500	723 DPL	Operations/Dispatcher

Municipalities
North Liberty

Frequency	Tone	Description
154.02500	103.5 PL	Public Works

Iowa City Trunked Radio System
855.2125 MHz is utilized as Car-to-Car/Simplex frequency.

System Frequencies

Site	Hex	Name	Freqs		
1	1	Iowa City	855.7125	856.2625	856.93750c
			857.2625	858.2625	859.2625
			860.26250c		860.98750c

System Talkgroups
Iowa City Public Works Talkgroups

DEC	Description
6768	Public Works 1
6800	Public Works 2
6860	Street Department
6896	Water Department
7088	Inspection Department

Iowa City Parks and Recreation Talkgroups

DEC	Description
7408	Parks and Recreation Dept. Channel A
7440	Parks and Recreation Dept. Channel B

Iowa City Services Talkgroups

DEC	Description
1872	Animal Control
4848	City Transit Channel A
4880	City Transit Channel B
7536	Senior Center

University of Iowa Talkgroups

DEC	Description
12816	Campus Operations
12848	Campus Operations
12880	Campus Operations
12944	Parking Control
13104	Motor Pool
13488	Dept. of Public Safety Operations Channel
13520	Dept. of Public Safety Info Channel
13552	Dept. of Public Safety Car to Car
13584	Dept. of Public Safety Tactical
13616	Security Officers
13712	Security Officers

Johnson County Trunked System:

Johnson County uses a Motorola Type II Trunked system, which is capable of Project 25 encryption.

Site	Freqs		
10-001	851.05000c	851.78750a	852.13750a
	852.5375	852.82500a	853.11250a
	854.2375	854.43750a	856.7125
	858.98750a	859.9875	

Countywide Dispatch Talkgroups
Includes: Iowa City, North Liberty, Coralville Police and Johnson County Sheriff

DEC	Description
52150	Law 1
52151	Law 3

Johnson County Sheriff Talkgroups

DEC	Description
52025	Sheriff Dispatch-151.370 (186.2 PL)
52020	Sheriff Information-155.250 (167.9 PL)

Johnson County Fire Talkgroups

DEC	Description
52401	County Fire/EMS Dispatch-158.820
52031	County Fire Response-154.340 (167.9 PL)
52405	New Fire
52450	Hills Fire Tactical
52460	Tiffin Fire Tactical
52440	Chit Chat

Johnson County Ambulance Talkgroups

DEC	Description
52403	Dispatch/Page
52407	Response
52050	Johnson County Ambulance Dispatch

Iowa City Police Department Talkgroups

DEC	Description
52026	Dispatch
52021	Operations Channel, Ch. 2
52022	Tactical 1
52023	Tactical 2
52062	Agency
52152	Animal Control

Iowa City Fire Department Talkgroups

DEC	Description
52402	Dispatch/Page
52404	Response-Unless noted in page what channel to respond on
52056	Fire 1
52425	Tac
52055	Tactical
52435	Mayday/Emergency Channel

Event Talkgroups

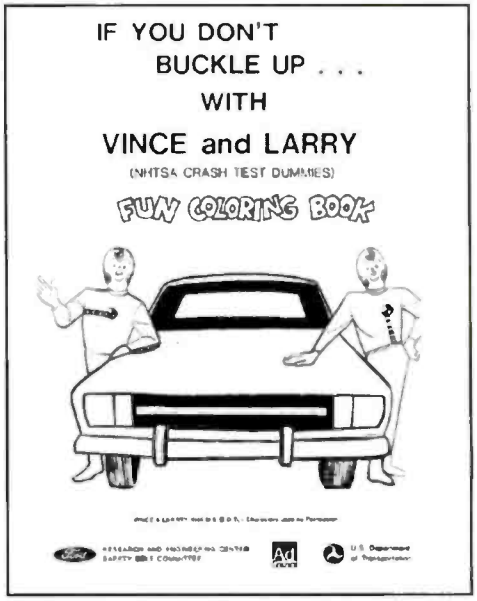
DEC	Description
52100	Event 5
52101	Event 6
52102	Event 7
52103	Event 8
52106	Event 11
52107	Event 12
52108	Event 13

University Heights Police Talkgroups

DEC	Description
52028	Dispatch

University of Iowa Talkgroups

DEC	Description
52351	Campus Dispatch
52352	Campus Information



The Iowa State Patrol website has more information for kids than any other state police site Ken Reiss has seen. This clever coloring book can be downloaded in PDF form at: <http://www.dps.state.ia.us/kids/vincelarrycb.pdf>.

