

45635

POPULAR COMMUNICATIONS

AUGUST 2007

New Orleans Reconnected? Where Are We Two Years Later?

- **Pop'Comm Tours NOAA's Lockheed WP-3D Orion "Hurricane Hunter" pg. 16**
- **Tech Showcase: SWIFT WX Professional Weather Tracking Software Helps Keep Your Family Safe pg. 30**
- **A Pair Of FRS/GMRS Transceivers (With NOAA Receive!) For Only \$70 pg. 39**

**Breaking News:
GRE Unveils A
Revolutionary New
Scanner—The PSR-500
pg. 23**

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PLUS: Utility Monitoring Without Infrastructure • The Terminated Corner-Fed Super Loop • TV DXing • Listening In On The Fleet

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COMMUNICATIONS RECEIVER VR-5000

0.1~2599.99998MHz*
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All-Mode Wideband Receiver VR-500

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The **etón E1 XM** is the world's first radio that combines AM, FM, shortwave and XM Satellite radio into one ultra high-performance unit. The E1 is an elegant confluence of performance, features and capabilities. The look, feel and finish of this radio is superb. The digitally synthesized, dual conversion shortwave tuner covers all shortwave frequencies. Adjacent frequency interference can be minimized or eliminated with a choice of three bandwidths [7.0, 4.0, 2.5 kHz]. The sideband selectable Synchronous AM Detector further minimizes adjacent frequency interference and reduces fading distortion of AM signals. IF Passband Tuning is yet another advanced feature that functions in AM and SSB modes to reject interference. AGC is selectable at fast or slow. High dynamic range permits the detection of weak signals in the presence of strong signals. All this coupled with great sensitivity will bring in stations from every part of the globe. Organizing your stations is facilitated by 500 user programmable presets with alpha labeling, plus 1200 user definable country memories, for a total of 1700 presets. You can tune this radio many ways such as: direct shortwave band entry, direct frequency entry, up-down tuning and scanning. Plus you can tune the bands with the good *old fashioned* tuning knob (that has *new fashioned* variable-rate tuning). There is also a dual-event programmable timer. Whether you are listening to AM, shortwave, FM or XM, you will experience superior audio quality via a bridged type audio amplifier, large built in speaker and continuous bass and treble tone controls. Stereo line-level output is provided for recording or routing the audio into another device such as a home stereo. The absolutely stunning LCD has 4 levels of backlighting and instantly shows you the status of your radio.

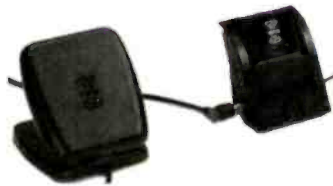
The incredibly attractive **Grundig YB-550PE** combines form and function to offer an excellent shortwave experience. Six tuning methods are available to make tuning the bands easy and quick. Enjoy AM, FM, FM Stereo (to earphone jack) and full coverage shortwave from 1710-30000 kHz. Direct keypad frequency entry is possible or Up-Down tuning is available to surf the bands. A bar-graph tuning meter puts you exactly on frequency. 100 memories store your favorite stations. The built in clock can wake you to the radio audio or a buzzer. The large backlit LCD shows time and frequency. Comes with a carry case. 3.5 x 5.75 x 1.375 inches 10 oz. Originally introduced at \$99.95.

YB-550PE Order #0550 **\$59.99**

➤ Purchase your Eton E1 from Universal Radio before 10/31/07 and receive a **FREE Grundig YB-550PE** with your order!

Many receiver parameters such as AM step, FM coverage, beep, kHz/MHz entry etc., can be set to your personal taste via the preference menu. The E1 has a built in telescopic antenna for AM, shortwave and FM reception. Additionally there is a switchable antenna jack [KOK] for an external antenna. Universal also sells a PL259 to KOK antenna jack adapter (#1052 \$14.95) as well as a sturdy angled Lucite radio stand (#3873 \$16.95).

 **AUDIOVOX**
CNP2000



The E1 comes with an AC adapter or may be operated from four D cells (not included). 13.1"W x 7.1"H x 2.3"D Weight: 4 lbs. 3 oz. We are shipping latest production. Get a **Free YB-550PE** with your E1 for a limited time.

E1 XM Order #0101 **\$499.95**

The Eton E1 is XM ready, so you may purchase the Audiovox CNP2000DUO XM antenna module at any time. It has a 25 foot cable. (An optional XM-EXT50 50 foot extension cable is also available #4905 \$39.95.)

CNP2000DUO Order #0072 **\$58.95**

Note: The CNP2000 DUO antenna module and XM subscription are sold separately. Activation and monthly subscription fee required for XM.

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with your Eton E5!

etón **E5**



The **etón E5** is a world class portable radio covering long wave, AM, FM and shortwave. It offers SSB-Single Side Band, 700 memories, keypad entry, scanning and a 24 hour clock timer. You also get: Line Output, Local/DX Switch, Wide-Narrow selectivity and external SW antenna jack. Operates from four AA cells (not supplied) or the included AC wall adapter. Comes with a manual, wrist strap, protective case, wire antenna and ear buds. 6.675 x 4.125 x 1.125" 12.2 oz. One year limited warranty.

List \$169.95 Order #0055 **\$149.95**

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- Returns subject to a 15% restocking fee.
- Prices shown do not include shipping.

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On The Cover

Scenes from a ravaged city: Still standing. N.O.P.D. UHF antennas loom in the background over a flooded New Orleans. Superimposed in the foreground, a house near the breached 17th Street Canal levee. The house was literally pushed off its slab after taking on more than 11 feet of water. See our cover story by Roberto Dabdoub, KB5AVY, "Listening to the Echoes of Katrina," beginning on page 10. (Photo by Roberto Dabdoub, KB5AVY)

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Tap into secret Shortwave Signals

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

MFJ-462B
\$189⁹⁵

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

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

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a "first-rate easy-to-operate active antenna...quiet...excellent dynamic range...good gain...low noise...broad frequency coverage." Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz.

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED.

Switch two receivers and auxiliary or active antenna. 6x3x5 in. Remote has MFJ-1024 \$149⁹⁵ 54" whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$15.95.

Indoor Active Antenna

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

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

Compact Active Antenna

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. 3/16x1/4x4 in.



