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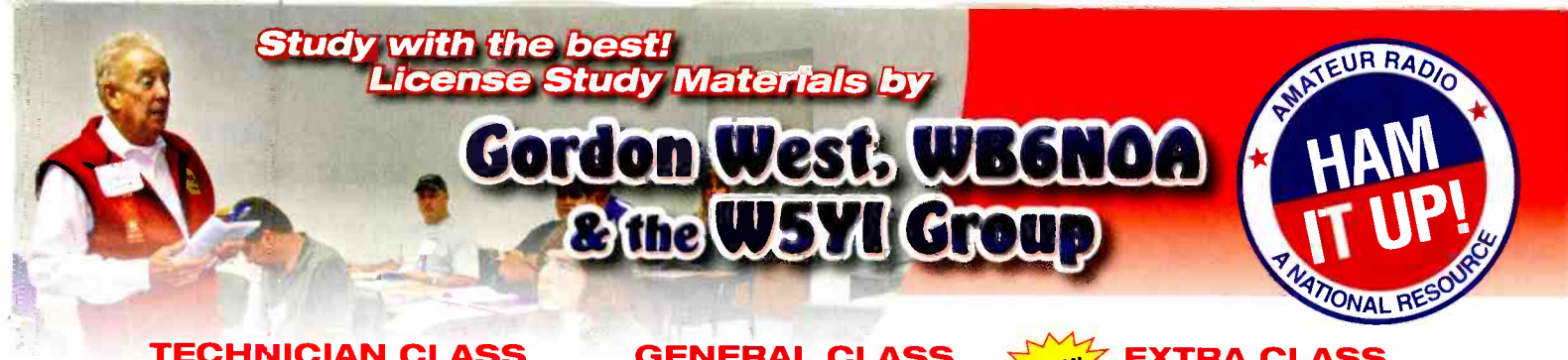
*Frequency specs may vary. Refer to owners manual for exact frequency specs. Optional CT-17 required. Optional CS-RX7 required.



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Welcome to Gordo's classroom! Technician audio theory course recorded by Gordo talks you through the Element 2 question pool. Follows the order of his ***Technician Class*** book, and is full of the sounds of ham radio operating excitement! An excellent study aid if you spend a lot of time in your car or pick-up! On 4 audio CDs. GWTW-10 $29.95

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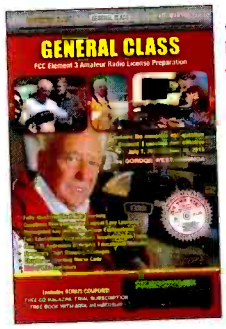

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General Theory Course recorded by Gordo is full of the sounds that bring ham radio to life! He talks you through the Element 3 theory to help you understand the material and get you ready for your upcoming exam. On 4 audio CDs. GWGW-11 $29.95

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Want to study at your computer without tying up your internet connection? This value pack includes the Tech, General and Extra class exams (Elements 2, 3, and 4) along with a free Part 97 Rule Book. Software includes Gordo's answer explanations from his books! Everything you need to go all the way to the top!

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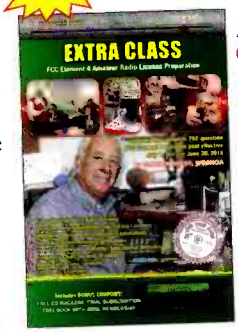
Basic Communications Electronics	BCOM $19.95

NEW! EXTRA CLASS



***Extra Class* book**
Go to the top with Gordo! 2012-2016 book includes all Element 4 Q&A reorganized into logical topic groups. Gordo's fun, educational explanations with highlighted keywords, and great memory tricks for those tough theory questions! Wait 'til you meet "Eli the Ice Man!" GWEM-12 $24.95

Extra Book & Software Package
Study at your computer and take practice exams as the W5YI software scores your results and highlights areas that need further study. Includes explanations from Gordo's book. Free Part 97 Rule Book. ECS-12 $39.95

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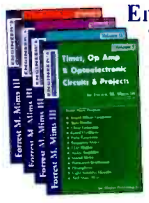
by Forrest M. Mims
A great introduction for anyone who wants to learn the fundamentals of electronics. Includes 100 projects you can build, and great experiments that demonstrate how electricity works! GSTD $19.95



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These Mims classics teach you hands-on electronics! Study and build 100s of practical circuits and fun projects. Each volume contains several of his famous Mini Notebooks. Terrific ideas for science fair projects and a great way to learn about electronics! Useful reference guides for your workbench!

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MAY 2013
VOLUME 31, NUMBER 9

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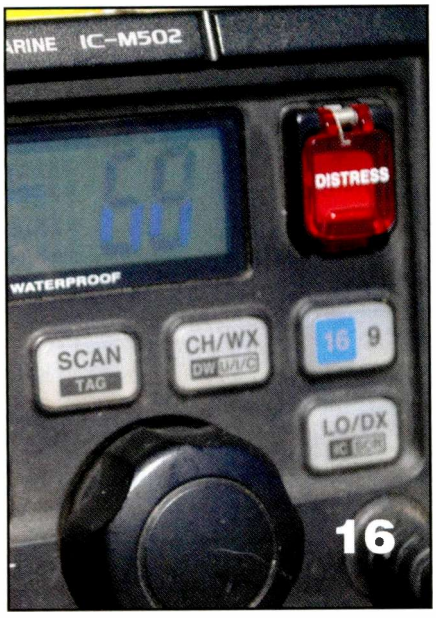
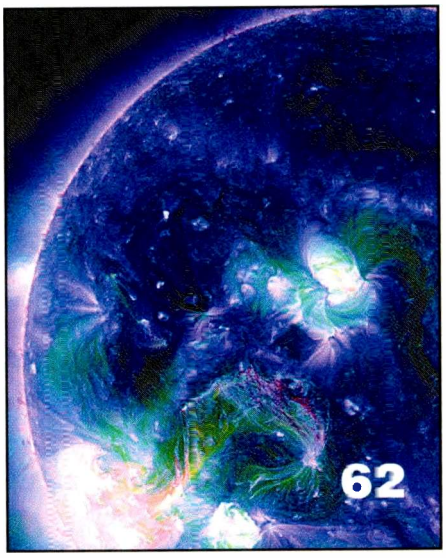


FEATURES

FEATURED COLUMNS



ON THE COVER

With a photograph of a retro single-tube regenerative receiver as its backdrop, the solid state Hendricks QRP Kits "Scout" SWL regen is front and center, covering 3.3 to 10+ MHz in two tuning stages. It's sure to "take you back" to the old days of radio — or introduce you to regens for the first time. The kit is easy to build and lots of fun to play with — especially if you're a dial-twisting fan. *(Photography by English WP via Wikimedia Commons, and KPC6PC. Cover design by Liz Ryan, Pop'Comm Art Director.)*

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 AMTOR (FEC) turn into exciting text messages as they scroll across an easy-to-read LCD display.

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

Eavesdrop on the World

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

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

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

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

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

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

High Performance Modem

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

Easy to use, tune and read

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

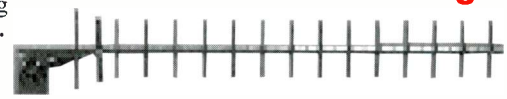
It's easy to tune -- a precision tuning indicator makes tuning your receiver easy for best copy.

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

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

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

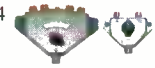
This MFJ *ClearTone™* restores the broadcast quality sound of shortwave listening. Makes copying easier, enhances speech, improves intelligibility, reduces noise, static, hum. 3 in. speaker handles 8 Watts. 8 Ohm impedance. 6 foot cord.

MFJ All Band Doublet

MFJ-1777 **$59.95**

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

MFJ Antenna Switches



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

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

Morse Code Reader

MFJ-461 **$89.95**

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

MFJ 24/12 Hour Station Clock

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

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EDITORIAL
Tuning In

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

Pop'Comm @ 30: What Was Hot, 'Back in the Day'

On the assumption that it takes a good year for a new publication to get its advertising footing, it was interesting to see what radios and gadgets were getting display space in the September 1983 edition of *Pop'Comm* — the first anniversary issue.

On the inside of the front cover was a large picture of a duck beside a yellow, drenched Sony Sports Walkman FM radio-cassette player. "They're built on the same principle, but one sounds a lot better," says the headline.

Heathkit was touting its uMatic Memory Keyer, looking all the part of a large electronic desk calculator. Meanwhile, "if you aren't using a Hustler Monitor Antenna, you're missing the action," the company says.

The back page features a color ad for the "new" ICOM IC-R70, "the commercial-grade communications receiver that everyone has been asking for . . ." See multiple photos at <http://bit.ly/Z9Tx1V>.

There were a bunch of ads for satellite receivers, antennas, and accessories — an emerging technology at the time.

In addition to the IC-R70, other "new" receivers were the Japan Radio NRD-515 <http://bit.ly/WDyQen>, Kenwood R-2000 <http://bit.ly/104bJjw>, Sony ICF 2001 <http://bit.ly/Y8FngP>, and Yaesu FRG-7700 <http://bit.ly/WG80b5>.

Showing the diversity of *Pop'Comm's* audience, there was even a full-page ad for the BMW R65LS 650cc motorcycle which, in 1983, was "the latest heir to 59 years of German engineering."

Indeed, *Pop'Comm* readers live in communication technology's fast lane. As *Pop'Comm* moves forward 30 years later, we encourage you to savor this month's, and *every month's* advertising. Then support those who support us. It's the lifeblood of almost every publication, and it needs to *keep on pumping.*

A First? — 'Spurious Signals: Live from Dayton!'

Of course, *Pop'Comm* is totally stoked about the upcoming Dayton Hamvention®, May 17-19. This year, "Spurious Signals" will be emanating from the CQ Communications booth. Veteran *Pop'Comm* cartoonist Jason Togyer, KB3CNM, will be live-blogging illustrations of the action, then posting the images on *Pop'Comm On the Web* <http://www.popcommmagazine.blogspot.com>. Click over there now to see what's happening during his pre-Dayton countdown.

There's no lack of humor in the Hamvention scene, and Jason's "*'Spurious Signals: Live from Dayton!'*" will prove it. We believe cartoon blogging from the Hamvention might be a "first." We hope you enjoy the show.

Results: January's *Pop'Comm* Reader Survey

Many readers have been asking if we'd share with them the results of our monthly Reader Survey. Easy answer: *Sure!*

Here are January's questions and responses tabulated from reader mail-in cards:

As I look ahead into 2013, my main communications focus will be . . . (Choose all that apply):

Upgrading my radio and/or computer gear	13.75%
Establishing achievable monitoring goals and going for them	11.25
Expanding my communications technology horizons	12.5
Improving my antenna(s)	17.5
Becoming more involved in the monitoring community	10
Better appreciating the gear I have and using it more	23.75
The same as it has always been. Resolutions aren't for me	11.25

(Continued on page 82)

The Weirder Side of Wireless, and Beyond

Compiled by Richard Fisher, KPC6PC

Don't *Ever* Try This @ Home — or Anywhere Else, Part I

First of all, what are the guys in a YouTube video titled "Listening to Radio With a Blade of Grass" doing around the base of a radio broadcasting tower? *Truly unwired!* "That person has no idea how close they were to a ***very nasty and instant death*** by doing that," writes one commenter beneath the video. What is *that?* Check it out at <http://bit.ly/VVwvOH>, **Photo A**. "There is a fence around high power radio transmitter sites," the commenter continues, "and the tower is sitting on top of a very large insulator — *for a reason*." *(Source: Southgate ARC News)*

Don't *Ever* Try This @ Home — or Anywhere Else, Part II

ESD, or electrostatic discharge, is "the sudden flow of electricity between two objects caused by contact, an electrical short, or dielectric breakdown." Or: *All of the above* in the case of the poor fellow in the YouTube video at <http://bit.ly/13xc9A8>, **Photo B**.

"ESD can be caused by a buildup of static electricity by tribocharging, or by electrostatic induction," <http://bit.ly/XKeWSf>. Each discharge in the video is painfully demonstrated to show ***how not to handle ESD***. *(Source: Southgate ARC News)*

MIT Satellite Lives — After Dying 46 Years Ago

After being left for dead as a piece of space junk 46 years ago, LES1 started transmitting on 237 MHz again, much to the delight of Phil Williams, G3YPQ, who happened across its signal from his listening post in North Cornwall, England.

The amateur radio astronomer "accidentally picked up the signal," and after cross checking with

(Continued on page 83)

Photo A. Don't *Ever* Try This @ Home, Part I: Two guys, some vegetation and a multi-jillion-kilowatt transmitting tower. A potentially lethal combination, especially when your faux serendipity is listening to the radio through a weed. *(**WATCH:** These radio-active derring-doers at <http://bit.ly/VVwvOH>. (Internet screen grab)*

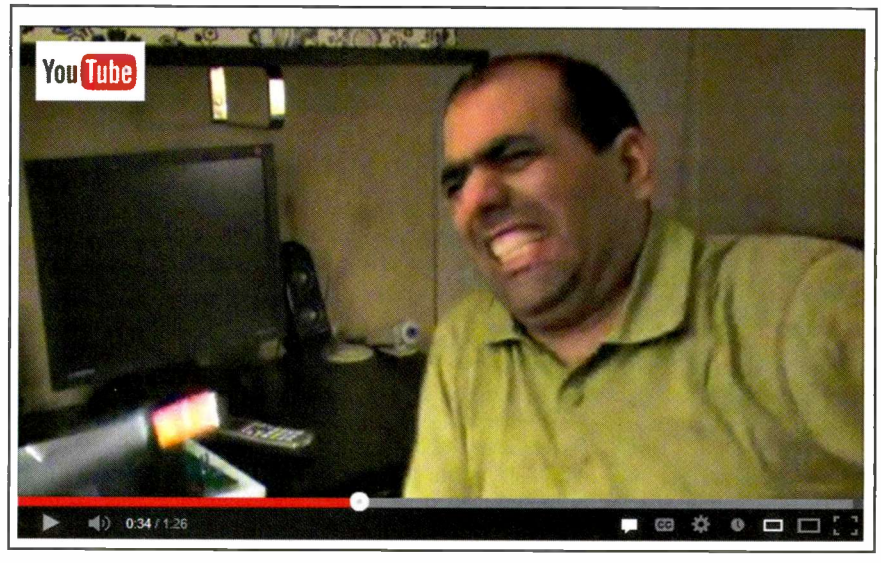

Photo B. Don't Ever Try This @ Home, Part II: This fellow got some shocking insight into electrostatic discharge — ESD. It's not to be played with! You'll feel his pain (well, not really, but you can certainly imagine it) in this video titled "Don't worry, it's just ESD!" *(**WATCH:** The re-volting display at <http://bit.ly/13xc9A8>.) (Internet screen grab)*

Communications News, Trends and Short Takes

Compiled by
Richard Fisher, KPC6PC

Shortwave Radios Confiscated in Zimbabwe

Zimbabwe Information Minister Webster Shamu has declared shortwave radios illegal and hundreds "have been seized in house searches," according to a report posted by *The Australian*.

For the past eight years, pro-democracy organizations have been distributing solar and wind-up radios made in South Africa to the population. Police officers were hunting the radios which they allege are "meant to sow seeds of discontent within the country" and to communicate "hate speech." *(Source: Southgate ARC News)*

New HF Active Antenna Released in UK

United Kingdom-based Cross Country Wireless developed an HF active antenna as part of its work during the Sentinel HF SDR Noise Measurement and Receiver Program <http://bit.ly/YG1FX6>. Now it's available commercially.

"There was a need for an antenna that could be used for accurate RF measurements over a wide range of HF frequencies without being affected by coupling to nearby metallic objects or RF noise from common mode coupling on the feeder and would give long-term repeatable results," the company said in a release.

The Cross Country Wireless HF Active Antenna has two RF outputs "so that one could be used for a Sentinel HF SDR Noise Measurement Receiver and the other for another HF receiver for general listening."

Among its features are:

- Balanced small dipole design using two 2.13-foot stainless steel elements
- Frequency range: 100 kHz to 50 MHz
- RF output equal to a full-size, half-wave dipole at the operating frequency
- 66 feet of outdoor Ethernet cable terminated with RJ-45 connectors.

*(**IN DEPTH:** For details, visit Cross Country Wireless at <http://bit.ly/ZUQktc>. – KPC6PC)*

Listen: To OTH RADAR Interference on 28 MHz from Iran

The International Amateur Radio Union Region 1 website reports that the Over The Horizon (OTH) RADAR is being transmitted daily from Iran on the 10-meter amateur radio band at 28245 kHz. The notice reports that the transmissions are "long lasting."

*(**LISTEN:** To the OTH RADAR 10-meter interference from Iran at <http://bit.ly/YG8sjv>. – KPC6PC)*

"You can hear a high and a low tone, corresponding to the sweep rates of 870 and 307 sweeps-per-second," the IARU said. "The system is about 60 kHz wide — sometimes jumping frequency — and the splatters are covering +/- 600 kHz. *(**IN DEPTH:** For more information, visit the IARU websites at <http://bit.ly/XJQz7r> and <http://www.iaru-r1.org>. – KPC6PC)*

Spotify Carries on 'Music Mission' via Ford's Car Radios

Voice-activated music streaming is now available to many Ford vehicle owners with the auto giant's partnership with Spotify, the company that wants to make "all the world's music available to everyone," according to a story posted by *Forbes* magazine.

Ford is the first to launch "Spotify in the Car," which for now is available only to people with an iPhone and a Spotify Premium account. Their model must be equipped with SYNC AppLink, as well. There are 1 million Fords in the U.S. with that feature.

Forbes noted that General Motors "has partnered with AT&T to deliver wireless service directly through the car's dashboard. In other words, while Ford relies on a smartphone to be the wireless hub, GM is focused on putting that connectivity inside the car." *(**READ:** The full Forbes story at <http://onforb.es/XT8WFR>. – KPC6PC)*

BBC Strongly Condemns China's World Service Jamming

"The BBC has received reports that World Service English shortwave frequencies are being jammed in China," corporation officials said in a strongly-worded statement in February. "Though it is not possible at this stage to attribute the source of the jamming definitively, the extensive and coordinated efforts are indicative of a well-resourced country such as China."

Calling it an effort "designed to disrupt audiences' free access to news and information," officials noted that "in the past couple of years the BBC has experienced jamming of satellite services. While shortwave jamming is generally less frequent, it does affect BBC Persian transmissions in Iran and was historically used to block BBC broadcasts during the Cold War."

These interference efforts "by authorities in countries such as China and Iran illustrate the significance and importance of the role the BBC undertakes to provide impartial and accurate information to audiences around the world," Peter Horrocks, Director of BBC Global News, said. *(Source: BBC)*

CQ Launches Online Photo Gallery

CQ magazine has launched the *CQ Photo Gallery* online to supplement photos published in the magazine. "We shoot photos at many events, and receive many photos from readers, that we don't have space to put in the magazine," said *CQ* Editor Rich Moseson, W2VU. "But we still want to share them with our readers. The new *CQ Photo Gallery* allows us to do that."

Pictures now on the site include the *"CQ Garage,"* featuring ham radio license plates from all over news photos from the FCC's field hearing on communications lessons from Superstorm Sandy, and reader-submitted photos. *(**VISIT:** <http://bit.ly/Y5F8Ty>. – W2VU)*

Capitol Hill And FCC Actions Affecting Communications

Compiled by Richard Fisher, KPC6PC

FCC: More Spectrum for 'Unlicensed Devices' @ 5 GHz

Describing its move as "the first steps to unleash significant additional spectrum to accelerate the growth and expansion of new Wi-Fi technology," the FCC in late February called for changes "that can offer faster speeds of one gigabit per second or more, increase overall capacity, and reduce congestion at Wi-Fi hot spots."

In a Notice of Proposed Rule Making (NPRM), the Commission "proposed to make up to 195 MHz of additional spectrum in the 5-GHz band — a 35 percent increase — available to unlicensed wireless devices," a Commission release noted. It also proposed to create "a more flexible regulatory environment," and to streamline existing rules and equipment authorization procedures for devices throughout this band.

The Amateur Radio Service has a secondary allocation at 5.65-5.925 GHz, including an Amateur Satellite Service uplink allocation of 5.65-5.67 GHz and a downlink allocation of 5.83-5.85 GHz. ARRL CEO David Sumner, K1ZZ, said the League "plans to respond to the NPRM by pointing out that meaningful access to the 5-GHz band for amateur and amateur satellite operations continues to be in the public interest," <http://bit.ly/12jwY2j>.

*(**IN DEPTH:** Read the full FCC document at <http://fcc.us/12jvDZt>. – KPC6PC) (Source: FCC)*

Report from the Doghouse . . .

Here's a rundown of recent FCC enforcement actions involving hobbyist communications.

WQGX752 Slapped with $24,000 Fine: The FCC has upheld a $24,000 Forfeiture Order against General Mobile Radio Service (GMRS) operator **Kevin W. Bondy**, WQGX752, of Encino, California for unlicensed operation, intentionally causing interference, and for refusing to let Commission agents inspect his radio gear. "Mr. Bondy transmitted on frequencies that he had no authorization for and announced, and engaged in, intentional interference to (The Oaks Shopping Center) operations on frequencies 461.375 MHz and 466.375 MHz," FCC documents said. In assessing the $24,000 fine, the Commission noted Bondy "operated a radio without a license . . . for the explicit and expressed purpose of prohibiting The Oaks's use of its licensed frequencies." *(**IN DEPTH:** Read the full FCC finding at <http://fcc.us/XNMrQv>. – KPC6PC) (Source: ARRL Letter, FCC, published reports)*

His Signal Goes to Jail; He's $25K Lighter: A Cocoa, Florida man has been fined $25,000 for operating a radio transmitter without a license on 465.300 MHz and interfering with communications at the Brevard County Jail in Sharpes, "by transmitting vulgar language, sound effects, previously recorded prison communications, and threats to prison officials" over the jail's radio system, the FCC reported. **Terry L. VanVolkenburg** is alleged to have caused the disruption on 14 days, "after being told (multiple times) to cease his interfering communications," the Commission said. "Mr. VanVolkenburg holds an amateur license (callsign KC5RF), but the license does not authorize him to operate on public safety frequencies," <http://www.qrz.com/db/KC5RF >. According to the FCC, VanVolkenburg "stated that he chose 465.300 MHz because the prison's transmissions on that frequency were strong; that he was only using 300 milliwatts and did not think that he 'could talk over anyone and therefore wasn't interfering with anyone,' and that the interference would not happen again." *(Source: FCC)*

FCC Aims @ 14.312-MHz Intruder's Wallet: In late February, the FCC issued a Notice of Apparent Liability for Forfeiture (NAL) for $10,000 to **Jared A. Bruegman**, ex-KCØIQN, of Bolivar, Missouri, for "apparently and willfully" operating an unlicensed radio transmitter on the frequency 14.312 MHz." According to the *ARRL Letter,* Bruegman "was operating in the phone portion of the 20-meter band that is assigned to the Amateur Radio Service on a primary basis. His amateur radio license expired in 2010." *(**READ:** The full story at <http://bit.ly/Y5PnHA>. (Source: FCC and ARRL Letter)*

R&O IDs New Rules for Signal Boosters

The FCC has adopted a Report and Order (R&O) "that furthers the goal of improving our nation's wireless infrastructure by expanding the reach of wireless coverage for consumers.

"These new rules governing signal boosters — which amplify signals between wireless devices and wireless networks — will substantially improve signal booster design by requiring manufacturers to include safeguards that protect wireless networks," FCC documents noted. "As a result, all four nationwide carriers, as well as many rural and regional carriers, have consented to the use of boosters on their networks, as long as those boosters meet the technical specifications outlined in the Order."

Signal boosters "not only help consumers improve coverage where signal strength is weak, but they also aid public safety first responders by extending wireless access in hard-to serve areas such as tunnels, subways, and garages," the Commission said. "This Report and Order reflects a common sense, consensus-based technical solution that will help millions of consumers across the country."

The R&O identifies two classes of signal boosters — consumer and industrial — "with distinct regulatory requirements for each." *(**IN DEPTH:** Read the full R&O at <http://fcc.us/Y5KK0a>. – KPC6PC) (Source: FCC)*

How 'Connectedness' Is Changing Our Lives

By Richard Fisher, KPC6PC

"I've been doing amateur radio for a couple of years now and it has gotten me a load of new friends."

In a philosophical moment on "This Week With George Stephanopoulos," Matthew Dowd, political consultant and contributor to ABC News, lamented the "poverty in the heart and soul" of this country. Among his examples: "We have more connections, and (yet) we're less connected." He's talking about connectivity on a *human level,* of course.

I've been thinking about our connectedness, or lack thereof, in hobbyist communications. On a human level we certainly buck the trend. True: Our fingers do lots of the talking. But . . .

- Many VHF/UHF scanner monitors are "friending" astronomy and meteorology, while stargazers and weather watchers are becoming scanner monitors. They meet, they talk, and they do things together
- More and more people in the makers community <http://bit.ly/VrJwR7> are becoming radio amateurs, and vice versa. Proof is in the popular, year-old *Makers* column in *CQ* — an amateur radio magazine. The correlation is undeniable.
- Of course, the concentric circles intertwining shortwave listeners and hams have been etched in stone for 100 years.

Heck, even Apple Computer co-founder and supergeek Steve Wozniak was a ham — WA6BND. Today, one's technological sphere is limited only by the imagination. The greater our reach, the more connections we make with people of similar interests and passions.

I recently heard a good example in a podcast by Frequencycast <http://bit.ly/YnzfEg> — a popular program produced in the United Kingdom. Episode to episode, the show focuses primarily on news in digital TV and technology.

In program No. 85, Pete Sipple says to co-host Kelly Atkins: "Now it's time to talk amateur radio," noting that the topic has come up previously on several shows. "Do you think we talk about it too much?" Kelly responds: "*Uhhh,* potentially, yeah."

Pete is a self-described *gadget geek* who got his ham license in 2011 — MØPSX. Kelly wants to know what he likes about amateur radio.

"Well, I have to say, I've been doing the hobby for a couple of years now and it has gotten me *a load of new friends,"* he explained. "And it has introduced me to a load of things I normally wouldn't have had the chance to do. I worked a station that was operating for the Olympics. I was part of the Olympic torch stuff. I've been on a light vessel, which is something I would not normally get to do. And I was able to operate amateur radio from a secure location — which I am not allowed to talk about." Sipple said it is a good hobby for a techie such as himself.

An email to Frequencycast from a listener late in 2012 said: "I would like to see Kelly pass her Foundation (amateur radio) exam and make her first call by the next show. This would show listeners how it is quite possible for a novice to get on the air easily."

"Have you lived up to your challenge?" Pete asks Kelly. "Of course," she replies confidently. The podcast goes on to chronicle her day of training and examination in February with the Thames Amateur Radio Group. She's now M6KFA. *(**WATCH:** A video of Kelly Atkins during Foundation license training with TARG at <http://bit.ly/XQgirB>. – KPC6PC)*

In her transformation to ham, Kelly was surprised by how much she enjoys Morse code. She made several on-air SSB contacts using the club call GXØTRG.

As far as Kelly's email challenge was concerned: *Mission accomplished.*

But there was so much more. "On our shows," Kelly said after completing the TARG course, "I'm often asked to discuss subjects such as Freeview interference, 4G data networks, and gadget power consumption and this (experience) has helped me to improve the understanding of the technology I discuss with Frequencycast listeners."

Taking the course with Kelly were Belinda Sanderson, now M6JNX; and Lucy Walker, now M6UCY — YL friends, to be sure.

And so, as Kelly Atkins' connections expand from the geek world into amateur radio, is she becoming "less connected?" Are the thousands of people who follow Kelly's path each year "less connected," as well?

Are the radio amateurs who fall head-over-heels into shortwave "less connected" by becoming part of any number of SWL communities around the world?

Are the amateur astronomers and meteorologists who have discovered VHF/UHF scanning "less connected" with their peers who share the same passion for monitoring both the skies and the frequencies above 50 MHz?

When we consider technology and the notion of being "less connected" on a human level, let's put an asterisk beside hobby communications. Kelly Atkins, M6KFA, went to school, but could teach a Washington pundit a lesson.

Rob de Santos is off this month. He will return to Horizons in June's Pop'Comm. – KPC6PC.

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A Dial Twister's Delight

The Hendricks 'Scout Regen' is a Throwback to Radios of a Bygone Era

By Richard Fisher, KI6SN

Some shortwave listeners like to park their receiver on a foreign broadcaster's frequency, lean back in the listening post chair and soak in the dulcet tones wafting from the loudspeaker. *Set it and forget it,* as the TV pitchman likes to say.

Others, like me, are knob twisters. We lean in on the radio and constantly fiddle with the dials. Shifting to BFO (beat frequency oscillator) to check zero beat. Tweaking the antenna tuning capacitor for maximum signal. Playing with the audio filtering switch, volume, and selectivity controls. It's perpetual motion.

Many of us "twisters" might have cut our teeth in radio using a regenerative receiver, invented by the renowned Edwin Howard Armstrong. I certainly did.

The Major discovered that a tuned circuit added to the output of an Audion tube amplifier could be adjusted to dramatically increase the gain, and push the circuit into self-oscillation.

"The pure joy of SWLing with the 'Scout' is largely found in continually tweaking the radio's four front-panel dials to get incoming signals 'just so.'"

Without getting overly technical, it was a breakthrough in receiver design. Both AM and continuous-wave (CW) Morse transmissions could be copied. Best of all: *there were more dials to fiddle with.*

Of course, Armstrong's experimentation was with high-voltage, cumbersome vacuum tubes. Fortunately, there have been great advances in regenerative receiver design since then using superior low-voltage, solid-state components.

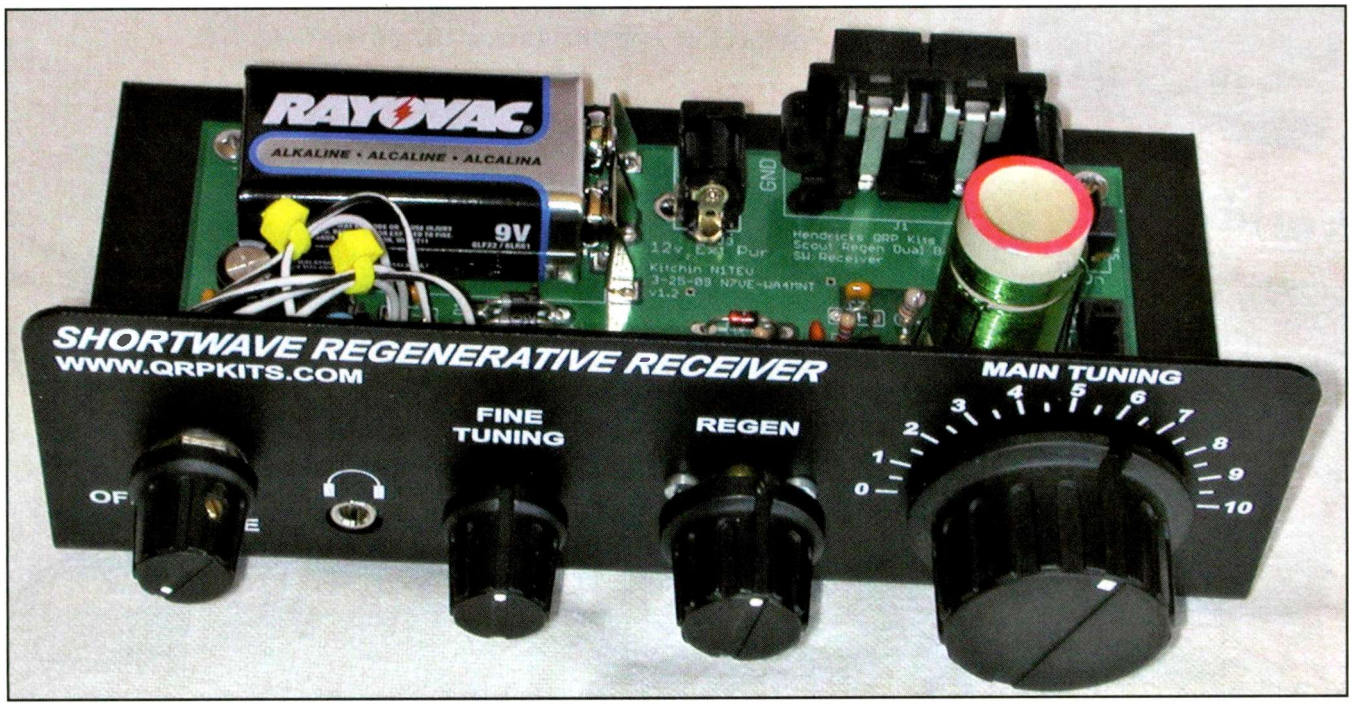


Photo A. The Hendricks QRP Kits Scout Regenerative Receiver is a handsome all solid-state kit designed for two coverage ranges: 3.3 to 5.1 MHz and 5.1 to 10+ MHz — perfect for shortwave AM and sideband monitoring, as well as "reading the mail" on some popular amateur bands. *(Photography by KPC6PC)*

Photo B. Skeptical about the performance of modem day regenerative receivers? Watch and listen to the Scout Regen while receiving Radio Romania from Bucharest on 9.435 MHz — almost 5,000 miles from this listening post. *(Internet screen grab)*

Charles Kitchin, N1TEV, is widely considered the modern day guru of solid-state *regens*, as they are called. Several years ago he designed the Scout Regenerative Receiver for use by the Boy and Girl Scouts of America as a learning tool for their members.

It's a simple circuit for a neat little radio that might not win any SWLing competitions, but will certainly give its user hours of enjoyment listening to foreign stations from around the world. And, on just a 9-volt "transistor radio" style battery.

Hendricks QRP Kits CEO Doug Hendricks, KI6DS, was granted permission by Kitchin to duplicate the Scout Regen as a kit, **Photo A**. If you've never played with a regenerative receiver, this project is a great way to get started <http://www.qrpkits.com/>.

In two stages, the radio covers approximately 3.3 to 5.1 MHz and 5.1 to 10+ MHz. There are plenty of AM and side-

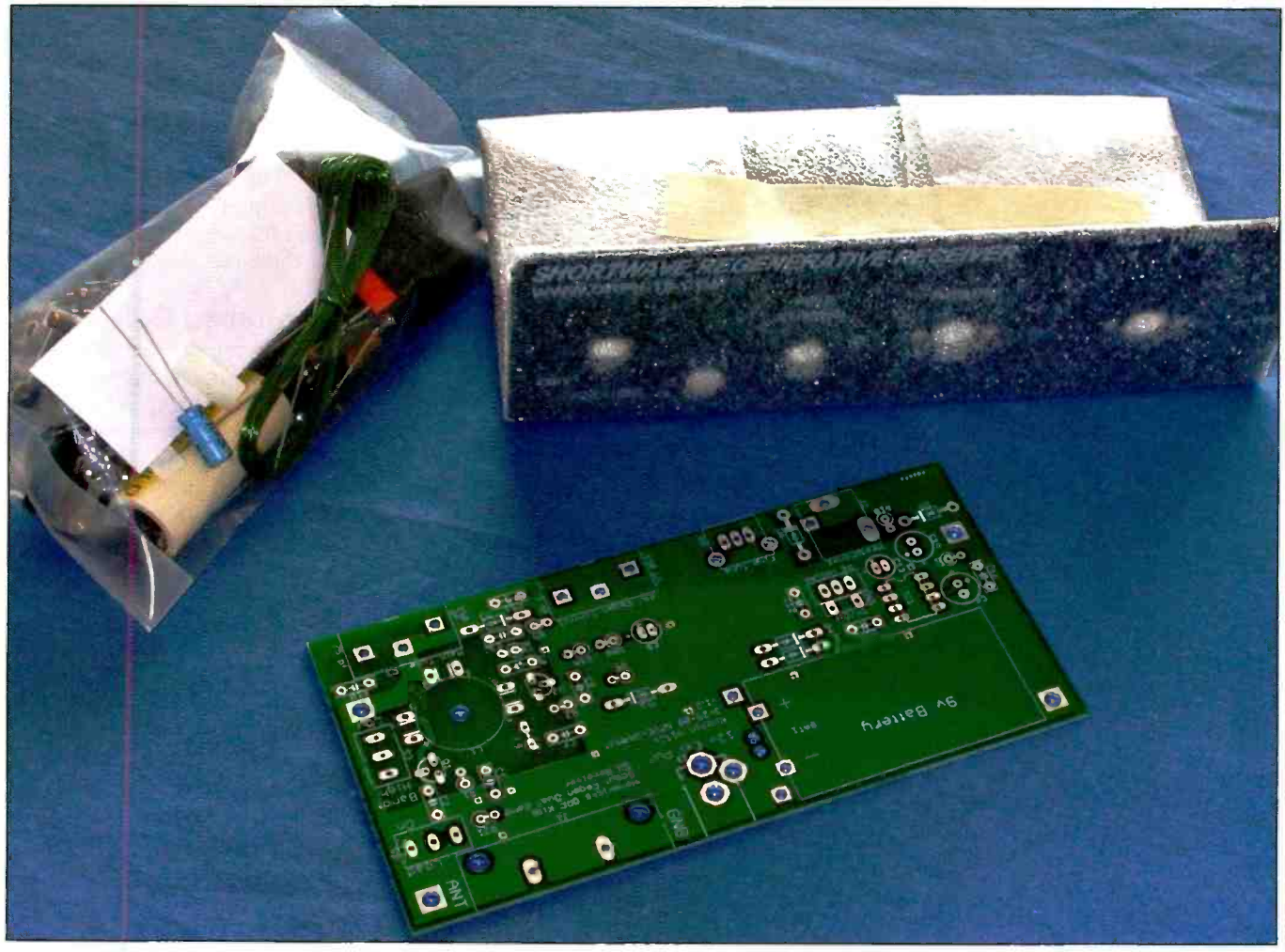


Photo C. Careful packaging of the Scout Regen's chassis, printed circuit board, and components prevents its pieces from damage.

band shortwave signals in those ranges, as well as amateur radio signals — both CW and SSB. A slide switch on the receiver's printed circuit board (PCB) toggles between the two tuning ranges.

*(**WATCH and LISTEN:** To the Hendricks Scout Regen shortwave and amateur band receiver in a YouTube video at <http://bit.ly/Xb34Jo>, **Photo B**. – KPC6PC)*

Building the Hendricks 'Scout Regen'

The first thing you'll notice about the Hendricks Scout Regen is how meticulously it is packaged for shipping, **Photo C**. That's a good idea. The kit includes a very attractive front panel, with crisp labeling for no fewer than four controls! The silkscreened, hole-through PCB is top quality, **Photo D**. The chassis and circuit board are wrapped to protect them from scratches. Components are packaged in a sealed plastic bag.

Constructing the Scout Regen is somewhat reminiscent of the late Heathkit amateur radio kit line, which described assembly "one part at a time." It's not quite that granular with the Hendricks Scout. But close.

Builders download the regen's 47-page manual and are guided through assembly step-by-step. *(**REFERENCE:** The Hendricks Scout Regen construction manual can be found at <http://bit.ly/V9ngex>. – KPC6PC)*

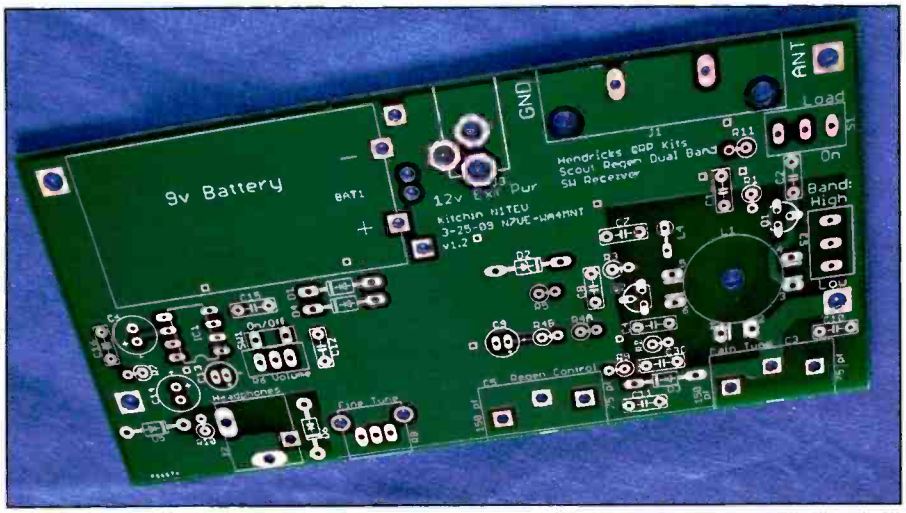


Photo D. The high-quality circuit board features hole-through component mounting, is plated through for solid solder connections and is silk screened — clearly identifying parts placement for ease of construction.