52029	DPS Agency
52353	Guard

Coralville Talkgroups

DEC	Description
52065	Public Works

Interop Talkgroups

DEC	Description
52000	Point to Point-155.370
52001	Mutual Aid-155.475
52002	Iowa State Patrol-Cedar Rapids LEA-155.685 (167.9 PL)
52003	Unknown Interop TG/Frequency
52004	Iowa State Patrol-Unknown LEA Repeater
52005	Unknown Interop TG/Frequency
52006	Linn County AREA 11-155.835 (167.9 PL)
52030	State Fire-154.280
52034	State EMS-155.340

Services Talkgroups

DEC	Description
52007	Coralville Reservoir Park Rangers

Radio Maintenance Talkgroups

DEC	Description
70	Radio Maintenance
73	Radio Maintenance
74	Radio Maintenance
99	Radio Maintenance Encrypted

Encrypted Talkgroups

DEC	Description
52099	Encrypted
52200	Encrypted
52221	Encrypted
52230	Encrypted
52250	Encrypted-Car to Car, agency unknown
52252	Encrypted
52270	Encrypted
52300	Encrypted
52354	Encrypted
52426	Encrypted
52470	Encrypted
52471	Encrypted

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Wishes For a Happy 2012, From Cowfield County

by Bill Price, N3AVY
<chrodoc@gmail.com>

Happy New Year! My first wish is that all of you readers will be with me as we ring in *next* New Year, while the long-suffering *Mrs.* N3AVY is hoping that I'll forego enough of my *bad habits* to be here with you then.

They are — in no particular order — gluttony, envy, lust, sloth, wrath and greed. I think avarice is in there somewhere but I forget what it means. I'm probably still guilty of it, though.

There's no denying the gluttony — anyone who's met me face-to-face will know that. So far as envy goes, I quit envying people a while ago. Big waste of time.

Lust is pretty much a fond memory, but I'm big on sloth. I even like sloths and always look for them when I go to the zoo. They are my soulmates.

Wrath is a fading memory. After all these years, I've learned to stop having a fit when I drop a small electronic part on a thick carpet. It definitely saves excess wear and tear on my cardiovascular system.

It's also too late for greed. If I was going to be greedy, I should have started it a long time ago — amassing my fortune instead of hoarding thousands of little electronic components, most of which I still have, and have moved three times from one house to the next.

The new year finds friend Norm doing well and not giving me nearly as many things to write about as he once did. He's all healed up from having a blowout patch stitched onto his heart — and he's got a pretty big heart to patch up. He's gone most of a year without a single donut. He drew the line at eating sprouts, though. He's still willing to help get my antenna up on his next trip through here, and with the two of us now much older and not much wiser than during our earlier experiments with gravity, that will surely bring some new tales to tell.

Neither Norm nor Beezer could make their way to Cowfield County this year to help put up my dipole — or G5RV, depending on who's got what laying around — because of life's little responsibilities. I still have "getting on the air" as one of my New Year's resolutions, and promise a QSO to anyone who wants to set up a sked on some unlisted frequency. Remember: I don't own a microphone, so polish up your CW skills.

Beezer, who lives closer to the ocean than Norm, is considering a new slant on pirate radio to supplement his income. After seeing a local theater production of *The Pirates of Penzance,* he's thinking about setting up a radio beacon to lure richly-laden cargo ships onto a reef near his house and rowing out to them to make off with some ill-gotten booty. *(**WATCH**: A video trailer for "Pirates of Penzance" performed in a theater nowhere near Cowfield County: <http://bit.ly/rCUme9>. – Ed.)*

If he has my kind of luck, he'll lure a shipload of Navy *Seals* with his little ploy and learn first-hand about their anti-piracy tactics. I better warn him. *(**WATCH**: Why you don't want to mess with the U.S. Navy Seals: <http://bit.ly/uBMEbO>. – Ed.)*

Since my own HPJIE* is not keeping up with the day to day expenses in Cowfield County, I asked my boss if I could have a couple days off to go and camp out in a metropolitan park and protest against people who have more than I do. He was more than happy to give me the time off, so long as it was on a weekend.

I asked if I could lay around on *his* lawn and demand some of *his* money — he said it was ok, because he was going to the Bahamas for the weekend, and would I mind shoveling his driveway while I was there.

My immediate boss — the chief engineer — and I keep upgrading our various systems, replacing analog systems with their digital counterparts in many instances, and finding idiosyncrasies that defy logic and explanation. Manufacturers are unable to explain many of the problems we are experiencing, other than to tell us to "power it down, then power it back up again and see if that solves the problem."

I might as well let all of you in on the big secret of getting and keeping an HPJIE: After checking the fuse in line with whatever it is that's malfunctioning, you power it down, then power it back up again. Over the last 18 years that is how we have fixed most problems. The few other times, the problem was the capacitor — and usually the biggest one.

(Bill suggests that anyone who gets and keeps an HPJIE using his technique should please send their tuition payments to "Bill's Retirement Fund, Cowfield County, USA" – Ed.)

* High-Paying Job in Electronics

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[1]Note that certain frequencies are unavailable. [2]5W output

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