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

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

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

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

High Performance Modem

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

Easy to use, tune and read

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

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

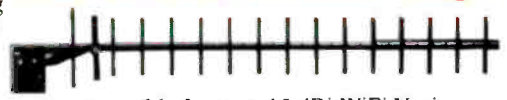
It's easy to read -- front-mounted 2 line 16 character LCD display has contrast adjustment.

Copies most standard shifts and speeds. Has

MFJ AutoTrak™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312D AC adapter, \$15.95. 5 1/4x2 1/2xHx5 1/4D inches.

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



16-element, 15 dBi WiFi Yagi antenna greatly extends range of 802.11b/g, 2.4 GHz WiFi signals. 32 times stronger than isotropic 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. 18Wx2 1/4Hx1 1/4D 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.

Eliminate power line noise!



MFJ-1026
\$189⁹⁵

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

Matches your antenna to your receiver so you get maximum signal and minimum loss. MFJ-959C

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

High-gain, high-Q receiver preselector 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

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
\$24⁹⁵

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

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

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 loss. Air variable capacitor with vernier. 1.6-33 MHz.

MFJ Shortwave Speaker

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-281
\$12⁹⁵

MFJ All Band Doublet

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MFJ-1777
\$49⁹⁵
Ship Code A

MFJ Antenna Switches

MFJ-1704 \$69⁹⁵ MFJ-1702C \$29⁹⁵

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.

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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. 4 1/2Wx1Dx2H inches.



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Reaction Vs. Reactionary

What Wasn't Done In Louisiana What Is Being Done In New Jersey

Just when you thought the government couldn't move quickly on anything, something pops up in your email to make you reevaluate your opinion. My apologies go to the legislature, of New Jersey at least. And my thanks go to the Garden State's Cherryville Repeater Association for sending their attention-grabbing headline to my inbox: "Amateur Radio mobile use to be outlawed in NJ URGENT ACTION NEEDED!"

They had me at "outlawed," but this followed:

The New Jersey Legislature is fast-tracking a bill (P.L.2003, c.310 (C.39:4-97.3 et seq.) to prohibit the use of any "electronic communication device" while driving. The bill defines "use" as including LISTENING to any such device. The mobile use of Amateur Radio will most certainly be outlawed should this legislation be enacted.

This bill is being moved quickly in light of the controversy surrounding Governor Corzine's near-fatal motor-vehicle accident, where text-messaging has been implicated as a factor.

An attached PDF quoted from the horses' mouths (*italic emphasis added*):

STATEMENT

This bill would prohibit text messaging or sending an electronic message via a wireless telephone or electronic communication device while driving.

Under current law, it is unlawful to use a wireless telephone while driving, unless it is a hands-free wireless telephone. *This bill would expand that prohibition to include electronic communication devices.* The current law defines "use" of a wireless telephone as including, but not being limited to, talking *or listening* to another person on the telephone. This bill would expand that definition to include, but not be limited to, text messaging or sending an electronic message via the wireless telephone *or electronic communication device.*

You did notice the bit about "listening to...electronic communications device." yes? This doesn't just affect hams. In fact, as written it can be construed to prohibit listening to your car radio!

I don't want to minimize how badly the governor was injured (he was also not wearing a seat belt and was being driven at over 91 miles per hour on the Garden State Parkway), and I can certainly understand the concern for safety (heck, I share it, I've been on that park way!). But what got me on this was the "fast-tracking" aspect of it—the accident occurred on April 17; the bill was introduced May 10—maybe because I was simultaneously going through the photos submitted for our cover story on the devastation Katrina unleashed in New Orleans. Those incredible shots, taken by author Roberto Dabdoub, brought it all back—the hand-wringing, the tut-tutting, and the criminal level of incompetence that was displayed, in its own way as devastating as the storm.

At the time that real-life American tragedy was largely blamed on the lack of interoperability and other comms breakdowns. Two years later, guess what? Well, read the article. Fast-track, indeed.

And, by the way, Dabdoub, a ham with the call KB5AVY, maintains a repeater system in New Orleans. At one point after the storm his system was the only link between the state capital's emergency operations center and other relief and emergency centers involved in critical rescue work.

If you live in New Jersey, you might want to consider contacting your representatives and telling them you think they're on the wrong track. Just a thought.

Edith Lennon

Pop'Comm invites your comments, questions, criticisms, compliments, article submissions—in a word, your thoughts. Write to me at editor@popular-communications.com.

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- * Removable belt clip.
- * Auto seek station.

The legend continues with the DT-200VX. Smaller, more sensitive, and with a legion of new features to accompany it, you will love the DT-200VX as much as everyone who has owned one has grown to love the original.

Comes with a set of earbuds, Belt clip, and an external antenna. 90 Day parts & labor warranty.

News, Trends, And Short Takes

Satellite Operator Shuts Down Tiger Broadcasts

The U.S.-based Intelsat has shut down the radio and television broadcasts of Sri Lanka's Tamil Tiger rebels. Intelsat, the world's largest commercial satellite communications provider, stated that the service of the Liberation Tigers of Tamil Eelam (LTTE) was shut down over the weekend. A spokesman for Intelsat said that the firm was pursuing avenues to terminate what it called the "illegal" use of one its satellites by the LTTE. The LTTE is designated a foreign terrorist organization by the United States. There was no immediate word from the Tamil Tigers, who insisted that they were not using the satellite illegally to broadcast overseas.

Voice Of Tibet Foundation Launches Campaign To Protest Chinese Jamming

The Voice of Tibet Foundation has launched a campaign to protest Chinese radio "jamming" of its broadcasts. It says the People's Republic of China has systematically jammed Voice of Tibet's and other "foreign" shortwave radio services for more than 10 years now and is calling for action and support internationally to protest and demand an immediate stop to the jamming.

Every VOT transmission is currently targeted by at least two simultaneous jamming transmissions from the PRC authorities, using state-of-the-art facilities outside various cities, including Beijing, Xian, Nanjing, and Linhe. Furthermore, in over 40 Tibetan cities and townships "groundwave" jamming transmissions are targeting VOT's internationally registered frequencies. Tibetan authorities refer to listening to "foreign" broadcasts such as VOT's as "splittist" acts. Those caught listening or showing others how to tune to them are reputedly prosecuted or sent to "reform-through-labor" camps.

Sun 3-D Pictures Help Warn Of Solar Flares

The first three-dimensional images of the sun taken from a pair of spacecraft orbiting the planet were released, and scientists believe they will help them predict when and how intensely dangerous solar storms will hit, according to NASA. Such storms can disrupt satellites, communications, and sometimes the supply of electricity. They may even endanger astronauts in Earth orbit as well as commercial airline flights.