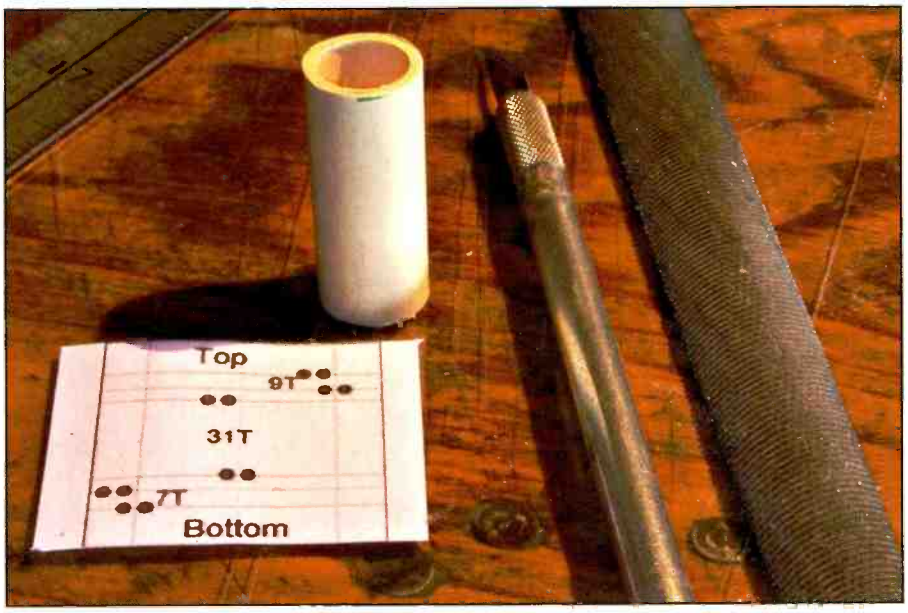


Photo E. Preparation for making the Scout Regen's multiwinding coil includes smoothing the PVC form and affixing a drilling template on the tube's circumference.

You'll see there are no surface-mount components. Each part is standard hole-through, and soldered by the builder to the Scout's PCB.

Assembly is in a "build-a-section/test-a-section" format, so the first order of business is mounting the battery holder hardware. This radio circuit goes nowhere without some juice.

After adding components for the radio's power section and testing it, the builder moves on to the audio amplifier — again building and testing. For people new to "homebrewing," these tests can be gratifying and exciting. *"It works!"*

Interim tests can let builders know, as well, when something's not right. It's much easier to troubleshoot part of a radio than having to narrow down a *ne'er do well* in a completed circuit.

Resistor, capacitor, and diode assembly is straightforward, along with the set's two transistors and LM386 audio amplifier chip. Off-board hardware went onto the PCB or front panel without a hitch.

The manual methodically leads the builder through the circuit's assembly, from those Power and Audio sections to Parts I and II of the Regen Detector, and so on — leaving the most fun and challenging part for almost last: winding the receiver's three-part coil.

Oh, That Tuning Coil

I am a great fan of making inductors for electronic circuits, so winding this coil was like dessert. *Absolutely delicious.* Other builders have lamented its difficulty, but I haven't heard of a person yet who didn't get it wound and working.

Most modern day receivers use toroid inductors. Not the Scout Regen. Its coil is wound on a 1.5-inch-long piece of PVC with a five-eighths-inch outside diameter. The manual includes a template for drilling holes in the coil form to attach each winding.

At KPC6PC, when I printed the Scout manual, the drilling template for the coil form was not quite the 1.5-inch-square box it was supposed to be. No matter how I tinkered with the printer and image parameters, I just couldn't get it to come out the required 1.5 x 1.5 inches.

After a little bit of Internet digging, I discovered a free program called IrfanView <http://www.irfanview.com> which is great for sizing images to precise dimensions that need to print out at an exact size.

Photo F. Once the template is taped into place, it's a simple matter of drilling 1/16th-inch diameter holes at the 12 places indicated.

Photo G. Light sandpaper will remove any burrs after drilling, readying the PVC for three windings of No. 26 enameled wire.

In the process, I came up with a three-part procedure for copying Fig. 49 — "Drilling template for L1," on page 34 of the manual — and working it through programs to print out precisely at 1.5 x 1.5 inches.

I won't bog down things with the details, but the procedures have been posted on the *Pop'Comm On the Web* blog for anyone who's curious. View the step-by-step instructions at <http://www.popcommmagazine.blogspot.com>. This is a nice procedure to have in your hip pocket when printout size is important in any project. *(**NOTE:** If anyone is aware of a more efficient way to do this, please let me know: <editor@PopularCommunications.gmail.com>. – KPC6PC)*

After smoothing and leveling the PVC form's ends, so it will sit flat on the PCB, the builder is instructed to take the template, **Photo E**, and tape it to the coil form, **Photo F**. Holes are then drilled at the 12 points indicated with a 1/16th-inch drill bit. I used a hand drill, just to keep things in control on the PVC's curved surface. It came out beautifully, **Photo G**.

Making a Coil and Checking It Twice

Now we have the challenge of winding the No. 26 green-enameled wire correctly on the form. Not to worry, Hendricks' Scout manual painstakingly describes the process on pages 35-38.

There are actually three separate windings on this PVC form: one of seven turns, another of 31, and a third of nine. You can catch your breath between each winding, **Photo H**.

Once completed, you will have a nice, tight coil for your regen that will not only allow you to tune the bands, but also provide regeneration and couple your radio to its antenna, **Photo I**.

Now: *Did you wind the proper number of turns for each section?* That's always a concern when you're dealing with this much wire. And well worth double-checking.

Here's a trick I use when winding complicated toroidal inductors. It works here, too: Take a close-up digital picture of the completed coil and print it out as an enlarged image. Now it is a simple exercise of counting each super-sized turn with the point of a pencil, **Photo J**.

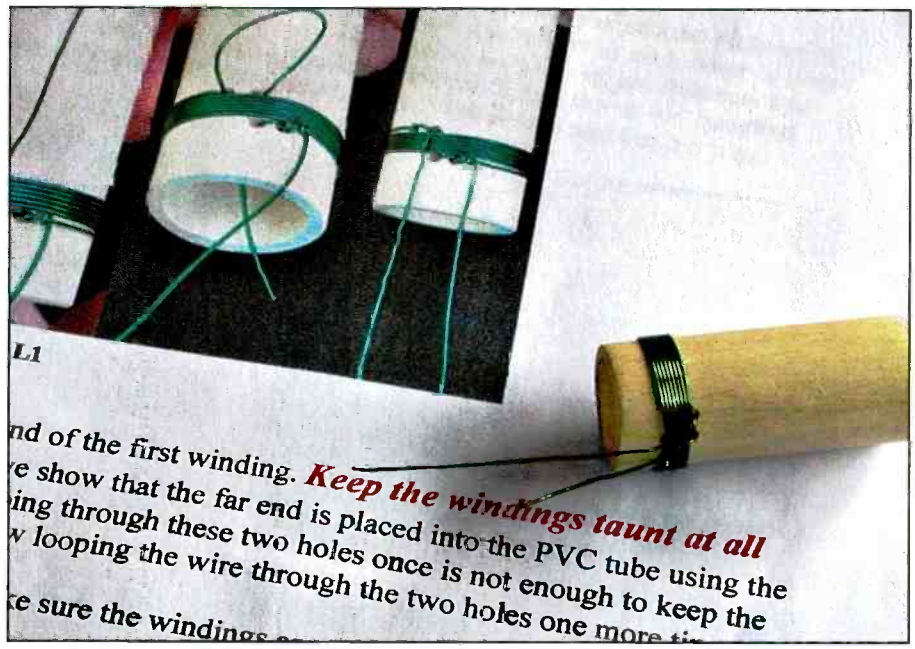


Photo H. With written instructions and multiple pictures, the Scout Regen's assembly instructions painstakingly detail how the coil is made. The builder can take a break to relax between each winding.

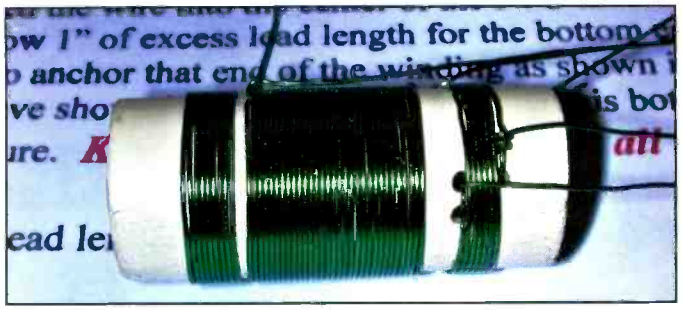


Photo I. Once completed, the Scout Regen's coil is a picture of green and white beauty. But is each winding's turn count correct?

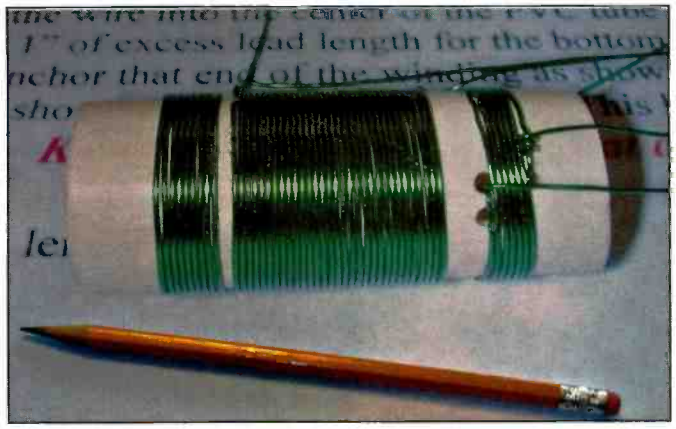


Photo J. This is not an optical illusion. The pencil is actually sitting on an enlarged image of the coil, making it a snap to count the number of turns of each winding. It's a handy trick to keep in mind when making inductors of any kind.

OK, back to that coil-drilling template. The designer cleverly positioned the holes to allow the leads of each winding on the coil to match perfectly the holes for the inductor on the PCB. Yes, there is a check and recheck section in the manual to assure each is going to the right hole, but because the template is so perfectly laid out, the leads pretty much "position themselves."

Final Steps, Then: 'How Does It Play?'

To complete assembly, the last of the front panel controls is connected to the PCB and we're ready to hear how the Scout Regen plays. *(**NOTE:** Knob twisters, step up. Chubby Checker, step aside <http://bit.ly/Wio5Do>. – KPC6PC)*

At KPC6PC, for SWLing, I have a 75-foot-long, end-fed wire sloping to the roof from the top of a palm tree about 55 feet high. With 5,000-watt KPRO 1570 AM just a couple of miles from me, this turned out to be *way too much* antenna for the Scout. Simple circuits such as this are susceptible to overload from strong local stations, so for daytime listening I opted for a 30-foot-long wire much lower to the ground. That dampened the interference appreciably.

At nighttime, KPRO drops to about 200 watts, so the bigger antenna works quite well after sundown.

Upon power-up, the Scout immediately came to life. Although its LM386 audio chip doesn't produce a whole lot of volume, it was enough to know that the receiver was working.

*(**NOTE:** The audio output of the "Scout" featured in the YouTube video was run through amplified speakers — not a bad strategy, as you can hear. – KPC6PC)*

The Sun was getting low in the afternoon sky, so I opted for the Scout's 5.1- to 10-plus-MHz tuning range. Using MAIN TUNING to sweep across the dial, I could hear WWV from Colorado at 10 MHz, various digital signals and, to my astonishment, some radio amateurs from around the west on AM phone at the high end of the 40-meter band — just below 7.3 MHz. *Amazing!*

Using the FINE TUNING dial, I was able to zero-in with ease on each signal. Tuning a bit lower on 40 meters, I could hear mealy-mouthed, single-sideband signals. By adjusting the REGEN control, I put the receiver just beyond the threshold of oscillation and could copy them perfectly, as well as Morse operators elsewhere on 40.

I've copied lots of CW and SSB signals in each of the Scout's tuning ranges — the lower of which covers the 80- and 75-meter amateur bands.

A second PCB-mounted slide switch is not explained in the Scout manual, but it appears to offer the listener two settings for receiver antenna matching — one side for long wires and the other for coax-fed antennas.

Blessed to Receive . . . via Regen

Over several weeks of casual listening from my Southern California listening post, I've logged many foreign broadcasters using the Scout Regen, including such powerhouses as China Radio International, Radio Australia, the BBC, Voice of America, several U.S.-based religious stations, and so on. I chose not to use amplified speakers, opting for iPod-style ear bud headphones instead.

The pure joy of SWLing with the Scout is largely found in continually tweaking the radio's four front-panel dials — MAIN TUNING, REGEN, FINE TUNING, VOLUME — to get incoming signals *just so.*

Since this circuit design is not as robust as the average bells-and-whistles-bestowed receiver, the vagaries of propagation play a bigger role than ever. Depending on conditions, this modern update of the classic *regen* is full of surprises virtually every time you turn it on.

No, the "Scout Regen" won't outperform most receivers of today. But, if you're measuring on "The Fun Scale," it's a dial twister's delight and a great project for the SWLer who wants to listen to the bands using classic, remarkable retro-technology.

The Hendricks QRP Kits Scout Regen Receiver is available at the company's website. Priced at $50, visit <http://www.QRPKits.com> for details on ordering and purchase.

Coming Next Month

In Part II of *Receiver Kit Reviews,* we'll be focusing on a radio at the other end of the technological spectrum: The Tablerock Instruments Shortwave Daddy AM/FM SDR (software-defined radio), covering the AM broadcast band, shortwaves from 2.3 to 26.1 MHz, and 64- to 108-MHz FM. Don't miss June's *Pop'Comm* for details on this high-performing, easy-to-build kit.

– Richard Fisher, KPC6PC

'Mayday, Mayday,' 1000101010010100101001. . .

Update: VHF Marine Radio Voice Communication Has a Digital Partner and Rescue 21 in Helping to Avert Disaster

By Gordon West, WPC6NOA/WB6NOA

"No matter where you live, the excitement of maritime communications is as near as your VHF, medium-wave, or shortwave radio."

If you live within an hour of the seacoast, or on a navigable river, or on a huge lake with law enforcement patrols, the excitement of VHF marine radio is in the airwaves all around you.

Whether you're an *old salt* in the VHF scanning game, or a first timer, this month we'll bring you up to date on all the latest information on monitoring and using the frequencies dedicated specifically to mariners. No matter where you live, the excitement of maritime communications is as near as your VHF, medium-wave, or shortwave radio.

It's an ever-changing part of the spectrum that, in this relatively new millennium, has even been invaded by the 1s and Øs of digital communications. *We've come a long way, matey!*

Listen: Sail the Channels of Excitement

This might be *"VHF Marine Scanning 101"* for some readers, but for newcomers, just know there are 55 marine channels to choose from. A comprehensive list is posted on the U.S. Department of Homeland Security Navigation Center website at <http://1.usa.gov/WcY7Bq>, **Photo B**.

Designated for traffic — ranging from port operations and the U.S. Coast Guard to Digital Selective Calling (DSC) and pleasure boaters — there's a wide range of listening for everyone. The DHS online frequencies site includes National Weather Service channels, as well.

*(**CAUTION:** Just remember it takes a Special Coast Station license to transmit on marine VHF channels. Keep your shoreside operation to LISTENING ONLY; unless it's a distress call that only you are picking up. – WPC6NOA)*

Monitoring Maritime via Medium and Shortwaves

OK, so you're in the middle of nowhere and the only "navigable" water might be a horse or cattle fresh-water trough. *Not to worry.*

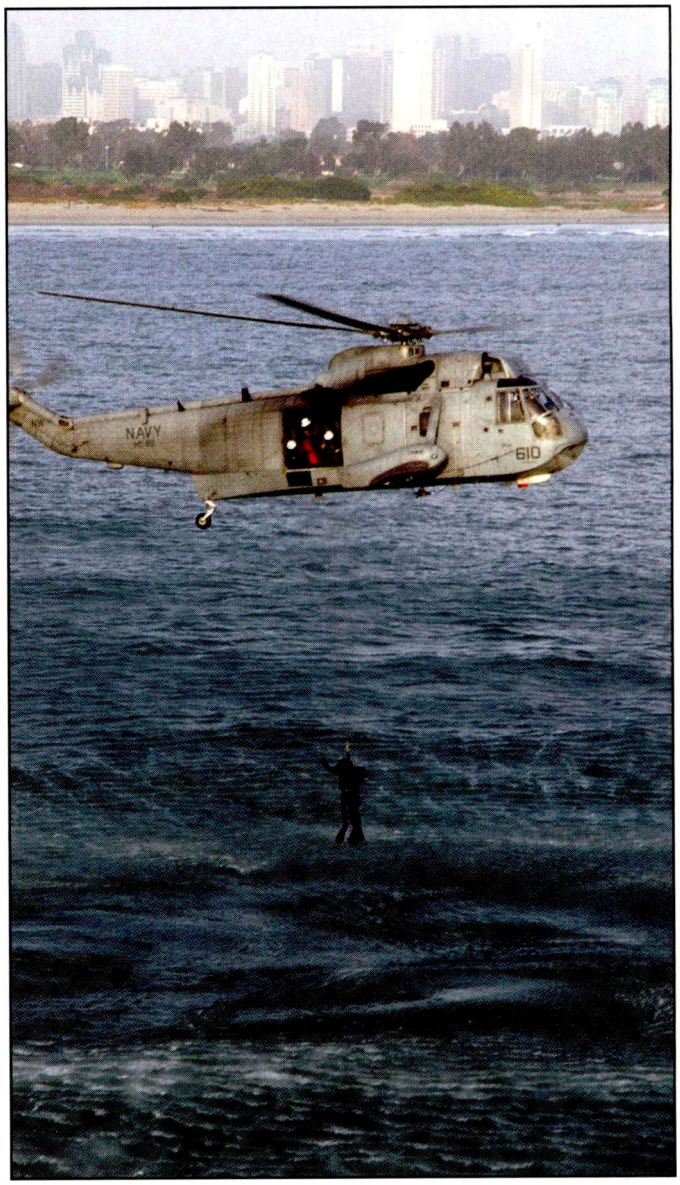
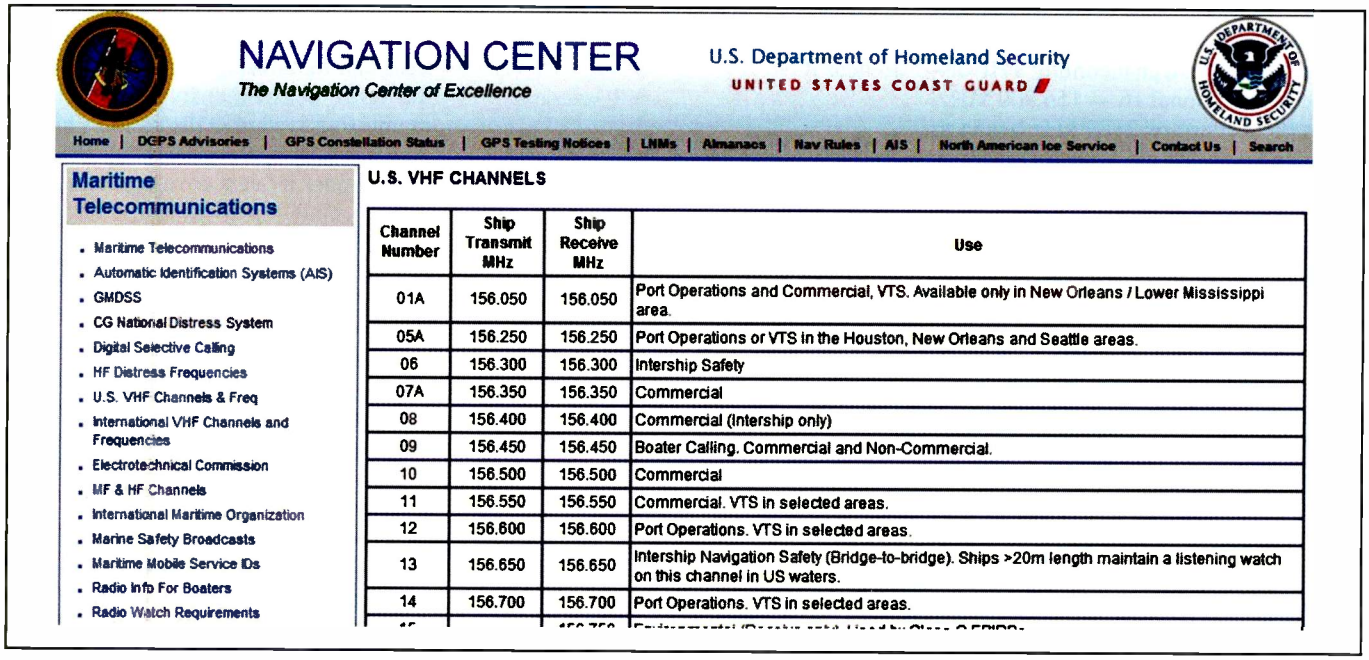


Photo A. A Sea and Air Rescue (SAR) crewman is hoisted aboard an SH-3 Sea King helicopter off the coast of San Diego during search and rescue training. *(Courtesy of U.S. Government)*



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Maritime Telecommunications

- Maritime Telecommunications
- Automatic Identification Systems (AIS)
- GMDSS
- CG National Distress System
- Digital Selective Calling
- HF Distress Frequencies
- U.S. VHF Channels & Freq
- International VHF Channels and Frequencies
- Electrotechnical Commission
- MF & HF Channels
- International Maritime Organization
- Marine Safety Broadcasts
- Maritime Mobile Service IDs
- Radio Info For Boaters
- Radio Watch Requirements

U.S. VHF CHANNELS

Channel Number	Ship Transmit MHz	Ship Receive MHz	Use
01A	156.050	156.050	Port Operations and Commercial, VTS. Available only in New Orleans / Lower Mississippi area.
05A	156.250	156.250	Port Operations or VTS in the Houston, New Orleans and Seattle areas.
06	156.300	156.300	Intership Safety
07A	156.350	156.350	Commercial
08	156.400	156.400	Commercial (Intership only)
09	156.450	156.450	Boater Calling, Commercial and Non-Commercial.
10	156.500	156.500	Commercial
11	156.550	156.550	Commercial. VTS in selected areas.
12	156.600	156.600	Port Operations. VTS in selected areas.
13	156.650	156.650	Intership Navigation Safety (Bridge-to-bridge). Ships >20m length maintain a listening watch on this channel in US waters.
14	156.700	156.700	Port Operations. VTS in selected areas.

Photo B. The U.S. Department of Homeland Security Navigation Center website has a comprehensive list of the 55 channels allocated to U.S. marine VHF communication, <http://1.usa.gov/WcY7Bq>. *(Internet screen grab)*

String out some wire, dial up the medium and shortwave long-range single sideband (SSB) Coast Guard voice distress channels on your multiband radio, and hear some hair-raising *mayday* excitement from out on the high seas.

Here's where to listen

- 2182 kHz
- 4125 kHz
- 6215 kHz
- 8291 kHz
- 12290 kHz

As long as your multiband radio can receive SSB and CW signals, there will be no mistaking the powerful U.S. Coast Guard signal you will hear on high-frequency skywaves.

If you'd like a ready Web reference to these high-frequency marine monitoring frequencies, go to <http://1.usa.gov/XdOEH1> and add it to your bookmarks.

DSC frequencies for digital monitoring are listed, as well. *(**NOTE TO MARINERS:** DSC test calls on 4207.5 kHz are automatically acknowledged from Portsmouth/NMN and Point Reyes/NMC. Responses to test calls on other frequencies and at the other locations may be delayed and cannot be assured. – USCG)*

Ship-to-shore marine radio has been around for more than 100 years. It was a year after the sinking of the ill-fated Titanic that Coast Stations began monitoring specific frequencies for distress and calling — such as the old 500 kHz. *(**LOOKING BACK:** See the sidebar "Key Moments in Marine Radio Service History." – WPC6NOA)*

How Times Have Changed

From the 1940s to 1960s, most marine communications were double-sideband, full-carrier emissions between 2 and 3 MHz on the medium-frequency bands:

- 2182 kHz – Distress and calling
- 2003 kHz/2450 kHz – Typical duplex telephone pairs
- 2638 kHz/2738 kHz – Simplex ship-to-ship
- 2670 kHz – U.S. Coast Guard working frequency

These 2- to 3-MHz AM vacuum tube marine radios were crystal controlled with 60 watts of output. The antenna loading and tank coils were on the inside of the one-piece unit.

The required major ground system for the 2-MHz marine band was the highly-conductive ocean water. The antenna was a long, wire-fed, center-loaded Webster whip.

Back then, mariners could count on 100-mile, ground-wave range during the day and 1,000-mile skywave range at night. All 2- to 3-MHz marine radios needed an FCC license, and it was not uncommon to see Commission agents walking the docks, inspecting the marine radio telephone installations and paperwork.

VHF: Very Hazardous Fraud?

With the rollout of the Very High Frequency (VHF) marine band in the early 1960s, and the expansion of the 25-kHz marine VHF channels to 55, skeptical high-frequency, 2- to 3-MHz mariners considered the new short-range VHF marine radio band "Very High Fraud."

The VHF channels were mandated by the FCC and continuously monitored — *mariners hoped* — by the U.S. Coast Guard. As the older 2- to 3-MHz AM marine radio gear began to die of old age, ultimately replaced by 2- to 26-MHz SSB equipment, VHF short-range signaling began to grow with the boom in boating.

While USCG monitoring coast stations would continue to "guard," or monitor the 2182-kHz distress frequency, they were quick to point out that most life or death *Mayday* calls were, indeed, coming from local waters — well within VHF radio line-of-sight range to shore.

For 40 years, the Coast Guard continued to build VHF coastal stations along 40,000 miles of shoreline, listening 20 miles out

to sea. Each shore station had its individual watch operator, standing by with pad and pencil to record an incoming VHF distress call on Channel 16 — 156.800 MHz.

As their guard of 2182 kHz began to diminish when the old Webster antennas rusted and fell into the drink, VHF Channel 16 became their focus for modernization. However, there were simply too many gaps along the rugged coastlines where a distress call on Channel 16 could be sent without anyone being able to hear it.

Enter: DSC and Rescue 21

The new millennium saw the ability to issue a distress call on marine VHF Channel 70, 156.525 MHz, with a Digital Selective Call, <http://bit.ly/Wgmf62>. The new need was for digital capability, plus integrated and automated voice distress call monitoring via RESCUE 21 — the most comprehensive VHF distress monitoring system in the nation's history. And it is fully operational today. **Photo C.**

Consider its vast coverage sectors:

- Atlantic Coast
- Pacific Coast
- Gulf Coast
- Great Lakes
- Hawaii
- Puerto Rico
- U.S. Virgin Islands
- Guam and the Northern Marianas Islands

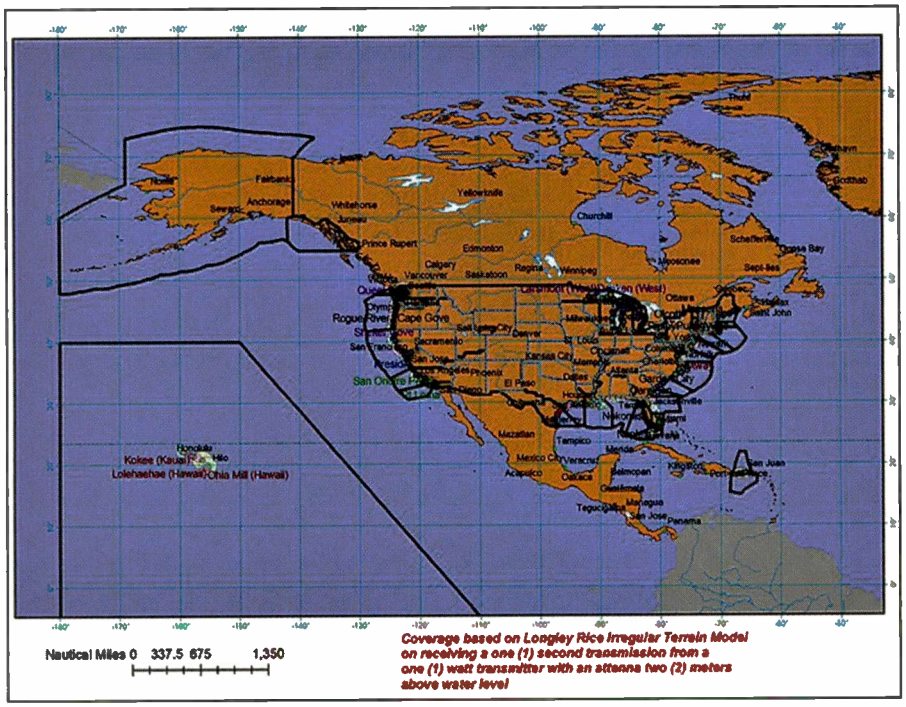


Photo C. The U.S. Coast Guard's RESCUE 21 is the most all-encompassing VHF distress call monitoring system in the nation's history. *(Internet screen grab)*

Photo D. The USCG video *"Why You Need a VHF Radio"* details proper procedures for sending a maritime distress call. To watch the two-minute tutorial, visit: <http://bit.ly/Zy2Pa5>. *(Internet screen gab)*

The USCG's Rescue 21 covers 41,871 miles of coastline, providing modernized command and control ability for receiving and transmitting VHF marine radio signals to boaters at sea.

The system serves more than 79 million recreational boaters and more than 13 million commercial vessels sailing the United States coastlines.

Twenty-six USCG Command Stations are tied into hundreds of remote sites, each with direction-finding capability along the coastlines, lakes, and rivers.

There is virtually *no area* where a boater may cruise within U.S. waters, that doesn't have at least two or three remote sites capable of hearing a 1-watt signal on VHF Channel 16. These remote sites guard DSC Channel 70, the dedicated digital frequency, as well.

Mayday! Option 1: Voice

Mariners now have two ways to contact the Coast Guard — with the first method as the most popular: dialing to marine VHF Channel 16, and calling out on the microphone for assistance from the Coast Guard or any help in the vicinity.

*(**WATCH and LISTEN:** To a USCG video of a "Mayday" exercise, showing proper procedures for distress calling and response at <http://bit.ly/Zy2Pa5>, **Photo D.** – WPC6NOA)*

When that radio call is picked up by the multiple Rescue 21 remote receivers, each site is connected by Voice Over Internet Protocol (VoIP) via a TCP/IP network that relays the call to a local Command Center (CC).

Position determination is accomplished with each of the remote sites using an Adcock antenna array, leading to a triangulated position fix. If only one Adcock antenna system is within range of

the incoming call, the Coast Guard may determine a single line of position.

Mayday! Option 2: Digital

An alternate digital method of contacting the U.S. Coast Guard uses VHF Channel 70 Digital Selective Calling. DSC capability is an integral part of modern, inexpensive VHF marine radio equipment — by FCC order — and is found, as well, in higher-end marine VHF portable handheld radios.

You can spot a modern marine VHF radio with DSC by the red plastic cover that protects the distress "hot" button beneath it, **Photos E**, **F**, and **G**. The red plastic cover is spring-loaded to prevent an accidental activation.

A sailor in distress would lift the red cover, hold the button in for a few seconds, and the distress call goes out — *digitally*. The professionally installed marine VHF *should* include the nine-digit Maritime Mobile Service Identity number (like a cell phone SIM card number), along with a tie-in to its own or an external GPS receiver.

The single burst of the digital distress call signals every VHF radio in the vicin-

Photo E. You can spot a modern marine VHF radio with Digital Selective Calling by the red plastic cover that protects the distress "hot" button beneath it, as seen on the upper right of this marine radio. *(Courtesy of WPC6NOA)*

Photo F. A sailor in distress would lift the red DSC cover, push and hold the button for a few seconds, and the distress call would go out, *digitally*. The red plastic cover is spring-loaded to prevent an accidental activation. *(Courtesy of WPC6NOA)*

ity of the distressed mariner, and goes to the Coast Guard CCs along with the USCG Sectors and Groups that have Rescue 21 systems in place.

The distress signal is instantly identified and acknowledged, the location is pinpointed to a sea area less than 30 feet in diameter, and all the mariner had to do — *while battling the fire on board, or something like it* — was to push that DSC distress button.

The Fly in the DSC Ointment

Chances are, many DSC distress calling capabilities of modern VHF marine radios being used today won't work. *Why?* Because the radio's user has never registered for a free MMSI

Photo G. Here is what the test screen looks like for contacting a local Coast Guard station to test DSC capabilities. *(Courtesy of WPC6NOA)*

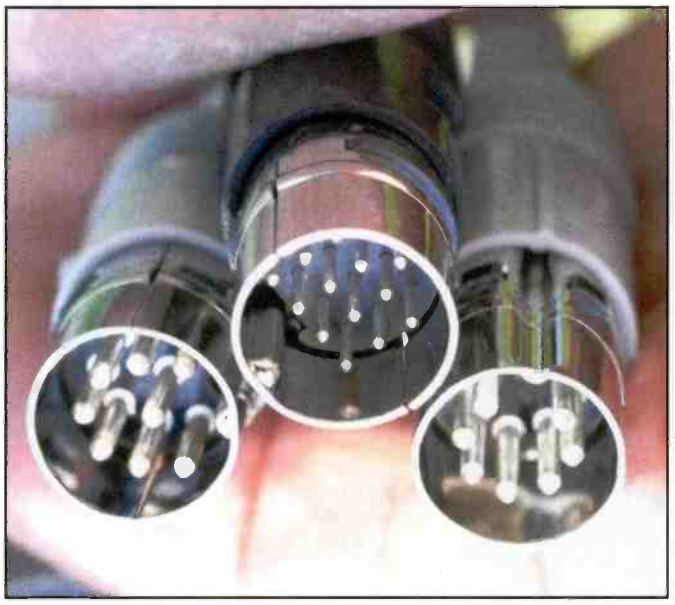


Photo H. Because input and output plugs are not standardized among VHF marine radios, many VHF distress signals may not include latitude and longitude. As a result, it can be almost impossible to transfer this important data. *(Courtesy of WPC6NOA)*

Key Moments in Marine Radio Service History

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

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

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

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

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

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

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

The 1940s: 2182 kHz is established as the international distress and calling frequency, monitored in the United States by the U.S. Coast Guard. *(**NOTE:** The USCG cautions long-range mariners signaling a distress signal on 2182 kHz are advised that Coast Guard Medium Frequency radio infrastructure may not hear reliably on this medium frequency marine SSB channel. Mariners should use high frequency (HF) to complete their long range radio calls to the USCG on 4, 6, 8, 12, and 16 MHz. Watchkeeping services on these HF radiotelephone and DSC distress frequencies are posted at: <http://1.usa.gov/XdOEH1>. – WPC6NOA)*

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

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

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

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

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

– WPC6NOA

[illegible] channel or a working channel should be kept short and to the point.

WHAT ABOUT IN AN EMERGENCY SITUATION LIKE MAYDAY! MAYDAY! MAYDAY?

You may only have seconds to send a distress call. Here's what you do. Transmit, in this order:

1. If you have an HF radiotelephone tuned to 2182 kHz, send the radiotelephone alarm signal if one is available. If you have a VHF marine radio, tune it to channel 16. Unless you know you are outside VHF range of shore and ships, call on channel 16 first.
2. Distress signal "MAYDAY", spoken three times.
3. The words "THIS IS", spoken once.
4. Name of vessel in distress (spoken three times)

[illegible] LUCKY DUCK IS THIRTY TWO FOOT CABIN CRUISER-WHITE HULL-BLUE DECK HOUSE OVER

Repeat at intervals until an answer is received.

WHAT DO YOU DO IF YOU HEAR A DISTRESS CALL?

If you hear a distress message from a vessel and it is not answered, then you must answer. If you are reasonably sure that the distressed vessel is not in your vicinity, you should wait a short time for others to acknowledge.

WHAT DO YOU DO IF YOU ARE OUT OF RANGE OF OTHER VESSELS, AND NO ONE RESPONDS TO YOUR DISTRESS CALL?

Photo I. Using proper procedures for making a distress call is extremely important. Guidelines can be found in the USCG's "Emergency Situations" pamphlet online, <http://bit.ly/ZyjjyN>. *(Internet screen grab)*

(Maritime Mobile Service Identity) number. So, don't blame the Coast Guard. *(**REGISTRATION:** For complete details on MMSI registration, visit <http://bit.ly/Yy9he8>. – WPC6NOA)*

The modern marine VHF transceivers won't transmit a distress call without an MMSI number as part of the digital network. Input is accomplished by the radio user or installer.

The nine-digit MMSI number input is no more difficult than setting the correct time on a digital clock radio: read the manual, input the numbers, and press *store*.

Unfortunately, international laws allow for the number input to be initiated only once or twice per radio. If you are purchasing a used boat with its own MMSI number from the previous owner, the radio needs to go back to the local service shop for reset. That's very frustrating and expensive; but unfortunately, it's the law.

Locating the Vessel in Distress

Many VHF distress signals may not include latitude and longitude. Why a marine VHF radio is not embedded with GPS navigation information frustrates the U.S. Coast Guard, but the answer is simple: there is no standardized GPS output plug, nor standardized GPS input jack, **Photo H**, for the transfer of this important NMEA 0183 data stream, <http://bit.ly/XeeavO>.

So, provided the radio has an imbedded MMSI number *(good)*, the majority of actual distress calls go out without the latitude and longitude in the digital stream *(very bad)*.

"If it doesn't work *out of the box*, mariners are often too impatient to read installation manuals and radio and GPS manufacturers' packaging and instructions to fully implement the MMSI registration and GPS output/input connections," a former marine product manager for Standard and Uniden said.

Hallelujah! Good News . . .

New models of marine VHF 25-watt transceivers now have built-in GPS capability. The same is true for a few VHF handhelds. So, now it's up to the mariner: will he or she obtain the nine-digit MMSI number and input that number into the DSC-capable marine VHF radio? Let's hope so.

And knowing proper procedures for making a distress call is extremely important, as well <http://bit.ly/ZyjjyN>, **Photo I**.

DSC Distress Call Testing

USCG Sector and Group Stations have enabled automatic test functions to their shore station equipment, <http://bit.ly/13fJSOk>, **Photo J**.

If the marine VHF DSC non-distress menu contains a *test* function, you can call, digitally, the individual MMSI number for your local Coast Guard unit, and hopefully receive a test response.

In addition to hearing *Mayday* calls by voice on VHF Channel 16, shore-side radio enthusiasts can add to their listening excitement with reception of a Digital Selective Call distress alert.

There is no rule violation to own and to *monitor* marine VHF with a marine VHF 25-watt transceiver or a handheld

D13 Aid Assignment List with Group Sector listings - FY 2013

LLNR	NAME	SECTOR - GROUP	UNIT NAME	ROLE
565	Chetco River Approach Lighted Whistle Buoy CR	CG GP NORTH BEND	CGC FIR	Primary
565	Chetco River Approach Lighted Whistle Buoy CR	CG GP NORTH BEND	CG ANT COOS BAY	Secondary
575	Rogue River Approach Lighted Whistle Buoy R	CG GP NORTH BEND	CGC FIR	Primary
575	Rogue River Approach Lighted Whistle Buoy R	CG GP NORTH BEND	CG ANT COOS BAY	Secondary
580	Port Orford Entrance Lighted Buoy 1	CG GP NORTH BEND	CGC FIR	Primary
580	Port Orford Entrance Lighted Buoy 1	CG GP NORTH BEND	CG ANT COOS BAY	Secondary
586	Port Orford Jetty Light 3	CG GP NORTH BEND	CG ANT COOS BAY	Primary
590	NOAA Environmental Lighted Buoy 46015	CG GP NORTH BEND	CGC FIR	Other
590	NOAA Environmental Lighted Buoy 46015	CG GP NORTH BEND	NDBC	Primary
595	Cape Blanco Light	CG GP NORTH BEND	CG ANT COOS BAY	Primary
600	Coquille River Entrance Lighted Whistle Buoy 2	CG GP NORTH BEND	CGC FIR	Primary
600	Coquille River Entrance Lighted Whistle Buoy 2	CG GP NORTH BEND	CG ANT COOS BAY	Secondary
610	Baltimore Rock Lighted Buoy BR	CG GP NORTH BEND	CGC FIR	Primary
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Photo J. Automatic test functions are enabled at USCG Sector and Group Stations. *(Courtesy of WPC6NOA)*

Photo K. This radio features an Automatic Identification System (AIS) that can allow the user to see other boats in the vicinity. *(Courtesy of WPC6NOA)*

from shore. In an emergency *only*, you could actually issue a *Mayday* relay, in case local rescue units do not pick up the distress call that you hear.

The same is true regarding VHF DSC monitoring from shore — you would obtain the free MMSI number for a *portable* station, input the numbers in your marine VHF, and provide monitoring from your shore-side facility.

Just don't be tempted to chat with boats out on the water from your shore location, unless you have the Private Coast Station license — an expensive ticket to obtain.

Automatic Identification System

There are new marine VHF transceivers, as well, that incorporate the Automatic Identification System (AIS), **Photo K**.

This can allow mariners to see other vessels around them — much like looking at RADAR. It is usually the larger ship, or commercial traffic, that will squawk its position over AIS Channel 88.

But with an inexpensive AIS receiver built into the modern marine VHF radio, mariners are legally permitted to monitor from shore. *Just don't transmit.*

Pulling to the Dock . . .

Well, there you have it. Our annual update on marine communications — for both mariners and the scanner and shortwave buffs who monitor — is a wrap for another year.

Be sure to refer to the "Helpful Resources" box accompanying this column for more information about maritime communications.

Until next time, good listening and smooth sailing!

– Gordo, WPC6NOA/WB6NOA

Helpful Resources:

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

– WPC6NOA

The Reluctant CBer

How a Lynx 23 Got My Radio Waves A-Fluttering On the Citizens Band

By Cory G.B. Sickles,
WPC2CB/WA3UVV
<wa3uvv@gmail.com>

"Once I got over the shock, I made some new friends that were also in their pre-driving teens . . . CB was a cheap and easy way to get into radio."

In writing *CB and More* for *Popular Communications,* I have a secret agenda of sorts, which I'm going to share with you up front. OK, so much for the *secret* part.