The twin Solar Terrestrial Relations Observatory, or STEREO, satellites can create more accurate, real-time views of these storms, called coronal mass ejections, project scientists said. "The improvement with STEREO's 3-D view is like going from a regular X-ray to a 3-D CAT scan in the medical field," said Michael Kaiser, STEREO Project Scientist at NASA's Goddard Space Flight Center in Greenbelt, Maryland.

The STEREO spacecraft were launched in October and have now been maneuvered into their orbits, one slightly ahead of Earth and one slightly behind. "Just as the slight offset between a person's eyes provides depth perception, the separation of spacecraft allow 3-D images of the sun," NASA said in a statement.



REACT Celebrates 45th Anniversary

REACT International, Inc., marks 45 years of non-profit, safety communications this year. Some 200 volunteer REACT Teams serve communities large and small across North America and around the world to render a safety service using two-way radio.

Originally based solely on CB radio, REACT now operates in a full range of radio bands, including CB, MURS (Multiple Use Radio Service), FRS (Family Radio Service), GMRS (General Mobile Radio Service), and amateur. Many REACT Teams also incorporate LMR (Land Mobile Radio) into their logistical communications.

Volunteer REACT Teams have supported responses in major disasters. Teams from Kansas and Texas traveled to relieve Oklahoma REACT Teams, assisting authorities around the clock for days following the Murrah Federal Building bombing. REACTers from several states journeyed to provide radio communications 24-7 for Salvation Army operations after the 9-11 attack in New York City (the first REACT Team to respond to the World Trade Center had a vehicle heavily damaged as the towers collapsed). During Hurricane Katrina, a REACT Team in eastern Louisiana helped keep open the sole communications link with the state capital using amateur radio. Most recently, a Kansas REACT Team headed to the Greensburg tornado disaster, 100 miles away, to help restore basic communications. In quieter times, Teams provide safety communications for local events to head off problems or to summon aid if a mishap does occur.

May has been designated REACT Month, and this year REACT celebrated the annual event, and its 45th, by conducting its first SOS Drills. Several SOS Drills occurred across the United States, as well as one in Canada. The SOS concept arose out of the tragedy of Hurricane Katrina, where FRS radio could have saved so many more lives. Ironically, the Kansas REACT Team involved in the Greensburg disaster was one of the Teams scheduled to conduct an SOS Drill.

More information on the SOS Drills is available at www.NationalSOS.com. Further information on REACT, including how to become a member, can be found at www.REACTintl.org.

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Bearcat® BCD396T Trunk Tracker IV

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 APCO 25 9,600 baud compact digital ready handheld TrunkTracker IV scanner featuring Fire Tone Out Paging, Close Call and Dynamically Allocated Channel Memory (up to 6,000 channels), SAME Weather Alert, CTCSS/DCS, Alpha Tagging. Size: 2.40" Wide x 1.22" Deep x 5.35" High

Frequency Coverage: 25.0000-512.0000 MHz., 764.0000-775.9875 MHz., 794.0000-823.9875 MHz., 849.0125-868.8765 MHz., 894.0125-956.0000 MHz., 1240.0000 MHz.-1300.0000 MHz.

The handheld BCD396T scanner was designed for National Security/Emergency Preparedness (NS/EP) and homeland security use with new features such as **Fire Tone Out Decoder**. This feature lets you set the BCD396T to alert if your selected two-tone sequential paging tones are received. Ideal for on-call firefighters, emergency response staff and for activating individual scanners used for incident management and population attack warning. **Close Call Radio Frequency Capture** - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. Useful for intelligence agencies for use at events where you don't have advance notice or knowledge of the radio communications systems and assets you need to intercept. The BCD396T scanner is designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS, LTR and EDACS" analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. **Dynamically Allocated Channel Memory** - The BCD396T scanner's memory is

organized so that it more closely matches how radio systems actually work. Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 3,000 channels are typical but **over 6,000 channels are possible** depending on the scanner features used. You can also easily determine how much memory you have used and how much memory you have left. **Preprogrammed Systems** - The BCD396T is preprogrammed with over 400 channels covering police, fire and ambulance operations in the 25 most populated counties in the United States, plus the most popular digital systems. **3 AA NIMH or Alkaline battery operation and Charger** - 3 AA battery operation - The BCD396T includes 3 premium 2,300 mAh Nickel Metal Hydride AA batteries to give you the most economical power option available. You may also operate the BCD396T using 3 AA alkaline batteries. **Unique Data Skip** - Allows your scanner to skip unwanted data transmissions and reduces unwanted birds. **Memory Backup** - If the battery completely discharges or if power is disconnected, the frequencies programmed in the BCD396T scanner are retained in memory. **Manual Channel Access** - Go directly to any channel. **LCD Back Light** - A blue LCD light remains on when the back light key is pressed. **Autolight** - Automatically turns the blue LCD backlight on when your scanner stops on a transmission. **Battery Save** - In manual mode, the BCD396T automatically reduces its power requirements to extend the battery's charge. **Attenuator** - Reduces the signal strength to help prevent signal overload. The BCD396T also works as a conventional scanner to continuously monitor many radio conversations even though the message is switching frequencies. The BCD396T comes with AC adapter, 3 AA nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, SMA/BNC adapter, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO or ESAS systems. Order on-line at www.usascan.com or call 1-800-USA-SCAN.

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 Bearcat BCD396T APCO 25 Digital scanner with Fire Tone Out.....\$519.95
 Bearcat 246T up to 2,500 ch. TrunkTracker III handheld scanner.....\$214.95
 Bearcat Sportrac 230 alpha display handheld sports scanner.....\$184.95
 Bearcat 278CLT 100 channel AM/FM/SAME WX alert scanner.....\$129.95
 Bearcat 248CLT 50 channel base AM/FM/weather alert scanner.....\$104.95
 Bearcat 244CLT 30 channel base AM/FM/weather alert scanner.....\$94.95
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Frequency Coverage: 25.0000-54.0000 MHz., 108.0000-174.0000 MHz., 216.0000-224.9800 MHz., 400.0000-512.0000 MHz., 806.0000-823.9875 MHz., 849.0125-868.9875 MHz., 894.0125-956.0000 MHz., 1240.0000 MHz.-1300.0000 MHz.