This year marks my 40th year as a radio amateur. Yes, a ham. My entry into the Amateur Radio Service is an interesting tale, but that's a topic for another column.

The *Cliffs Notes* version is that my path was seriously detoured one Christmas when I asked for a Heathkit HW-16 transceiver, but instead got a Pearce-Simpson Lynx 23, **Photo A**. One was a great way to get started as a Novice licensee, the other was a great way to get started in Citizens Band radio. I was not initially happy with the CB rig, but that soon changed.

Once I got over the shock, I set out to use the radio and in short order made some new friends that were also in their pre-driving teens. Many were also interested in experimenting with electronics and radio. CB was just a cheap and easy way to do it.

We walked around town with 3-watt walkie-talkies, mounted cheap five- and six-channel mobiles on our bikes with 9-foot-tall whip antennas, and basically figured out how to do many of the things that hams do with 2-meter FM and HF transceivers. Only, we were doing it for substantially less, **Photo B** and **C**.

We Stayed Because It Was Fun

Even after we got our ham tickets, we remained on CB. *Why?* Because it was fun!

Thus, for me, and many tens of thousands of others I suspect, CB radio was a "gateway drug" to ham radio. As such, I've become a "pusher" of ham radio over the years.

My secret plan with *CB and More* is two-fold:

- To explore the amazing and exciting world

Photo A. This advertisement for Pearce-Simpson CB radios, featuring the Lynx 23, appeared in the January 1973 edition of *S-9* magazine. The Lynx 23 was deemed one of the company's new "snarly cats," and was priced at just under $160. *(Internet screen grab)*

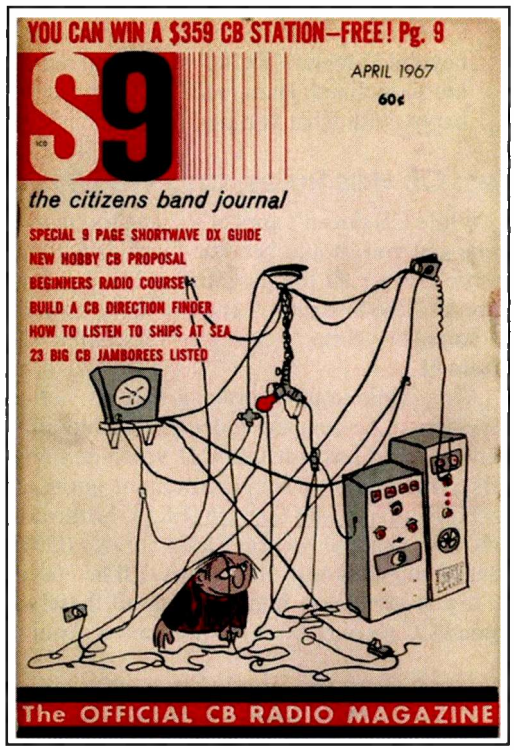


Photo B. *S-9* was edited by Tom Kneitel, KDQ4552, ex-K2AES /W4XAA (SK). He would go on to become founding editor of *Popular Communications* magazine in 1983. *(Internet screen grab)*

Photo C. Hand-held transceivers — such as this Realistic TR-88 3-channel, 1-watt radio from RadioShack®, circa 1988 — were very popular. Because they were relatively inexpensive, they were very popular among teens on the go. The TR-88, for example, had a catalog price of $39.95. *(Courtesy of KI6SN)*

Subpart D—Citizens Band (CB) Radio Service

SOURCE: 48 FR 24894, June 3, 1983, unless otherwise noted.

GENERAL PROVISIONS

§ 95.401 (CB Rule 1) What are the Citizens Band Radio Services?

The Citizens Band Radio Services are:

(a) The Citizens Band (CB) Radio Service—a private, two-way, short-distance voice communications service for personal or business activities of the general public. The CB Radio Service may also be used for voice paging

Photo D. It's important to know the rules when transmitting a signal, and Citizens Band is no exception. Part 95 of the FCC's rules and regulations covers operation on 11 meters and should be reviewed by everyone planning two-way operation there. ***(IN DEPTH:** Read the FCC's Part 95 at <http://1.usa.gov/15baL46>. (Internet screen grab)*

of today's Citizens Band radio. It's much more than the CB we remember from *"Smokey and the Bandit."*

- To encourage CB operators to explore radio horizons beyond 11 meters, including amateur radio. But only if they are so inclined. Ham radio isn't for everyone. If you're happy with what you find on CB, that's great.

Yes: CB Has Rules, and We Must Abide

While CB doesn't appear to have too many rules, *there are some* and you should become familiar with them. The FCC's umbrella over all things Citizens Band is known as Part 95. Subpart D, to be exact. A copy of the rules and regulations can be found at <http://1.usa.gov/15baL46>. Go to page 544, **Photo D**.

Also, while you're perusing Part 95, notice what the FCC considers to be covered under the heading of "Personal Radio Service." It's not just Class D voice communications on 27 MHz. Other facets of simple communications are included, such as the Family Radio Service (FRS), Multi-Use Radio Service (MURS), General Mobile Radio Service (GMRS), and remote control and data-only allocations. I'll be covering those too.

If you aren't too familiar with all these services, here are some FCC resources for learning more about them:

- MURS <http://fcc.us/YtbRC6>
- GMRS <http://fcc.us/Zqnvkm>
- FRS <http://fcc.us/1229Q8f>

CB: In the Beginning, and Listening Today

For a comprehensive history of Citizens Band, refer to the June 2012 edition of *Pop'Comm* for Mark Haverstock's *Citizen Band: The People's Radio* spanning CB's humble beginnings in 1947 right up to today.

If you have a general coverage communications receiver that can tune from 26.965 to 27.405 MHz or a scanner that covers this range, then you are all set to listen to CB activity around you.

Likewise, programming your scanner for the FRS, MURS, and GMRS allocations will give you some idea of what's happening on those services.

The Question of CB Gear

If you're interested in getting on the air, but you're on a limited budget, then used equipment could be just the thing. Whenever you pass a thrift store in your area, stop in and see if they have any CB rigs. A Habitat for Humanity ReStore is usually a good place to look, if you have one nearby. Likewise, a Goodwill retail location may also have used rigs.

Chances are you can score a transceiver in nice condition for $10 or less. I've done it many times.

Coming Up

Next month, I'll cover how to put together an entire station for your home — using creative scrounging techniques — for less than $50. Plus, I'll show you an easy way to finance your newly-discovered communications hobby.

You'll also read about ways you can serve your community and you'll learn about REACT®, SKYWARN®, and how to organize a club or informal group to share ideas and make CB as useful as possible.

Of course, your feedback is important in letting me know what you enjoy and would like to have covered in more detail. Mobile, portable, bicycle mobile, accessories (both useful and downright stupid), antennas and more are topics for the coming months and that's just scratching the surface of Class D!

Stay tuned, boys and girls, there's much more to come . . .

The 2013 CMMC DXpedition: Season 3 of 'DXing with Marconi'

By Bruce A. Conti, WPC1CAT
Chatham Marconi Maritime Center (CMMC), Cape Cod, Massachusetts (41°42'14" N, 69°58'51" W)

"Bringing the WCC Operations Building back to life with the sounds of signals emanating from across the ocean was like being a part of history."

It was 110 years ago when radio pioneer Guglielmo Marconi completed the first wireless, two-way communication between Cape Cod and England, but when the CMMC Medium Wave AM Broadcast DXpedition got started, it was originally the recognition of another momentous occasion.

The inaugural DXpedition took place in 2011, celebrating Marconi's first-ever trans-Atlantic wireless communication, which was completed between Newfoundland and England in 1901. But it marked, as well, the grand opening of the CMMC museum in the former WCC Marconi Wireless Operations Building. Since then the CapeDX group has returned annually to resurrect the Marconi experience.

The third annual "DXing with Marconi" began with a late morning breakfast at Bonatt's in Harwichport. After breakfast, Marc DeLorenzo, Steve Wood, and I headed out to Chatham to erect an antenna on the former WCC site and set up equipment inside the Operations Building. We were joined by Mark Connelly for DXing, and Roy Barstow who opted out after hearing the amount of noise that was prevalent across the band early, **Photo A**.

Despite the noise, trans-Atlantic reception showed potential as DXing began well before sunset. Reception, however, was subpar overall. Signals from Albania, Moldova, and 1521 Saudi Arabia (of course) were among the most impressive, along with *the usual* from France, Spain, and the United Kingdom.

This was the first time for deployment of a variable-termination Double Delta broadband loop antenna, although dimensions may not have been "to spec." The termination was adjusted to null New York City, and it seemed to be working well with 1010 WINS knocked down by +20 dB leaving co-channel WCNL New Hampshire alone on the frequency during the day. *(**NOTE:** To see variations on the delta antenna and reception patterns, see **Figures 1** through **5**. – WPC1CAT)*

Steve Wood noted Newfoundland signals including 540 CBT, 600 CBNA, 620 CKCM, 640 CBN, and 1400 CBG — another indication that the antenna was aimed in the desired direction. Atmospheric conditions simply weren't cooper-

Photo A. CMMC DXers who took part in the third season of "DXing With Marconi" included, from left, Steve Wood, Marc DeLorenzo, Bruce Conti, and Mark Connelly. *(Courtesy of Roy Barstow)*

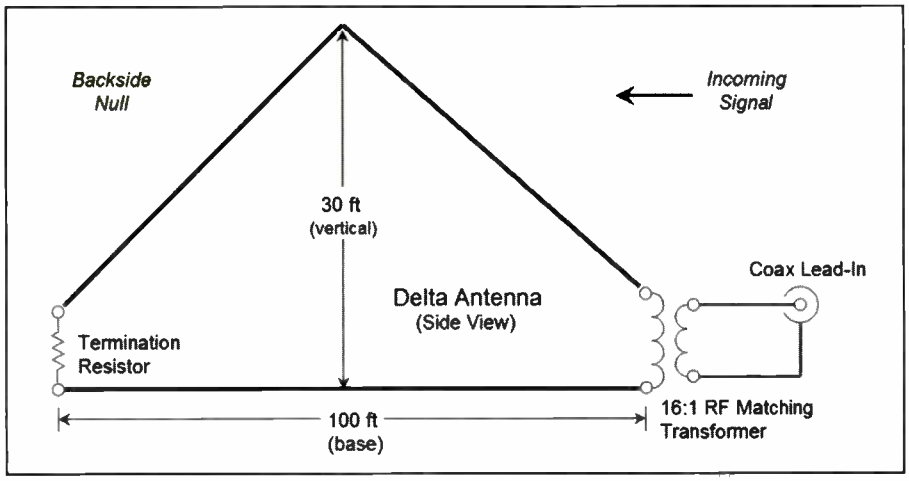


Figure 1. This is the basic Delta antenna introduced in March 2013 *Pop'Comm's Broadcast Technology. (Courtesy of WPC1CAT)*

ating with the geomagnetic field unsettled enough to disrupt the excellent trans-Atlantic reception experienced just a week earlier by DXers in Europe and northeastern North America.

The band was noisy, too. A number of local "birdies" interfered with 9-kHz channels. Still, as they say, "A bad day of fishing is better than a good day at work." It was actually a sizable catch for just a little over three hours of monitoring with signals from 16 trans-Atlantic countries received.

Thanks to Bob Ryder, CMMC Operations Manager, who accommodated our occupation of the WCC Operations Building for the afternoon. Charles Bartlett, CMMC President, and Ed Moxon, CMMC Board of Directors, were among a few radio enthusiasts who stopped in to witness our "Modern Marconi Monitoring Station" in action.

DXers demonstrated reception of trans-Atlantic broadcast signals visually on software defined radio (SDR) spectrum analyzer displays. The objective was consistent with activities that took place over a century ago, even if the equipment was not the same.

Bringing the WCC Operations Building back to life with the sounds of signals emanating from across the ocean was like being a part of history.

DXers and Their Receivers

At their listening posts were:

Mark Connelly: Palstar R30, <http://bit.ly/oflhcC>

Bruce Conti: WiNRADiO Excalibur SDR, <http://bit.ly/ZqydXQ>

Marc DeLorenzo: Japan Radio NRD-525, <http://bit.ly/Wi6JBs>

Steve Wood: Microtelecom Perseus SDR, <http://bit.ly/XLFVMc>

Antenna

Our receiving array was a variable termination Double Delta, with W7IUV RF amplifier <http://w7iuv.com/>, and an ICE active 4-way splitter.

Trans-Atlantic AM Broadcast DX Logs

All times are UTC.

549 *Jil FM*, **Les Trembles, Algeria**, at 2221 fair with techno dance music. (DeLorenzo) At 2300 good; techno pop music, 5 + 1 time signal, and sinister-sounding program intro, parallel 531 kHz. (Conti)

576 *RNE5* **Canary Islands/Spain**, at 2300 poor to fair; time signal and "24 Horas" news program parallel 1107 kHz. (Conti)

585 *RNE1* **Madrid, Spain**, at 2300 in heavy 590 WEZE Boston splatter; time signal and 24 Horas program. (Conti)

603 *France Info*, **Tramoyes, France**, at 1955-2005 fair with news by woman in French. ID with fanfare 2000 followed by more news by man in French. (DeLorenzo)

612 *SNRT*, **Sebaa-Aioun, Morocco**, at 2100 poor; Arabic vocal, then news intro with emphasis music. (Conti)

639 *Cesky rozhlas*, **Liblice & Svinov**, Czech Republic, at 2100 fair in 640 CBN Newfoundland splatter; Cesky rozhlas ID with fanfare into news. (Conti)

639 *RNE1*, **La Coruña, Spain**, at 2014-2019 fair with fútbol match in Spanish. (DeLorenzo)

657 *Rai Radiouno*, **Italy**, at 2300 sign-off test tones under Spain. (Conti)

657 *RNE5*, **Madrid, Spain**, at 2259 fair; bumper music into 24 Horas, parallel 1107 kHz. (Conti)

657 **Unidentified**, at 2236-2300 fair with choral music, likely religious, man and woman in unknown language. Suspect Italy. (DeLorenzo)

666 *RDP, Antena 1*, **Portugal**, at 2100 poor; RDP time signal as excited sports commentary in Portuguese continued through the hour. (Conti)

693 *VOR*, **Henningsdorf, Germany**, at 2000 poor; time signal and "Golos Rossii" news in Russian. (Conti)

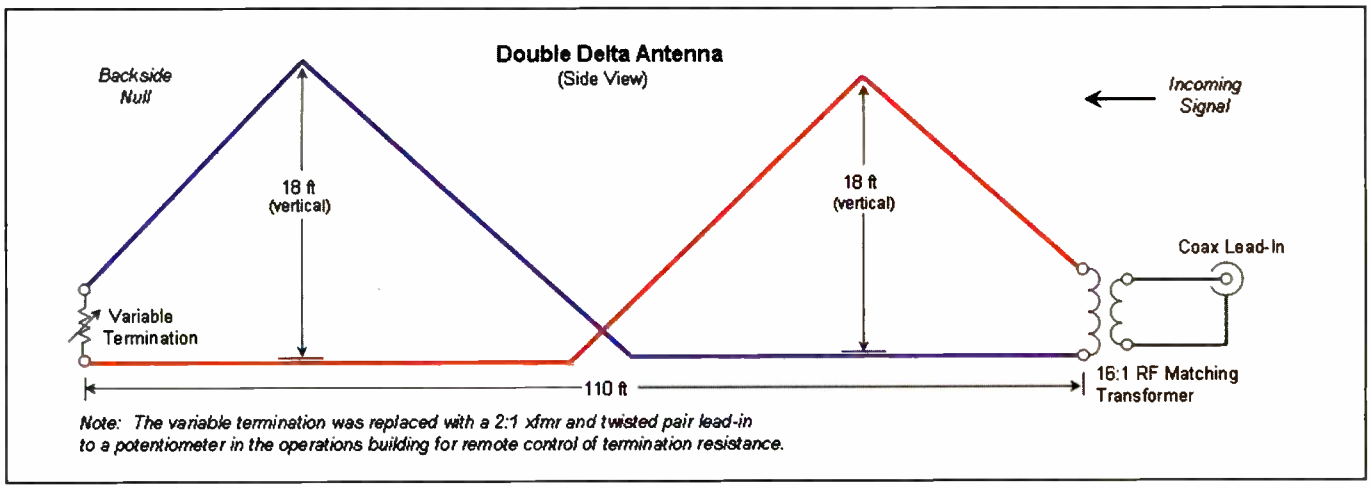


Figure 2. Here is a drawing of the Double Delta antenna used in the 2013 CMMC DXpedition. *(Courtesy of WPC1CAT)*

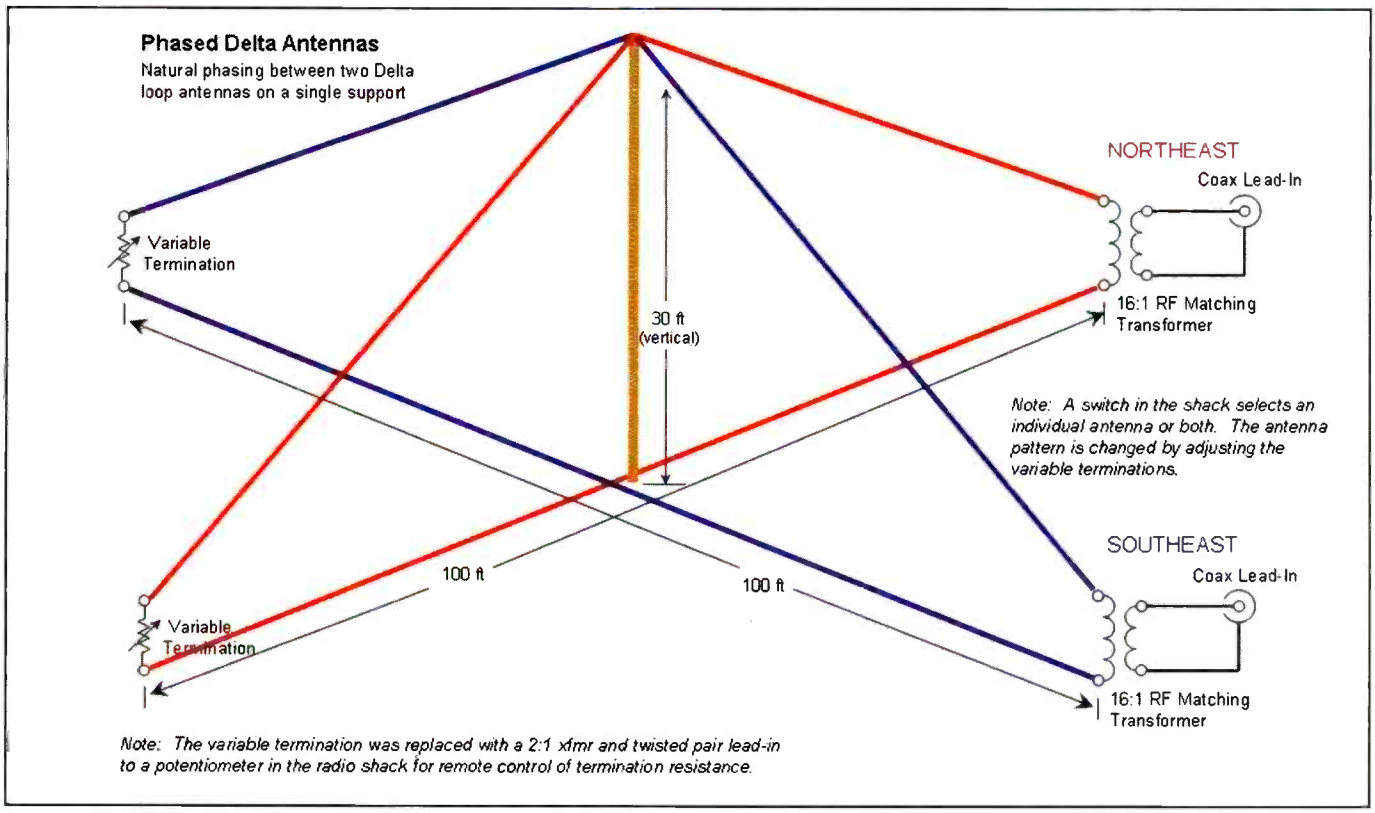


Figure 3. This is a depiction of the Cross-Phased Delta antennas used during the Prince Edward Island DXpedition. *(Courtesy of WPC1CAT)*

693 *RNE1,* **Spain,** at 2150 – Spanish sports shouting; mixed with UK's quiet talk. (Connelly)

693 *BBC Radio 5,* **Droitwich, United Kingdom,** at 2023 very good with group discussion. (DeLorenzo)

711 *France Info,* **Rennes, France,** at 2031 fair with woman in French. Low rumble also noted from someone slightly off frequency. (DeLorenzo) At 2106 French talk; good. (Connelly)

738 *RNE1,* **Barcelona, Spain,** at 2152 two men in Spanish; good. (Connelly)

747 *RNE5,* **Canary Islands/Spain,** at 2106 man and woman in Spanish; over presumed Netherlands. (Connelly)

756 *Deutschlandfunk,* **Braunschweig & Ravensburg, Germany,** at 2105 jazz, German talk; fair. (Connelly) At 2300 fair; "Deutschlandfunk" and time signal into news in German. (Conti)

774 *RNE1,* **Spain,** at 2038 fair with fútbol match parallel to 639 kHz. (DeLorenzo) At 2104 Spanish news; to fair peak. (Connelly)

864 *France Bleu,* **Villebon-sur-Yvette, France,** at 2301 poor to fair; news in French, then emphasis music with France Bleu mention. (Conti)

873 *SER,* **Spain,** at 2158 fast Spanish talk, crowd sounds. (Connelly)

909 *BBC Radio 5,* **United Kingdom,** at 2056 fair with group discussion. (DeLorenzo) At 2101 talk about Algerian hostage crisis, Mali conflict. (Connelly) At 2200 good, synchro echo; "First for breaking news and the best live sport, this is BBC Radio Five Live," and news "from the BBC on Five Live." (Conti)

936 *RNE5,* **Spain,** at 2300 poor to fair with synchro echo; time signal and fanfare into 24 Horas parallel 1107 kHz. (Conti)

945 *France Info,* **Toulouse, France,** at 2143 French discussion, emphasis music; fair. (Connelly) At 2300 good; fanfare into "le journal" news. (Conti)

954 *Cesky rozhlas,* **Czech Republic,** at 2300 fair; orchestral national anthem. (Conti)

954 *Onda Cero,* **Madrid, Spain,** at 2142 two men in Spanish; fair past 950 WROL Boston slop. (Connelly)

999 *VOR,* **Maiac, Moldova,** at 2057 over co-channel Spain; pre sign-on test tones at 5 second intervals. (Conti) At 2114-2117 fair with news by woman in East European language. (DeLorenzo) At 2141 man in Russian; dominant over Spain. (Connelly)

999 *COPE,* **Madrid, Spain,** at 2058 fair with fútbol match. (DeLorenzo) At 2059 Spanish sporting event; under VOR Moldova test tones. (Connelly)

1026 *SER,* **Spain,** at 2300 poor in 1030 WBZ Boston splatter; time signal and SER news fanfare. (Conti)

1089 *TalkSport,* **United Kingdom,** at 2125 fair with teletalk. (DeLorenzo) At 2200 good; "On DAB digital radio, and 1089 and 1053 AM, TalkSport," into 10 o'clock headlines, parallel 1053 kHz. (Conti) At 2203, ID "TalkSport 1089 and 1053 AM." (Connelly)

1098 *RNE5,* **Spain,** at 2145 good; news parallel 1107 kHz. (Conti)

1107 *RNE5,* **Spain,** at 2058 woman in Spanish, music interlude; good. (Connelly) At 2128-2135 fair with jazz piano music; at 2130 time pips and into news in Spanish. (DeLorenzo) At 2145 good; "Todas noticias, informaciones de Radio Nacional," and alternating man/woman with fast-paced newscast, parallel 1098 kHz. 2300 excellent; bumper music, time signal, time check, "Son las doce, las once en Canarias," and news program, "24 horas, Radio Nacional de España." (Conti)

1134 *Hrvatske Radio,* **Zadar, Croatia,** at 2110 Slavic talk by man and woman. (Connelly) At 2300 fair in 1130 WBBR New York splatter; signature "slow" time signal, fanfare into news. (Conti)

1179 *SER Radio Rioja,* **Logroño, Spain,** at 2259 fair; Cadena Ser promo, then local ID, "Radio Rioja, Cadena Ser," and time signal on the hour into SER fanfare. Thanks to Mauricio Molano at RealDX for help with ID. (Conti)

1206 *France Info,* **Bordeaux, France,** at 2113 parallel 1404 with man in French. (Connelly)

1215 *COPE,* **Spain,** at 2300 over co-channel Absolute Radio; "Cope, estar informado" and theme music parallel 999 kHz. (Conti)

1215 *Absolute Radio,* **United Kingdom,** at 2121 – "Livin' Thing" by Electric Light Orchestra (1976); good. (Connelly) At 2140 over

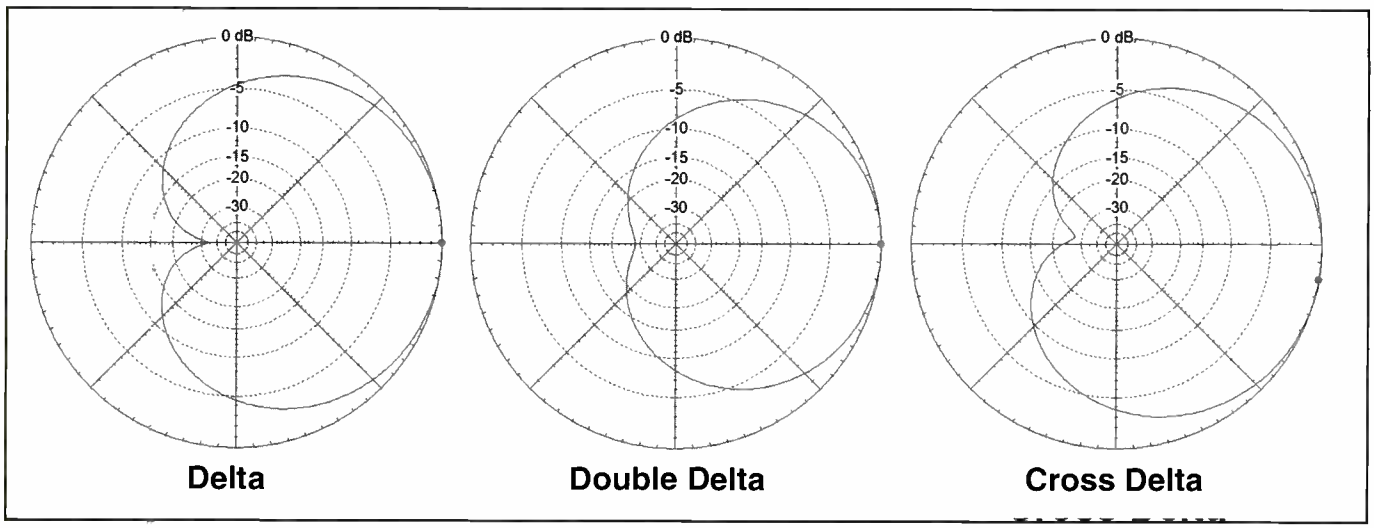


Figure 4. Here are the directional pick-up patterns of the three Delta configurations resulting from EZNEC antenna modeling software. *(Courtesy of WPC1CAT)*

Spain; Journey "Don't Stop Believin'." (Conti)

1314 *RNE5,* **Spain**, at 2123 two women in Spanish; to good peak. (Connelly)

1377 *France Info*, **Lille**, **France**, at 2124 man and woman in French, piano; good. (Connelly) At 2146 fair with woman in French. (DeLorenzo)

1386 *Euskadi Irratia*, **Bilbao**, **Spain**, at 2124 Spanish talk; fair. (Connelly) At 2150 fair; folk music parallel 1476 kHz. (Conti)

1394.86 *TWR,* **Fllakë**, **Albania**, at 2050 Slavic talk; good. (Connelly) At 2130 excellent; instrumental music, one cycle of TWR interval signal, then off. (Conti)

1404 *France Info*, **France**, at 2113 parallel 1206 with man in French; to good peak. (Connelly) At 2113 good; talk parallel 1557 kHz. 2130 France Info music. (Conti)

1413 *RNE5,* **Spain**, at 2051 Spanish talk; over others. (Connelly)

1422 *Deutschlandfunk*, **Heusweiler**, **Germany**, at 2159 good; talk in German, "Deutschlandfunk" with electronic fanfare and time signal into news. (Conti)

1440 *RTL* **Marnach**, **Luxembourg**, at 2137 French song, then French talk by man and woman; over co-channel WRED Maine. (Connelly)

1457.63 *CRI,* **Fllakë**, **Albania**, at 2020 het vs. 1458.0 kHz. (Conti)

1467 *TWR,* **Roumoules**, **France**, at 2055 Arabic-sounding talk by woman. (Connelly) At 2130 excellent; announcement in French, one cycle of TWR interval signal, and start of Arabic program. (Conti)

1503 *IRIB Radio Iran*, **Bushehr**, **Iran**, at 2138 Koranic chanting by man; good. (Connelly)

1503 *RNE5,* **La Línea de Concepción & Piñeira**, **Spain**, at 2200 over/under presumed Iran; time signal and fanfare into news. (Conti)

1521 *BSKSA,* **Duba**, **Saudi Arabia**, at 1928 as usual, the first trans-Atlantic to produce audio. Fair signal more than two hours before local sunset with man in Arabic. Later, at 2205, loud and clear with Arabic teletalk parallel to 9555 and 9870 kHz. (DeLorenzo) At 1941 good; talk in Arabic. (Conti) At 2052 parallel 9555 with Arabic talk by two men; good. (Connelly)

1539 *SER,* **Spain**, at 2300 poor; time signal and SER fanfare music. (Conti)

1548 *Radio Sawa*, **Kuwait City**, **Kuwait**, at 2143 no doubt the source of pop music well under co-channel Moldova. (DeLorenzo)

1548 *VOR,* **Grigoriopol**, **Moldova**, at 2129 Slavic talk (Serbian listed); loud. (Connelly) At 2137 good; frequencies and "La Voce della Russia" in Italian. (Conti) At 2137-2145 good with woman in Italian. Several IDs noted, "La Voce della Russia." Thanks to Mauna Ritola for help via Real DX. (DeLorenzo)

1557 *France Info*, **Fontbonne**, **France**, at 1942 good; talk in French. 2130 good; fanfare into "le journal" news. (Conti)

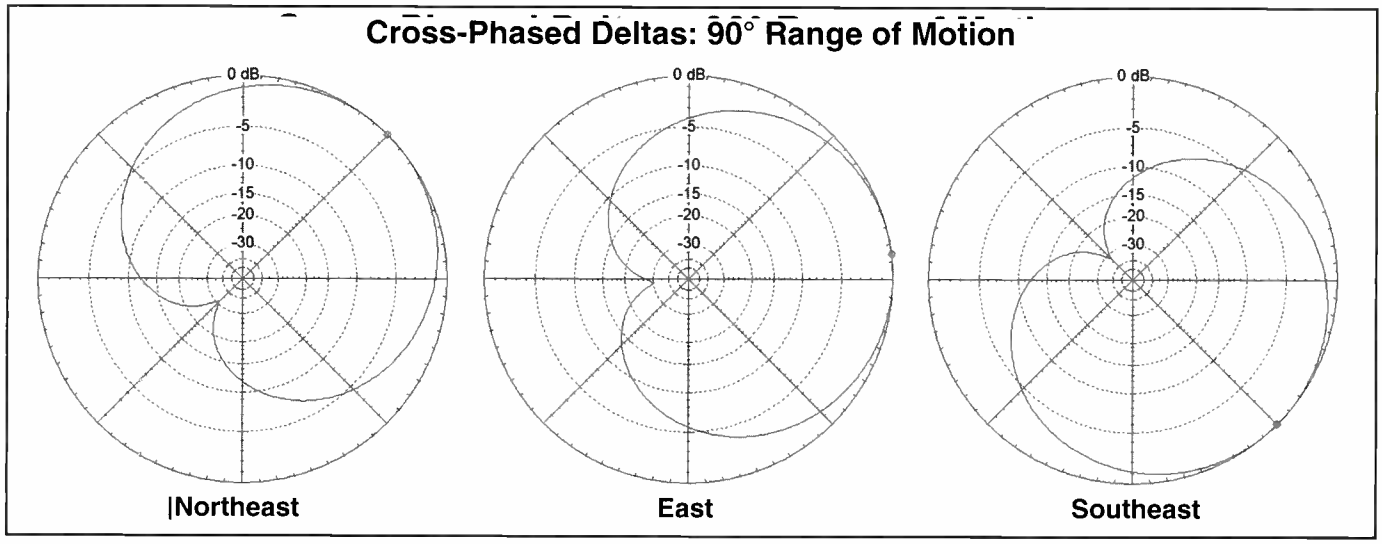


Figure 5. EZNEC modeling of the Cross-Phased Deltas shows the steering of the directional beam and backside null within the northeast to southeast quadrant. *(Courtesy of WPC1CAT)*

1575 *Radio Farda*, **Al Dhabiya, United Arab Emirates**, at 2129 good; telephone news/talk with Radio Farda mentioned, then headlines accented by music into news. (Conti)

Comparison of Delta Antenna Variants

In response to numerous inquiries about Delta antennas, here is a cursory comparison of three different configurations of the variable-termination Delta broadband loop antenna as implemented in medium wave AM broadcast DX applications.

The three configurations are:

- A basic terminated Delta (*Broadcast Technology*, March 2013) measuring 100-feet horizontal by 30-feet tall as used in various DXpeditions.
- The 110-foot horizontal by 18-foot tall Double Delta implemented in the 2013 CMMC DXpedition.
- The 100-foot by 30-foot Cross-Phased Deltas of the 2012 Prince Edward Island DXpedition (*Broadcast Technology*, February 2013).

All three configurations are run through EZNEC antenna modeling software and compared albeit subjectively from experience.

Delta Antenna Descriptions

The Delta is part of the family of terminated broadband loop antennas that includes the Flag, Pennant, and SuperLoop. The Delta and SuperLoop configurations are noted for low-angle performance at medium wave frequencies.

The Double Delta is a "split" or "twisted" loop configuration leveraged off of the Double Half Delta Loop (DHDL) design of the TX3A Chesterfield Islands DXpedition, <http://bit.ly/VEb5Wb>. It's worth noting that the CMMC antenna layout was not *to spec* per the "D-Kaz" antenna dimensions of the Neil Kazaross design <http://bit.ly/VEbckF>.

Instead, for expediency the antenna was erected as dictated by a tree and pole already in place at the CMMC site. Still, Kazaross confirmed that the dimensions of this CMMC antenna were reasonable.

The configuration of Cross-Phased Deltas has been implemented successfully during two DXpeditions on Prince Edward Island, most recently November 2012 with two Deltas measuring 100-foot horizontal base x 30-foot-tall apex supported by a single mast.

In 2010, a 60- x 23-foot version was used. The antennas were aimed northeast and southeast. The Cross-Phased Deltas depend primarily upon a "natural" phase relationship between the two antennas.

An antenna switch allows for selection of an individual Delta antenna or connection to both. When both antennas are switched on, the variable terminations of each antenna are adjusted to steer the direction of the null.

Terminations can also be adjusted to steer a Figure-8 beam, produce side nulls, or maximize gain for a particular target. Change physical antenna positions, or add 180-degree antenna load/source switching and the possibilities seem infinite.

Comparing Antennas

Experiences with these antennas are comparable to results obtained through EZNEC models. The EZNEC results shown here are 30-degree azimuth patterns at 1,000 kHz for demonstration purposes.

The EZNEC model of the basic Delta indicates a wide cardioid (kidney bean or heart-shaped pattern) with a deep and sharp backside null of as much as 35 dB. In fact, null depths of up to 40 dB have been obtained.

This Month in Broadcast History

75 Years Ago (1938): The quiz show "Information Please" debuted on NBC radio, while the drama "Joyce Jordan: Girl Intern" premiered on CBS radio. An experimental license issued to KDKA for W8XAR to transmit with up to 500 kW expired. ***(LISTEN:** To "Joyce Jordan: Girl Intern" episodes 40 and 41, circa 1940, at <http://bit.ly/13dWIfB>. – WPC1CAT)*

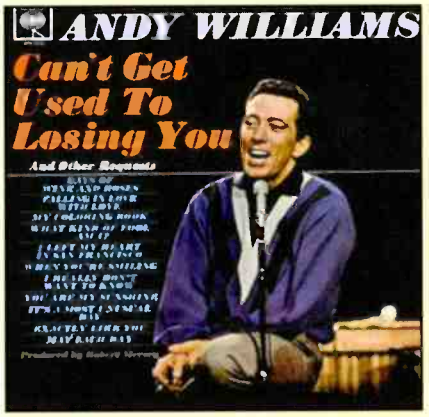


Photo A. Andy Williams was one of the biggest recording artists in the 1960s. ***(LISTEN:** To a live performance of his 1963 mega-hit "Can't Get Used to Losing You" at <http://bit.ly/UVCIAz>. (Internet screen grab)*

50 Years Ago (1963): "Can't Get Used to Losing You" by Andy Williams, **Photo A**, was found at the top of the "Fabulous 50 Tunedex" music survey on "Silversonic Colorful Channel 1480" WABB Mobile, Alabama.

25 Years Ago (1988): The FCC issued a public notice warning licensees about payola and undisclosed promotion, this in response to a Los Angeles court indictment resulting from a two-year investigation of undisclosed payments in cash and cocaine to secure airplay for certain records.

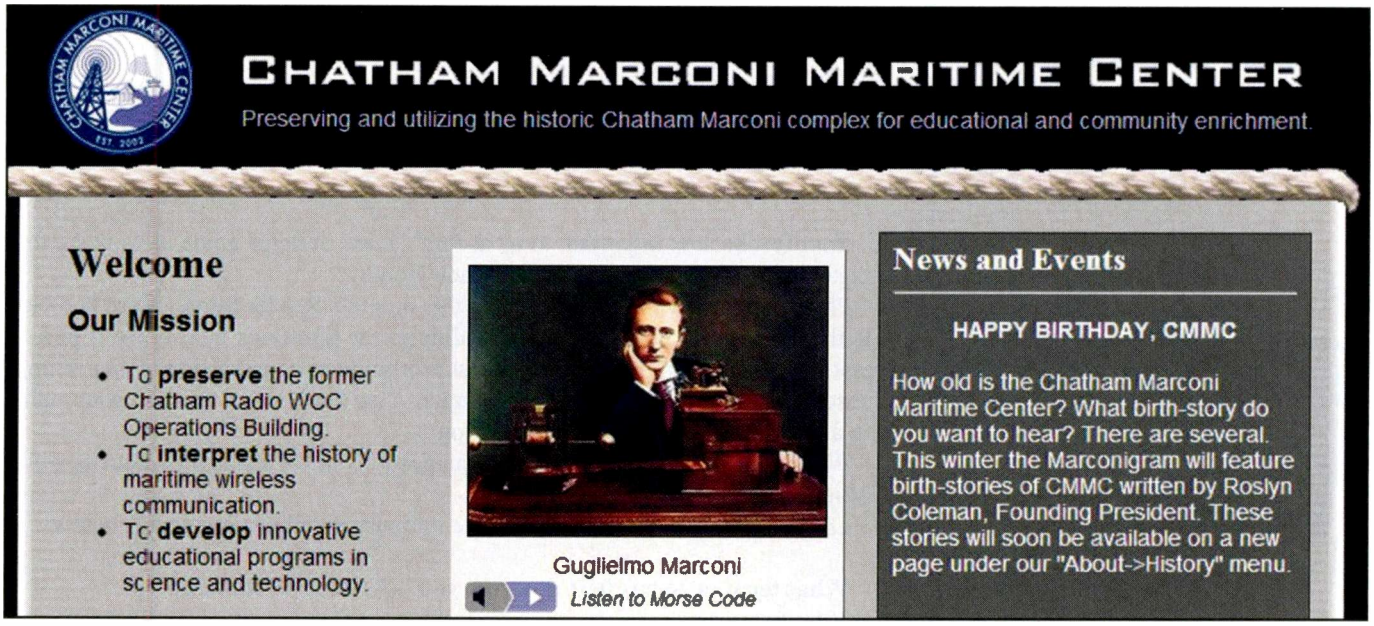


Photo B. For more information on the Chatham Marconi Maritime Center in Chatham, Massachusetts, visit <http://chathammarconi.org>. *(Internet screen grab)*

The split-loop configurations of the Delta and SuperLoop have proven not to provide as much gain as the basic Delta and SuperLoop, and this is confirmed by an EZNEC model of the CMMC antenna and actual experience.

The Double Delta required RF amplification at the CMMC DXpedition. However, a split loop does exhibit a narrower beam width which can be advantageous when aiming for a specific target. A null depth greater than 20 dB was obtained with 1010 WINS New York City nulled out by the CMMC Double Delta aimed northeast, comparable with EZNEC results.

EZNEC modeling of the Cross-Phased Delta indicates the ability to steer the backside null without significant loss of maximum null depth. Note that the entire beam is skewed in the EZNEC model result shown here. In real life experiences with Cross-Phased Deltas at Prince Edward Island, and similar cross-phasing of SuperLoop antennas at the WPC1CAT antenna site, 30-dB nulls of specific signals could be achieved by remote control adjustment of variable terminations.