The handheld BC246T TrunkTracker scanner has so many features, we recommend you visit our web site at www.usascan.com and download the free owner's manual. Popular features include **Close Call Radio Frequency Capture** - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. **Dynamically Allocated Channel Memory** - Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 1,600 channels are typical but **over 2,500 channels are possible** depending on the scanner features used. You can also easily determine how much memory is used. **Preprogrammed Service Search (10)** - Makes it easy to find interesting frequencies used by public safety, news media TV broadcast audio, Amateur (ham) radio, CB radio, Family Radio Service, special low power, railroad, aircraft, marine, racing and weather frequencies. **Quick Keys** - allow you to select systems and groups by pressing a single key. **Text Tagging** - Name each system, group, channel, talk group



ID, custom search range, and S.A.M.E. using 16 characters per name. **Memory Backup** - When power is lost or disconnected, your BC246T retains the frequencies that were programmed in memory. **Unique Data Skip** - Allows the BC246T to skip over unwanted data transmissions and birds. **Attenuator** - You can set the BC246T attenuator to reduce the input strength of strong signals by about 18 dB. **Duplicate Frequency Alert** - Alerts you if you try to enter a duplicate name or frequency already stored in the scanner. **22 Bands** - with aircraft and 800 MHz. The BC246T comes with AC adapter, 2 AA 1,800 mAh nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. For more fun, order our optional deluxe racing headset part #HF24RS for \$29.95. Order now at www.usascan.com or call 1-800-USA-SCAN.

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Capitol Hill And FCC Actions Affecting Communications

APCO Homeland Security Course Cited In 9-1-1 Magazine

An article titled "Homeland Security Training for Dispatchers" was published in the May issue of *9-1-1 Magazine*, citing the importance of telecommunicators and their training, according to a news release posted on the website of the Association of Public-Safety Communications Officials (APCO), International.

"In the article, author Mike Scott mentions the APCO Institute's Telecommunicator's Role in Homeland Security course and the critical role dispatchers play in recognizing terrorist incidents and how this course will assist the telecommunicator in determining that a possible terrorist event has occurred and the appropriate response," the organization said.

"This eight-hour course is available for your agency as a co-hosted class or as a contract class," according to APCO. Send e-mail queries to schatelk@apco911.org for details or visit the APCO website at <http://www.apcointl.com/institute/training.htm>.

Spectrum And Antennas Top ARRL's Legislative Agenda

"Adequate access to the radio spectrum and the ability to install and operate effective amateur radio stations" have been adopted as the basis for key legislative initiatives for the American Radio Relay League during the 2007-2008 110th Congress, the organization has announced.

The League, which represents thousands of radio amateurs nationwide, said that the "ability for the amateur radio service to maintain and expand its benefits to the public" rests on frequencies and reasonable antennas, "two key elements of public policy."

Specifically, the organization pointed out that,

...frequencies allocated to the amateur radio service are the technological equivalent of a 'national park,' where all may enjoy the natural resource for the purpose of experimentation, education and voluntary emergency communications, provided they demonstrate, through testing, that they are responsible users... The ARRL supports measures that preserve and protect access to existing amateur radio service and amateur satellite service frequencies as a natural resource for the enjoyment of all properly licensed individuals, and protect against interference from unlicensed emitters.

Also, "an amateur radio station is only as effective as its antenna. Increasingly pervasive land use regulations (covenants, conditions and restrictions) limit radio amateurs' housing choices to such an extent that in many parts of the country it is not possible to install an effective amateur radio antenna in a residential area. The ARRL supports the right of federally licensed radio amateurs to be able to install reasonable antennas on their own homes."

The League cited five objectives in its legislative efforts:

- To seek legislation to extend the requirement for "reasonable accommodation" of amateur radio station antennas (a requirement that now applies to state and local regulations) to all forms of land use regulation.

- To seek legislation requiring the FCC to conduct a comprehensive evaluation of the interference potential of broadband over power line (BPL) systems to public safety radio services and other licensed radio communication services. "Further," the League says, "the ARRL seeks Congressional instruction to the FCC, based on this evaluation, to adopt improved rules to prevent the deployment

of BPL systems having a potential to cause destructive interference to radio communication systems."

- To oppose legislation "that would diminish the rights of federal licensees in favor of unlicensed emitters, especially unintentional emitters. "The FCC has taken an unprecedented step in creating a 'safe harbor' in which unlicensed, unintentional emitters are permitted to interfere with licensed radio communication services and are not required to correct the interference... The ARRL must be vigilant against any legislative efforts to legitimize this action after the fact," the League says.

- To "seek recognition of the unique resources, capabilities and expertise of the amateur radio service in any legislation addressing communications issues related to emergencies, disasters or homeland security."

- To support the "complementary legislative objectives of other radio communication services, particularly the public safety and scientific services that require spectrum access and protection from interference for noncommercial purposes that benefit the public."

Arizona Lawmakers Quash Antenna Legislation

An amateur radio antenna bill dubbed "The Emergency Communications Preservation Act," under consideration by Arizona lawmakers, was killed by political maneuvering in May.

House Bill 2595 "called on both municipalities and communities governed by deed covenants, conditions and restrictions (CC&Rs) to reasonably accommodate amateur radio antennas," according to the *ARRL Letter*. "It passed the Arizona House on a 56 to 2 vote. An 11th hour bid to keep HB 2595 alive failed, however, after Senate Government Committee Chairman Jack Harper (R-4), declined to move the bill forward for consideration, effectively killing it.

In an e-mail to Dustin Deppe, K7DTD, of Peoria, Arizona, Harper said that he cannot allow radio amateurs "to put up 40-foot towers over the objection of their neighbors. They were not open to negotiating the height, so I could not allow the bill to go forward." Amateur radio antenna bills in Maryland and Oklahoma also failed to get approval from lawmakers.

As of Spring 2007, "23 states have adopted PRB-1 legislation—requiring 'reasonable accommodation,'" but not specifying a minimum height below which local governments may not regulate, according to the ARRL. "Four states—Alaska, Wyoming, Virginia and Oregon—have legislation in place that specifies antenna support structure heights, below which municipalities may not regulate."

President Honors Radio Amateur For Volunteer Service

A California radio amateur has been awarded the President's Volunteer Service Award by George W. Bush. Randy Hatfield, AG6RH, of Victorville, California, was cited by the President for his work with the city's Community Emergency Response Team (CERT) and Emergency Communication Service (ECS). President Bush honors local volunteers for outstanding services as he travels around the country.