EZNEC models demonstrate the 90-degree range of motion within a quadrant for the Cross-Phased configuration of northeast and southeast Deltas. Using an antenna switch to select only the northeast Delta, results in a northeast cardioid with a deep southwest null when the termination resistance is adjusted to the nominal value, 1,100 ohms typical.

Similarly the southeast Delta is selected with the termination at nominal for a southeast beam with a northwest null. When both antennas are selected, termination resistances are adjusted to steer the beam within the northeast to southeast quadrant, usually by reducing the termination resistance of one Delta while slightly increasing resistance of the other.

In the cross-phased EZNEC model results, the northeast Delta termination resistance is 400 ohms, and the southeast Delta is 1,420 ohms, to produce an easterly beam with a westerly backside null.

This "natural" phasing approach is simple to implement. No complicated circuitry; just wire, transformers, a switch, and potentiometers. The addition of a WA1ION "Termination Gizmo" direction reversal circuit <http://bit.ly/15bvt41> would allow for beam steering within any quadrant.

A phasing unit such as the Quantum Phaser <http://bit.ly/YLTxpU>, or a WA1ION homebrew model <http://bit.ly/Xx122N>, can be used to obtain additional null depth when needed.

Natural cross-phasing that takes advantage of the interaction between co-located antennas can be applied to any of the terminated broadband loop antennas. At the WPC1CAT antenna site, similar results have been obtained using cross-phased northeast and south variable termination SuperLoop antennas sharing a mast.

Wrap-Up

The CMMC maintains its museum and an amateur radio station in the former WCC Marconi Wireless Operations Building, which is open to the public during Cape Cod tourist season.

Plans for the CMMC include restoration of an adjacent "hotel" building on the WCC campus once used by wireless employees. Please consider becoming a member of the CMMC in support of ongoing education and preservation initiatives. Visit the CMMC online at <http://chathammarconi.org>, **Photo B**.

The AM Broadcast DXpeditioner

DXpeditioning was once reserved for amateur radio operators on location at field day competitions or to put a remote site on the air. Now it's a popular activity for AM broadcast DXers.

It's a great opportunity to get together with fellow radio enthusiasts to share experiences and demonstrate the latest antenna and receiver technology. A DXpedition is easy to organize. Start by talking it up with radio buddies. Suggest potential DX sites. A local radio museum, the beach, a mountain cabin, or a campsite might be worth investigating. Dedicate a social media group (Facebook, Yahoo Groups, and so on) to keep the ideas flowing among interested DXers. Soon you'll be setting a date for DXpedition excitement. *– 73 and Good DX! – WPC1CAT*

Pop'Comm May 2013 Reader Survey

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

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

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

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

What term or terms best describe you? (Choose all that apply.)

Shortwave listener 1
Scanner monitor 2
CBer 3
Digital communications monitor 4
Radio amateur 5

How long have you been in hobby communications?

1 to 5 years 6
6 to 10 7
11 to 20 8
21 to 30 9
More than 30 10

At the end of 2013, how much do you think you'll have spent on radio gear and accessories this year?

$1,000 + ... 11
$500 + ... 12
$250 + ... 13
$100 + ... 14
Less than $100 15

What radio manufacturers do you find produce the highest quality gear? (Please 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 May 2013 Reader Survey.* It's quick and easy.

The Envelope, Please . . .

For participating in the *Pop'Comm Readership Survey,* the winner of a free *Pop'Comm* subscription or extension is **Jerry V. Di Trolio, KWH-6006,** of **Bryn Mawr, Pennsylvania,** who writes that at Christmastime 1965 his parents gave him a Magnavox AM transistor," and over all these years he "never fell out of love with radio!" *What a nice memory, Jerry. Congratulations, thanks and please keep us posted on your monitoring activities. – KPC6PC*

Logging Those Good Catches on Your Commute

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

"I wanted to perform computer logging in real time and have access to QRZ.com. Thanks to Pignology, I found what I was looking for."

My morning commute from south of New York City to Brooklyn is a hard 40 miles. There are toll roads, bridges, tunnels, and lots of merges. It normally takes about an hour and a half, an average of 26.66 miles per hour.

I used to have a regular net with some guys going roughly my way at the same time. We started out on VHF and UHF repeaters and then moved to FM simplex for much of the ride. A lot of valuable traffic information was shared, and we all got to know one another pretty well. It was fun for several years, but the members of the group have moved on to other places, schedules, and frequencies.

When the alleged sunspot peak began approaching, the idea of putting an inexpensive 10-meter rig in the car became appealing. In October and November of 2011 there was a sharp rise in the solar flux, leading to a lot of 10-meter DX activity. I hoped it would be possible, with only 25 watts from a RadioShack® HTX-10 and a Wilson CB wire wound antenna (FGT-3), to work the world while commuting to work. *And, work the world I did!*

At first, I was happy just to make SSB contacts on 10 meters while mobile. I wasn't too concerned about logging. As time went on and I began making more and more good contacts, I began to think about a logging solution. Of course, it is dangerous and almost impossible to log while driving. Fortunately, my wife happens to work at approximately the same location as me and takes the wheel on the morning trip. This allows me not only to DX, conditions permitting, but to log as well.

I started out using a small memo pad as my logbook. This quaint method is tried and true, but in the shack I rely on Ham Radio Deluxe, QRZ.com XML lookups, and the DX cluster to enhance my radio experience. I wanted to be able to perform computer logging in real time and have access to QRZ.com. I was looking for more. Thanks to Pignology <http://pignology.net>, I found what I was looking for.

What is Pignology?

Pignology is a small, ham-owned company specializing in mobile applications for the radio amateur. The company name is based upon a "Pigtail" named Piglet, **Photo A**. Piglet allows an iOS or Android-based mobile device to control a rig. Nick Garner, N3WG, of Sunnyvale, California, is the principal behind Pignology.

Pignology offers an iPhone, iPad, and Android app called "HamLog." It is rather capable for a hand-held logging application. HamLog is almost free, costing 99 cents from the Google Play or iTunes stores and is quite a bargain for such a capable program. It features Cloudsynch capabilities, allowing log data to be moved back and forth between a handheld or tablet device and a cloud data center. The cloud data can then be manipulated via its website <http://www.hamlog.it>, **Photo B**.

Photo A. The Piglet pigtail device provides a way to remotely control a rig from an iPhone, iPad, or Android device. *(Internet screen grab <http://pignology.net/piglet/>)*

I use a Samsung Galaxy Note as my hand-held mobile device. It is probably the largest smart phone manufactured, with a very readable 5-inch screen. So for the balance of the column, we'll be talking about the Android-based HamLog program. I downloaded it from Google Play.

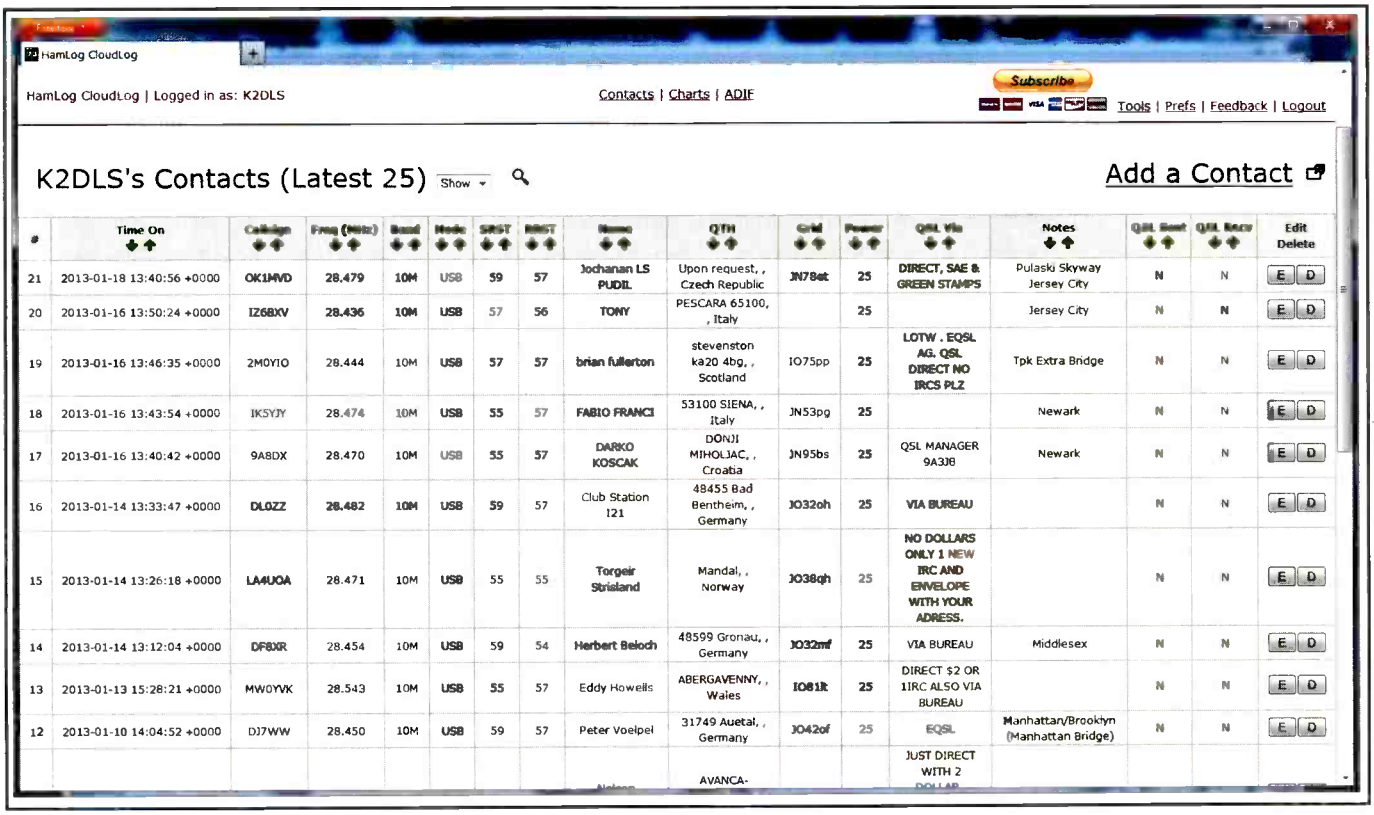
Apple users can find their version in the App Store. Once purchased, the app can also be installed on other Android devices associated with the same Google account at no additional charge. I also installed a copy on my Nexus 10 tablet.

Getting Started

Before using the app on your phone, I recommend you set up an account on the HamLog Cloud Service (HLCS) <http://www.hamlog.it>. The HLCS account will provide the ability to synchronize the contacts in your mobile log with the website. In fact, the first settings to be addressed in the HamLog set-up screen, **Photo C**, after your callsign are the HLCS credentials. You'll also have the opportunity to enter your QRZ.com credentials, your preferred DX Cluster Server, and other information.

*(**NOTE:** Just as we approached deadline, Nick Garner sent an email to customers advising that the Web interface was to be moved from Amazon Web Services to another provider. The CloudSynch function is unaffected, but the Web interface may be unavailable at publication time. It will be restored as quickly as possible, likely after the Dayton Hamvention®. – KPC2DLS)*

Some of the functions on the website, such as the statistics charts, require an additional subscription. The subscription costs 99 cents a month. However, I was able to enter QSOs and export an ADIF without the subscription. It is very convenient to have both a Web interface and a mobile application share access to



#	Time On	Callsign	Freq (MHz)	Band	Mode	SRST	RRST	Name	QTH	Grid	Power	QSL Via	Notes	QSL Sent	QSL Recv	Edit Delete
21	2013-01-18 13:40:56 +0000	OK1MVD	28.479	10M	USB	59	57	Jochanan LS PUDIL	Upon request, , Czech Republic	JN78et	25	DIRECT, SAE & GREEN STAMPS	Pulaski Skyway Jersey City	N	N	E D
20	2013-01-16 13:50:24 +0000	IZ6BXV	28.436	10M	USB	57	56	TONY	PESCARA 65100, , Italy		25		Jersey City	N	N	E D
19	2013-01-16 13:46:35 +0000	2M0YIO	28.444	10M	USB	57	57	brian fullerton	stevenston ka20 4bg, , Scotland	IO75pp	25	LOTW . EQSL AG. QSL DIRECT NO IRCS PLZ	Tpk Extra Bridge	N	N	E D
18	2013-01-16 13:43:54 +0000	IK5YJY	28.474	10M	USB	55	57	FABIO FRANCI	53100 SIENA, , Italy	JN53pg	25		Newark	N	N	E D
17	2013-01-16 13:40:42 +0000	9A8DX	28.470	10M	USB	55	57	DARKO KOSCAK	DONJI MIHOLJAC, , Croatia	JN95bs	25	QSL MANAGER 9A3JB	Newark	N	N	E D
16	2013-01-14 13:33:47 +0000	DL0ZZ	28.482	10M	USB	59	57	Club Station 121	48455 Bad Bentheim, , Germany	JO32oh	25	VIA BUREAU		N	N	E D
15	2013-01-14 13:26:18 +0000	LA4UOA	28.471	10M	USB	55	55	Torgeir Strisland	Mandal, , Norway	JO38qh	25	NO DOLLARS ONLY 1 NEW IRC AND ENVELOPE WITH YOUR ADRESS.		N	N	E D
14	2013-01-14 13:12:04 +0000	DF8XR	28.454	10M	USB	59	54	Herbert Belodh	48599 Gronau, , Germany	JO32mf	25	VIA BUREAU	Middlesex	N	N	E D
13	2013-01-13 15:28:21 +0000	MW0YVK	28.543	10M	USB	55	57	Eddy Howells	ABERGAVENNY, , Wales	IO81lt	25	DIRECT $2 OR 1IRC ALSO VIA BUREAU		N	N	E D
12	2013-01-10 14:04:52 +0000	DJ7WW	28.450	10M	USB	59	57	Peter Voelpel	31749 Auetal, , Germany	JO42of	25	EQSL	Manhattan/Brooklyn (Manhattan Bridge)	N	N	E D
									AVANCA-			JUST DIRECT WITH 2				

Photo B. K2DLS's 10-meter mobile contacts, entered on his Android smart phone but synchronized up to the Web. *(Screenshot)*

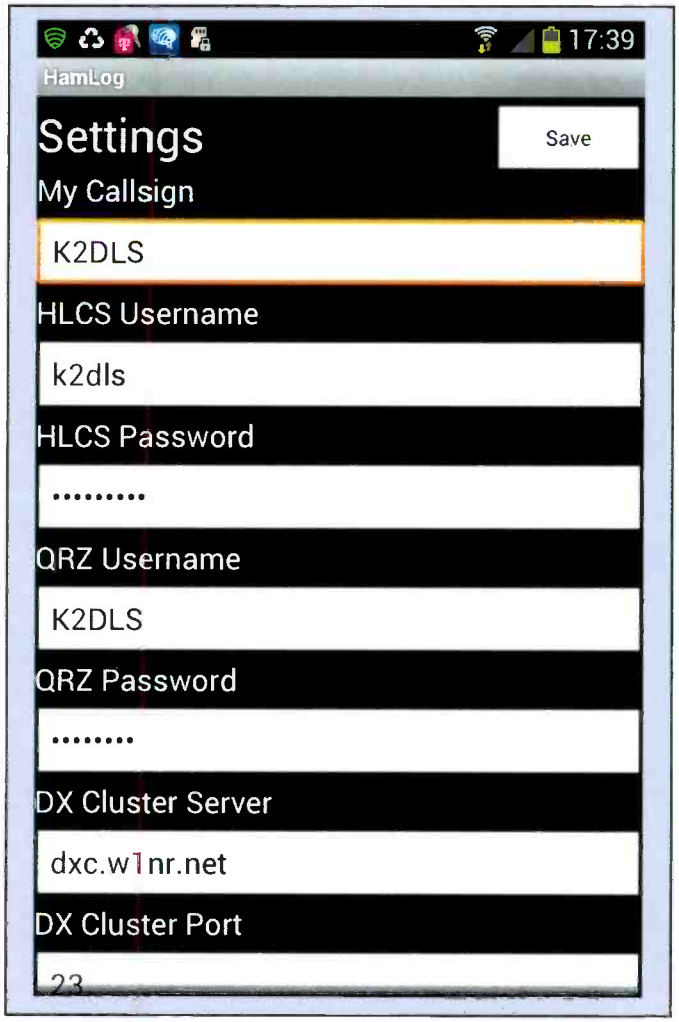


Photo C. Before using HamLog, some basic configuration information needs to be provided. *(Screenshot)*

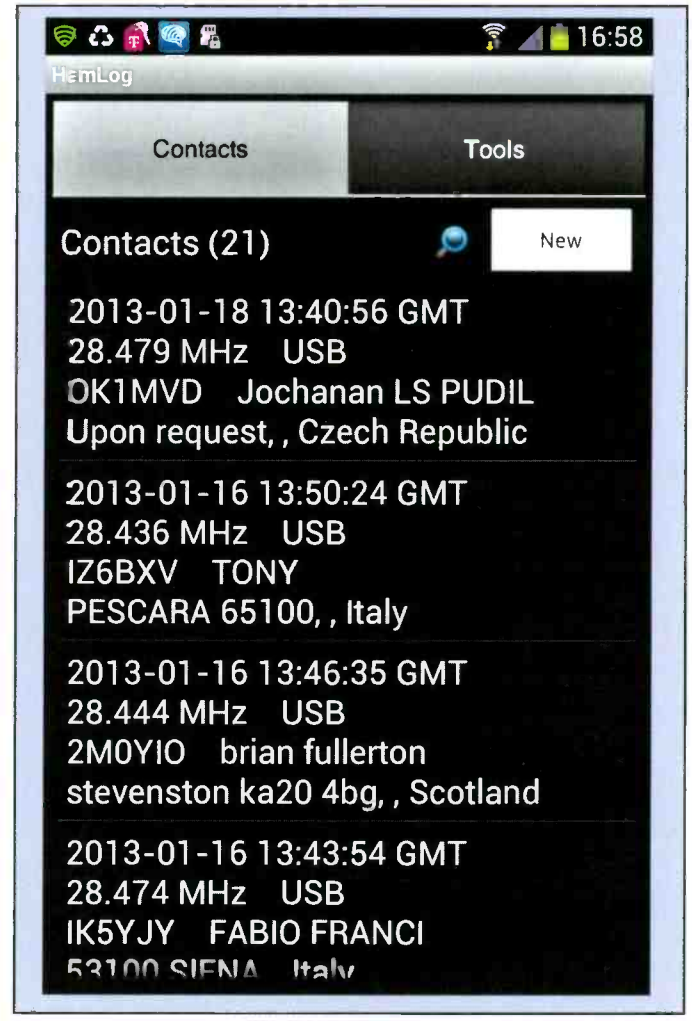


Photo D. The Contacts tab allows for easy scrolling through your logbook. *(Screenshot)*

the same logbook through automated synchronization.

Inside the App

The *Contacts* tab of HamLog, **Photo D,** provides the ability to scroll through all of your logged contacts that are stored on the mobile device. This also could include contacts entered while in your shack through the Web interface. HamLog allows for two-way synchronization of data — from your mobile device to the cloud and from the cloud back to your mobile device. There is an option to synchronize just new contacts or the entire logbook.

It is very easy to add a new contact. Tap on *New* on the contacts screen and a simple form is displayed. Basic QSO information, such as time on, time off, frequency, callsign, mode, and RST can easily be entered. If you subscribe to the QRZ.com XML lookup service, the name and QTH information of your contact will be automatically populated as well. Grid and QSL manager will also be updated from QRZ.com. Press the green button to save and the red button to cancel the entry.

QRZ Session Key Bug

I determined there is a bug in the QRZ.com XML query process. A session key is established between the mobile device and the QRZ.com cloud and this key must be manually cleared through an option at the bottom of the *Settings* menu at the beginning of a logging session. I reported this to Nick and he is looking at a fix.

Feature Rich

Aside from the Logbook, there are a number of useful features in the HamLog app. These are found on the *Tools* tab, **Photo E**. *UTC Clock* displays date and time as well as UTC date and time, updated each second.

Grid Square (GPS) allows using your mobile device's GPS to display your current latitude, longitude, and grid square. I suggested to the developers that the grid square information should be part of the log record, too. This would be useful to mobile operators who would like to know what city, county, or state a contact was logged in. I drive between two states and several counties on my morning and evening commutes.

There is also a *Gridsquare Calculator,* which allows the user to supply latitude and longitude numbers for conversion into a precise eight-digit grid square locator. VHF contest rovers and mountain toppers will appreciate the *Azimuth Calculator,* which takes a source and destination grid locator and converts it into an azimuth to aim your beam. Longpath is also supported for HF operators. A *Grid to Map* function uses Google Maps to pinpoint a locator on the world map.

U.S. Band Plan provides the FCC band plan for all bands from 160 meters

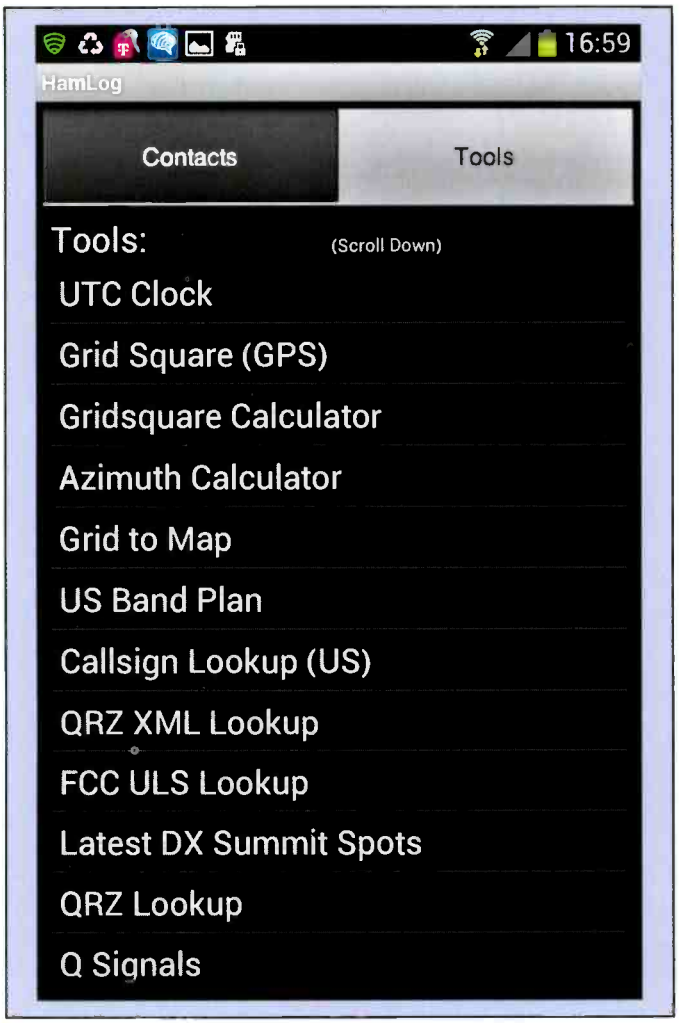


Photo E. There is an incredible list of features available to the HamLog mobile app user. *(Screenshot)*

Photo F. HamLog offers several data portability options, including the ability to export an ADIF to an SD card or an Email message. *(Screenshot)*

through 70 cm. Note that this is the FCC plan only and does not contain the ARRL suggested plan.

Callsign Lookup U.S. returns the name, city, state, and ZIP code of U.S. operators. Where more information is required, either a *QRZ XML Lookup* can be performed or an *FCC ULS Lookup*. The *QRZ XML Lookup* uses a local form and the ULS lookup is a browser pass through to their website. I would prefer a local form that passes the ULS query onward to the website.

The last 25 DX Summit spots are available at the press of the *Latest DX Summit* menu entry. The list is automatically reloaded each minute. There is a *QRZ Lookup* (non-XML) that takes you to the QRZ.com page for the specified callsign, but a QRZ.com login is required. A very comprehensive list of Q signals is included for those who need them. Also included is a handy IARU callsign prefix list.

The latest WWV Geophysical Alert Message from the NOAA Space Weather Prediction Center is a press away, as is an eight-day and a yearly Contest Calendar. Another menu entry takes you to the 425 DX Calendar, a comprehensive list of planned DX activity. Looking for something to do and want to hop on a net? N1YZ's HF Net Listing is a press away when HamLog is loaded. Your home DX Cluster is also literally at your fingertips.

Remember the Pigtail device mentioned earlier? The Tools tab is where the interface can be configured. So far there is support for the Yaesu FT-817, FT-857, and FT-897 and for the Elecraft K2, K3, and KX3.

Another Tools menu entry controls the CloudSynch feature. When logged on to CloudSynch, options are available to Push and Pull New and All contacts. Further functions allow for the export of an ADIF file, **Photo F**, to an SD Card or Email message, creating portability with other ham logbook software. Export to eQSL (but not LoTW) and import of an ADIF is also supported.

A Useful Mobile Tool

HamLog is a very useful tool for the mobile-portable ham who wants a complete ham radio software package literally in the palm of his or her hands. It also may appeal to the minimalist who doesn't want to bother setting up a computer in the shack but wants a more organized way to log than pencil and paper.

I use HamLog in the car and then export an ADIF which is uploaded to Ham Radio Deluxe for LoTW processing. For an investment of 99 cents, you can discover your own uses for this nice mobile app.

Have you found any other useful mobile apps that enhance your enjoyment of the radio hobby? Let me know via <k2dls.rfbits@gmail.com>.

– 73 de K2DLS

Phonetics: Just This Once, Be a Conformist!

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

"Properly used, they can smooth voice operation and improve your success rate when trying to break pileups and work far-away operators."

Now that the digital subbands seem to stretch out forever — with warbly PSK signals here, "flock of geese" Olivia signals there, and "who knows what" signals hiding underneath it all — keyboard-to-keyboard QSOs seem to be doing well. And that's a good thing for international goodwill (a foundational pillar of the Amateur Radio Service) and our ability to understand one another as hams or just plain people.

Whether we're keyboarding with a ham in Kansas or the Canary Islands (just how many hams live there, anyway, and why do otherwise dead bands always have at least one EA8 signal?), we still have to type our words in a mutually understandable format. English-speaking hams have it easy, as most digi-mode communications are in English, and the very format eliminates most pronunciation, accent or dialect issues.

Despite "deregulation" in the Morse code sector, activity levels are holding their own and may even be increasing, even though knowledge of the ancient time-variable, binary code is no longer required for licensing. Morse — essentially the most basic form of radio — has long been the standard of universal access to the airwaves. With its large collection of "Q-signals" and other well-known shorthand abbreviations, everyone from everywhere can join in the fun, and hams with minimal English skills can work pileups, participate in contests, have basic QSOs, and so on.

I'm surprised that hams haven't extended these core concepts to create a computerized pictographic or iconographic "meta-language" to allow QSOs between people who have no common language elements. Much like Kanzi, the chimpanzee who learned to communicate with primate researchers via dozens of keyboard lexigrams, hams could start basic QSOs by pressing the "CQ" or "hand waving hello" icon. Then exchange information by clicking on various standardized information/concept icons (a lot like the digi-mode brag tapes and macros we already use), and close the QSO by clicking on the "73" or "hand waving good-bye" icon (perhaps followed by the "eQSL" and "LoTW" icons!).

Heck, most contest QSOs are already made this way thanks to keyboard macros that send RTTY, Morse, or recorded voice snippets. But I digress . . .

Vox Humana

After digi-modes and Morse, what remains, of course, is phone — a teeny bit of digital voice, a bit more AM, but mostly SSB. For beginners, stateside or otherwise, SSB sees the bulk of the

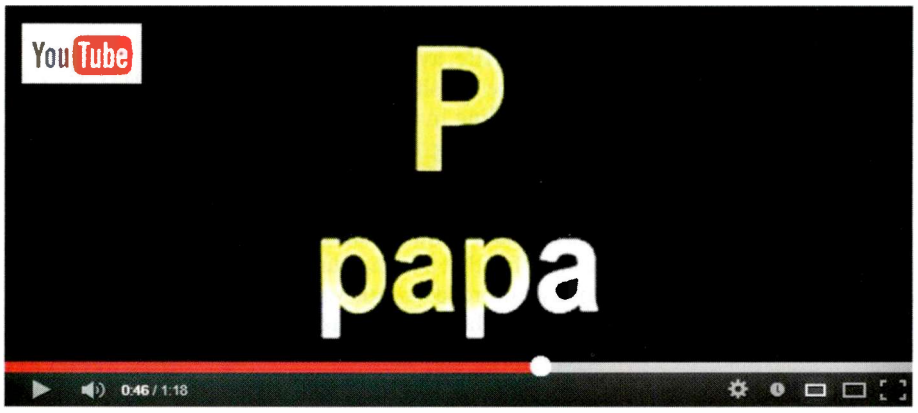


Photo A. This short YouTube video is a great primer on pronunciation of the ITU Phonetic Alphabet. Watch and listen at <http://bit.ly/Yw61A4>. *(Internet screen grab)*

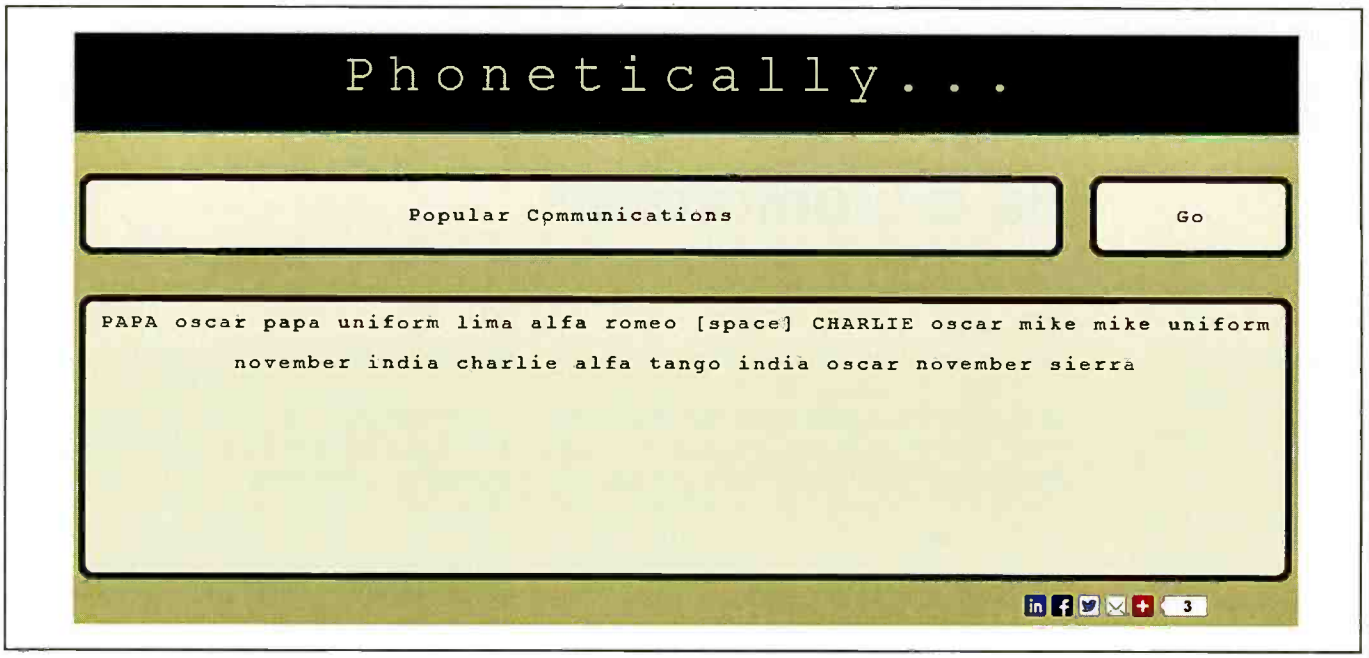


Photo B. If you'd like to practice words or phrases you commonly use, try this Phonetics Converter <http://phonetically.org>. It will make the process less cumbersome by eliminating the need to constantly refer to a printed version of the alphabet. *(Internet screen grab)*

action, which only increases the need for beginning operators to know and use standard voice operating procedures — and adhere to them. This is one small area where conformity is encouraged.

When speaking, in addition to using standard QSO procedures such as telling the other operator how you're receiving him (RS or RST), where you're located (QTH), and what your name is, to make sure voice communications are as understandable and as universal as possible for hams from around the world, we use the international phonetic alphabet. As mentioned, standardization is the key. Properly used, phonetics can smooth voice operation and improve your success rate when trying to break pileups and work far-away operators.

The Phonetic Alphabet

Despite the fact that the phonetic alphabet is extremely useful, several phonetic alphabets have surprisingly come and gone over the years. Many radio services — police, fire, aviation, and so on — use their own variants. Remember the TV show *Adam-12?* Remember officers Reed and Malloy calling in the license plate numbers of suspected felons and speeding motorists? *"Lincoln, X-ray, Ida . . . ?"* Phonetics at your service.

The International Telecommunication Union, or ITU, of which most countries are members through their United Nations affiliation, has a "standard" phonetic alphabet that all amateurs should know and use. This isn't strictly enforced — not yet, anyway — so you'll hear a lot of variation. Many hams make up "funny" personal phonetics for their own callsigns, and phone operators often vary from approved ITU phonetics on occasion, especially in pileups, when many stations are calling a rare DXCC country.

In this vein, "Germany" and "Kilowatt" are popular substitutes for Golf and Kilo, respectively. Being longer and stronger words, they're more likely to be heard under tough conditions. For example, in the push and shove of a pileup, just the "watt"

ITU Phonetics

A	Alfa (**AL** FAH)
B	Bravo (**BRAH** VOH)
C	Charlie (**CHAR** LEE)
D	Delta (**DELL** TAH)
E	Echo (**ECK** OH)
F	Foxtrot (**FOKS** TROT)
G	Golf (GOLF)
H	Hotel (HOH **TELL**)
I	India (**IN** DEE AH)
J	Juliett (**JEW** LEE ETT)
K	Kilo (**KEY** LOH)
L	Lima (**LEE** MAH)
M	Mike (MIKE)
N	November (NO **VEM** BER)
O	Oscar (**OSS** CAH)
P	Papa (PAH **PAH**)
Q	Quebec (KEH **BECK**)
R	Romeo (**ROW** ME OH)
S	Sierra (SEE **AIR** RAH)
T	Tango (**TANG** GO)
U	Uniform (**YOU** NEE FORM)
V	Victor (**VIK** TAH)
W	Whiskey (**WISS** KEY)
X	X-RAY (**ECKS** RAY)
Y	Yankee (**YANG** KEY)
Z	Zulu (**ZOO** LOO)

NOTE: *The syllables highlighted in* ***bold*** *are emphasized. These pronunciations were designed for those who speak all international languages. The pronunciations given for Oscar and Victor may seem awkward for English speakers from the U.S. – KPCØZZZ*

Photo C. This World War II radio operator recruiting film may have been a reference for the scores of the Hollywood movie makers who included radio scenes in their movies about the hostilities <http://bit.ly/15ejEd8>. *(Internet screen grab)*

might get through, and the DX station might come back, "Ending in Kilowatt, go ahead." Some hams think other phonetics sound better in the wacky world of sideband. They may be right, too, but they're certainly not standard. *(**WATCH** and **LISTEN:** To an A to Z pronunciation exercise of ITU phonetics at <http://bit.ly/Yw61A4>, **Photo A.** – KPCØZZZ)*

Why 'Standardize?'

Why should we use ITU phonetics then, instead of simply using our own? Language, for one thing. Although English is the world's universal language, your "personal" phonetics — the ones you use when you talk to radio buddies on the local repeater — may not be so catchy or understandable to "DX ears." But even spoken with a foreign accent, "Uniform," "Whiskey," "Victor," and so on, are easily recognizable. *(**PRACTICE:** Common words or phrases used in your SSB, AM, or FM conversations can be practiced using a handy phonetics converter at <http://phonetically.org>, **Photo B.** – KPCØZZZ)*

Standardization is another reason, and so is speed. Much like learning code, when you hear someone spell his name as "Kilo India Romeo Kilo," you won't simply hear the words. Your brain will instantly register them as K-I-R-K. Without standard phonetics, you couldn't do that without an extra translational step, which slows things down. So, unless you're chatting with buddies, just go with the ITU phonetics!

And if your name happens to be associated with an international, multigenerational phenomenon, as mine is, you can sometimes take an intermediate or "accessory" step. If propagation and signal strengths are good, I sometimes just say, "Kirk, as in Captain," banking on the near fact that everyone on the planet old enough to have a ham license knows who Captain Kirk is, and that nobody named Captain Curt could ever command the Enterprise.

In all seriousness, nobody wants to use "forced phonetics" for trivial reasons, but standard phonetics make for smooth operation and increased understanding. And if there's ever a time in your amateur radio career when, during an emergency, you need to be understood without delay, you'll be glad you learned the ITU phonetic alphabet. Lives may be at stake, maybe even your own.

Phonetic Origins

The international phonetic alphabet used by ITU-subscribing ham societies is also used by NATO, the FAA, ANSI, international maritime organizations, and more. *Who knew?* See <http://bit.ly/VI9LSj> for additional tidbits. According to the Wiki entry, our phonetic system is a subset of the much older International Code of Signals (INTERCO), which originally included visual signals and one, two, or three letter codes for common phrases.

The first internationally recognized version of what would evolve into today's phonetic alphabet was adopted by the ITU in 1927. Combined international operations during WWII ushered in the Joint Army/Navy Phonetic Alphabet. Watch any old war movie and you'll be sure to hear these phonetics as "able," "baker," "charlie" and so on, **Photo C**.

With input and test results from 31 nations, the version of the alphabet we use today was adopted by the ITU in 1956.

Your Microphone and Related Factors

Standard phonetics are standard for a reason, but there are several additional steps you can take to "be understood" when operating voice modes.

Make sure you're using your microphone correctly. That might sound overly basic, but you'd be surprised by how dramatically different some mics sound when you're "talking across" the element instead of speaking directly into the element. Similarly, some mics are quite sensitive to "plosives" and "breath sounds." For most QSOs you want clear articulation, not popping sounds and heavy breathing.

When necessary, use your "radio voice." You don't have to sound like a Top 40 DJ, but do speak slowly and distinctly, with consistent modulation. This helps a lot when conditions are less than perfect.

Set your mic gain carefully. Few things can ruin an otherwise decent voice signal faster than overdriving the transmitter. If your rig's ALC meter is pegged into the red, not even standard phonetics will make you understandable.

The same thing goes for your rig's speech processor. A little goes a long way. And be sure to properly equalize your mic while you're at it. Many modern rigs include useful RX and TX equalization that's independent of gain and compression. Proper EQ settings can make a poor mic sound good and a good mic sound great.

Sometimes — many times — standardization is a good thing, and this is one of those times. And even if you can't get yourself to use ITU-approved phonetics all the time, make sure you at least *"Know the rules well, so you can break them effectively."—Dalai Lama XIV*

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	4747	Radio Huanta dos Mil, Peru	SS
0000	4775	Radio Congohas, Brazil	PP
0000	4955	Radio Cultural Amauata, Peru	SS
0000	4985	Radio Brazil Central	PP
0000	5580	Radio San Jose, Bolivia	SS
0000	5860	Radio Farda, via Sri Lanka	Farsi
0000	5954	Radio Republica, via Costa Rica	SS
0000	6000	Radio Inconfidencia, Brazil	PP
0000	9745	Radio Bahrain	AA
0000	11595	Dem. V. of Burma, via Armenia	Burmese
0000	15275	Radio Thailand	
0000	11790	China Radio International	
0000	9820	Radio 9 de Julho, Brazil	PP
0100	3310	Radio Mosoj Chaski, Bolivia	SS
0100	4651	Radio Santa Ana, Bolivia	SS
0100	4775	Radio Tarma, Peru	SS
0100	4815	Radio Difusora Londrina, Brazil	PP
0100	4825	Radio Cancao Nova, Brazil	PP
0100	4824	La Voz de la Selva, Peru	SS
0100	4845	Ondas Tropicais, Brazil	PP
0100	5025	Radio Rebelde, Cuba	SS
0100	5050	WWRB, USA	
0100	6055	Radio Exterior Espana, Spain	SS
0100	6160	CKZN, Canada	
0100	9610	Vatican Radio	
0100	9770	Voice of Turkey	SS
0100	9870	Voice of Turkey	SS
0100	11965	Radio Romania International	FF
0100	19000	Radio Australia	
0100	6070	CFRX, Canada	
0200	4055	Radio Verdad, Guatemala	SS
0200	4885	Radio Clube do Para, Brazil	PP
0200	4915	Radio Difusora Macapa, Brazil	PP
0200	5110	WBCQ, USA	
0200	6135	Radio Santa Cruz, Bolivia	SS
0200	6165	Zambia National Broadcasting	
0200	7475	Voice of Greece	Greek
0200	11780	Radio Naconal Amazonia, Brazil	PP
0200	6885	Galei Zahal, Israel	HH
0200	15285	Radio Philipinas, Philippinas	EE/T 'log
0200	9690	KBS Radio, South Korea	
0200	7290	Voice of Russia	
0200	15190	Radio Inconfidencia, Brazil	PP
0200	11710	Radio Argentina Exterior	SS/EE etc.
0300	4878	Radio Difusora Roraima, Brazil	PP
0300	4935	Radio Capixaba, Brazil	PP
0300	4950	Radio Nacional, Angola	PP
0300	4985	Voz Cristiana, Peru	SS
0300	5010	Radio Madagasikara, Madagascar	Malagassy
0300	5885	Vatican Radio	AA
0300	6180	Radio Educacion, Mexico	SS
0300	7190	Voice of Broad Masses, Eritrea	
0300	7200	Sudan Radio TV	AA
0300	9515	Voice of Turkey	
0300	7250	Voice of Russia	
0300	6155	Channel Africa, South Africa	
0300	13570	WINB, Pennsylania	
0400	4780	Radio Djibouti	AA
0400	4828	Voice of Zimbabwe	
0400	4930	VOA Relay, Botswana	
0400	4960	VOA Relay, Sao Tome	
0400	5940	Voz Missionaria, Brazil	PP
0400	6010	La Voz Concencia, Colombia	SS
0400	6165	Radio Chad	FF
0400	7120	Radio Hargeisa, Somalia	Somali
0400	7295	Radio Algerienne, Algeria	AA
0400	9470	Deutsche Welle, via Rwanda	
0400	11925	Radio Bandeirantes, Brazil	PP
0400	11945	BBC Relay, Seychelles	
0400	11980	Voice of Turkey	TT
0400	15120	Voice of Nigeria	
0400	15160	Radio Australia	
0400	9505	Voice of Sudan	AA
0400	9780	Rep. of Yemen Radio	AA
0400	9830	Voice of Russia	
0400	15580	Voice of America	

UTC	Freq.	Station/Country	Notes
0500	5005	Radio Nacional, Eq. Guinea	SS
0500	5910	Alcaravan Radio, Colombia	SS
0500	5970	Radio Itatiaia, Brazil	PP
0500	5975	Radio Japan, via England	
0500	6035	BBC, Ascension Relay	Hausa
0500	6155	Radio Austria International	GG
0500	6180	Radio Nacional Amazonia, Brazil	PP
0500	7245	Radio Mauritanie, Mauritania	AA
0500	9420	Voice of Greece	Greek
0500	9780	Radio Medi Un, Morocco	FF
0500	11905	VOA, via Vatican	Kurdish
0500	11945	Radio Australia	
0500	6165	Radio Havana Cuba	
0600	3975	Vatican Radio	
0600	5040	Radio Havana Cuba	SS/EE
0600	5995	RTV Malienne, Mali	FF
0700	7400	Trans World Radio, via Austria	
0700	7335	RTT Tunisienne, Tunisia	AA
0800	4990	Radio Apinte, Suriname	Dutch, etc
0800	9635	RTV Malienne, Mali	FF
0800	9690	Voice of Nigeria	Hausa
0800	11725	Radio New Zealand International	
0900	4795	Radio Lipez, Bolivia	SS
1000	3330	Ondas del Huallaga, Peru	SS
1000	3375	Radio Municipal, Brazil	PP
1000	4717	Radio Yura, Bolivia	SS
1000	4815	Radio Buen Pastor, Ecuador	SS
1000	6155	Radio Fides, Bolivia	SS
1000	6170	Radio New Zealand	
1000	2370	Radio Symban, Australia	Greek
1000	6173	Radio Tawantinsuyo, Peru	SS
1100	2850	KCBS, North Korea	KK
1100	4781	Radio Oriental, Ecuador	SS
1100	5980	Radio Marti, USA to Cuba	SS
1100	5995	Radio Australia	
1100	9920	Far East Broadcast., Philippines	vern
1100	9965	Family Radio, via Palau	
1100	11730	Radio Belarus	Belorusian
1100	6105	Radio Panamericana, Bolivia	SS
1100	5020	Solomon Is. Broadcasting Corp.	
1200	4750	Radio Republik Indonesia	II
1200	4835	ABC Northern Territory, Australia	
1200	5765u	AFN/AFRTS, Guam	
1200	9475	Radio Australia	
1200	9720	Adventist World Radio, Guam	
1200	9805	Radio Marti, USA	SS
1200	9840	Voice of Vietnam	
1200	9910	Trans World Radio, Guam	Mandarin
1200	9975	Trans World Radio, Guam	Mandarin
1200	15105	Bangladesh Betar	
1200	6130	Lao National Radio	
1200	7110	Thazin Radio, Myanmar	Burmese
1200	11570	Radio Pakistan	
1200	15190	Radio Japan, via F. Guiana	
1200	13665	China Radio International	
1200	17675	Radio New Zealand International	
1200	15700	Deutsche Welle, via England	FF
1300	4940	Voice of the Strait, China	CC
1300	9520	Radio Veritas Asia, Philippines	
1300	11710	Voice of Korea, North Korea	
1300	1525	Adventist World Radio, Guam	Bengali
1300	9526	Voice of Indonesia	II
1300	15575	KBS Radio, South Korea	
1300	7310	Radio Rossii, Russia	RR
1300	9680	KNLS, Alaska	
1309	9795	Radio Thailand	
1400	15560	Radio Sultanate of Oman	AA/EE
1400	15505	Bangladesh Betar	Urdu
1400	21590	Radio Kuwait	AA
1400	9585	Islamic Rep. of Iran Broadcasting	
1400	11620	All India Radio	
1500	17615	BSKSA, Saudi Arabia	KK
1500	15850	Galei Zahal, Israel	HH
1500	13850	Kol Israel	Farsi
1500	9625	Channel Africa, South Africa	
1500	13740	China Radio International	
1600	11660	Radio Libye, Libya	AA
1800	11955	Radio Romania International	
1800	11730	Voice of Turkey	
1800	15445	Radio Japan, via Germany	JJ
1900	9445	All India Radio	
1900	17850	REE, Spain, Costa Rica Relay	SS
1900	21690	Rado France Intl, Fr. Guiana Relay	FF
1900	9580	Africa No. One, Gabon	FF
1900	11775	Universitry Network, Anguilla	
2000	11735	Zanzibar Broadcasting Corp.	Swahili
2000	11850	Radio Japan	
2000	15190	Radio Africa, Eq. Guinea	
2000	15330	Radio Romania International	
2000	15540	Radio Kuwait	AA
2000	9655	Deutsche Welle, Rwanda Relay	
2000	15480	AWR, via South Africa	
2000	15550u	WJHR, Florida	
2100	9330	WBCQ, Maine	
2100	7465	Radio Tirana, Abania	
2100	7475	R. Statmos Makedonias, Greece	Greek
2100	11800	DW,Germany, via Rwanda	11800
DW, Germany, Rwanda Relay			
2200	6090	Radio Nigeria	Hausa
2200	9915	BBC, Ascension Relay	
2200	6100	Intl. Radio of Serbia, via Bosnia	
2200	5970	Radio Itatiaia, Brazil	PP
2200	6115	Radio Taiwan Intl., via Florida	
2200	7550	All India Radio	
2200	7290	Radio PMR, Moldova	
2300	4319	AFN, Diego Garcia	
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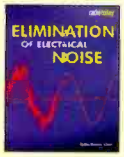

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By Jason Feldman, WPC2COD

Uniden Combines Scanner with Alarm Clock and AM/FM Radio

Uniden has introduced a new all-in-one scanner/radio/alarm clock, which features 500 channels for scanning local public safety and other interesting frequencies. The built-in AM/FM radio lets you listen to your local radio stations, while the built-in alarm clock lets you wake to your favorite channels, **Photo A**.

Encased in a 9-inch-wide x 3-inch-high by 6-inch-deep black case, the BC345CRS has a fresh design that Uniden said melds into the user's décor and includes an easy-to-read, clear LCD backlit display. The buttons are laid out for ease of use, so there's no fumbling around in the dark.

The scanner function includes a five-service search that lets users easily search bands commonly used for police, fire/EMS, aircraft, amateur radio, and marine transmissions.

Users can store those frequencies into 500 channels that are stored in 10 banks and also allow them to save up to 10 AM and 20 FM stations in preset memory so they can instantly tune to their favorite local broadcast.

In addition with Priority and Do-Not-Disturb, users can store their most important frequencies into priority channels. When scanning, these channels are checked every two seconds, so users are more likely to catch important activity on these channels. Do-Not-Disturb prevents priority checks when the radio is actively receiving a channel. This keeps the audio from breaking up every two seconds during the priority check.

Photo A. Uniden's new BC345CRS scanner/alarm clock/radio is designed to fit in with your décor. *(Courtesy of Uniden)*

Weather scan with alert lets users listen to local weather conditions and be alerted when hazardous conditions arise.

The alarm clock can set the BC345CRS to wake them to a scanning frequency, a weather channel, or your favorite AM or FM station. Snooze allows users to grab a few more minutes of sleep, while the sleep function automatically turns off the BC345CRS after the time you set.

Accessories include a telescoping antenna, AM loop antenna, AC adapter, and owners manual. Uniden said the MSRP of the BC345CRS is $99.99 and includes a one-year warranty.

ICOM Shows Off New Marine Radios at Miami International Boat Show

ICOM debuted two new VHF handheld radios and a new compact VHF fixed-mount unit during the 2013 Miami International Boat Show & Strictly Sail.

David McLain, ICOM America national marine sales manager said "ICOM is proud to showcase the M73 Series handhelds and the M400BB fixed mount — two new radios that offer boaters a great design and a robust feature set."

The M73 Series comprises two handheld models including a "PLUS" version that features "Last Call" voice recording and playback, "Bass Boost" audio function, and active noise canceling technology. Both handheld versions feature 6 watts of transmit power, 700 mW of loud audio output, and an ergonomic hourglass shape for comfortable, one-handed operation.

Boaters looking for a fixed mount VHF will like the new M400BB transceiver, which comes in a space-saving black box option with Class D DSC. The M400BB consists of a small main body unit and a supplied COMMANDMICIV™, which is available in Black or Super White colors. The black box option possesses a small physical footprint, flexible installation, and an intuitive user interface, said ICOM.

Dateline Berlin: Air Traffic Control in the Cold War Era

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

"For U.S. personnel, ATC services in West Berlin ended in 1990. But for many years they played a big part in international relations during 'The Cold War.' "

This month we're taking a turn from the listening and technical aspects of aviation to look back at an important part of the history of Air Traffic Control (ATC).

For U.S. personnel, ATC services into and out of West Berlin ended in 1990. But for many years they played a big part in international relations during what was known as "The Cold War" — a 45-year-long stare down between the Soviet Union and the United States and NATO which began in 1947 and had wound down by 1991. With the war's demise, ATC responsibilities diminished, as well. *(**IN DEPTH:** Read more about The Cold War at <http://bit.ly/ZBRKsm>. – KPC4KGC)*

Addition By Division

Near the end of hostilities on the European front of World War II, the Soviet Union reached Berlin, Germany. In May 1945 the Russians took control of Tempelhof Zentralflughafen (Central Airport). When hostilities ended, Germany was divided into four parts, each controlled by one of the four major powers: the U.S., Britain, France, and the USSR. But for the first time in history, the conquered capitol was also divided into four zones, each occupied by one of these four powers.

The three western allies brought capitalism to the western portion, while the USSR placed the northeast portion of Berlin under socialism. No airports were located in the Soviet or French sectors. The British had the Berlin-Gatow airport under their domain while the U.S. took control of Tempelhof — TCA.

An interesting note related to flights into the West Berlin area: a stipulation of the Four Power Agreement following World War II was a total ban on German carriers' participation in air transport to Berlin, where access was restricted to U.S., British, French, and Soviet airlines. Since Schönefeld (the primary Soviet airport) was located outside of the city boundaries of Berlin, it was conveniently determined this restriction did not apply. Thus, aircraft of the East German flag carrier Interflug could use Schönefeld airport, while West German Lufthansa was denied access to Tegel or Tempelhof airports.

Tempelhof's Rich History

The Tempelhof area dates back to at least 1721 as a military parade field. In 1909 the Wright brothers demonstrated the airplane there. The field was turned into a full-scale airport by 1922, **Photo A**, and soon became one of the busiest air-

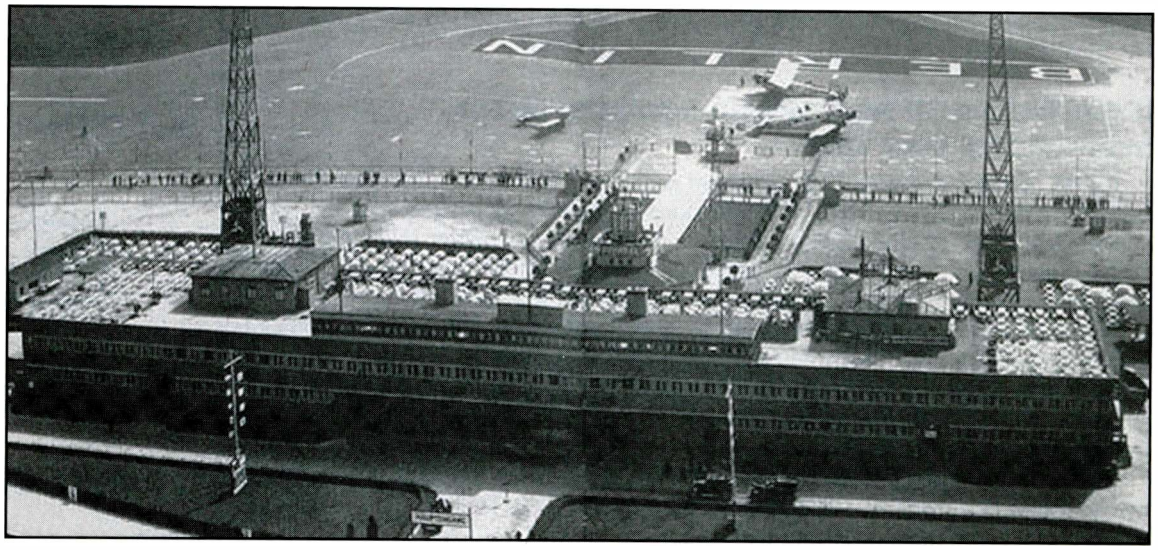

Photo A. Berlin's Tempelhof Central Airport, pictured in 1922, would soon become one of the busiest airports in the world.

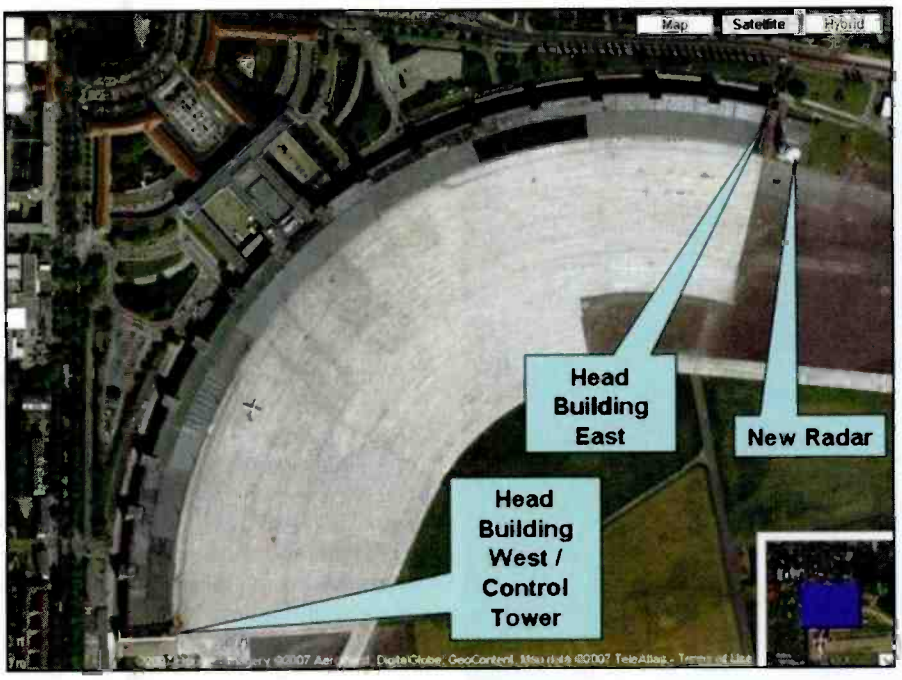

Photo B. This aerial view shows Tempelhof Central Airports facilities — including its control tower and RADAR facilities.

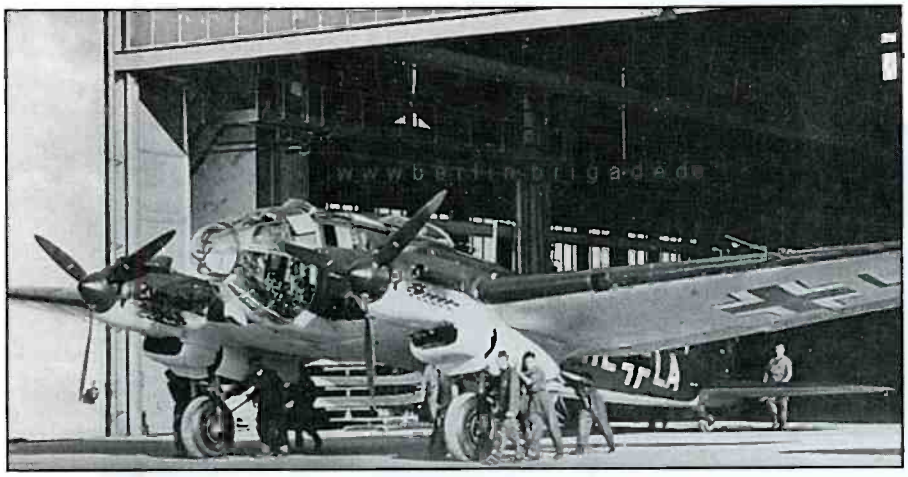

Photo C. In this World War II era photograph, a German fighter aircraft is wheeled out at Tempelhof.

ports in the world. Prior to the outbreak of World War II, more than 90 operations were flown there, both international and domestic.

Though the building was never completed, Adolph Hitler wanted it to be the largest in the world — and for a time it was. Today this building is still the third largest, surpassed only by the Pentagon and the Johnson Space Center in Houston. *(**NOTE:** Until the terrorist attacks on 9/11, the towers of the World Trade Center were third. – KPC4KGC)* While the field itself is no longer used as an airport, the building serves as headquarters for Lufthansa.

The building was designed to look like a flying eagle when viewed from above — with semi-circular hangers forming the bird's spread wings. It had a mile-long hangar canopy for use during parades and airshows. While the airport was never used as a fighter or bomber base, some Luftwaffe pilots used Tempelhof as an emergency base. Also Focke-Wolfe FW-190 fighters were constructed underground and flown out during the war, **Photos B** and **C**.

This building, while long, was seven stories high and had a seven-level basement. Much of the basement was unusable after the Soviets tried to blow it up, tried to burn it, and ultimately flooded it. *(**NOTE:** With 3-foot thick granite walls, it was a very hearty structure. – KPC4KGC)*

It's my understanding that some 68 years later the basement is still under water. I've only been down about two levels just once, during war games.

After the end of hostilities, the European Air Transport Service took control of Tempelhof in September 1945. In 1947 it came under control of United States Air Forces Europe (USAFE). April 1948 showed the Soviets' intentions when they blocked ground and water traffic into Berlin.

When USAFE responded with around-the-clock service into West Berlin with Douglas DC-3s, the Soviets backed down. But barely two months later, the USSR began a full blockade with the Allied response of *Operation Vittles,* a.k.a., the Berlin Airlift, **Photo D**. Though the blockade lasted from June 1948 to May 1949, the airlift lasted until October of that year. Of the many stories that came out of the airlift, a third major airport was built — almost by hand — in the French sector. All three airports — Tempelhof, Gatow, and now Tegel — were used extensively.

In 1950, Allied airliners were flying into Tempelhof and Tegel — BOAC, Pan Am, and Air France. These were the only scheduled airliners allowed into West Berlin.

My Encounter With Some MIGs

As the years continued, harassment of airliners into and out of West Berlin by Soviet MIGS — Soviet and East German fighter aircraft — occurred. It was a somewhat common occurrence for these jets to buzz airliners.

From the jump seat of a Pan Am B-727, I can attest to this personally when in July 1978 two MIG-19s buzzed our aircraft en-route to Frankfurt. This harassment was more than just getting *up close and personal* to air carriers. It also extended to permission to fly through the three corridors.

You must know that West Berlin — which we knew as "Freedom Island in the Middle of the Red Sea" — was closer to Soviet occupied Poland than free West Germany. Those flying to Berlin had to fly up to 120 miles over Soviet occupied East Germany (a.k.a. as the GDR).

Though the three western powers had a legal right to fly to Berlin, they were fly-

Photo D. DC-3 transports line up on the runway during Operation Vittles, also known as The Berlin Airlift, from June 1948 to October 1949.

ing in hostile air space. Because of this, the Berlin Air Safety Center (BASC) was formed. In a nondescript judicial building, where the plotters from the last attempt to kill Hitler were hanged with piano wire, military representatives from each of the four governments would sit across the table there — just a few miles west of Tempelhof.

For Controllers, an Aerial Ballet

When an aircraft was en route to West Berlin, a controller in the west — we called the Zone — would contact us at Tempelhof requesting permission to bring an aircraft in. The controller at Tempelhof would write the information on a Flight Progress Strip (boat), have the controller on the phone put on hold, and call the appropriate member at the BASC: British for the Center corridor, French for the North, and the U.S. for the South. *(**NOTE:** At 120 miles, the Southern corridor was the longest and required an Air Force controller stationed in West Germany to monitor an aircraft's progress during the first part of the flight. – KPC4KGC)*

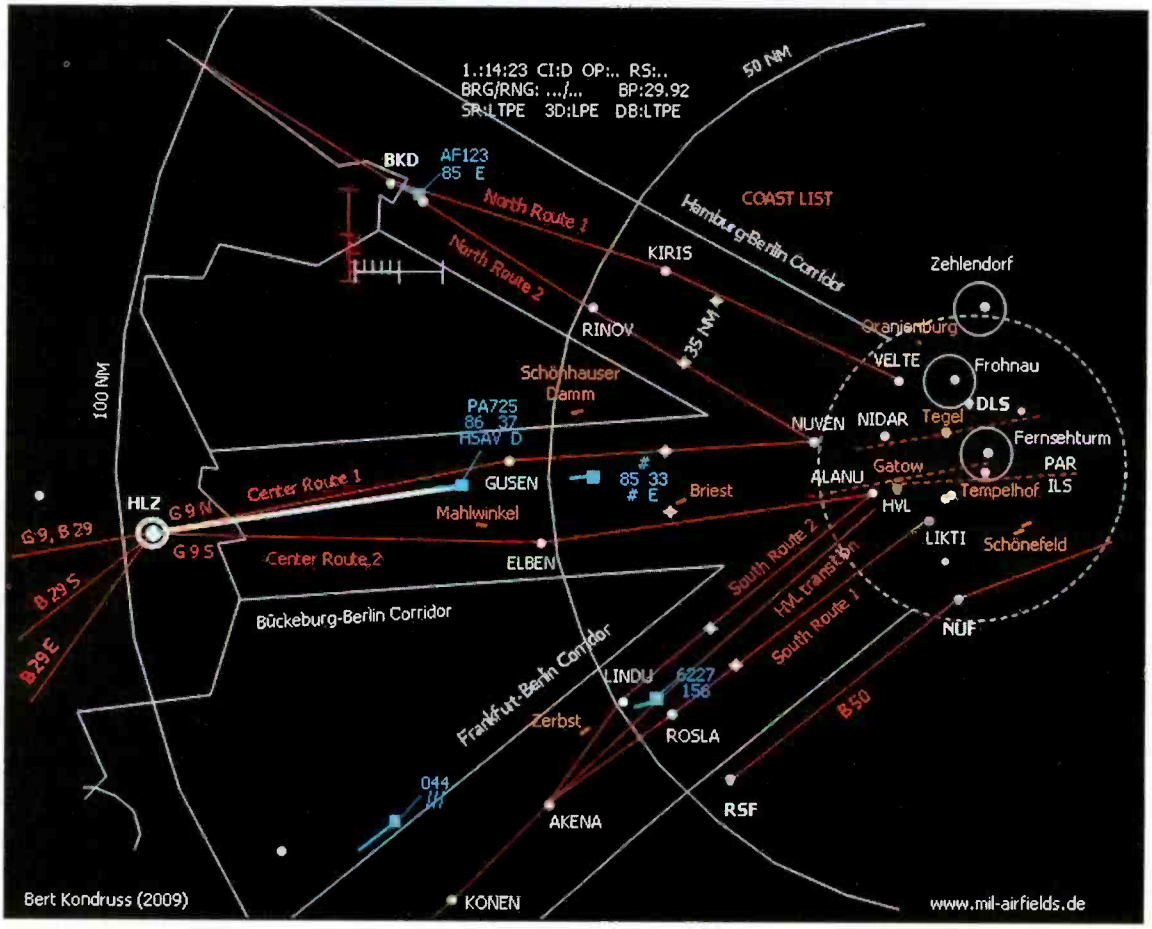

Photo E. Color RADAR screens came into the ATC picture in 1986.

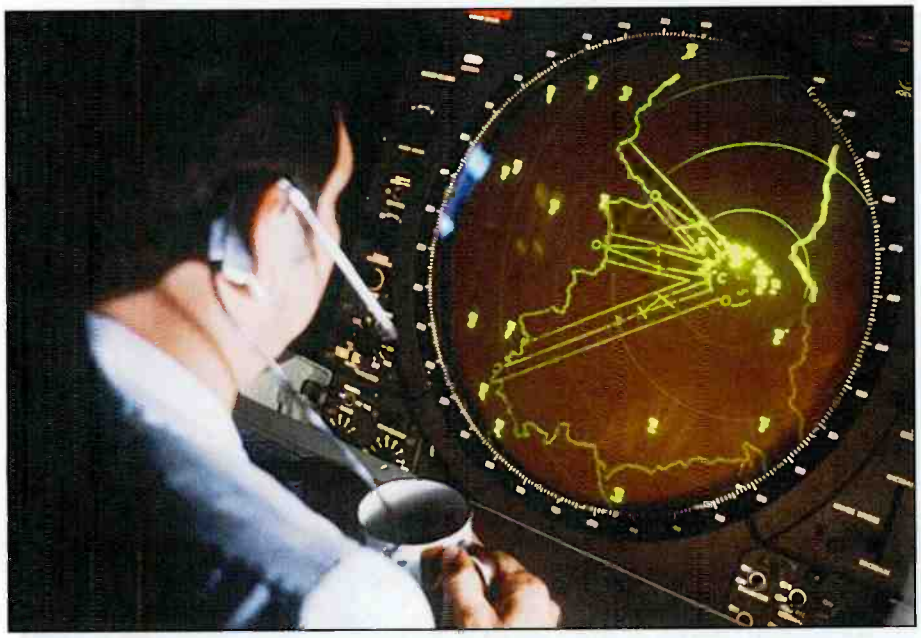

Photo F. This 1982 photograph shows USAF Air Traffic Controller Jim Elmore busy at work.

This officer would write the information on a Flight Progress strip, as well, and pass it across the table to his Russian counterpart. This Russian would review it and put one of two stamps on it and pass it back to the initiating officer. If it were a civilian aircraft, a green stamp would be placed on it stating "Safety of Flight Guaranteed." With a military aircraft, it was given a red stamp stating "Safety of Flight Not Guaranteed."

An example would be Pan Am flight 250, a Boeing 727 from Frankfurt flying up the south corridor to Tegel airport. Let's say the aircraft is expected at the Mansbach intersection at 1100 GMT. I would write this information down, contact the American officer at the BASC who would write down the same data and give it to his Soviet counterpart across the table.

The Russian would place the green stamp on it and give it back to the U.S. officer who would verbally tell us and we would relay that information to the Zone controller.

Complicating Matters . . .

Now here's where more politics come in to play. Pan Am 250 — callsign Clipper 250 — has a plus or minus 3-minute window to enter the corridor at Mansbach. If he arrives before 1057 GMT he must remain outside the corridor until between 1057 and 1103 GMT. One turn in holding usually took care of that.

If he arrives after 1103 GMT, he must enter holding and the process is repeated. As you can see, air traffic was more political than not. This process must be repeated for those leaving the three fields going west back to West Germany.

Interestingly, the three corridors used for flying were not centered on any nav-

Photo G. A hijacked Polish Lot airliner sits on the ramp at Tempelhof Central Airport in 1978.

igation aid. The 20-nautical-mile-radius control zone around Berlin was centered on the BASC with the corridors extending on bearings of 233, 266, and 299 degrees from the BASC.

The aircraft flying through the corridors were controlled from Tempelhof airport in the Berlin Air Route Traffic Control Center (BARTCC). Those of us who worked there were assigned to the 1946th Communications Squadron. We called it the *BarTac*. And, like the BASC and the rest of West Berlin, the controllers were American, British, and French.

Over the years, the radar equipment was upgraded and replaced with top-of-the-line electronics, paid for by the West German government. Even back in the mid-to-late 1970s BARTCC controllers were using computer terminals with touch-screen monitors to help facilitate the notification process. In the 1980s, radar was upgraded to color units allowing for more precise control, **Photos E** and **F**.

Bring On the Drama

Berlin, always a center of attention and intrigue, even experienced hijackings. On August 30, 1978, my best friend watched as a Polish Lot airliner en-route from

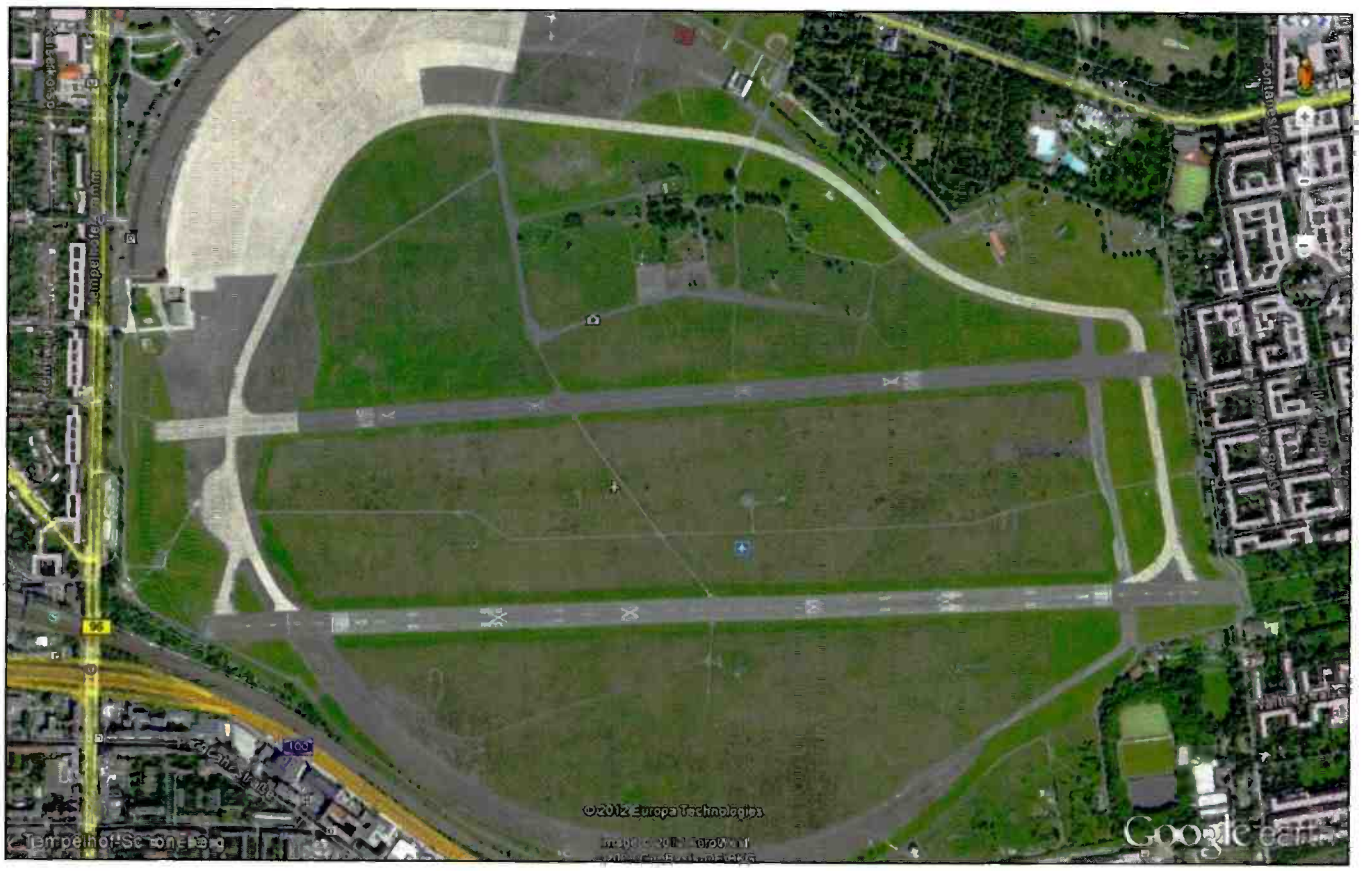

Photo H. An aerial view shows the vast layout of Tempelhof Central Airport runways and facilities.

Gdansk, Poland to Schonefeld, East Germany — a Tupelov TU-134 twin jet *(**NOTE:** basically a clone of a DC-9)* was hijacked and brought into Tempelhof. *(**NOTE:** According to my friend, to his knowledge, this was one of the first hijacked aircraft to make it to West Berlin. Its callsign was Lot 165, **Photo G**. He subsequently worked a couple more hijackings. He became "Controller of the Year" for all of USAFE. That's my bud! – KPC4KGC)*

Of the 63 on board, the hijacker claimed sanctuary with his girlfriend and daughter. Six others took advantage and also stayed in the West, **Photo G**.

The hijacker was convicted, but sentenced to

Photo I. A somewhat faded and wrinkled picture of a ground approach unit (GCA) at Tempelhof is a clear reflection of an earlier time.

Grab Your Scanner and Listen 'Up!'

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

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

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

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

Here are some basic frequencies in MHz to keep handy:

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

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

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

Capt. Jeffery James, commander of Joint Base Pearl Harbor-Hickam, speaks about the restoration of the Ford Island control tower during the tower's dedication ceremony on December 7, 2011. The tower was once used to guide airplanes at the airfield on the island and will now be used as an aviation library. *(Courtesy of the U.S. Navy)*

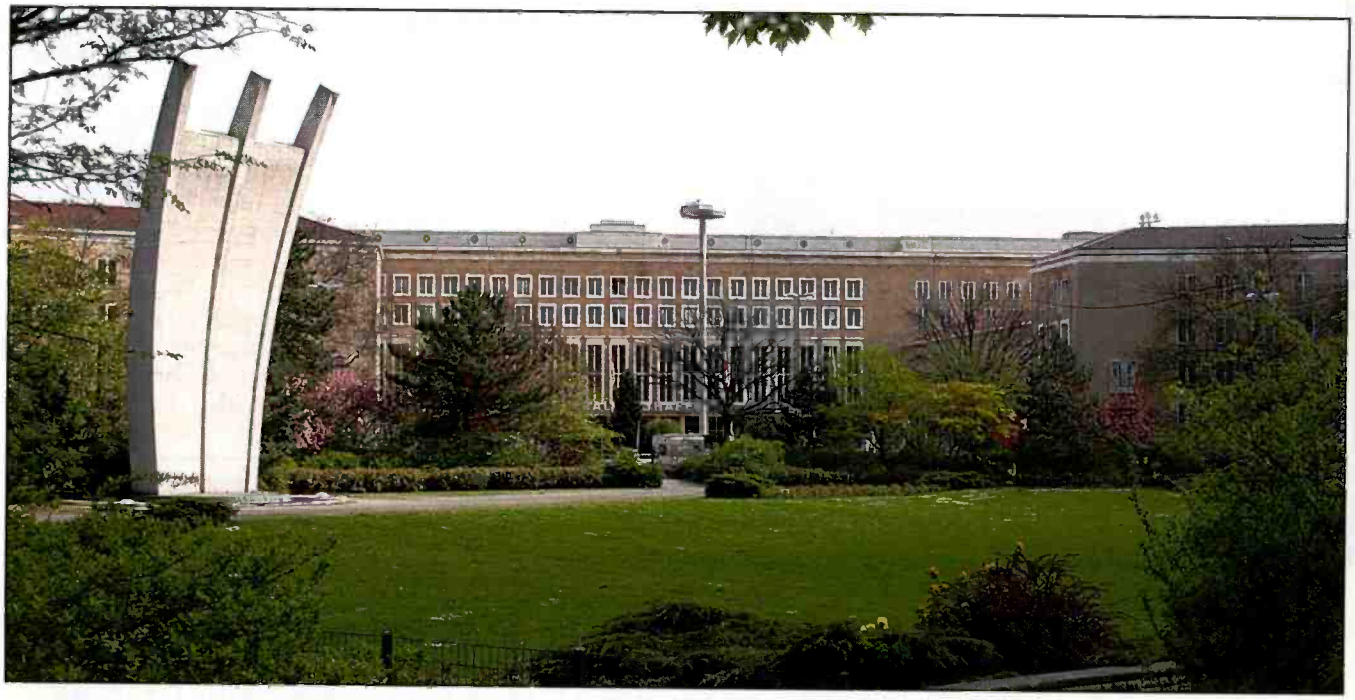

Photo J. The Platz der Luftbrücke Monument at Tempelhof, left, was designed by Eduard Ludwig in commemoration of the Berlin Airlift.

Photo K. A "Leaving the Sector Sign" is on display at the Newseum in Washington, D.C.

time served — nine months. The 1988 film "Judgment in Berlin," based on the book by the same name, covered the trial but made little reference to the controlling of the aircraft.

'Mr. Gorbachev, Tear Down This Wall'

Then on November 9, 1989, the unbelievable happened. The Berlin Wall, the dividing line between the two sections of the city, opened. Berlin was opening to all. When I saw this on CNN while on temporary assignment in Oklahoma City, I literally sat on the floor and cried. My son was born in West Berlin and I'd never expected to see the wall come down in *my* lifetime, much less my son's.

Less than a year later, on October 3, 1990, the Germans took over air traffic for Berlin for the first time since the demise of Nazi Germany in 1945. The Americans remained through reunification and eventually gave complete control of Tempelhof to the German authorities on June 26, 1993.

Since reunification, U.S. military air traffic control is pretty much limited to Ramstein Air Base near Kaiserslautern, and a handful of others.

Only a Snapshot

I've only scratched the surface of Tempelhof and the BARTCC, **Photos H** through **K**. Some years back during my first stint writing for *Pop'Comm*, I noted the camaraderie the controllers had among themselves and the Pan Am pilots — including the awarding of the BARTCC *Savage Trophy* to the losers of various sports games. There are more stories to tell.

Controllers are having a reunion in Las Vegas this month and there are sure to be more ATC war stories revealed at that get together.

'Welcome to Berlin' Humor

There were two running jokes told to us upon arrival in Berlin.

- In case World War III begins, the Soviets will close off the checkpoints (Alpha, Bravo and Charlie) and write on the Berlin Wall: "POW Camp."
- When the Soviets invade, yell out in English, German, French, and Russian: "Don't shoot! I know secrets!"

Finis . . .

Until next month, keep your ears and eyes to the skies, and good scanning! – KPC4KGC.

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Destiny: As a Baby, His First Word Was 'Wire'

By Richard Fisher, KPC6PC

"As the mail rolls in to the Pop'Comm Monitoring Station program each month, we are reminded of what an extremely talented and diverse membership we have."

What hobby communications community outside of *Pop'Comm Monitoring Station's* can boast that at least one of its members:

- Was told his first word as an infant was *"wire?"*
- Had an FM gig on American Samoa, but now lives in Thailand?
- Is serving with the U.S. Navy in Japan, but soon will be SWLing from San Diego — after retirement?
- Earned the difficult GROL and GMDSS radio licenses, but doesn't use them? (*Why?* "They were just fun to learn and get.")

As the mail rolls in to the *Pop'Comm Monitoring Station* program each month, we are ever reminded of what an extremely talented and diverse membership we have. It's as gratifying as it is interesting. And readers are telling us that, as well.

Please continue sharing your SWL and scanning stories and memories with us. We really appreciate hearing them. Write: <PopCommMonitors@gmail.com>. And thank you!

– Richard Fisher, KPC6PC

Ken Winograd, KPC1KEN, Merrimack, New Hampshire

I've been into radio and electronics since before I can remember. I'm told my first word was *wire*. I have no idea how or why. *Go figure.*

I've been an Amateur Extra class radio amateur — N1NEG — for years and years. But even though there is no such thing, but I consider myself a *Medium Extra* just because I still find CW rough going! I just can't give it the time it deserves. *At least, not yet.*

I also enjoyed learning the ropes to get my GROL (General Radiotelephone Operator License), and GMDSS (Global Maritime Distress Safety System) with RADAR endorsements.

I don't do anything with those two licenses, but they were just fun to learn and get.

Most of my monitoring is of the aviation sort, usually local VHF airport activity and some high-frequency Atlantic jet monitoring, plus local amateur repeaters, and so on.

Calvin Conkey, HSPCØVUV, Chiang Mai, Thailand

I am now in Thailand, but when I was 20 years old, I went on a mission trip to American Samoa. That trip lasted three years and during that time I had the wonderful experience of running a program on the local FM station for the island: WVUV, Living Free.

*(**LISTEN:** To WVUV, V103 FM, streaming live from American Samoa at <http://www.wvuv.com>, **Photo A**. – KPC6PC)*

Jim Turner, WPC4HTH, New Market, Virginia

I started listening in about 1955 on an old Zenith floor model of my dad's. It included shortwave bands. Later I got a Trans-Oceanic he gave me. And then acquired a Hallicrafters S-38 and S-120 — both of which I still use.