CERT is a Citizen Corps program "that trains volunteers in basic response skills such as fire safety, light search and rescue and disaster preparedness," according to the on-line *ARRL Letter*.

"In his volunteer work with ECS, which uses amateur radio volunteers to assist city and county personnel in the event of a disaster or emergency, Hatfield has taught ham radio classes to community members," the *Letter* continued. "Over the years, Hatfield estimates, he's helped some 350 individuals to get their ham radio tickets."

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Listening To The Echoes Of Katrina

*Nearly Two Years After The Deluge,
A Report From The Front*

by **Roberto Dabdoub, KB5AVY**

Author Roberto Dabdoub, KB5AVY, by the Louisiana Superdome, ground zero to some. (Photo by Chantal Dabdoub; all other photos, unless otherwise noted, by the author)

Regardless of how much effort everyone is putting into the remaking of the New Orleans that once charmed the world with its food, music, and distinctive way of celebrating life, things are still looking gloomy in the Big Easy. Gloomy. And even still a bit frightening.

As a case in point, I'd recently just finished editing *Rooftops Above the Water Line*, a documentary about hurricane Katrina featuring the incredible rescue efforts of private citizens during the storm. I was exhausted and ready to turn in for the night when I heard on the radio that the National Weather Service (NWS) had issued a tornado warning for our area: "Expect sustained winds up to 40 mph and gusts up to 65 mph; a line of tornadoes was spotted and could be headed your way."

The echo time web-driven program I installed in one of my ham repeaters was also going nuts. Earlier, Glen Boudreaux, N5RLT, our ham weather guru, had alerted us of this imminent threat. Fearing the worst again, with two FEMA trailers, a Ford Explorer, and two flooded sedans sitting in our driveway, there was little to do but find the safest place in the house.

My house is still leaning from the storm damage done by

Roberto Dabdoub, KB5AVY, is a photographer, writer, and an active ham who maintains repeaters in the New Orleans area, one of which was the only machine to remain working in the metro area following Hurricane Katrina.

Katrina, so I wasn't sure how sound it was structurally. But I sat and waited. (Trying to duck a storm with no place to hide is still a big problem in the Big Easy, and this year's prediction of 17 storms forming in the Atlantic can really shake you up.)

One hour later, after the system moved away, we learned that the horrific storm destroyed 50 FEMA trailers, dozen of homes, and left 30-plus people injured and one dead.

Once again, poor communications delayed emergency help.

A Chronic Problem

Despite all the negative coverage the communications breakdown received during Katrina, a recent study showed that most public safety agencies still can't effectively communicate with each other during "routine" emergencies.

In the wake of Katrina, most of the cellular and regular phone services were knocked out. Emergency workers inside the city were pretty much limited to a handful of Family Radio Service (FSR) handheld radios, and those frequencies were jam-packed and quickly overwhelmed. Plus, all those radios are line of sight and were also limited by their low transmitting power. First responders were unable to exchange essential information.

The federal government had previously expressed its commitment to improving interoperability among first responders. Prior to Katrina, the state of Louisiana had received \$19 mil-



Yachts were scattered like children's toys along the lakefront in New Orleans.

lion in federal money to improve and upgrade its emergency radio communication system, funds that were used mainly to upgrade the state police radios. But what about the other services? They also needed to be upgraded at the same time.

What we now know is that this very upgrade created serious problems during Katrina, as the newer systems were incompatible with the older radio equipment still in operation. First responders simply couldn't hear each other.

A friend told me something that *he* heard, though; he heard a trumpet player on top of the Louisiana Superdome playing S.O.S. with his horn (Dit Dit Dit...Dah Dah Dah...Dit Dit Dit). Many people probably thought he was playing a jazz tune. My friend said, "Then, I heard a gunshot followed by the crowd screaming."

Achieving Interoperability

The ability to exchange information among two or more radio systems during emergency communication is very difficult because it requires a tremendous coordinated effort. But ham operators seem to be able to accomplish this on a daily basis. They're excellent communicators and extremely resourceful, and that's exactly what you need during real emergencies. If their radios don't work, they hang from a tree upside down, climb a 10,000-foot mountain, or become instant human contortionists to make the darn thing work. That's interoperability: making sure something works first and then figuring out who's listening.

SAFECOM, a communications program of the Department of Homeland Security's Office for Interoperability and Compatibility (OIC), is supposedly spearheading the way to improved communications interoperability in the United States. It's currently in the process of establishing a statistical baseline.

At ground level, we still have a long way to go, however. Our levees and our communications infrastructure are still in a shambles. In the process of writing this

article I tried calling the New Orleans Public Affairs Office to set up some interviews, but the call got disconnected in the middle of our conversation. On my second attempt, a pleasant lady answered. "We're having problems with our lines," she explained. "Our Public Affairs office is still in a trailer, and for some reason the phone keeps cutting out. Could you repeat that, please? You said you're writing an article about communications?"

For some reason the digital signal was distorted, and we both sounded a little like we'd been drinking. "Oh no," she continued, "how embarrassing; perhaps we can communicate better over email..." Then there was a dial tone. Minutes later, she called back, this time on a cell phone. "Hello, I'm on a cell phone. Can you hear me now? Hello! Hello!" Dial tone again. After a half-dozen calls we were finally able to exchange email addresses. I sent one to her, but still haven't received a response. I believe she never got it. And that's today.

If conventional phone lines and other means of communications still have issues like that, it really makes you wonder about everything else. It's impossible to forget the magnitude of Katrina's devastation, because, even though it hit two years ago, it looks like it happened yesterday. Some areas of the city remain totally desolated. While local officials are optimistic about rebuilding, and



Insulators were all that remained after an unchecked fire destroyed the Southern Yacht Club.



Despite the punishing winds and driving rain, some antennas did survive—just not enough.

things *are* gradually moving in the right direction, the majority of the residents remain skeptical.

The “Real Issue”

“Katrina’s terrible toll showed us that we have to do things a little differently around here,” said Arthur Campbell, a communications and computer specialist at Two Way Communication, a local company doing communications restoration in the area. “We lost a container full of high-tech radio equipment during the storm. My personal thought is, if

you’re installing anything less than 15 feet high, you’re wasting your time.” Everyone’s looking to raise their houses, too. Some of them are so high they look downright funny.