My main radio now is a Hammarlund HQ-105TR, **Photo B**, and ICOM IC-735. *(**TAKE:** An extensive video tour of the HQ-105TR at <http://bit.ly/XZ8qDj>. – KPC6PC)*

I am an Amateur Extra class radio amateur with the callsign W4HTH.

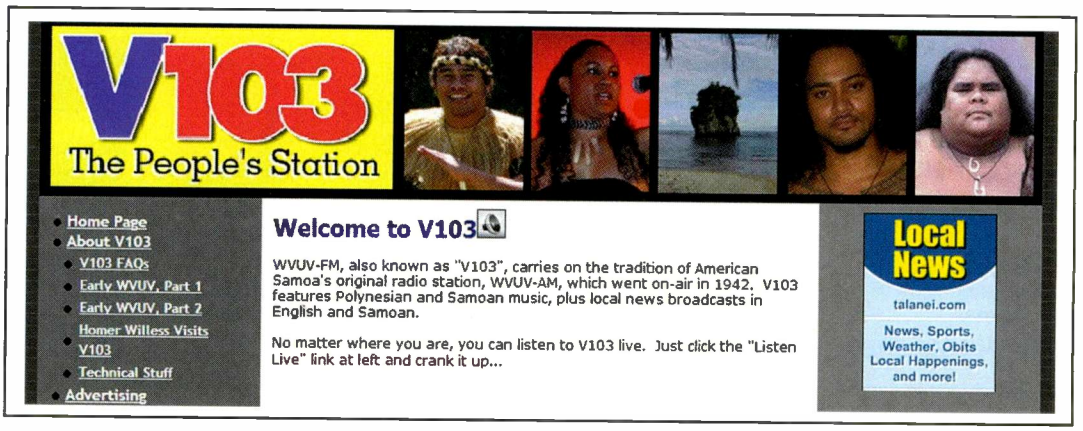


Photo A. As a 20-year-old, Calvin Conkey, HSPCØVUV, was a staff member of WVUV on the island of American Samoa. Today, he lives in Chiang Mai, Thailand, but still holds on to memories from his FM days gone by. *(Internet screen grab <http://www.wvuv.com>)*

Photo B. Take a video tour of the classic Hammarlund HQ-105TR at <http://bit.ly/XZ8qDj>. *It's one of the main radios at the listening post of* Jim Turner, WPC4HTH, at New Market, Virginia. *(Internet screen grab)*

Kevin Hastings, VEPC9XYZ, Quispamsis, New Brunswick, Canada

I am a professional engineer in New Brunswick, Canada, and have been an active SWL since 1967 when my dad and I bought a Hallicrafters S-120.

During my high school and university years, I was active in SWL, AM broadcast band DXing, and Citizens Band.

In May 2001 I received my amateur license, VE9XYZ, along with my son, VE9GTO. Not long after that I began joining the local amateur nets on 2 meters and building directional antennas that enable me to link up with repeaters in our neighboring province Nova Scotia, and Maine.

In 2005 I purchased my first high-frequency transceiver, erected a simple dipole and began exploring HF. Like those early days of SWL and BCB-DX, it is still thrilling to meet others with similar interests elsewhere in the world.

I still have my first copy of *Pop'Comm* and don't let a month go by without digesting the new copy thoroughly.

Jamie Lucas, KPC4OEY, Flint City, Alabama

I have been monitoring the shortwaves for 26 years and really enjoy doing it. I think having a *Pop'Comm Monitoring Station* shortwave listening identification sign is a really nice addition to my station. Thank you!

Christopher Ayres, KPC6CJA, San Diego, California

I am an avid listener to shortwave radio and enjoy DXing foreign broadcasts, amateur radio signals, and numbers stations.

I am currently serving with the U.S. Navy in Japan, but will rotate home to San Diego, California in a few months to finish my last tour before retirement.

Andre Phillips, KPC9AP, Waterloo, Illinois

I recently got back into monitoring and got all new scanners and shortwave sets.

I mainly monitor local trunked and conventional public safety, utility, local-commercial, and military air traffic as well as Atlantic high-frequency air traffic.

Ward Heape, VEPC4WH, Hartney, Manitoba, Canada

I've been hooked on radios since I was knee high and playing with multiband radios. I now have a Perseus SDR (software defined radio) <http://bit.ly/XLFVMc>, on a Wellbrook 1530S+ loop antenna <http://bit.ly/V6L2YM>.

I appreciate having a *Pop'Comm Monitoring Station* identification sign because it is useful in logging into various tools that require having an amateur radio callsign. ***(WATCH and LISTEN:** To a Wellbrook Communications ALA-1530 loop in action <http://bit.ly/WeLZzZ>. – KPC6PC)*

Mark Michel, WPC9OP, Neenah, Wisconsin

My current amateur radio callsign is W9OP. I've been licensed since 1955, but began shortwave listening a few years earlier than that.

These great memories just can't be beat! Thanks for providing this program.

George Poitras, VEPC9OM, Upper Tracy, New Brunswick, Canada

I have done a lot of shortwave listening. My previous monitoring identification sign was VEM1NB1 from years gone by. I've also done a lot of traveling in the last 35 years as I was in the military and have gone to different continents.

My *Pop'Comm Monitoring Station* ID sign parallels my amateur radio callsign: VE9OM.

WPC8JWA, Kettering, Ohio

A Man of Many Wireless Interests . . . and Amateur Radio Callsigns

Jim Andrews, WPC8JWA, is both an avid SWLer and radio amateur from his listening and operating post in Kettering, Ohio. As you'll see, he has been a ham for quite a few years — having used quite a few amateur callsigns. But SWLing is his passion, too, ***Photo A****.*

For SWLers lamenting the poor return rate for confirming receptions via QSL cards, take a listen for Jim. He promises to send a QSL to any SWLer who hears him on the radio.

As K8SSS, he's frequently on 40 and 20 meters on 7.055 and 14.050 MHz respectively, working other Morse stations.

Like WPC8JWA, you too can be featured as a Pop'Comm Monitor of the Month. Please send us a photograph of your listening post and tell us about your monitoring experience. We'd be happy to include you in our pages. Write to Pop'Comm Monitor of the Month at: <PopCommMonitor@gmail.com>.

– Richard Fisher, KPC6PC

By Richard Fisher, KPC6PC

"I thought you'd like to see my first *Pop'Comm Monitoring Station* eQSL as WPC8JWA," writes James Andrews from his listening post in Kettering, Ohio. "It's from KL8DX" in Denali National Park, Alaska, **Photo B**.

No question Jim loves the shortwaves. His listening post includes:

- An Alinco DX-SR8T <http://bit.ly/YTyaTx>
- Hygain AV18VS vertical antenna up 20 feet <http://bit.ly/13M6Gkc>

"If any SWLer hears me on the amateur radio bands, I will send them a QSL card." – K8SSS

Clearly, WPC8JWA's wireless interests are shared with amateur radio. But he kindly throws support behind both the listeners and the listener-transmitters.

"If any SWLer hears me on the amateur radio bands," writes Jim, **Photo C**, whose amateur callsign is K8SSS, "I will send them a QSL card," **Photo D**.

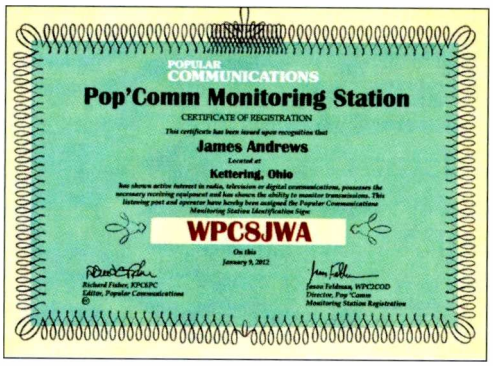

POPULAR COMMUNICATIONS
Pop'Comm Monitoring Station
CERTIFICATE OF REGISTRATION
James Andrews
Kettering, Ohio
WPC8JWA

Photo A. An Alinco DX-SR8T transceiver and Hygain AV18VS vertical up 20 feet are the heart of the listening post for Jim Andrews, WPC8JWA — an avid SWLer and radio amateur. *(Courtesy of WPC8JWA)*

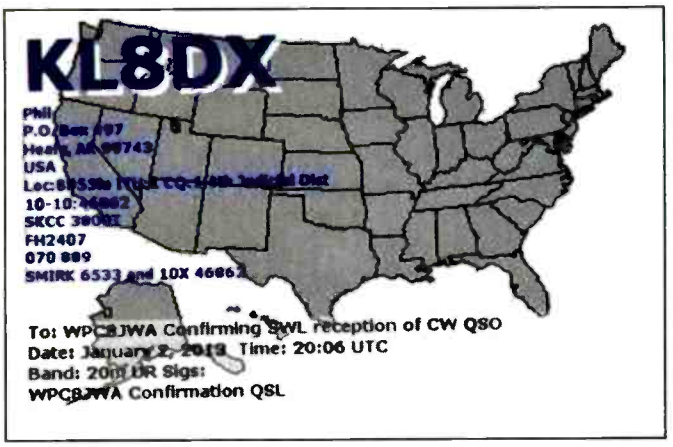


Photo B. WPC8JWA received this eQSL from Phillip Sauvey, KL8DX, who is from Denali National Park in Alaska. *(Courtesy of WPC8JWA)*

Photo C. Wearing his "I'm Probably NOT Listening to You" cap, Jim Andrews does anything but that when he's on the shortwave or amateur bands. *(Courtesy of WPC8JWA)*

Photo D. Here's a look at WPC8JWA's SWLing eQSL card. His amateur callsign is now K8SSS. *(Courtesy of WPC8JWA)*

***(NO CODE? NO WORRIES:** If you don't know Morse code, don't despair. "K8SSS" has a very distinct rhythm to it. You can listen to how it sounds by using the Online Morse Code Generator at <http://bit.ly/XDtRL4>. Study Jim's call-sign's distinct sound a half-dozen times and you may be able to identify it on the air, even though you don't know the code. – KPC6PC)*

"I got my ticket originally in 1967 with the Novice call WN8UYP," Jim writes on his QRZ.com page. "Back then the Novice was good for only a year and non-renewable. I was in high school then, so that took precedence — plus with my family (responsibilities), I didn't have time to renew my license."

In 1969 the Novice license was valid for just two years, "so I got my Novice *again,* and was issued WN8FRQ.

"In 1971, I upgraded to Technician and was issued WB8FRQ, which I held until I moved to Florida in 1974, where I changed to a four area callsign and got WA4JWX.

"I upgraded to General in 1976 and decided to keep that call for a while. Around 1996 I changed to KC4TKD."

In 1997, Jim moved back to Dayton where he decided to get an eight area call-sign and was issued KC8IZN, "which I held for a few years until I got the vanity callsign of W8SSS."

A few years later Jim found that his initials were available, so he requested and received W8JWA.

"Fast forward to now," Jim writes, "and I am now K8SSS. I decided I like

Photo E. For SWLing, the Alinco DX-SR8T has a dual-conversion superheterodyne receiver with a solid two-watts of audio and a receiver incremental tuning (RIT) range of +/- 1.2 kHz. *(Internet screen grab <http://bit.ly/YTyaTx>)*

the SSS because it very easy to send on CW (Morse code), which is where I spend most of my time operating on 40, 30, 20, 15, 12, or 10 meters."

He likes K8SSS, as well, because his XYL (wife), Linda, is KC8OKS, "so it's almost like she's saying it's OK for the Ss!"

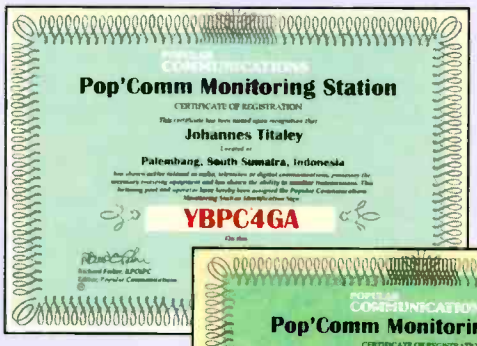
On the ham bands, Jim uses his Alinco DXSR8T, **Photo E**, "a very nice radio that is easy to use and learn. I love it!" he said. "Have worked all over the world with it!"

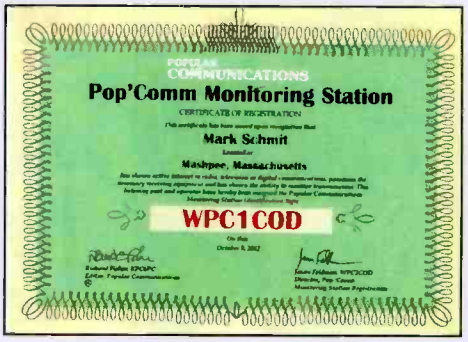
Most of the time you can find Jim on the SKCC (Straight Key Century Club) calling frequencies of either 14.050 or 7.055 MHz. He QSLs by the W8 QSL Bureau, direct to his mailing address or via eQSL, <http://www.QRZ.com/db/K8SSS>.

"I hope you hear me on the bands," Jim says. Then *be sure* to QSL!

New Members: *Pop'Comm Monitoring Station* Program

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





KPC and DX Prefixes

Paul Ferne, **KPC8WO**, Pickering, OH; Calvin Conkey, **HSPCØVUV**, Chiang Mai, Thailand; R.A. Ramakrishnan, **HSPC1ZRP**, Udaipur, Rajasthan, India; Jack Prince, **KPC6JP**, Reedley, CA; Christopher Monger, **VKPC5CM**, Goolwa Beach, Southern Ocean, Australia; William Conner, **KPCØDKD**, West Des Moines, IA; Andre Phillips, **KPC9AP**, Waterloo, IL; Ward Heape, **VEPC4WH**, Hartney, Manitoba, Canada; Johannes Titaley, **YBPC4GA**, Palembang, South Sumatra, Indonesia; Sam Brunetti, **KPC8IKX**, Clarksburg, WV; Christopher Ayres, **KPC6CJA**, San Diego, CA; Chris Dees, **KPC4YGG**, Jasper, IN; George Poitras, **VEPC9OM**, Upper Tracy, New Brunswick, Canada; Luis Gonzalez, **KPPC4BZ**, Tao Baja, Puerto Rico.

WPC Prefixes

Also: Gregory Reule, **WPC4GER**, Thomaston, GA; Edward Guiliani, **WPC7ED**, Bonners Ferry, ID; John Racher, **WPC2JLR**, Cuyahoga Falls, OH; Raymond Nahl, **WPC2CH**, White Plains, NY; Michael Korn, **WPC9KRN**, Combined Locks, WI; William Miller, **WPC2RTC**, Queens, NY; Mark Schmit, **WPC1COD**, Mashpee, MA; Glenn Swiderski, **WPC7GS**, Washington, NC; Gary O'Neill, **WPC4CLN**, Merry Hill, NC; Jack Bauman, **WPC1NQA**, Glendale, MO; Christopher Miller, **WPC9RKD**, Towanda, IL; Scott Risley, **WPCØSR**, Ballwin, MO; John Waldron, **WPC3JBW**, West Chester, PA; Kris Herzog, **WPC9WHO**, Racine, WI; Alan Dixon, **WPC4WB**, Melbourne, FL; Bob Fauble, **WPCØXCT**, Lino Lakes, MN; Keith McGinnis, **WPC1KWM**, Hingham, MA; Vincent Weal, **WPC4JC**, Grant-Valkaria, FL; Terry Martin, **WPC9FC**, Port St. Lucie, FL; Carolyn Lysandrou, **WPC9CL**, Bloomington, IN; Jeremy Neese, **WPC4MDN**, Mobile, AL; Bob Citronberg, **WPC4RHC**, Alpharetta, GA; John Kapinos, **WPC1AM**, Shrewsbury, MA; Robert Holland, **WPC1REH**, Plymouth, MA; Hermino Rios, **WPC2HR**, Elizabeth, NJ; Gregory Hemmings, **WPC4GH**, Glasgow, VA.

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

– Jason Feldman, WPC2COD
Director, PCMS Registration
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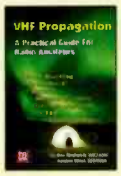

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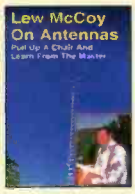

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Understanding the Rainbow That Is Our Sun

By Tomas Hood,
WPC7USA/NW7US

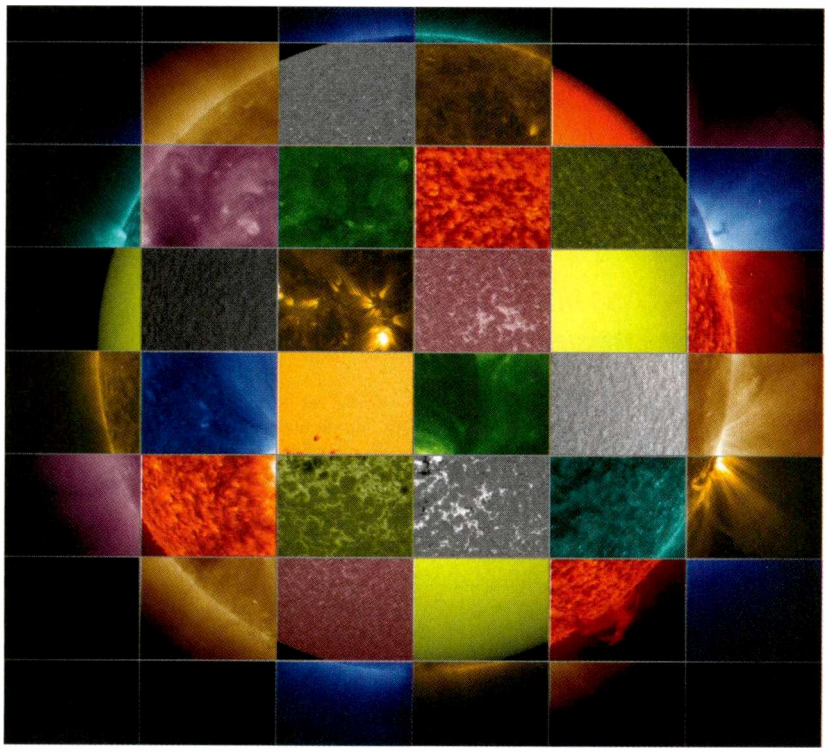
"As optics technology improved, it was discovered that the Sun emits a broad spectrum of wavelengths that fall outside of visible light."

Sunspots, coronal mass ejections, the Earth's geomagnetic field, the ionosphere, and even terrestrial weather all affect how our radio signals get from transmitter to radio receiver. Chalk them up to the effects of the variable Sun.

Taking a look at the Sun is helpful in gauging its activity, and therefore helpful in figuring out what sort of conditions we might experience while trying to get our radio signal from our station, through the atmosphere via the ionosphere, to a distant station.

Frequently, this column includes images of the Sun in a single color. However, when viewing the Sun, we see a bright, featureless disk that is yellow. (***CAUTION:*** *You should never directly look at the Sun with the naked eye. Instead, view the Sun indirectly by way of an electronic viewer on a digital camera, for instance. – WPC7USA).*

Sometimes the Sun appears orange if it is low on the horizon. This is because when sunlight travels through more of the Earth's atmosphere, the blue wavelengths are "filtered away" while other wavelengths make it through before getting to, for example, a camera's lens.



The Sun emits light in all colors, **Figures 1** through **5**. When all these visible colors are summed together, we call this "white light." Since yellow is the brightest wavelength from the Sun, that is the color we see in a digital camera's viewer. The images included often with this column, however, come in various colors like green, blue, gold, red, orange, or even in gray-scale. Are these colored images simply a filtered look at the Sun?

A History of Observations

Ever since Galileo Galilei's successful improvements on the crude, vague telescope design which Hans Lippershey tried to patent in the Netherlands in 1608, scientists have developed specialized instruments by which the Sun may be observed. Observations of the Sun by way of these telescopes were made by projecting the Sun's white light onto a "screen" so that drawings could be made of the sunspots that were now readily seen.

Over the course of time, scientists discovered that they could interfere with the Sun's light with prisms and other methods, to split apart the white light into specific visible colors. As optics technology improved, it was discovered that the Sun emits a broad spectrum of wavelengths that fall outside of visible light.

With the space age came a way to deploy many of these special instruments out into space, beyond the natural filtering of the atmosphere. In 2010, NASA launched a United Launch Alliance Atlas V-401 rocket with a spacecraft tasked with observing the Sun and solar dynamics (space weather) with some of the most advanced instruments yet. This spacecraft is called the Solar Dynamics Observatory (SDO).

Figure 1. This collage of solar images from NASA's Solar Dynamics Observatory (SDO) shows observations of the Sun in different wavelengths. Each helps highlight different aspects of the Sun's surface and atmosphere. The collage includes images from other SDO instruments that display magnetic and Doppler information. (See column text.) Not only are they spectacular views of the Sun, but the information aids forecasters and scientists — the results of which are useful in a practical way to radio communicators. *(Courtesy of NASA/SDO/Goddard Space Flight Center)*

SDO is the first satellite under the Living with a Star (LWS) program at NASA, and is the most advanced spacecraft ever designed to study the Sun. During its mission, it is examining the Sun's magnetic field and providing a better understanding of the role the Sun plays in Earth's atmospheric chemistry and climate. SDO provides images with clarity 10 times better than high-definition television. It transfers all of this comprehensive science data faster than any other solar observing spacecraft. The special instruments aboard SDO capture the images often included with this column.

SDO sends approximately 1.5 terabytes of data back to Earth each day, which is equivalent to a daily download of half a million songs onto an MP3 player. The observatory carries three state-of-the-art instruments for conducting solar research.

The Helioseismic and Magnetic Imager (HMI) maps solar magnetic fields and looks beneath the Sun's opaque surface. The experiment deciphers the physics of the Sun's activity, taking pictures in several very narrow bands of visible light. Scientists will be able to make ultrasound images of the Sun and study active regions in a way similar to watching sand shift in a desert dune.

The Atmospheric Imaging Assembly (AIA) is a group of four telescopes designed to photograph the sun's surface and atmosphere. The instrument covers 10 different wavelength bands, or colors, selected to reveal key aspects of solar activity. These types of images show details never seen before by scientists — for example, watch a movie utilizing the high-definition imagery captured by SDO's AIA instruments of a plasma ring formed on the Sun by massive magnetic structures at <http://g.nw7us.us/15bzQvV>.

The Extreme Ultraviolet Variability Experiment (EVE) measures fluctuations in the Sun's radiant emissions. These emissions have a direct and powerful effect on Earth's upper atmosphere — heating it, puffing it up, and breaking apart atoms and molecules — which is of interest to radio communicators, since this directly affects the ionosphere.

"These amazing images, which show our dynamic Sun in a new level of detail, are only the beginning of SDO's contribution to our understanding of the Sun," said SDO Project Scientist Dean Pesnell of NASA's Goddard Space Flight Center.

Recently, NASA released an incredible movie that shows a massive solar prominence erupting on March 30, 2010,

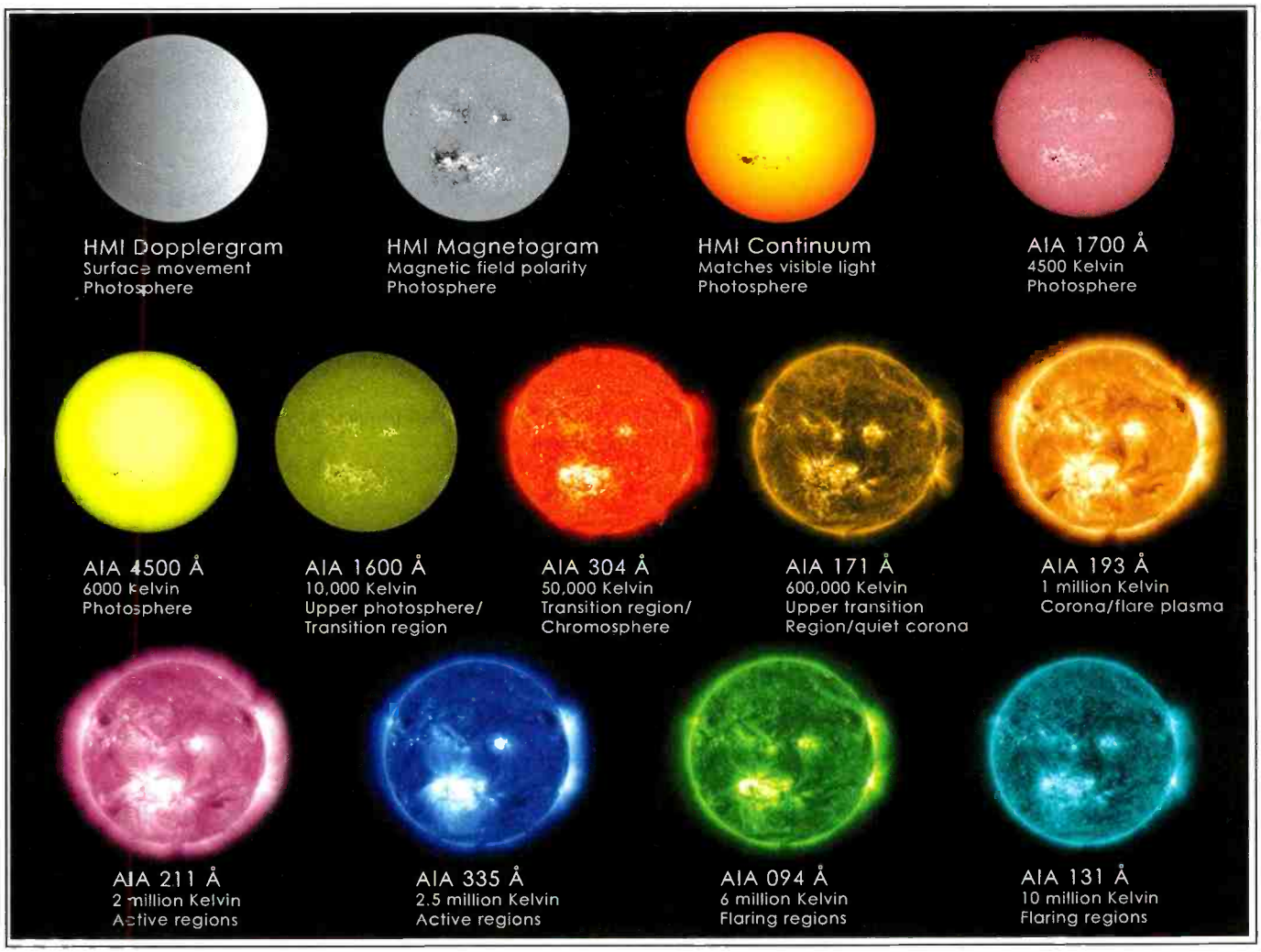


Figure 2. Each of the wavelengths observed by NASA's SDO was chosen to emphasize a specific aspect of the Sun's surface or atmosphere. This image shows imagery both from the Advanced Imaging Assembly (AIA), which helps scientists observe how solar material moves around the Sun's atmosphere, and the Helioseismic and Magnetic Imager (HMI), which focuses on the movement and magnetic properties of the Sun's surface. *(Courtesy of NASA/SDO/Goddard Space Flight Center)*

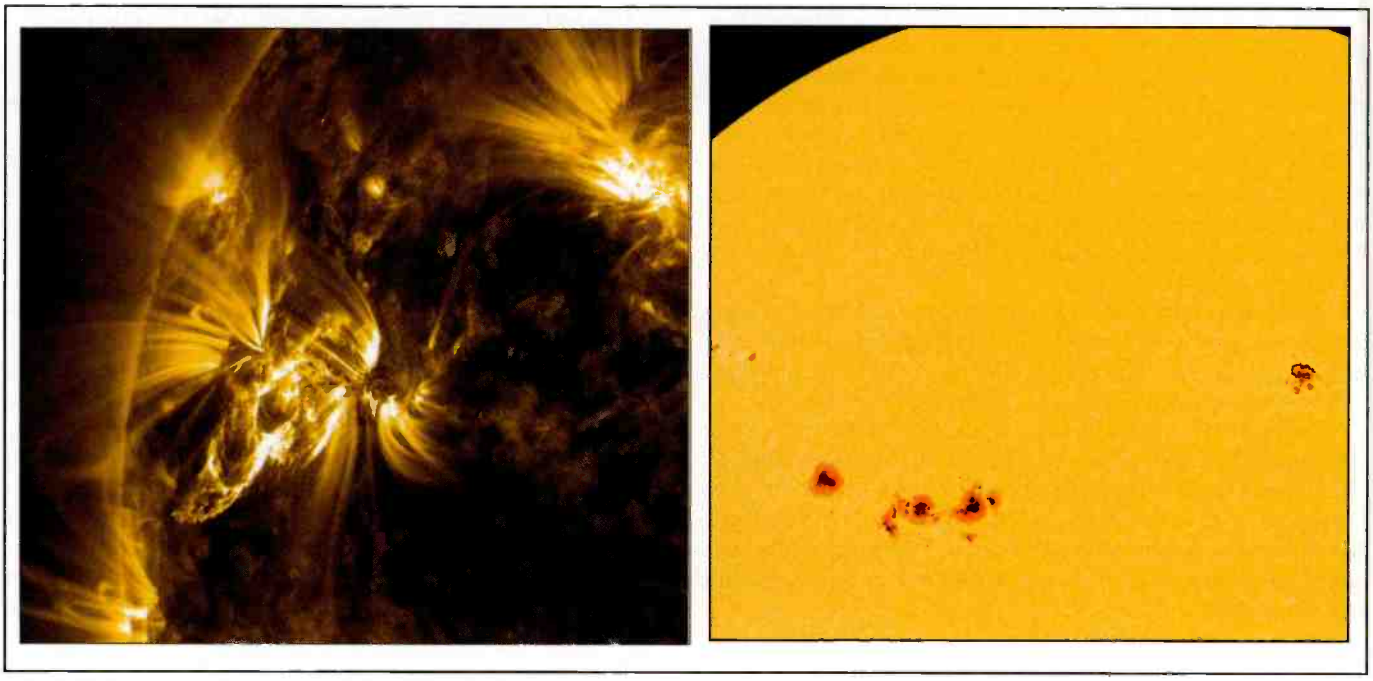


Figure 3. A large and powerful sunspot group (AR1654) has a dynamic and twisted magnetic field that solar scientists followed for at least six days (January 9-15, 2013). The interactions of a pair of regions (actually two sunspot areas when viewed in filtered light) produced numerous smaller flares, while the magnetic field lines looped and snapped and flashed almost continuously. The detailed action was captured in extreme ultraviolet light (EUV). The second still — and movie <http://g.nw7us.us/SMLI9Y> shows the sunspots in filtered light from January 10-15, 2013. *(Courtesy of NASA/SDO)*

<http://g.nw7us.us/15bABVA>, **Photo A**. "We've seen solar prominences before — but never quite like this," says Alan Title of Lockheed Martin, principal investigator of the AIA. "Some of my colleagues say they've learned new things about prominences just by watching this one movie."

The successful launch and deployment of SDO is great news for radio hobbyists, on many levels! "SDO is our 'Hubble for the Sun'," said Program Scientist Lika Guhathakurta of NASA headquarters. "It promises to transform solar physics in the same way the Hubble Space Telescope has transformed astronomy and cosmology."

"No solar telescope has ever come close to the combined spatial, temporal, and spectral resolution of SDO," adds Title. "This is possible because of the combination of 4096- x 4096-pixel CCDs with huge dynamic range and a geosynchronous orbit which allows SDO to observe the sun and communicate with the ground around the clock."

Because specific wavelengths convey information about different components of the Sun's surface and atmosphere, scientists use them to reveal the "secrets" of our constantly changing and varying star.

Yellow-green light of 5,500 Ångströms, for example, generally emanates from material of about 10,000 degrees Fahrenheit (F) — about 5,700 degrees Celcius (C) — which represents the surface of the Sun. Extreme ultraviolet (EUV) light of 94 Ångströms, on the other hand, comes from atoms that are about 11 million degrees F (6,300,000 degrees C) and is a good wavelength for looking at solar flares, which can reach such high temperatures. By examining pictures of the Sun in a variety of wavelengths through the instruments aboard SDO, scientists can track how particles and heat move through the Sun's atmosphere, unlocking the processes that are at play in our local star.

In the same way that heat produces light in an incandescent light bulb, visible light is emitted from the hot gases because of the extreme heat produced at the Sun. But, more than visible light is emitted from the Sun. Each kind of atom that exists in the Sun's atmosphere, when reaching a specific temperature, emits extreme ultraviolet light and x-rays at a wavelength correlated to a specific range of temperature. Not only does the Sun contain many different atoms — helium, hydrogen, iron, for example — but also different kinds of each atom with different electrical charges, known as ions. Each ion can emit light at specific wavelengths when it reaches a particular temperature. Scientists have cataloged which wavelengths are produced by each kind of atom since the early 1900s.

Solar telescopes such as those aboard SDO make use of this wavelength information in two ways. For one, certain instruments, known as spectrometers, observe many wavelengths of light simultaneously and can measure how much of each wavelength of light is present. This helps create a composite understanding of what temperature ranges are exhibited in the material around the Sun. Spectrographs don't look like a typical picture, but instead are graphs that categorize the amount of each kind of light.

On the other hand, instruments that produce conventional images of the Sun (such as those published with this column) focus exclusively on light around one particular wavelength, sometimes not one that is visible to the naked eye. SDO scientists, for example, chose 10 different wavelengths to observe for its AIA instrument. Each wavelength is largely based on a single, or perhaps two types of ions. Slightly longer and shorter wavelengths produced by other ions are also invariably part of the picture, but the main detail revealed by a specific wavelength is specific to one or two types of ions. Each wavelength was chosen to highlight a particular part of the Sun's atmosphere.

Optimum Working Frequencies (MHz) - For May 2013 - Flux = 136, 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	22	22	21	19	18	16	15	14	13	12	11	12	14	16	17	18	19	20	21	21	22	22	22
NORTHERN SOUTH AMERICA	29	28	28	26	23	21	20	18	17	16	15	14	14	17	19	22	23	25	26	27	28	28	28	29
CENTRAL SOUTH AMERICA	28	25	23	21	19	18	17	16	15	14	14	16	16	18	21	23	25	26	27	28	29	30	30	29
SOUTHERN SOUTH AMERICA	24	18	16	16	15	14	13	13	13	12	12	12	12	15	18	20	22	24	26	27	28	28	28	26
WESTERN EUROPE	12	11	10	10	9	11	13	12	11	11	10	14	16	17	18	19	20	20	20	19	19	18	17	15
EASTERN EUROPE	9	9	9	9	13	15	13	11	11	10	10	10	14	16	18	19	19	19	18	17	16	14	10	10
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CENTRAL NORTH AMERICA	14	14	14	14	13	13	12	11	10	9	9	8	8	9	11	11	12	13	13	14	14	14	14	14
WESTERN NORTH AMERICA	8	8	7	7	7	7	7	6	6	5	5	4	4	4	5	6	6	6	7	7	7	7	7	8
SOUTHERN NORTH AMERICA	23	23	23	23	22	21	19	18	16	15	14	13	12	13	16	17	19	20	21	22	22	23	23	23
HAWAII	19	19	19	20	19	19	19	18	17	15	14	13	12	11	10	10	12	13	15	16	17	18	18	19
NORTHERN AFRICA	16	15	13	12	12	12	14	13	12	11	12	15	17	18	19	19	20	20	21	21	20	20	19	17
CENTRAL AFRICA	17	16	15	14	13	14	13	12	11	11	10	14	16	18	19	19	20	20	21	21	21	21	21	19
SOUTH AFRICA	16	15	14	14	13	13	15	17	16	15	14	16	18	20	21	22	23	24	24	23	21	19	18	17
MIDDLE EAST	13	12	12	13	15	15	12	12	11	10	10	12	15	17	18	19	20	20	20	19	18	17	16	14
JAPAN	20	20	21	20	20	20	19	18	18	16	15	14	13	13	14	14	13	12	12	14	16	17	18	19
CENTRAL ASIA	20	20	20	20	20	19	19	18	17	16	15	14	13	13	15	16	17	16	15	14	14	15	17	19
INDIA	18	18	18	18	18	17	15	13	11	10	10	9	9	10	9	9	9	8	8	11	14	15	16	17
THAILAND	17	19	20	20	20	19	19	18	17	15	14	12	12	12	15	16	18	17	16	15	14	13	13	15
AUSTRALIA	29	30	30	30	30	30	29	28	26	24	22	20	18	17	16	15	15	14	13	13	16	22	25	27
CHINA	19	20	20	20	20	19	18	17	16	14	13	12	11	12	15	16	15	13	12	12	14	16	17	18
SOUTH PACIFIC	29	30	30	29	28	26	24	18	16	15	15	14	13	13	13	12	12	12	12	21	25	27	28	29

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

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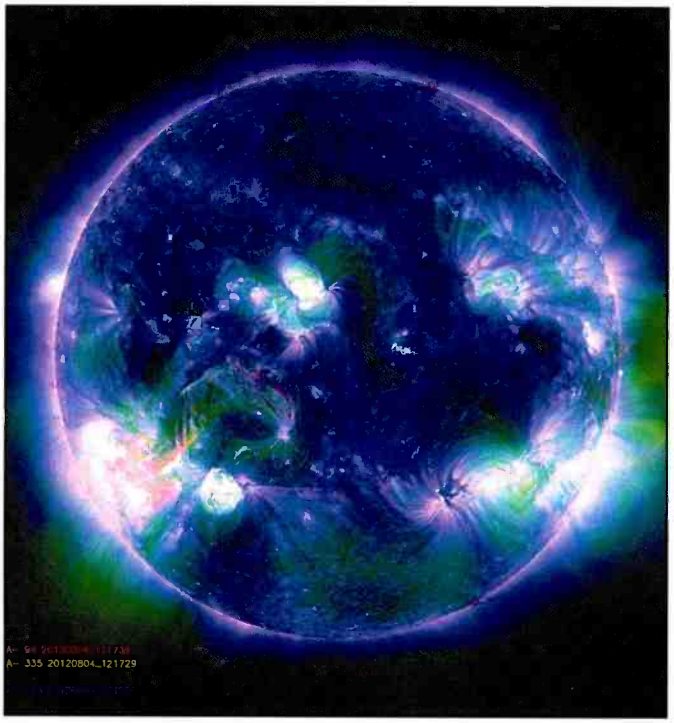

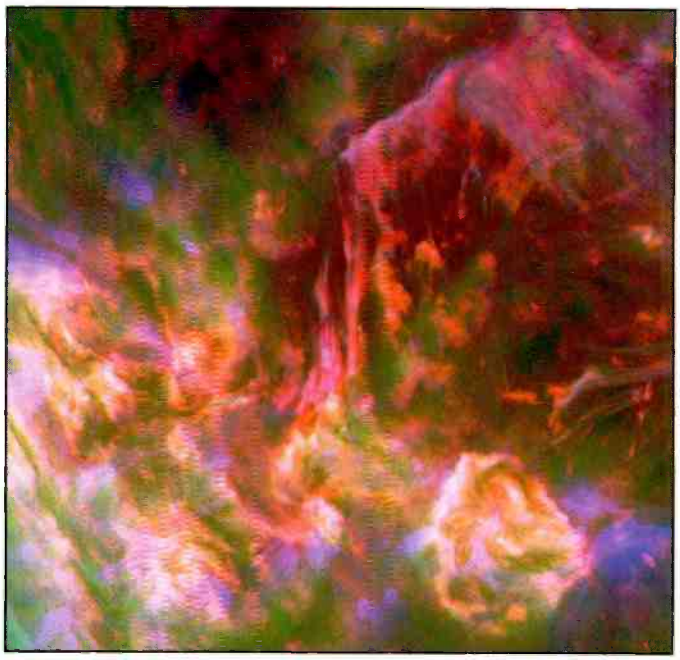

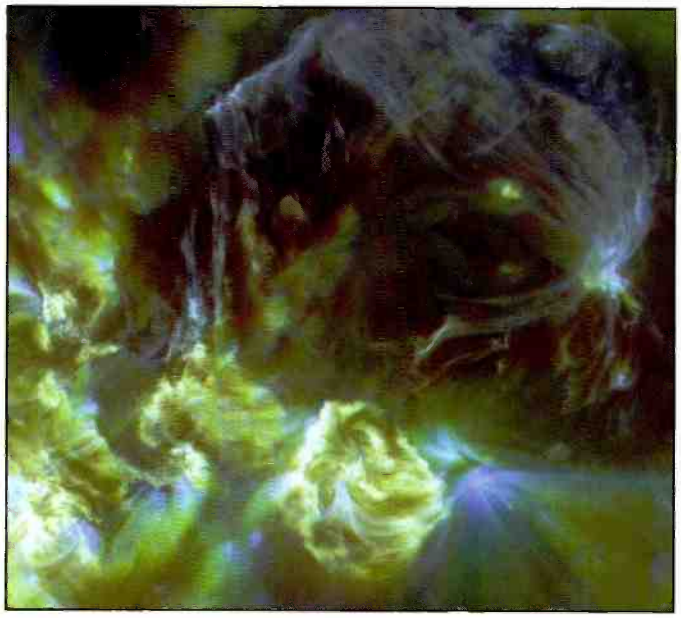

Figure 4. Here's a stunning display of giant magnetic field lines arching and twisting above and between active sunspot regions (these active regions are made up of several to many individual sunspots). In the full-disc image, we are seeing the magnetic structure arching from about midpoint out to the lower left where a very active sunspot region originated many x-ray flares. This full-disc view is a combined image composed of three wavelengths, 94, 193, and 335 Ångströms. In the first of the two close-up views, we are seeing these complex and massive magnetic structures capturing the Sun's plasma, in the combined wavelengths of 171, 211, and 304 Ångströms. The second close-up is at the combined wavelengths of 171, 193, and 211 Ångströms. Each view reveals different perspectives of the same magnetic activity. More and more, a steady increase in solar activity results in better radio propagation on the high frequencies, but expect conditions to be periodically degraded due to the increase in solar flares and geomagnetic storms, all increasing with the rise in solar cycle activity. The DXer must take the good with the bad! *(Courtesy of NASA/SDO/AIA)*

From the sun's surface on out, the wavelengths SDO observes, measured in Ångströms, are:

- 4500: At a temperature of about 6,000 Kelvin, shows the Sun's surface or photosphere. This is close to the white light images such as the HMI Intensitygrams that are sometimes featured in this column.
- 1700: 4,500 Kelvin; shows the surface of the Sun, as well as a layer of the Sun's atmosphere called the chromosphere, which lies just above the photosphere and is where the temperature begins rising as altitude above the photosphere increases.
- 1600: 10,000 Kelvin; shows a mixture between the upper photosphere and what's called the transition region, a region between the chromosphere and the upper-most layer of the Sun's atmosphere called the corona. The transition region is where the Sun's temperature rapidly rises.
- 304: 50,000 Kelvin; this light is emitted from the chromosphere and transition region.
- 171: 600,000 Kelvin; this wavelength shows the Sun's atmosphere, or corona, when it's quiet. It also shows giant magnetic arcs known as coronal loops. Images from this wavelength are often included with this column, as we are interested in the magnetic structures at play on the Sun.
- 193: 1 million Kelvin; shows a slightly hotter region of the corona, and also the much hotter material of a solar flare. This wavelength also reveals coronal holes, when present.
- 211: 2 million Kelvin; this wavelength shows hotter, magnetically active regions in the Sun's corona.
- 335: 2.5 million Kelvin; this wavelength also shows hotter, magnetically active regions in the corona.
- 94: 6 million Kelvin; this highlights regions of the corona during a solar flare.
- 131: 10 million Kelvin; the hottest material in a flare.