The real issue isn’t whether higher is always better, though, or whether digital radio technology is clearer, as some argue. You simply need the stuff to *work* during an emergency. As we upgrade, we need to hedge our bets, too, and keep some of the older equipment, just in case. If the electricity goes down, so does your digital telephone service and everything attached to it.



The author looking at the devastation. (Photo by Noreen Dabdoub)

We need to make sure that the digital services have some sort of backup power, and that we can still access conventional landline services (provided the telephone posts don’t go down). We can use satellite phones, for instance; they don’t rely on conventional landline infrastructure to work, but they do have some limitations. They don’t work well inside buildings or in vehicles, for instance, and if you’re trapped inside a flooded home, you’ll have to climb onto the roof to get a signal.

My friend and I bought two of these devices long before Katrina and, for some reason, we couldn’t establish a clear contact. At some point, we ended up talking to some guy in Kuwait. After that, we turned the things off and never used them again. Sadly, my friend Phil, WB5JEQ, passed away a few days after Katrina. His home was located next to the 17th Street Canal where the levee breached, the failure that was responsible for most of the flooding in the Lakeview and mid-city areas. When that happened, many houses were under as much as 14 feet of water. Our own damaged home is also near the 17th Street Canal.

Progress Is Being Made

Since then, I’m happy to say, there have been breakthroughs in satellite communications, and here in New Orleans many public and private institutions will be using them to provide ancillary support during emergencies. The system is fairly reliable now; you just have to understand the limitations.

“On a positive note, Louisiana is much better prepared today to handle its emergency communications needs than it was before Hurricanes Katrina and Rita,” said Jefferson Parish deputy sheriff and communications specialist Mark Lier. For the last two years, Lier has been working on a communications project he designed. “I strongly believe VHF is the way to go, and more specifically on the marine band,” he said. His emergency repeaters will integrate the Jefferson Parish Search and Rescue operation, the New Orleans Coast Guard, and other agencies. Lier even used some of his own money to make this thing work. “Interoperability will be drastically improved in Jefferson Parish,” he said. “If the electricity fails, we’ll be ready to move to the higher bands, such as 800 or 900 MHz.”

In Jefferson Parish and areas of downtown New Orleans new equipment is



The author's portable HF equipment.



Someone's one-time radio project? Now abandoned in the Lower Ninth Ward, like so much else.

being put into service, cables are being re-routed, back-up power generators are heavily guarded, and those that once were in the flood zone are now on higher ground. The state is getting new mobile emergency communication units, portable repeaters, and satellite phones.

So are we better prepared for another storm like Katrina? Are we moving fast enough? Are we ready to take the next plunge? No one really knows until we face another storm.

Life-Saving Radio

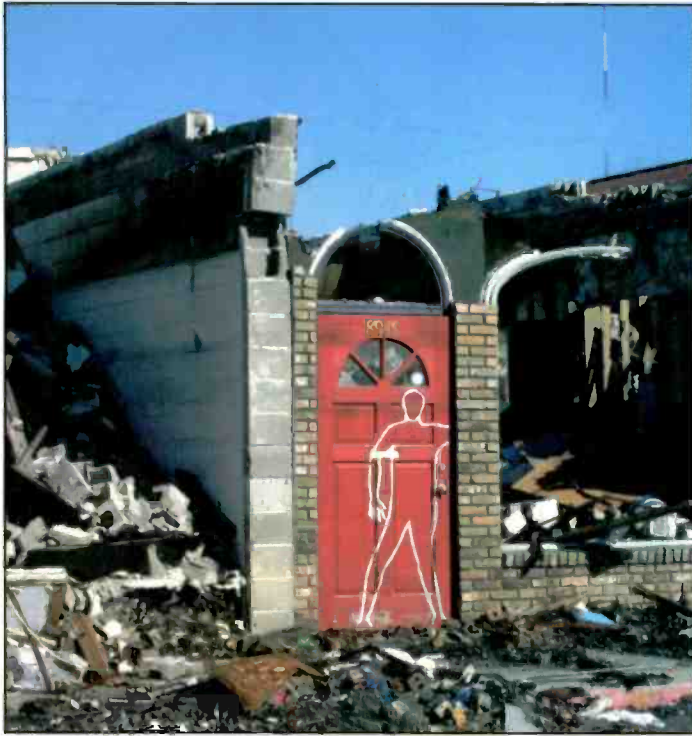
When we do face the next one, hams will be there to help. The New Orleans Coast Guard has also opened its doors to the ham community at large, including the Amateur Radio Emergency Service (ARES), the Salvation Army Team Emergency Radio Network (SATERN), and the Radio Amateur Civil Emergency Service (RACES). These and other entities are now working together to form a strong coalition.

"We feel that we are very fortunate to have people who have willingly given of themselves, truly compassionate people who came from everywhere to help us," said Harris Miller, KB5BFK, a local ham operator and electronics technician. In addition to helping to coordinate communications for the Special Olympics and the March of Dimes, Miller has been assisting hams to get their systems back on the air.

"The Louisiana Council of Amateur Radio Clubs is now considering the idea of a statewide repeater linked via IRLP," said Alexandria, Louisiana, resident Scott Wren, KD5DFL. The IRLP (Internet Radio Linking Project) has been around for years and has already been adopted by thousands of hams around the



An old Zenith TransOceanic radio floating in the 17th Street Canal.



← Ghostly figures alone inhabit some areas of the Lower Ninth.

"Laissez Les Bons Temps Rouler"—let the good times roll! Mardi Gras 2007 spills life (and Elvis impersonators) back onto the streets of the Big Easy.



In the Lakeview area of New Orleans repaired antennas are a hopeful sign.

a critical time, were among the few links between New Orleans and the outside world. In the aftermath of Hurricane Katrina, my 24-year-old 444.150 repeater was used to handle communications between the emergency headquarters in Baton Rouge and rescue workers out in the field. The other machine, on 444.975, was equipped with an agile ICOM IC-751 HF remote transceiver capable of short-wave communications. Three Advanced Computer Control ACC 850 controllers were doing the linking job. The system was internet-capable and had Echolink (voice over IP technology used by ham operators). Unfortunately, this last component could not be utilized because we lost cable Internet reception.

The two machines had auxiliary backup power generators and were located on the roof of one of the local hospitals (Ochsner Clinic Foundation) that had its own backup power (the hospital lost power only for a few minutes). The 1.2 machine had a 10-meter FM link, although this band was dead at the time and couldn't be used. (See "Here's To The Control Operators" elsewhere in this issue for more on repeaters and the volunteers who keep them going.)

"Laissez Les Bons Temps Rouler"

This, in French Cajun, is our way of saying, "Let the good times roll." Throw-

ing Mardi Gras beads and dancing the second line are just a couple of those innocent pleasures we believe can help the city through its slow healing process.

Still, today, as I drive my daughter to school at the University of New Orleans, not far from Lake Pontchartrain, the panorama we see is beyond words. There are still hundreds upon hundreds of gutted homes. Block after block, we pass once beautiful structures, some now leaning, some half collapsed, others completely gone. But in the midst of all this destruction, you do see a few new constructions emerging out of the rubble, like a tiny oasis in a desert of confusion. The main arteries are starting to look neat and clean again, and one or two antennas sparkle on the horizon. If you venture to the side streets, you'll still find holes the size of footballs in the pavement.

But despite that, in the city where people celebrate the good things and the bad things alike, a sense of humor prevails. You see signs that read, "Take pictures with natives \$5."

Many people in New Orleans are still asking themselves the same questions: Should we stay or should we move to some other part of the country? Should we protect the birthplace of jazz or should we move on and sing the blues somewhere else? The French Quarter, Uptown, Downtown are starting to look beautiful again, so I don't believe the blues are going anywhere. Why should they? ■

world. For creative hams, there are ways to make things work, even during general power outages.

I was extremely lucky that my own ham repeaters survived the storm and, at

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Hurricane Hunter Tour

Raising Awareness For What's Expected To Be A Very Busy Season Ahead

by Bob Josuweit, WA3PZO

Don't concentrate on a hurricane forecast's black line. It could cost you your life. That was the message recently named National Hurricane Center (NHC) Director Bill Proenza, members of the NOAA hurricane hunter aircraft crew, and local meteorologists conveyed to hundreds of school children and visitors during the annual Hurricane Hunter tour, this year a five-day, five-city tour of the East Coast that began on April 30.

Proenza said the East and Gulf Coasts of the United States will continue to remain extremely vulnerable to tropical storms and hurricanes in the years and decades to come—especially since 53 percent of the U.S. population lives within 50 miles of the coast. The Atlantic hurricane season officially began June 1.

"Educating the public is our continuing mission," said Proenza. "Even though last season had a below average number of tropical cyclones with no landfalling hurricanes, we remain in an active hurricane cycle likely to last another 10 to 20 years. Preparation through education is less costly than learning through tragedy." The well-known Colorado State University forecasting team expects 17 named storms to form in the Atlantic, with nine of those storms becoming hurricanes. Five of the hurricanes are expected to develop into major storms (Categories 3, 4, and 5 on the Saffir-Simpson scale) with wind speeds of 111 mph or greater.

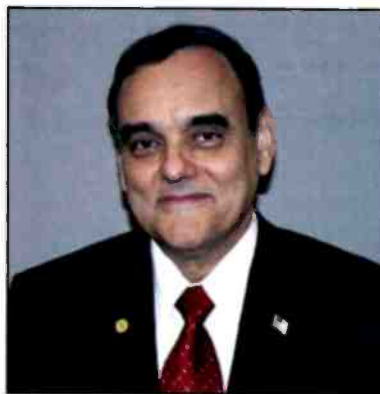
The NHC issues watches and warnings every time a storm bears down on the Atlantic or Gulf Coast. Its mission is to save lives, mitigate property loss, and improve economic efficiency by issuing the best possible watches, warnings, forecasts, and analyses of hazardous tropical weather, and by increasing understanding of these hazards.

The Calm Before (During And After) The Storm

Proenza explained that the NHC aims to be America's calm, clear, and trusted voice in the eye of the storm, and, with its partners, enable communities to be safe from tropical weather threats.

"Although Bill [Proenza] has big shoes to fill as America's calm and trusted voice in the eye of the storm, his experience and his ties to the emergency management community will be a national asset in preparing our coastlines for tropical weather threats," said Department of Commerce Secretary Carlos Gutierrez.

Bob Josuweit, WA3PZO, is the Public Service columnist for *Pop'Comm's* sister publication, *CQ* magazine.



National Hurricane Center Director Bill Proenza promoted Hurricane Awareness on a recent East Coast tour. (Photo Courtesy NOAA)

"Bill directs warning and forecast services for the most active severe weather region in the United States, the Southern Region, where nearly 90 percent of our nation's hurricanes make landfall. He has made hurricane preparation and the local forecasting of flooding, tornadoes, and high winds by our network of weather forecast offices his top priority," said retired Navy Vice Admiral Conrad C. Lautenbacher, Ph.D., under-secretary of commerce for oceans and atmosphere and NOAA administrator. "He is an effective and knowledgeable leader and well respected by our partners in emergency management and the media."

Pop'Comm Goes On Tour

The Hurricane Center forecasters review scientific data coming in from a variety of sources, including satellite and surface observations, and information coming from the National Oceanic and Atmospheric Administration's Lockheed WP-3D Orion "hurricane hunter" aircraft.

Systems crew member Sean McMillan gave *Popular Communications* a tour of the aircraft. As you climb the steps of the four-engine plane you recognize the role that the aircraft has played in supplying critical data by flying through over 80 hurricanes, including Rita, Wilma, and Helene. He opened the doors of an electronics cabinet on the Orion to reveal a rack crammed with computer servers.

It's a long way from the days when he rigged a dial-up modem to show scientists the potential for transmitting data to the ground. Most of the data is now sent via satellite and the Internet to ground locations that collect the data and allow the hurricane forecasters to issue their bulletins, watches, and warnings. There is also the capability of sending data via HF radio. McMillan emphasized that scientists just collect the data; they do not issue any of the bulletins.

McMillan said the aircraft, which is based at MacDill Air Force Base near Tampa, always operates right near the limits of fuel and weight. A typical flight could last nine or 10 hours with up to 18 people on board. McMillan, who has flown hurricane missions since 1993, said that they get data in almost real time. "We want to spend at least five hours on station doing science. With hazardous-duty pay, fuel, and all the other costs, it's \$5,000 to \$10,000 an hour just to run the aircraft," he explained.