At each wavelength, unique processes, and features of the Sun's activity revealed. To help scientists categorize and

observe specific events and the detail occurring, they artificially color the images of the particular wavelength. They have standardized the colors so that anyone can know which wavelength is being viewed, just by the color used.

Armed with such rich views of the Sun, as well as the wealth of new space weather data, the radio communicator is equipped to better plan communications, and to understand current conditions.

Using tools like PropLab Pro <http://hfradio.org/swp_proplab/>, ACE-HF Pro <http://hfradio.org/ace-hf/>, and using sites such as the one provided by this columnist <http://SunSpotWatch.com>, communicators may take advantage of favorable space weather, and work around space weather that degrades ionospheric propagation.

This column will continue to explore the Sun, space weather, and the science of radio signal propagation to help you understand how to leverage this information in your radio communications activities.

High-Frequency Propagation

On the higher HF frequencies — 16 through 11 meters — fairly good daytime openings should be possible on north/south paths, but in shorter time windows. As we move closer to summer, daytime DX signals on 16 through 11 meters will become weaker and openings more sparse than during the fall and winter seasons. As the days grow longer in the Northern Hemisphere, the Sun heats and thins the ionosphere. With less ionization, the maximum frequency refracted is lower than during colder months. By June, this thinning causes a noticeable reduction in the Maximum Usable Frequency (MUF) over a given radio transmission path. Sixteen meters will be the best bet out of the higher bands, not only because of propagation, but also because more International Broadcasters will still use this band around the clock.

Most DX signals, and the strongest signals, will be found on lower bands. Look for peaks in signals around the hours of sunrise, and again just before sunset, and into the late evening. Daytime paths are best when they terminate in areas where it is night. This enhances propagation to remote parts of the world and lengthens the DX window. Twenty-five and 22 meters will have more stable signals than those on 19 meters, especially on north/south paths, again around the hours of sunrise and sunset. Thirty-one meters again becomes one of the strongest and most reliable bands. Look for Europe and Africa early in the morning through late morning, then north/south openings during the day if the solar activity is low (otherwise ionospheric D-region absorption will wipe out the band). As sunset approaches, look for South Pacific, then Asia as the sun sets.

During the night, 41 through 60 meters should provide good openings from Europe, Africa, and the east. Some DX should be possible on 75 through 120 meters, but signals are expected to be mainly weak and covered by seasonal noise. Static levels also increase noticeably during May, and signals may sound weaker on DX openings during the daylight hours.

VHF Conditions

Possible Sporadic-E (E_s), transequatorial propagation (TEP), and an occasional auroral event will keep the VHF enthusiast happy. Solar activity will not likely be high enough for F-region DX

Figure 5. This "white-light" image of the Sun was captured by SDO HMI. This image is known as an "intensitygram" and is used to observe sunspots. This image reveals one of the largest active sunspot region yet in Solar Cycle 24. On November 3, 2011, NOAA Active Region 1339 measured a massive 1,400 solar units in size! As the region continued to rotate across the solar disc, it helped keep the high frequencies alive with DX, as the 10.7-cm Radio Flux remained in the mid- to upper 100s, and the background hard x-ray flux remained in the high B- to low C-class. Sunspot regions with large spots are not unusual, though most sunspot regions tend to be smaller, with many of them spread out around the solar disk. *(Courtesy of NASA/SDO/Helioseismic and Magnetic Imager [HMI])*

openings, though we might be surprised. The best time to look for these openings is during the afternoon hours on those days with high flux readings.

Sporadic-E ionization is expected to increase considerably during May, and fairly frequent VHF short-skip openings should be possible. These are likely to occur over distances of approximately 1,000 to 1,400 miles. Although sporadic-E openings can take place at just about any time, the best time to check is between 10 a.m. and 2 p.m. and again between 6 and 10 p.m. local daylight time.

A seasonal decline in transequatorial propagation is expected during May. An occasional opening may still be possible on VHF. The best time to check for VHF TE openings is between 9 and 11 p.m. local daylight time. These TE openings will be north-south paths that cross the geomagnetic equator at an approximate right angle.

Auroral activity is generally lower than March and April, due to the change in the orientation and position of the Earth and magnetosphere in relation to the solar wind. Watch for K_p values above six, which occur on days of disturbed HF conditions.

One major meteor shower, the Eta Aquarids, will occur in May. They peak in the morning of May 6, but start around May 4, 2013. This shower has a peak rate of up to 20 per hour, but typically remains at 10 per hour. Most meteor showers are at their best after midnight. After midnight, you're on the leading edge of the Earth and you're meeting the meteors head-on. Before midnight, you're on the trailing edge of the Earth and the meteors have to catch up to you.

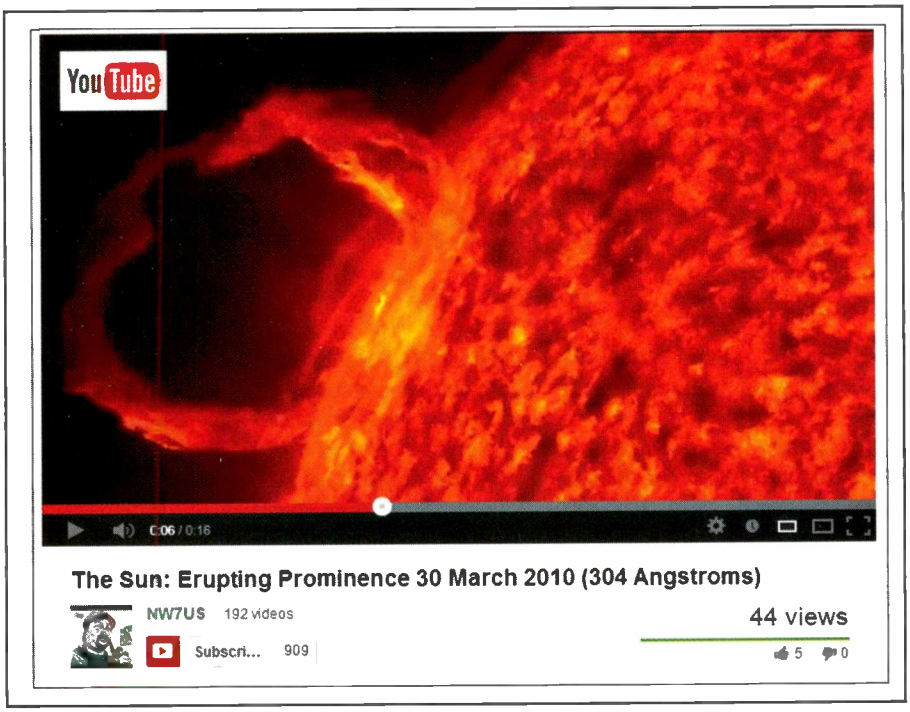

Photo A. "We've seen solar prominences before — but never quite like this," said Alan Title of Lockheed Martin, on the Sun's massive solar prominence March 30, 2010. Watch it at <http://g.nw7us.us/15bABVA>. *(Internet screen grab)*

As a result, not only are more meteors seen in the pre-dawn hours, but their impact speeds encountering the Earth's atmosphere are much higher and the meteors are generally faster and brighter. This causes greater ionization, which is what you use to refract a radio signal. Look for FM broadcasts from areas outside of your typical local listening range during these events. If you are an amateur radio operator, look for 6- and 2-meter openings off of the ionized meteor trails.

Be sure to check out *CQ VHF* magazine for details regarding VHF propagation through the spring and summer <http://www.cq-vhf.com>.

Current Solar Cycle 24 Progress

The Royal Observatory of Belgium, the world's official keeper of sunspot records, reports a monthly mean sunspot number of 62.9 for January 2013. That's up from 40.8 for December 2012, and also higher than November's 61.4. The low for the month was 24 on January 21. The high of 107 occurred on January 11.

The mean value for January results in a 12-month running smoothed sunspot number of 57.7 centered on July 2013, down from 58.9 centered on June. Following the curve of the 13-month running smoothed values, a smoothed sunspot level of 82 is expected for May 2013, plus or minus 12 points.

Canada's Dominion Radio Astrophysical Observatory, at Penticton, British Columbia, reports a 10.7-cm observed monthly mean solar flux of 127.1 for January 2013, nicely up from 108.4 for December, and November's 120.9. The 12-month smoothed 10.7-cm flux centered on July 2012 is 119.5. A smoothed 10.7-cm solar flux of about 136 is predicted for May 2013.

The geomagnetic activity as measured by the planetary-A index (A_p) for January 2013 is 4, down one point from December's 3. The 12-month smoothed A_p index centered on July 2012 is 8.3. Geomagnetic activity should be much the same as we have had during April. Refer to the Last Minute Forecast published in *CQ* magazine <http://www.cq-amateur-radio.com> 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* magazine fanpage 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 Voice of Russia Gets Harder to Find from North America

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

"I will miss the Voice of Russia, but not quite as much as I do the old Radio Moscow, never mind its high 'hogwash' quotient."

If there had earlier been any doubt, there is no longer: There is an unkind wind blowing through the shortwave bands!

Just after I finished last month's column came the unsettling news that the **Voice of Russia** intends to all but end its transmissions to North America, leaving only a single frequency in use for that service.

That gives some real meaning to that frequently overused word, *shocking*. I can remember when the North American Service of Radio Moscow occupied a dozen or two frequencies nightly. I can practically hear the announcer reeling off the long list of frequencies in the "49, 41, 31, 25, and 19 meter bands." I dutifully sent reports every few weeks hoping that Mrs. (Eugenia) Stepanova would provide transmitter sites for me. I managed to get some 60 of them confirmed. I guess I will miss the Voice of Russia, but not quite as much as I do the old **Radio Moscow**, never mind its high *hogwash* quotient.

Still, There's Plenty of SWL DX to Chase

Here are some breaking shortwave newslines: **The Voice of Vietnam** now seems to be using Moosbrunn (Austria) as a relay site, at 5955 in the late morning/early evening hours . . . It appears as though Congolese authorities are out to get **Radio Okapi** and perhaps shut it down, although it is still being reported around 0400 on 11690 via South Africa . . . **Galei Zahal** (Israel) now seems to have occupied 6885 and 15850 on a permanent basis, both frequencies using USB . . . **Radio Sultanate of Oman** has discontinued the use of 15140 and moved to 15560 at 1400-1600 . . . The supposed new transmitter site at **Calabozo**, **Venezuela**, is still in the building stages. A lot of land has been cleared and some antenna masts have been erected, but there is still no transmitter building, so it seems there's still a long wait involved before we hear **Radio Nacional** directly instead of relayed by Cuban facilities . . . **Radio Zimbabwe** has appeared on 6045 in the 0300 to past 0400 hour and an improved signal from its former 4828 frequency.

Let's Hear from You

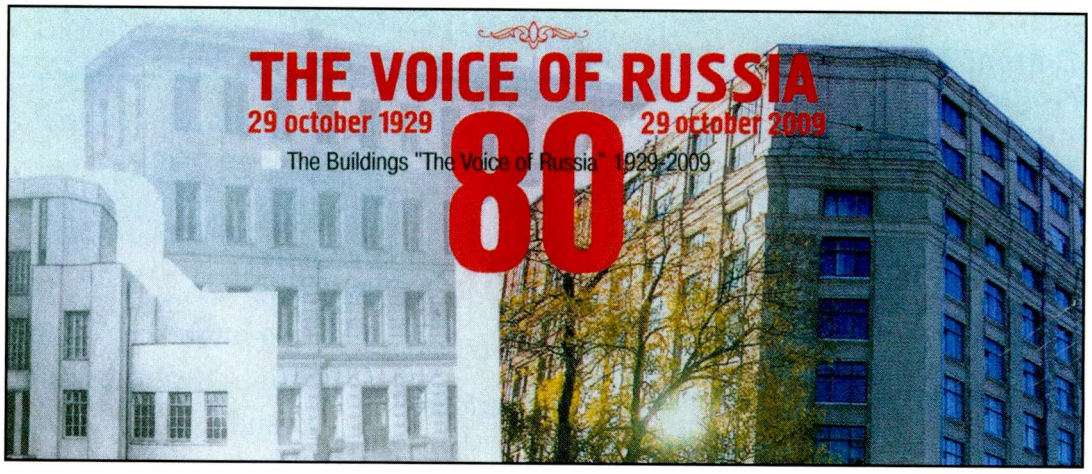
Remember, your shortwave broadcast station logs are always welcome. But *please* be sure to double or triple space between the items, list each logging according to home country and include your last name and state abbreviation after each.

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!

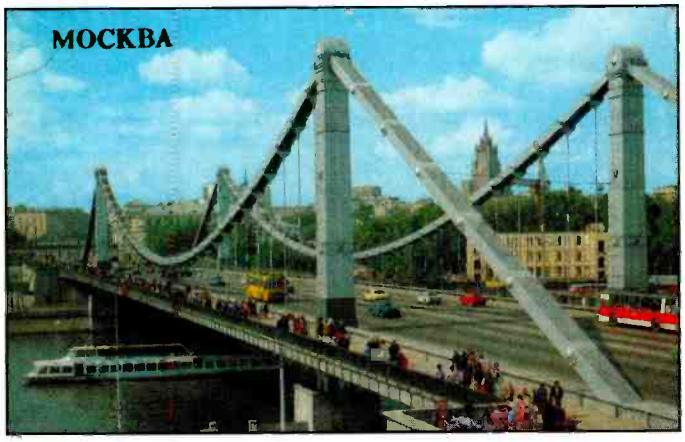
Need I place a "wanted" poster outside your post office?

April's SWL Loggings

Here are this month's logs. All times are in UTC. Double capital letters are language abbre-



I wonder if the Voice of Russia will ever see its 90th anniversary, considering that "cutback fever" has struck.



Moscow, from the other end of the Krymsky Bridge over the Moscow River.

viations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is mentioned then English (EE) is assumed.

ALASKA—KNLS, (t) Anchor Point, 9680 at 1354 with M and excited talk in Mandarin, brief piano and W in apparent telephone interview. Time pips at 1359 to off per sked at 1300. (Coady, ON)

ALGERIA—Radio Algerienne, via France, 5865 with Koran at 0511. (Parker, PA)

ANGOLA—Radio Nacional, 4949.7 in PP at 0322 with W, then M vocals at 0326. (Coady, ON) 0520. (Brossell, WI)

ARGENTINA—Radio Argentina al Exterior, 11710.8 at 0205 with an EE newscast. (Rasmussen, MD) 0208 playing songs from "Evita," then M with ID and woman mentioning "The English Connection." (Coady, ON)

ASCENSION ISLAND—BBC-South Atlantic Relay, 0535 on animal welfare in China and 17830 with sports interviews at 1727. (Parker, PA) 6005 at 0538 ending program block, f/by time pips at 0600, ID and news. (D'Angelo, PA)

AUSTRALIA—Radio Australia, 5940 with ID at 1310 and 9475 at 1020 with lively island music and man referring to a broadcast in Tok Pisin, and 6020-Brandon at 1015 with Pacific Island music. (Barton, AZ) 11945 on Lance Armstrong at 1410 and 21740 with news at 2300. (Maxant, WV)

ABC Northern Territory Service: VL8T, Tennant Creek, 2325 at 1225 with M hosting pgm of W blues vocals, VL8K, Katherine, 2485 poor with audio at 1227. (Parker, PA) 4835, Alice Springs, at 1304 with world news. (Brossell, WI)

AUSTRIA—Adventist World Radio-Moosbrunn, 6045 at 0452-0458* with M and W in FF talk and some light instl music prior to closedown ID and anmts. (D'Angelo, PA) 15250 in Urdu at 1625 with talks. (Parker, PA)

Trans World Radio, 7400 with a preacher at 0820. (Maxant, WV)

BANGLADESH—Bangladesh Betar, 4750 at 1305 with Koran recitations and M talk, f/by some kind of discussion, then Bangla songs. (Sellers, BC)

BOLIVIA—Radio Mosoj Chaski, Cochabamba, 3310 at 0850. Not heard at 0830 so sign on must have sometime after that, M/W alternating ancrs in QQ. (Sellers, BC) In early with W in indigenous language at 0930. (Perry, IL)

Radio Yura, Yura, 4716.7 poor to fair at 1017 with folkloric music and anmts in Aymara. (Perry, IL)

Radio Pio XII, Llallagua, 5952.4 at 0223 just ending with their shutdown music, ("Col. Bogy March"), f/by M and W with closedown anmts. Carrier was cut by 0233. (Perry, IL)

Radio Panamericana, La Paz, 6105 nearly every morning lately at 1040 with ID f/by very funky CP folk tune, shrill quenas, and charangos and many time checks. They seem to sign on and play filler music to about 1050 when they formerly begin. (Perry, IL)

Radio Santa Cruz, 6135 in SS at 0858 on suddenly in mid-song, then electronic flute-like music and repeated ID. (Sellers, BC)

BOTSWANA—VOA Relay-Mopeng Hill, 4930 at 0318 on food riots and making beef jerky. (Parker, PA) 0350 with news headline summary. (Brossell WI) 0354 with financial crisis news. (Parker, PA) 9400 in (l) Kinyarwanda with W jazz vocals and VOA ID at 0429. (Coady, ON)

BRAZIL—(all in PP – gld)

Radio Cancao Nova, Cachoeira Paulista, 4825 at 0248-0326 with W hosting vocals, ID at 0300 with ID. (D'Angelo, PA) 2254 with songs. (Brossell, WI)

Radiodifusora Roraima, Boa Vista, 4877 with Brazil pops and ballads at 0411 and M with ID and promos. (Coady, ON)

Radio Clube do Para, Belem, 4885 with M and phone callers at 0401 using plenty of reverb. (Parker, PA) 0414 with Brazil pops and ballads, M with excited anmts. (Coady, ON)

Radiodifusora Macapa, 4915 with slow U.S. pops heard at 0356. (Parker, PA)

Radio Alvorada, Parintins, 4965 doing better of late around 1000 and later. (Perry, IL)

Radio Itatiaia, Belo Horizonte, 5970 at 0107 with M and string of excited ads and promos. (Coady, ON)

Radio Bandeirantes, Sao Paulo, 9645 at 2232 with series of IDs and promos, then a M ballad. (Coady, ON) 11925 at 0437 with talks and rapid QSB. (Parker, PA)

Radio Voz Missionaria, Camboriu, at 0215 with a religious talk and a listener phone call. (Coady, ON)

Radio 9 de Julho, Sao Paulo, 9819.4 with M vocal and a Christian hymn at 2242. (Coady, ON)

Super Radio Deus e Amor, Curitiba, 11765 at 2136-0300+ with M conversation, jingle ID, several anmts and a powerful preacher beginning at 2200, f/by impassioned preacher at 2230. (D'Angelo, PA) 2251 with talks. (Brossell, WI) 0251 with some kind of live religious service. (Coady, ON) 0446 with a preacher. (Parker, PA)

Radio Brazil Central, Goiania, 11815 with talks at 2303. (Brossell, WI)

Radio Nacional Amazonia, 11780 with a great program of Brazil pops, canned IDs and long chatter. Great signal, though 6180 was only fair. (D'Angelo, PA) 0443 with extended talk with M on a telephone. (Parker, PA)

CANADA—CKZU, Vancouver, 6160 at 1244 with an overnight pgm of Christmas music and ID. Weak but with a het from CKZN. (Coady, ON)

Bible Voice, 9715 via Wertachtal at 1950 on the second coming of Christ. (Parker, PA)

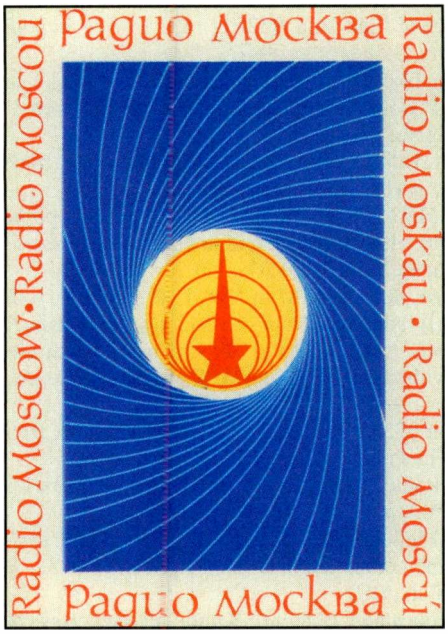
CHU, Ottawa, 3330 at 0410 and 7850 at 0825 with EE/FF time anmts. (Maxant, WV)

CHINA—China Radio International, 7255 with M in RR over music in the background and 9600 with M/W discussing life in China at 1645. (Barton, AZ) 7215-Jinhua at 1317 in (l) JJ, 7325-Jinhua at 1141 in (l) JJ, 7430-Jinhua in (l) Mandarin at 2247, and 9725-Hohot

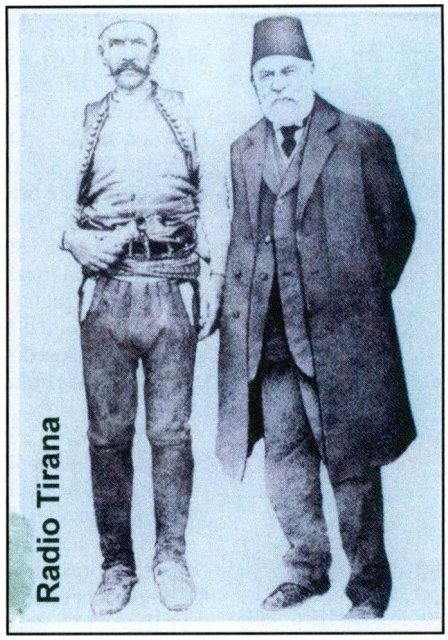
Help Wanted

We believe the Global Information Guide — month after month — offers more logs than any other monthly SW publication! (Just under 300 shortwave broadcast station logs were processed this month) Why not join the fun and add your name to the list of GIG reporters? Send your logs to Gerry Dexter, Global Information Guide, 213 Forest St., Lake Geneva, WI 53147 or email them to <gdex@wi.rr.com>. See the column text for formatting suggestions.

**Not all logs submitted are used. There are usually a few which are obviously inaccurate, unclear, or lack a time or frequency. Also discounted are unidentified, duplicate items (same broadcaster, same frequency, same site), and questionable logs. – WPC9GLD*



Radio Moscow used to speak far and wide, now its offspring, The Voice of Russia, is cutting back.



Neither of these fellows were hired as Radio Tirana announcers. *(Courtesy of Paul Gager, Austria)*

in RR at 1144. (Brossell, WI) 7285 at 2016 with EE feature on various Christmas aspects in Scandinavia. (D'Angelo, PA) 17490-Xi'an at 0415 with VV pops. (Parker, PA)

CPBS/China National Radio: Xizang PBS, Tibet, in (l) Mandarin at 1250 and CPBS, 7365-Shijiazhuang in (l) Mandarin at 1241. (Brossell, WI) CNR-1, 7365 at 1600 with a M in CC, //7415. (Barton, AZ)

Firedrake, 6970 weak at 1130, likely targeting Sound of Hope. (Barton, AZ) 2317 to block Sound of Hope. (Perry, IL) 11695, 13810, 13920, 13970, 14750, 15610, 11970, 16100, and 17730 all in // at 0135. Another date 12320//13820, and 13850. (Rasmussen, MD) 11970 against Sound of Hope at 1158. Brossell, WI)

COLOMBIA—Alcaravan Radio, Puerto Lleras, 5910 at 0520 with upbeat music. (Parker, PA)

La Voz de su Concencia, Puerto Lleras, 6010 with big signals noted several mornings with a nominal 1100 sign on, although often just a continuation of their overnight programming. Are they required to play the NA at least once a day, perhaps? (Perry, IL)

CONGO (Dem. Rep.)—Radio Okapi, 11690 via South Africa in FF heard at 0451. (Parker, PA) 0445 with W and long talk in FF. (Barton, AZ)

CROATIA—Voice of Croatia, 3985 via Deanovic at 0254 in Croatian until 0300 when two short and one long tone when EE service began. Poor, but //7375-Wertachtal was good. Via Nauen at 0300 with ID and into *Croatia Today* pgm just prior to service cancellation (D'Angelo, PA) 0303 in EE. (Parker, PA) 7375-Wertachtal at 0148 in Croatian, not //3985 which had already been permanently closed. (Coady, ON)

CUBA—Radio Havana Cuba, 5040 in SS with mention of station name and M/W with talk. (Coady, ON) 6000 at 0425 on Cuba's "highly skilled" doctors. (Maxant, WV)

Radio Rebelde, 5025 in SS heard at 0200 with a John Lennon number and W ballad. (Coady, ON)

DJIBOUTI—Radio Djibouti, Arta, 4780 at 0333 with M in (p) AA 0356 with nice HOA vocals and later M in (p) Somali. (D'Angelo, PA) 0400 in AA with wailing W vocals. (Coady, ON)

DIEGO GARCIA—AFRTS/AFN, 4319u with top 40 hits at 2249. (Brossell, WI)

ECUADOR—Centro Radiofonico de Imbabura, Ibarra, 3380 at 1016 with music and good selection of Ecuadorian folk music. All anmts were brief until 1100 when there was a recorded way too echo-y anmt, then into a live show. (Perry, IL)

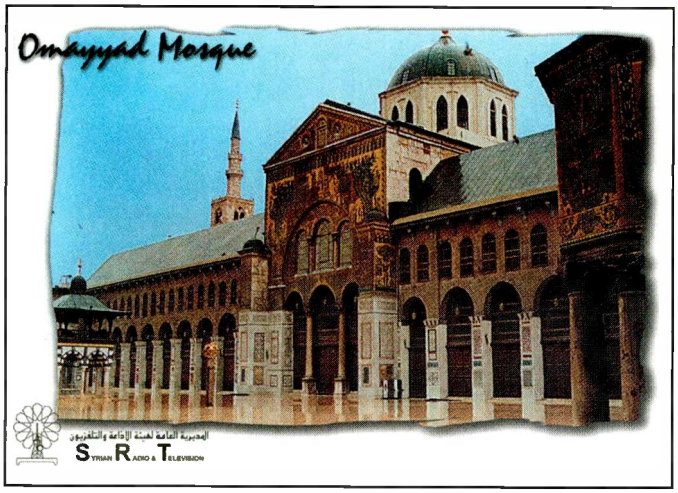
Radio El Buen Pastor, Saraguro, (p) 4815 doing fairly well after 1100. Think I recognize the ultra-bassy voiced ancr. Weak at 1155 recheck, (Perry, IL)

HCJB, Pinchincha, 6050 relaying local AM at 1027-1056 and ancr speaking QQ sprinkled with SS. (Perry, IL)

EGYPT—Radio Cairo, 9720 at 0235 with wailing ME vocals and usual muffled audio. (Coady, ON) 9965 with news in EE in NA service, weak, with low, distorted modulation. (Sellers, BC)

ENGLAND—BBC, 7490-Thailand Relay, with correspondent report on the unrest in Mali, but poor, under WBCQ. (Sellers, BC) 11820 with man in AA at 0456 and 17640 via South Africa with *Sports Talk*. (Parker, PA)

CVC-Voice of Asia, 6260 via Uzbekistan at 1406 in Hindi with a Christian song f/by a preacher. (Sellers, BC)



Syrian Broadcasting still speaks for the country on 9330, if you can get past the QRM.

Far East Broadcasting Assn., 11985 at 2150 in (l) Pulaar. (Brossell, WI)

EQUATORIAL GUINEA—Radio Africa, Bata, 15190 at 1906 with M in EE and usual preaching. One pgm ended at 1940 with M ancr moving right into the next one. (D'Angelo, PA)

ERITREA—Voice of the Broad Masses, (Pgm l), 7205 at 0408 in Tigrinya with talk and HOA music bridges. (Coady, ON)

ETHIOPIA—Radio Ethiopia, 9560 in Amharic at 1914, two M talk and HOA music bridges, 9705 at 0419 in Amharic with M talk and HOA instls. (Coady, ON)

Radio Fana, 6110 in Amharic with HOA vocals and W with talk. (Coady, ON)

FRANCE—Radio France International, 11605 via South Africa at 0540 in FF. (Barton, AZ)

GERMANY—Deutsche Welle, 9655 via the Rwanda Relay at 2110 on ethnic clashes in Kenya, 15275 in FF at 1239, and 11800 in EE at 2016. (Brossell, WI) 9800-Rwanda, 9800 at 0416 with EE African news and features. W ancr asking for feedback at 0428. (D'Angelo, PA) 12070-Rwanda at 2130 with *Inside Europe*, //9655 and 1800. (Coady, ON) 9800-Rwanda at 1605, first seemed on AA but later seemed an Ethiopian dialect, as listed. (Barton, AZ) 11800 on countries taking Mali refugees. (Maxant, WV) 15275-Rwanda at 1824 with Hausa language pgm, ID at 1858 closedown. (D'Angelo, PA)

Norddeutscher Rundfunk, 7335 via Wertachtal at 2217-2259 close with special Christmas pgm and mainly GG talks. (D'Angelo, PA)

Lutheran World Federation, 9800 via Wertachtal at 1850-1857* with M/W ancrs, African music clips, children singing and abrupt sign off. (Parker, PA)

Trans World Radio, 6105 at 0757 with musical IS and 0800 sign on with ID and greeting. (Sellers, BC)

GREECE—Voice of Greece, 15630 in GG at 2105. (Brossell, WI)

GUAM—Adventist World Radio, 9720 in (l) Mandarin at 2142 and 15320 with EE ID at 2229. (Brossell, WI)

Trans World Radio, 9975 in Mandarin at 1237. (Brossell, WI)

GUATEMALA—Radio Verdad, Chiquimula, 4055 at 1100 with Gospel hymns. (Barton, AZ) 1156 in SS with opera-like hymns, possible ID at 1203 and into children's choral. (Coady, ON) 0419 in SS with beautiful choral hymns. (Parker, PA) 1155 in SS. (Brossell, WI)

INDIA—All India Radio, 5010-Thiruvananthapuram in (l) Maylayalm at 1310, 9445//11670 with Indian songs and EE anmts at 2140, 11670 in (l) Hindi at 2023, and 15050 in (l) Tamil at 1146. (Brossell, WI) 9870 with traditional Indian music at 0130. (Barton, AZ) 11670-Bangluru at 2053 with Hindi vocals to 2059 ID f/by news in EE, commentary at 2105. (D'Angelo, PA) 1930 on Taliban and into an ID. (Maxant, WV) 12025-Panaji (Goa) in Hindi at 1620 with M interview on India-Pakistan relations. (Coady, ON) 13695-Bangaluru in (l) Hindi at 0350. (Rasmussen, MD)

INDONESIA—Voice of Indonesia, 9526 at 1831 with W in possible news in GG. (Sellers, BC)

IRAN—Islamic Republic of Iran Broadcasting, 5950-Sirjan at 2220-2332* with M in (l) Bosnian with some light instls. Into possible Farsi at 2230. (D'Angelo, PA)

ISRAEL—Kol Israel, 11595 in Farsi at 1542 with M talk and brief string of musical bridges at 1544, then more talk. (Coady, ON)

Galei Zahal, 6885 in HH at 2311 with two M talk f/by slow pops. Also 15850 in HH at 1540 with what appeared to be a morning show. Lively talk and much laughter. (Parker, PA)

JAPAN—Radio Japan, 9835 with M in JJ at 1745. (Barton, AZ) 11665 at 2316-2329* in (l) Indonesian with several long talks and instl music. ID at closedown. (D'Angelo, PA) 11740 via French Guiana at 0500,//9770 via France with M and EE ID and M/W with news. (Coady, ON)

Radio Nikkei, 3945 at 0723 to 0800 sign off, 6155. (Sellers, BC) 9595 at 1315 with M/W in a mix of JJ and EE. (Barton, AZ)

MADAGASCAR—Radio Madagasikara, 5010 in FF at 0110 with M in long talk at 0114. Poor and noisy. (Coady, ON)

MALI—Radio TV Malienne, 5995 at 2340 with typical sub-Saharan chorus, string, and percussion instrumental, M in FF at 2357. NA and off at 0000. (Sellers, BC)

MEXICO—Radio Educacion, 6180 in SS with talk and classical music. (Maxant, WV)

MICRONESIA—The Cross, Phonpei, 4755 at 0727 but always only at threshold level. Mostly music and just ancr occasionally. (Sellers, BC)

MOLDOVA—Radio PMR, 7290 at *2200 with time pips opening EE pgm. Closed around 2211 but continue with musical features until GG began at 2230. (D'Angelo, PA) 2241 with talks in GG. (Brossell, WI)

MOROCCO—Radio Medi Un, 9579.1 at 3308 in AA with telephone interview between two M, brief music bridge and another M with news headlines. (Coady, ON) 2253 with Arabic pips and M/W AA presenters. (Sellers, BC)

NEW ZEALAND—Radio New Zealand, 9765 with their familiar IS from 1655 to TOH, f/by news by W. (Barton, AZ) 9765 with news at 0800 and 11725 at 0705 on a fire on the south island. (Maxant, WV) 11725 at 1920 with *Music 101* pgm, 15720 at 2050 with IS and brief talk in Maori and a Maori song before a barbershop quartet and a female jazz vocal. (Coady, ON)

NIGERIA—Voice of Nigeria, 7255-Ikoradu at 2131 with W hosting a countdown music pgm, then into pgm of Nigerian music (D'Angelo, PA) 9690 with vocals at 0910. (Maxant, WV)

NORTH KOREA—Voice of Korea, 6170 with march music at 1145, W in FF and opening in KK at 1200. (Barton, AZ) 9335 at 1500, //11710 which was barely audible with M/W IDs and opening of EE transmission, 9650 in JJ at 2222. (Coady, ON) 11710 with news in EE at 1505. (Brossell, WI)

Korean Central Broadcasting Station, 2850 (p) at 1228 weak with intermittent traces of talk and music, 9345 in KK at *2300 open right after WWCR closed. (Parker, PA)

OPPOSITION—Democratic Voice of Burma, via (Armenia to Myanmar), 7510 at 2325 in Burmese. (Parker, PA)

Sound of Hope, 11765 (Taiwan to China), in Mandarin at 1603 ballad then W with subdued talk over piano. (Coady, ON)

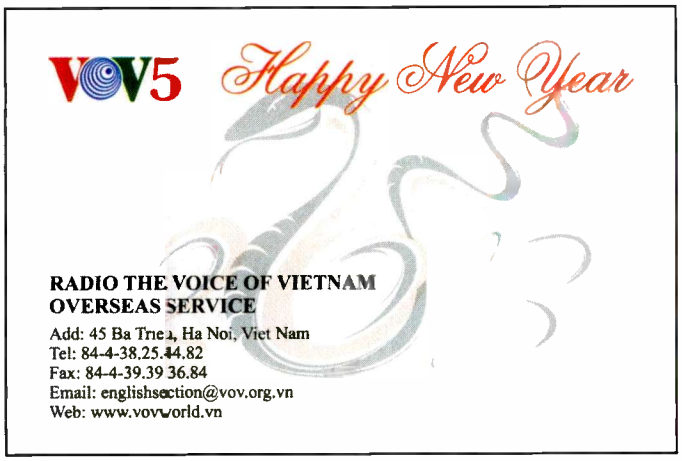
Voice of Hope, 7280 (Taiwan to China), in Mandarin at 1207 with several pieces of western classical music and soft spoken M with talk. (Coady, ON)

Voice of Tibet (via Madagascar to China), 15485 at 1527 with an OC, soft instl, M/W talks in Tibetan. (Parker, PA)

In Times Past

Here's your "blast from the past" for this month:

Radio Renascensa, Muge, Portugal, 9600 at 0015 in PP on December, 12, 1990. Operated by the Catholic Church with 100 kilowatts.



Rich D'Angelo (PA) was wished a happy New Year by the Voice of Vietnam with this greeting card.

Voice of Asena (via Samara to Eritrea), 15245 in Tigrinya at 1755 to 1800*. (Brossell, WI)

Echo of Hope (South Korea to North), 6348 at 0831 with M in KK, by 0847, //3985 was also audible. (Sellers, BC)

Voice of the People (South Korea to North), 3985 at 1400 with W in KK under jamming. (Barton, AZ)

Miraya FM, 9940 (via Ukraine to Sudan), 9940 at 0442 with M/W in AA, remote interview, ID at 0500 prior to news. (D'Angelo, PA)

Radio Dabanga, (via Madagascar to Sudan), 7315 at *0427 with numerous AA IDs at opening then mainly news, long talks, and interviews. (D'Angelo, PA) 11940 at 0428 in vernacular with periodic sing along ID jingles. (Parker, PA)

Radio Tamazuj (via Vatican to Sudan), 7315 at *0358-0427* with M/W ancrs opening ID and anmts then news in AA. (D'Angelo, PA)

PERU—Radio Vision, Chiclayo, 4790 in SS 0403 with M in SS. (Parker, PA) 1055-1140 with *La Voz de Salvacion* pgm. The signal was still holding up when I turned out at 1140. (Perry, IL)

Radio Huanta 2000, Huanta, 4747 at *1007 with M talk over OA music. Many mornings around 1030 with rapid-fire ads by M and W then into folkloric pgm. (Perry, IL)

Radio Tarma, Tarma, 4775 noted at 0955 with abrupt carrier switch on, nice piano, strings and flute music, and good morning anmt in SS. (Perry, IL)

Radio Logos, Cazhuta, 4810 at 0940, best heard on low side of blipping CODAR. Nice patter from SS DJ with campesino favorites and it kept improving through to 1030. (Perry, IL)

Radio Voz Cristiana, Chilca, Huancayo, 4984.1 at 1056 with the usual crazed SS preacher. Fair to good. (Perry, IL)

Radio Quillabamba, Quillabamba, 5025 (p), nice at 1032 with shrill quenas, yipping Quechua and M with SS anmt. (Perry, IL)

Radio Ondas del Sur Oriente, Quillabamba, 5120 a regular over the past week or so with irregular sign on in the 1045-1100 period. Music getting through better than the frequent ID mentions and time checks. (Perry, IL)

Radio Twantinsuyo, Cusco, 6173 heard at *0959 sign on. Due to the strong QRM from the 6175 Asian needed the usual ECSS and notch. (Perry, IL)

Radio Chaski, Urubamba, 5980 first heard at 2355 tune in with W with choir. Nice, recorded ID at 0000. In the mornings 5980 is swamped by Radio Marti and its jammers. (Perry IL)

PHILIPPINES—Far East Broadcasting Corp., 9795 at 2252 with IS and ID loop until W with ID and opening in Laotian. (Coady, ON)

Radio Veritas Asia, 6115 at 2136 in Mandarin with light instls. But it was killed by WYFR's sign on at 2200. (Coady, ON)

PIRATES—Captain Morgan Shortwave, 6925 at 0245 with blues and 2 W with ID then EZL M vocals. (Coady, ON) 2351-0014* with rock, frequent M/W IDs. Closed with Twilight Zone and Alfred Hitchcock themes. (D'Angelo, PA)

Radio Gaga, 6925u at 0001 with country stuff and Roger Miller. <Radiogaga6925@gmail.com>. (Hassig, IL)

Red Mercury Labs, 6925u at 0158 with soft rock, heavy metal, and email readings. Said they were onboard a ship. <redmercurylabs@yahoo.com>. (Hassig, IL)

Wolfgang Radio ??, 6925u at 0035 with classical music. Whispered ID was hard to understand. (Hassig, IL)

WFMT-Family Radio, 6924.6 heard at 2210 with a "live" rock album, IDs between each song. "This is Sonja Norwood and you are listening to family Radio" later some talks, but no address was noted. (D'Angelo, PA)

Wolverine Radio, 6925u at 0210 with 50's hits. (Hassig, IL)

Blue Ocean Radio, 6925 at 0320, possibly relaying Hot Radio, thanking BoR for the relay. (Hassig, IL)

ROMANIA—Radio Romania International, 6130 at 0420 on prices of apartments in Bucharest, 7310 at 0655 on sports there. (Maxant, WV)

IRRS, 7290-Saftica at 2039-2100* ending Overcomer Ministry pgm, 15325-Tiganesti at 1356-1400* with M in unid Asian language with IRRS ID and mention of a special QSL. (D'Angelo, PA)

RUSSIA—Voice of Russia, 4960 via Tajikistan at 1322 in Pashto/Dari with W and apparent news. Checked again at 1402 and then with news in EE. Also, 5885 via Tajikistan at 1254 with unusual instl music, promo anmt in EE and ID at 1259. (Sellers, BC) 9395 via Gavar (Armenia), at 2300-2359* with EE news in their world service. They closed with ID and IS. (D'Angelo, PA)

ROMANIA—Radio Romania International, 15135 in Romanian at 1205, 15210 on Romania's trade with the rest of Europe. (Brossell, WI)

RWANDA—Radio Rwanda (p) 6055 at 2051-2059* with W and FF talk hosting music pgm, which continued until carrier was terminated. (D'Angelo, PA) 6055 at 2130 with pgm windup and contact address. (Barton, AZ)

SAO TOME—VOA Relay, Pinheira, 4960 in (p/l) Hausa at 0511. (Parker, PA)

SAUDI ARABIA—BSKSA, 15435 at 1524-1757* with AA talks by M/W, 5+1 time pips at 1600, ID and news. (D'Angelo, PA) 17560 with Koran at 1756. (Parker, PA)

SERBIA—International Radio of Serbia, 6100 via Bijeljina (Bosnia) at *2299 opening EE pgm with ID, news, and music pgm. (D'Angelo, PA)

SEYCHELLES—BBC-Indian Ocean Relay, 9460 with a *World Briefing* report. (Coady, ON)

SINGAPORE—BBC-Far East Relay Station, 9740 at 1146 with a discussion on world economics. (Brossell, WI) 2330 with several business reports, time pips, and world news. (D'Angelo, PA)

SPAIN—Radio Exterior de Espana, 3350-Costa Rica Relay in SS at 0234, 7265 at 1949 with continuous music to AA anmt at 1956. (D'Angelo, PA) 11680 in PP at 2135. (Brossell, WI)

SOMALIA—Radio Hargesia, 7120 at 0331 with an opening in Somali f/by another with Koran. Also, 0328 in Somali with OC and marching band anthem and Koran recitation. (Coady, ON)

SOUTH AFRICA—Channel Africa, 7230 on Durban riots at 0510, suffering ARO QRM. (Maxant, WV) 15235 at 1701 with W and news, then *Africa Digest*. (Coady, ON) 11750 on the maritime sector of South Africa. (Brossell, WI)

Radio Sonder Grense, 3320 at 0320 in Afrikaans with W/M with brief talk and male ballad. (Coady, ON)

SOUTH KOREA—KBS World Radio, 6045 via Wooferton at 0733 to 0759* in KK with news and light banter between M and W with laughter. (D'Angelo, PA)

SPAIN—Radio Exterior de Espana, 6055 at 0050 with mailbag pgm and one listener complaining about their excessive sports coverage. (Barton, AZ)

SRI LANKA—Sri Lanka Broadcasting Corp., 9770 at 0200 with time pips, T/C and anmt the All Asia Service. (Coady, ON)

SUDAN—Sudan Radio Service, 17745 via Wooferton in AA at 1608 with news by M including a telephone report. (Coady, ON)

Radio Dabanga, 11940 via Madagascar at 0451 with vernacular talks. (Parker, PA)

SURINAME—Radio Apinte, 4990 with Whitney Houston type-sounds at 0351 (Parker, PA) 0813 with '50s pops. At 0938 seemed a religious pgm on a Sunday morning. (Perry, IL)

SWAZILAND—TWR, 9599 at 0515 with a preacher. (Maxant, WV) 9530 in Amharic at 0334 with M talk to 0342, HOA vocals, brief closing anmts over vocals, piano until 0344, brief IS and off at 0345. (Coady, ON)

SWEDEN—IBRA Radio, 12045 via Wertachtal in AA at 1741. (Brossell, WI)

TAIWAN—Radio Taiwan International, 6105 in (l) Cantonese at 1203 and 11625 in CC at 1152. (Brossell, WI)

Voice of Han, 9745 in CC at 2315. (Brossell, WI)

THAILAND—Radio Thailand, 9720 at 1228 with an O/C, gong IS at 1130, fanfare and anthem and "Live from the public relations department of the Royal Thai government this is the *News Hour*." 13745 at 0020 with M/W and world news, ad for Air Asia and an EE ID. (Coady, ON)

TUNISIA—RTV Tunisienne, 17735-Sfax in AA at 1732 in AA with W vocal. (Parker, PA)

TURKEY—Voice of Turkey, 9700-Emirler at 0526-0550 with W hosting music pgm. (D'Angelo, PA) 12035 with Turkish vocals at 1405. (Maxant, WV)

UGANDA—UBC Radio, 4976 at 0350 with hilife music. (Brossell, WI) 2152 with an African-accented man and talk with hilife vocals, but very weak and barely audible, (Coady, ON)

UNITED STATES—Voice of America, 7295 via Novosibirsk at 1340 with a pgm of classical music, string of promos and M with excited Mandarin talk, 9485 via Vatican at 0330 with singing EE ID and into Somali, 15580-Greenville with M hosting *African Beat* pgm. (Coady, ON) 7560-Kuwait Relay in EE at 2255 with anmts including the VOA website and State Department editorial. Very poor. (Sellers, BC)

Radio Free Asia, 9455 at 1015 with W in CC. (Barton, AZ) 9875 via Lithuania in Tibetan with M/W talking and instl music bridges. (Parker, PA) 2300 with sign on in EE and going into Tibetan. (Sellers, BC) 9905 via Northern Marianas Relay in CC with talks at 1845. (Parker, PA) 11945 via Tajikistan in Mandarin at 2124, and 11995-Northern Marianas Relay in (l) Korean at 2156. (Brossell, WI)

Radio Free Europe/Radio Liberty, 15130-Lampertheim Relay in RR at 1405. (Parker, PA)

Radio Farda, 7520-Sri Lanka Relay in Farsi at 2249. (Brossell, WI) 13680 via Wertachtal in Farsi at 1615. (Barton, AZ)

Afia Darfur, 9780 via Vatican in AA at 1913 with lively talks and music bridges. (Parker, PA)

Family Radio, Florida, 5945 (NF?) at 0032 with their theme music, f/by ancr in SS. (D'Angelo PA)

WRMI, Florida, 9955 at 1410 with a preacher. Cuban jamming in the background. (Maxant, WV)

WRNO, Louisiana, 7506 at 0403 with W doing DW news. 0408 with ID and request for financial support. (D'Angelo, PA) 0415 with pops. (Maxant, WV)

Pan American Broadcasting, 9685 via Nauen at 1955-1958* with a preacher. Abrupt sign off. (Parker, PA)

KJES, New Mexico, 11715 at 1615 in SS with M leading a group of women in a prayer and an a'capella choral hymn. (Coady, ON)

Overcomer Ministry, 5900 via Bulgaria at 2128 with Brother Stair. (Coady, ON) 2237-2300*. Nice music but it soon devolved into Brother Stair. (D'Angelo, PA)

WEWN, Alabama, 11520 with an interview at 0810. (Maxant, WV)

Trans World Radio, 6105 via Germany with gospel preaching at 0815. (Maxant, WV)

KOA, Denver STL, 29950 with traffic and weather, commercials. (Parker, PA)

VATICAN—Vatican Radio, 6075 at 0749-0805* in AA with talk and brief music segments. Good, but //9645 was very poor. (D'Angelo, PA)

ZANZIBAR—Zanzibar Broadcasting Corp., 11735 at 2100 in Swahili with local rhythms, several IDs mentioning "Probably the best radio station in the land — Spice FM," excited Swahili promos and into pgm of light pops. (Coady, ON) 2110-2137* with lively music hosted by a M. It ended rather abruptly with no advance notice. (D'Angelo, PA)

And that wraps it up for this time. Except to extend back slaps and high fives to all those who submitted their logs. Sincere thanks to: Rich D'Angelo, Wyomissing, PA; Mark Coady, Selwyn, ON; Rick Barton, El Mirage, AZ; Rich Parker, Pennsburg, PA; William Hassig, Mt. Pleasant, IL: Ralph Perry, Wheaton, IL; Harold Sellers, Vernon, BC; Charles Maxant, Hinton, WV; and Bob Brossell, Pewaukee, WI. Thanks to each off you. And until next month — good listening!

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 **Bob Brossell**, Pewaukee, WI who now thumbs a 2013 edition of the venerable **World Radio TV Handbook** — your main source for high-frequency information. The WRTH is simply a must have if you are tuning around the shortwave bands with any seriousness at all. The WRTH is available from most big box and neighborhood bookstores, not to mention all the radio hobby and general online bookstores.

The New Kid in Town

Introducing a Youngster Who Loves to Write About the Electronics That First Glowed Long Before He Was Born

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

"In the spirit of mentorship and a deserving nod to my radio-enthusiast Dad and to 'Roary,' I am honored to welcome to these pages 15-year-old Ryan Archer . . ."

My father occasionally regaled me with tales of a crusty old broadcast engineer from out West. Dad would always begin sagas about this persnickety technician by reporting, "Herbert 'Roary' Wallace earned his nickname from three or four generations of DJs who experienced his growl whenever they were caught 'fooling around' with the equipment."

Several years ago, my folks were visiting friends in Northeastern California when father remembered that "Roary" still handled engineering work for a rural AM somewhere near there. Just for fun, he headed out to the driveway, did a bit of DXing on the car radio, and was delighted to hear an announcer quip, "Our engineer just yelled at me for allegedly 'fooling around' with the studio clock! Man, you'd think you'd have to pass some freakin' quantum-electronics exam just to be able to open a pack of double "A" batteries that the station secretary bought at the local Safeway!"

Dad mentioned hearing the very public complaint as soon as "Roary" took his out-of-the-blue call on the rotary dial-equipped red wall-phone in the station's engineering shack. "Well, Sid," the octogenarian engineer responded, "did the genius happen to note the small detail that he was standing with one foot on my newly recapped and revitalized Harris Dualux 80 control console while clumsily trying to reach the clock?" Father laughed, though got the distinct feeling that "Roary" remained unamused — an impression that only subsided when the tech suggested that my parents drop by the station during the upcoming Saturday. "There's someone here I'd like you to meet. Park in the back and come in through the entrance nearest the tower."

As Dad and Mom approached that rust-streaked metal door, a studious-looking lad of about 10 opened it for them and called out, "Great Grandpop, your visitors are here."

An old man with Einstein hair and a maroon-colored WEN soldering iron plugged into a long, industrial extension cord stepped from behind a 1950s-era transmitter which was built into one of the hallway walls. "Just doing a little maintenance on the stand-by box," he muttered, before becoming much more personable when he spotted my mother.

"Well, Sid, I'm glad you brought along the bride . . . Kate Huniwell," "Roary" practically bellowed as he searched for a place to stow the hot iron, and then extend a handshake. "I'll never understand how someone as beautiful and sophisticated as you ever fell for a talkative beanpole like Sid." She waved him off politely and managed to quickly change the subject by asking who the young fellow was.

"See what the very sight of you did to me, Kate?" he admitted with an open palm to his forehead. "I almost forgot to introduce you to my great grandson, Ryan Archer. He's the main reason I hoped you'd visit."

Without having to be prompted, the precocious kid offered his hand to each of my folks and indicated, "Anyone who knows old radio can easily remember my last name, because it's Archer, and Archer was a famous brand name of RadioShack®." He then led his elderly relative's guests on a station tour complete with equipment makes and model numbers.

"The RF box my Great Grandpop was working on is a 1952 Gates BC-250GY transmitter," he began and moved through the remainder of the single-level cinderblock building, noting the past highlights of anything electronic along the way. Mom was especially impressed that he even recounted the West Bend coffee maker's provenance, as they were given a history of the decidedly cubicle-esque announcer/staff lounge.

Rather than be confined to those unkempt diminutive quarters, however, the entourage adjourned to the largest of the AM's three studios, a fishbowl of about 12-feet square, now only used to record a Spanish language program and a monthly gardening show. There, "Roary" Wallace treated Mom and Dad to java and donuts.

Seconds after young Ryan served this repast, his Great Grandpop directed him to a pair of duties: to remind the guy on the air (he'd observed through the studio glass) "to kindly refrain from adjusting the microphone arm as if he were stran-

gling it" and to fetch the school report that the young man had penned about shortwave radio history.

My parents watched as the first task was being completed, noticing the DJ shrug his shoulders and point toward "Roary" while offering an exasperated facial wrinkle. Then they listened with a noticeable touch of pleasant surprise as Ryan read his composition aloud.

"That's a pretty good brand of authorship, if I do say so myself." "Roary" proudly stated. "In fact, he earned an A+ for it." Mom and Dad agreed and congratulated the youth. "Roary" lost no time in telling his dear descendant that the Huniwells had a famous broadcast history writer in their family. Of course, the fifth grader somehow knew all about me and *Popular Communications,* which gave "Roary" the perfect portal through which to inject Ryan's hope that I might take a look at some of his other essays on CB, ham radio, and scanning. "Maybe, if one of them was good enough," the boy courteously proposed, "your daughter might include a paragraph or two in one of her *Shannon's Broadcast Classics* articles."

That was sometime in 2008, and although his writing was very good for a grade school kid, Ryan and I agreed he needed a little more practice — an exercise he continued, submitting at least a couple of pieces a year for my suggestions. There's no doubt most of us will agree that our radio hobby can only continue if each new generation finds it worthy of their avocational time. Toward that important and ideally perennial goal, I believe this is a wonderful time to introduce Ryan Archer to *Pop'Comm* readers.

His keen interest in the history of things shortwave, scannable, CB, and amateur provides a natural contrast to my vintage AM/FM/TV focus. It is anticipated that Ryan will develop into a columnist you'll truly enjoy and offer me the occasional month off when my other writing assignments crowd in on me.

My only regret is that his Great Grandpop, a *Pop'Comm* subscriber since Vol. 1, No. 1, won't be among those sampling Ryan's published debut. "Roary" passed away late last year. He had just finished buttoning up a cart machine still in use by the host of that occasional gardening program, sat down at his engineering desk and, as Ryan writes, "simply and peacefully signed-off . . . with his soldering iron subsiding in unison." No wonder Ryan asked that he be introduced to you with the understanding that this premier professional writing performance be offered in dedication to his Great Grandpop, Herbert "Roary" Wallace, the man who instilled in him a love of things electronic.

I suppose there could be no more fitting conveyance than one in which such a generational torch is passed. In the spirit of mentorship and a deserving nod to my radio-enthusiast Dad and to "Roary," I am honored to welcome to these pages 15-year-old Ryan Archer and his inaugural article:

My 'Roary:' A *Great* Grandpop and Real Radioman

By Ryan Archer, KPC6KPH

Amateur operators have their "Elmer," a term made up by a ham in 1971 meaning "a mentor." I've never heard of such a thing for SWLers or scanner monitors. So I'm declaring one now: Roary.

My Great Grandpop, Herbert "Roary" Wallace, **Photo A**, was the spark that ignited my interest in shortwave listening, scanner monitoring, CB, and radio history. Cross my heart: The OM — old man — had more stories than the announcer on *DXers Unlimited,* the weekly SWLing show Grandpop and I often listened to out of Radio Havana Cuba. *"Hi amigos radioaficionados around the world, continuing to enjoy the revival of good shortwave propagation conditions for DX! I am your host here in Havana,"* Arnie Coro once opened the show on 11880 kHz.

Anyhow, Pop — that's what I called him when just my family was around — had a flourish of his own. When I was very little, he'd plop into an overstuffed, funny-smelling chair in the parlor, sit me on his knee and fill my imagination with the adventures of the Kon-Tiki Expedition, and foreign broadcasting during the World Wars, and how ham callsigns came to be . . . his voice rising to a to a holler and then dropping to a whisper. I shivered as his eyes opened wide during the scary parts. The rest of the family *rolled* their eyes. Me? *Spellbound.*

As I grew older, the more stories Pop told, the more curious I became. He knew *something* about *everything* related to radio — from personal experiences, or from a friend of a friend. I

Photo A. That's my Great Grandpop Herbert "Roary" Wallace and Great Granny Margaret in their backyard. I don't know how long ago it was taken. The only thing Pop loved more than radio, was Great Granny. They were a perfect pair — just like me and Pop would come to be.
(Courtesy of Margaret Wallace)

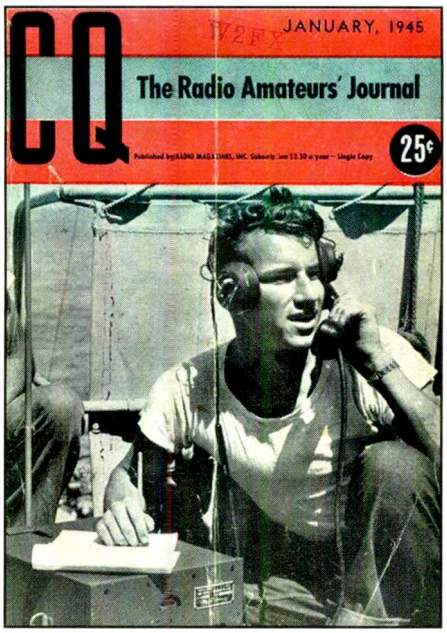


Photo B. The inaugural edition of *CQ* magazine in January 1945 featured a radioman on the deck of a Navy destroyer. World War II was still very much in action at the time, and references to it can be found in many places in that first edition. The editor was John H. Potts, and *CQ* at the time was published by Sanford R. Cowan. *(Courtesy of KPC6KPH)*

soaked them in like the sponge Pop used to clean the tip of that WEN soldering iron.

The crowd at Pop's funeral was thin. *Really thin.* Only a smattering of mourners dotted the pews in the dark, chilly sanctuary of St. Mary's. My Uncle Walter gave the eulogy, interrupted several times by local police calls bleeding into the church's PA system. "Pop's head must be blowing off his heavenly shoulders," I thought. As you know, he had no patience for people and things that did not go *his way.*

Pop never had a short fuse with me, though. We were the best of friends. And I miss him.

Uncle Walter told the assembled handful that I was "the heir-apparent of Herbert's longwinded, tedious, boring, annoying, shortwave story-telling drivel." It was up to me to carry it on, "but not in our house," Uncle Water said. Nervous laughter wafted through the nearly empty church, but not from me. I am proud to carry on Pop's legacy, no matter how much it bothered Uncle Walter. *His* only passion in life is bowling. *Zzzzzzz . . .*

Pop could hardly contain his excitement over the idea I *might, maybe someday,* write for *Pop'Comm.* After Mr. and Mrs. Huniwell pulled from the driveway in 2008, he bounded to his radio workshop — home to Pop's cavernous shortwave and scanning listening post. "Come on!" he shouted.

Already teetering atop a wooden stool when I got there, he stretched through the cobwebs to the highest shelf above his Hallicrafters SX-99 receiver, grabbed a tattered magazine and laid it gently on the bench.

"See that?" he asked, quickly wiping the dust from the cover with several strokes of the heel of his hand. "If writing for *Pop'Comm* is in your future, you'll be part of radio publishing history that includes *CQ.* This, my friend, is the very first edition. It's the *gen-you-wine* Volume 1, No. 1. January 1945, **Photo B.** I've held onto it for all this time — 63 years."

"You mean this came out a couple of years *before* Bardeen and Britain invented the point-contact transistor at Bell Labs?" I said incredulously. "Indeed, it did," Pop replied. "And the magazine has never missed a month since."

We huddled over those 44 pages of radio history for more than an hour, nursing each page forward — scrutinizing the articles and advertisements as if they were the naughty parts of Henry Miller's *"Tropic of Capricorn."* (Last year, the Board of Education banned it from our high school library, but I found a copy at the used bookstore downtown.)

"Lookie there," Pop popped, jabbing his index finger into a full-page ad. "I have one of those," he said with a snap of his head, indicating *whatever-it-was* was somewhere in the stack of receivers over his right shoulder.

"They don't say in the ad, but you're looking at an RME-45 shortwave receiver, **Photo C.** I snagged more foreign broadcasts with it than you can shake a stick at. Six bands, and she is

Photo C. Radio Manufacturing Engineers ran a full-page ad in *CQ's* first edition, touting that its engineering staff has "tomorrow's R.M.E. equipment ready for you — available as soon as (World War II) military demands are fulfilled." The ad doesn't identify the receiver pictured, but Pop recognized it right away because he had one: an RME-45, a neat general coverage receiver that spanned 540 kHz to 33 MHz in six bands. For details about the RME-45, visit <http://bit.ly/XL4C9C>. *(Courtesy of KPC6KPH)*

Photo D. This cartoon, submitted to the inaugural *CQ* by the Association of Public-Safety Communications Officials (APCO), reminds us that radio amateurs were ordered off the air for the duration of World War II by the U.S. Congress. "With most of the American amateur radio operators in the armed forces at this time, the U.S. government created the War Emergency Radio Service which would remain active through 1945," according to a Wikipedia entry. *(Courtesy of KPC6KPH)*

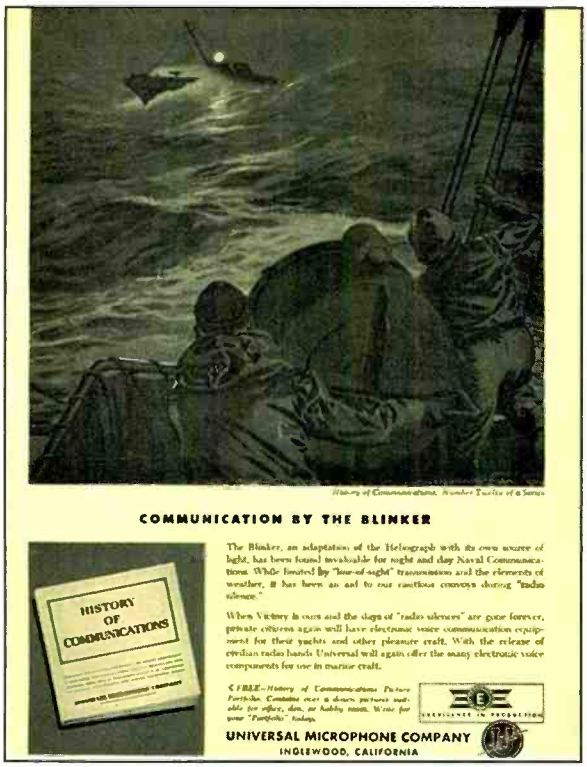


Photo E. It was weird to see so many references to World War II in *CQ's* first edition. To me, that's, like, ancient history! This ad tells readers about blinker communication, a spinoff of the heliograph. Navy signalmen used blinkers to communicate with flashing light between ships when "radio silence" was declared. If vessels were in seeing distance of one another, and the weather was OK, it was a neat way of exchanging information using Morse code. *(Courtesy of KPC6KPH)*

Photo F. The blinker was an outgrowth of the land-based heliograph, both invented way before my time. According to Wikipedia, the heliograph is a "wireless solar telegraph that signals by flashes of sunlight reflected by a mirror. The flashes are produced by momentarily pivoting the mirror, or by interrupting the beam with a shutter. The heliograph was a simple but effective instrument for instantaneous optical communication over long distances during the late 19th and early 20th century . . . Heliographs were standard issue in the British and Australian armies until the 1960s, and were used by the Pakistani army as late as 1975," <http://bit.ly/Xf9qaP>. *Amazing! (Courtesy of Wikipedia Commons)*

a pistol." He regaled me with tales of every "new" receiver advertised — cover-to-cover.

I'd just studied World War II in sophomore history, so radio references to it in January 1945's *CQ* were kind of spooky. I mean, it wasn't *until August 6* that year that the bomb dropped on Hiroshima. When the inaugural edition hit the newsstands, the U.S. was still very much in the thick of things.

A cartoon showed a mixed up police dispatcher mortified he'd just called CQ on the police band after "dreaming of pre-war Utopia," **Photo D**. *Wow!*

An ad for the Universal Microphone Company's book "History of Communications" featured a short story titled "Communication By the Blinker," **Photo E**.

"The Blinker, an adaptation of the Heliograph, **Photo F**, with its own source of light," it read, "has been invaluable for night and day naval communications. While limited to line-of-sight transmission and elements of weather, it has been an aid to our cautious convoys during 'radio silence.'" *Cautious convoys? Radio silence? Yikes, this was real!*

After a while, Pop reached across the bench and gently put his hand on my forearm. "Ryan, you are holding radio history in your hands," he said earnestly. "There isn't anyone on earth than you I'd rather entrust this magazine to, and every other piece of radio history in this room."

I was speechless and must have gone deaf. I couldn't hear the wooden planks creaking in Pop's radio room floor as he quickly moved to the other end of the shop. Even to a kid like me, it was an obvious ploy to shield his emotions.

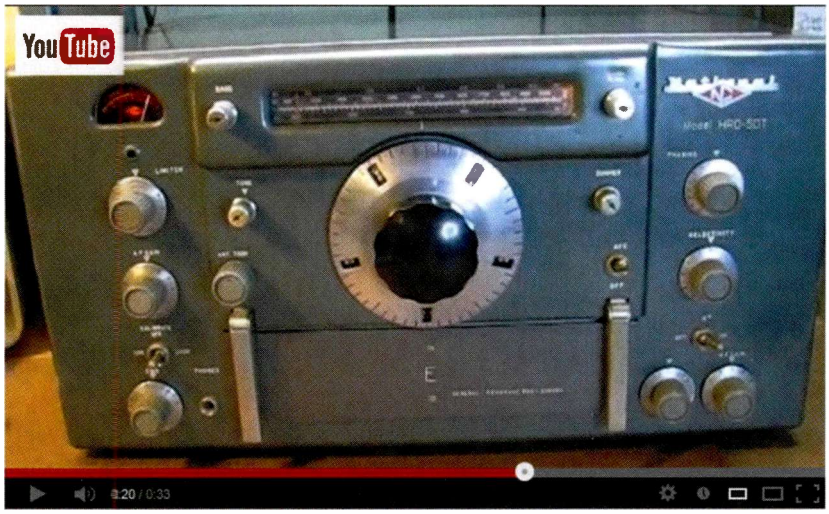
I almost cried, too. This was such an honor. My "Roary" was passing his entire radio world to me.

After Pop died late last year, I had to re-evaluate everything about *my* SWL, CB, and scanning world. I mean, inheriting a museum of radio history, as messy as Pop's is, is a lot to put on a kid's shoulders.

I promised Pop I'd keep his radio legacy alive and that's one of the reasons I've chosen to honor him in my first column.

With Pop Gone, I'm On My Own

Great Grandma said I could keep my Pop's radio room just the way it was "the day he left this world." So I now have two listening posts. I'll go into more detail about Pop's treasure trove in future columns, but my main receiver for SWLing is a National HRO-50T, **Photo G**, with a full set of plug-in coils. Of course, it was Pop who ceremoniously handed it over to me on my 14th birthday. It almost collapsed the picnic table in the backyard. It weighs a ton. He gave me the matching speaker



National HRO 50T after restoration

Photo G. My HRO-50T isn't as nice as the one shown in this YouTube video, but pretty close. You can see the craftsmanship National put into the HRO series — wanting to appeal to serious shortwave listeners, radio amateurs, and the military. The panel labeled E is the location of the plug-in, band-switching coils. The vertical silver pieces on each side of the panel were lifted to remove the band module, and another inserted to go to another range of frequencies. Then the operator would turn the knob at the upper right to adjust the horizontal plastic band-scaling indicator to the correct band. *(**WATCH and LISTEN:** To the HRO-50T in action at <http://bit.ly/YCNpyr>.) (Internet screen grab)*

and a complete set of plug-in coils, too. It took the two of us to carry it all upstairs to my bedroom.

I bring it to the kitchen counter to clean and adjust it — which is about once a month. Mom just smiles. It must remind her of *her* Grandpop.

My '50T is sweet, but not as nice as the one I saw in a YouTube video <http://bit.ly/YCNpyr>. Talk about a cherry restoration!

Since Pop died, I've been trying to find out as much as I can about the National Radio Company and the HRO series of receivers. A story on the Western Historic Museum's *Radio Boulevard* <http://bit.ly/Wlp5GO> explains that "all of National's inter-departmental paperwork for the receiver project was stamped 'H.R.O.' which stood for *'Hellva Rush Order'* since the timetable for the receiver development was a 'rush order' type of project. For many years this was the story related in National advertising and it sounded believable."

But after James Millen, a National bigshot, left the company in 1939, he told it differently:

"The original development paperwork was usually marked 'H.O.R.' — for *'Hell Of a Rush,'* but during the finalization phase, someone at National decided they didn't want their new receivers to be referred to as *'HORs'* so the letters were rearranged and became HRO — then the *'Hellva Rush Order'* story was created to explain the HRO designation."

Mr. Millen seemed to run a pretty *transparent administration* at National — a term I hear on the news all the time these days. Good and bad.

Each month he submitted a paid ad to *QST* magazine in the form of an open letter to ham operators. It kept everyone up to date on the development of National products and the challenges that the engineers were facing in receiver design.

Well, Mr. Millen went out on a limb in his piece for October 1934, apparently telling readers a new receiver — the HRO — was on the verge of release. Unfortunately, instability problems still weren't solved, so in his December open letter, Millen had to "walk it back," as the politicians today say. The HRO would come out in January 1935.

"Millen candidly related that the problem would not have been noticed except for the accuracy of the micrometer dial," according to *Radio Boulevard.* "Apparently the problem was more difficult to solve than anticipated, for the January

release date was also missed. Around this time, a photograph of a 'prototype' HRO was released showing a receiver with a micrometer dial but with a 'Volume' control and a BFO switch on the front panel but no front panel BFO adjustment. The receiver also had AGS knobs installed. This was never a production receiver, only a prototype or a mock-up for the photograph."

HRO production-grade receivers were being built as early as January 1935 "but these units weren't shipped until all of the 'bugs' had been worked out. HROs finally began shipping to awaiting customer orders around March 1935."

The open letters about the HRO and the drama surrounding it had whipped hams into a frenzy of anticipation. With all that hype, lots of amateurs *just had to have one.* Now, that's making a lemon into delicious lemonade, as Pop used to say.

As the series improved and grew through the years, my receiver — the HRO-50 — was designed "to bring the HRO design into the mid-20th century." It came out in 1950.

"The separate power supply was first on the list of things to go. The new HRO power supply was built-in, though on a separate chassis that was thermally insulated from the receiver chassis and bolted behind the main chassis," *Radio Boulevard* noted. "Relying on the micrometer dial vs. graphs was also gone. Now a linear slide-rule dial would provide direct frequency readout."

Other improvements in the HRO-50 included:

- Plastic scales that were scribed on a rotating drum for "band-in-use" scaling
- The optional 1MHz/100kHz-crystal calibrator and NBFM (narrow-band FM) adaptors now had sockets.
- Voltage regulation
- Push-pull audio

They were significant updates to its HRO series predecessors. Thank goodness they kept the plug-in coils, though. They're what make this radio so *cool,* in my opinion.

The last of the HRO series came out in 1953 — the HRO-60 — 18 tubes, double conversion and the oscillators were current regulated.

The '60 was available from 1953 to about the mid-1960s and in the end was selling for $745! It would take a lifetime for me to save that much money mowing lawns.

I am thankful for websites like *Radio Boulevard.* With Pop no longer around, it's up to me to uncover radio history for myself.

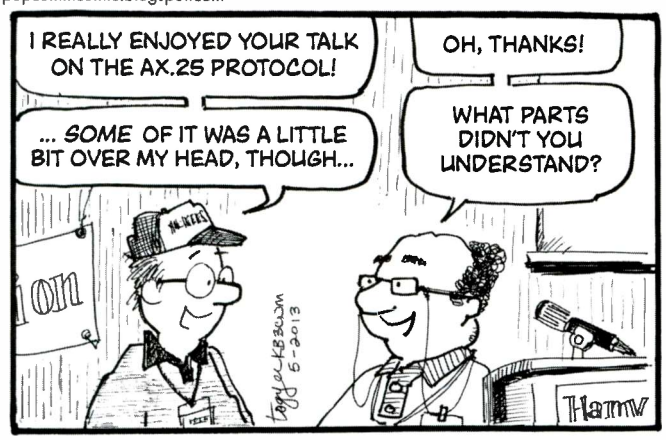
If you've got stories about the National HRO receiver series, please send them to me. I will add them to my notes. And Pop will be glad to have heard from you, too.

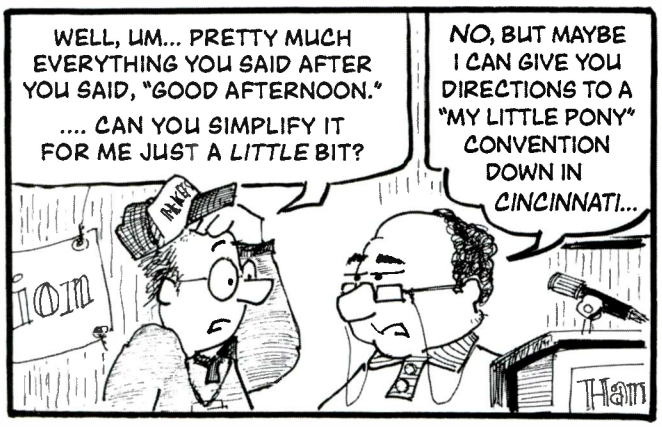
With Appreciation to Ms. Huniwell

I want to thank Ms. Shannon Huniwell, who read my story before you did and made a lot of suggestions. She has been so nice to allow me to write about Pop and my passion for shortwave listening and scanner monitoring. If you would like to write to me, please send an email to <editor@popular-communications.com>. The editor will pass it along to me. And *please* let me know if I got any facts wrong. Pop wouldn't want it any other way.

– Your Friend, Ryan Archer, KPC6KPH

SPURIOUS SIGNALS By Jason Togyer KB3CNM
popcommcomic.blogspot.com





Tuning In *(from page 4)*

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

With great enthusiasm 19.35
With mild interest — it's not going to consume me 32.25
With some interest that might grow with time . 22.58
Only because I like new things. Station IDs are cool. 9.68
Not at all. I've never liked the idea 16.13

Now that we have 12 months of digital editions under our belt, to which online editions of CQ Communications magazines have you subscribed? Choose all that apply:

Popular Communications. 58.82
CQ Amateur Radio (*CQ* magazine) 23.52
CQ VHF 5.88
WorldRadio Online 11.76

The January survey has an online component, as well. The results are posted at <http://www.popcommmagazine.blogspot.com>.

Pop'Comm-WRO Live Online Chat, May 26: *Dayton After-Party!*

The Post-Dayton Pop'Comm-WRO Live Online Chat will be Sunday, May 26 at 8 p.m. Eastern time. Don't miss it! Visit the *WorldRadio Online* blog at <http://www.WorldRadioOnline.blogspot.com> and click on the *Cover It Live* box. See you there!

– Richard Fisher, KPC6PC

Unwired *(from page 5)*

various lists, determined it was the satellite built by the Massachusetts Institute of Technology and launched in 1965. "The satellite failed to reach its intended orbit, owing to a wiring error, and has been drifting out of control ever since," he told *Southgate ARC News*.

Williams "noticed its peculiar signal drift caused by its tumbling end over end every four seconds as the solar panels become shadowed by the engine," the story said. "This gives the signal a particularly ghostly sound as the voltage from the solar panels fluctuates," Williams said. *(Source: Southgate ARC News)*

Power FM/3BA: 'Elvis' Has Saved the Building

This from Leigh Ryan, breakfast-time announcer and promotions manager at Power FM and 3BA in Ballarat, Victoria, Australia:

"A lightning strike on the hill where our transmitter is (located) caused a bushfire. Thanks to a massive effort by the (fire and emergency crews), with the help of *Elvis* (the helicopter air crane, not the allegedly dead singer) the transmitter hut was saved, but fairly singed, and we've been running off generator power since. *(**WATCH:** A static display of "Elvis" in preparation of Victoria fire season in Australia at <http://bit.ly/13xj7VU>. – KPC6PC)*

"As you can see from the photos by *Radio Today*, <http://bit.ly/14e7miy>, we were about 6-inches-of-brick away from an extended holiday. This happened while our technician was on a three-week overseas (vacation), so our GM spent most of his weekend onsite getting new air conditioner units installed and he also had to clean the ash out of the equipment. The joys of radio!" *(**LISTEN:** To 3BA/Power 102.3 FM at <http://bit.ly/12jW5Ce>. – KPC6PC) (Source: Southgate ARC News)*

First Smartphone in Space? Dial Me Up, Scotty

Professor Sir Martin Sweeting, G3YJO, was aiming to be the world's first person to put a smartphone satellite in space. *By Jove, he and his team did it!*

STRaND-1, a UK mission, was sent into orbit on February 25 and signals have, indeed, been received by Earthlings. *Klaatu barada nikto!* <http://bit.ly/ZaRxYy >. *(**IN DEPTH:** For complete information on the mission, visit <http://bit.ly/YUmRwH>. – KPC6PC) (Source: Southgate ARC News)*

ADVERTISERS' INDEX

Old 'monia is Pneu Again

by Bill Price, N3AVY
<chrodoc@gmail.com>

(Cough, cough, hack, hack . . .) Hello friends, loyal readers, and an increasing number of email friends. This may be a bit of history you're holding in your hands, as the rumors of my demise seem to be increasing as the calendar ticks by.

Of course, the issues are published, printed, and distributed well after I type these words — even the digital issue does not just materialize after we contributors submit everything but the ads and the masthead.

I believe last month I made mention that I was getting over pneumonia and bronchitis. I lied. The pneumonia is gone (for now) but the bronchitis remains as strong as ever. Fifty-two days so far, and only I and the legendary Mr. Bemis (at my HPJIE*) are counting.

You may remember Mr. Bemis as the evil boss in an ad for a school of electronics who was so mean to his employee that he caused him to enroll in a home-study course in electronics, thereby qualifying himself for what was touted as a "high-paying job in electronics," and allowed him to tell Mr. Bemis just what to do with his dead-end job.

"Fifty-two days so far, and only I and the legendary Mr. Bemis (at my HPJIE) are counting."*

This is where the term HPJIE originated, and I owe my good friend Norm for keeping the legend alive. Norm, as you know, is an inverse snowbird, living in the cold northeast during the winter months, and skipping on down to Florida in the *(cough, cough . . .)* warmer summer months. I'm still not sure whether he hasn't adjusted his calendar, or if he really likes the distinction of the two brutal seasons. All of that aside, he's a true blue friend — bluer by far during the winter months — and would help most anyone put up an antenna (which is another reason why he goes by an alias here).

New email friend David (DeltaBravo) mentioned just tonight that while there are 3-D copiers which can copy three-dimensional objects such as an adjustable wrench (and certain prohibited things), and that we can now afford a personal two-dimensional copier for everyday use around the house, there are no one-dimensional copiers available

Before I had time to ask him what a one-dimensional copier might copy, he told me that it would be perfect for CW! That's radio jargon for continuous wave, which isn't really continuous after all, but is interrupted when a person lifts his hand from the Morse code key.

There are very few things which are one-dimensional, but in a way, I guess Morse code and radio beacons qualify as much as anything. While I'm on the subject of dimensions, I'll recommend a book called *Flatland,* which is a fascinating story (not too long) about a world that has only two dimensions. The author's name is Edwin Abbott Abbott (yes, twice). It was written in 1884 and will keep you up at night wondering.

I was originally baffled by how radio signals are modulated. I could understand the old continuous wave pretty easily, but how they glued that AM (amplitude modulation) signal onto the carrier wave was pretty difficult to understand.

Then came FM (frequency modulation) and while I understood it OK, I still could never quite figure how they put classical music onto it.

I had just about understood (and accepted as fact) that television signals were one long line that got wiped onto your screen 525 times and then repeated itself and along came color TV. I think it's done with little ink jets that squirt water-based ink onto the inside of your screen, and it washes off about 30 times a second, drips down into a trough and is filtered back into the ink jets and reused. I'm pretty sure that no one has ever had to buy new ink jets for their color TV.

So far as HDTV goes, don't ask. It is only in the FCC's imagination. It doesn't exist. Like the emperor's new clothes, only very smart people can see it.

I think Norm left just in time and is now enjoying a few weeks of good weather in sunny Florida, along with Beezer and Jeff the cop. Since Jeff is now a retired cop, it's probably OK for me to refer to him by his real name. Norm was the one who gave him that moniker in order to keep him separate from all the other Jeff's we know, which is exactly none.

Norm has this way of giving people nicknames. I might as well let on that he calls me, among other things, *Jabba.* Don't ask. I've never eaten a frog, live or otherwise.

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- Fast Fourier Transform algorithms
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