McMillan then demonstrated the deployment of dropsondes, which are sensors dropped into a storm that measure temperature, wind speed, barometric pressure, and humidity. Besides sending the data, the dropsondes also transmit their positions using GPS coordinates. On most passes through the eye of a hurricane, at 10,000 feet a dropsonde is dropped at the exact center and sometimes in the eyewall of the hurricane. It measures a vertical profile of the atmosphere similar to the way a weather balloon does so, except that this instrument goes down instead of up!

Dropsondes are also released every 400 nautical miles en route to and from the storm. Each unit costs between \$500 and \$600, and there may be between \$5,000 and \$10,000 spent on the dropsondes in a single flight. "It's a very expensive endeavor, so we try to make it worthwhile," said McMillan.

A Grateful Acknowledgement

Even though the technology to predict hurricanes has improved over the past 10 years, the one thing Proenza said we don't have control over—well, in addition to what a *hurricane* will do—is how *people* will react. One potentially lethal complication for inexperienced shore residents is a hurricane's habit of picking up forward speed once it gets north of Cape Hatteras, North Carolina. "When they do start to curve they accelerate up the coast and add the strength of their forward motion to their winds," Proenza said.

Cape May County, New Jersey, SKY-WARN members promoted a "be prepared" theme by demonstrating a NOAA Weather Alert radio. "The scope of the Alert and Warning procedure throughout the entire inner workings of the Tropical Prediction Center, Storm Prediction Center, and the National Weather Service Forecast Offices nationwide is something

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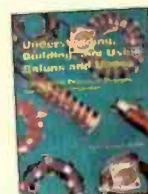
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to behold,” said Bill Aber, N2JAI, a local SKYWARN coordinator.

Aber continued,

Our certified spotter observations, combined with the science and expertise of the meteorologists on duty, contribute to accurate forecasts, watches, and warnings during severe weather, and, in many instances, a spotter’s “Ground Truth Observation” is the first indication of severe weather. These actually can trigger the warnings or upgraded watches and forecasts. The success of the spotter program can, in large part, be attributed to the expertise of the meteorologists instructing in the Spotter Certification program, the dedication of the spotters and the “non-jurisdictional approach to the administration of the NOAA/NWS Spotter program.

According to Aber, “The rapid distribution of the alert and warning products to the public safety entities and the public at large is the success or ‘prize’ that minimizes loss of life during severe weather. It provides that extra moment we all need to take cover and protect ourselves or prepare to shelter in place.”

Those of us who live near the Gulf and Atlantic Coasts owe these dedicated men and women quite a debt of gratitude. So, during this hurricane season, I’m sure all of you will want to join Pop’Comm in saying a sincere and humble “thank you.”



Hurricane Hunter crew member Sean McMillan takes time out of his schedule to read Popular Communications. (Photo by the author)



One of the Hurricane Hunter aircraft pays a visit to Cape May, New Jersey. (Photo by the author)

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Martin F. Jue, K5FLU

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Lightning, The Deadliest Threat

Yes, It Can Be Fatal To Your Equipment, But You've Got To Protect Yourself, Too

by John Kasupski, KC2HMZ

When we think of summer, we tend to think of sunny days, backyard barbecues, baseball games, and beautiful rainbows. The old adage that there is no such thing as a free lunch applies: If you want to see a beautiful rainbow, you have to put up with the rain that comes with it, sometimes brought by thunderstorms, hurricanes, and tornadoes and sometimes marked by the high winds, hail, and downpours that can result in flooding. And that rain may be accompanied by the most serious threat of all: lightning.

Lightning kills more people every year than tornadoes and hurricanes. This is important to know since the primary consideration for anyone faced with a severe weather event is *survival*. According to the National Weather Service (NWS), lightning kills, on average more than 70 people, injures at least 300 others, and causes about \$5 billion worth of property damage and other economic loss every year in the United States.

Lightning is very unpredictable. In fact, the only thing about it that *is* predictable is that it will be responsible for the thunder that you hear during a thunderstorm. When you hear thunder, there is lightning, and you are in danger from that lightning and need to take precautions.

Contrary to popular belief, lightning often strikes outside the area of heavy rain and may occur as far as 10 miles from any rainfall. The belief that there's no danger from lightning if it isn't raining is pure fallacy. This is especially true in the western United States where thunderstorms sometimes produce very little rain.

What we commonly call "heat lightning" is simply lightning from a thunderstorm that's too far away for us to hear the accom-

John Kasupski, KC2HMZ, is *Popular Communications'* "Utility Communications Digest" columnist.

A lightning stroke penetrates a low level cloud before reaching earth. (Photo courtesy NOAA Photo Library, NOAA Central Library; OAR/ERL/National Severe Storms Laboratory.)

panying thunder. That's a good thing, because you're in danger from lightning if you can hear thunder. However, if you're curious about how close the lightning is when you hear the thunder, you can use the "flash to bang" method to estimate the distance from where you are to a thunderstorm by counting the number of seconds between a flash of lightning and the next clap of thunder. Divide that number by five, and that's roughly how many miles away the thunderstorm is. If you see lightning and it takes 10 seconds before you hear the thunder, then the lightning is 2 miles away from you.

If that's too much math for you, use what I like to call the "30/30 Rule": If the time between seeing the lightning and hearing the thunder is less than 30 seconds, you probably should be inside already. Where does the other "30" come in? More than half of all lightning deaths occur after the thunderstorm has passed—you should stay inside for 30 minutes after hearing the last clap of thunder.

Protect Yourself Indoors

However, don't assume from the above that you're necessarily safe as long as you're indoors. That's a nice, comforting thought, but it's a myth. If a lightning bolt hits your house or a nearby power line, it can travel into your house through the plumbing or the electric wiring. If you're using electrical appli-



Lightning blew the radio antenna right off this car in Salem, Oregon. (NOAA Photo)

ances or plumbing fixtures, including telephones and computers, when a storm is overhead, you're putting yourself at risk.

In fact, four to five percent of people struck by lightning are struck while talking on a corded telephone, so, here's lesson number one: If you **MUST** talk on the telephone during a thunderstorm, use a cordless phone or a cell phone. If it's a cordless phone, stay away from the base unit, and if it's a cell phone, don't leave it connected to the charger that's plugged into the wall.

Television sets are particularly dangerous at this time as well. Use a battery-powered radio or television. Electronic equipment connected by wiring to your TV, computer, or stereo is also dangerous during thunderstorms, so quit playing those video games during thunderstorms, and stop your children from playing, too!

Finally, stay away from windows. Metal window frames can conduct electricity, and window panes can break from acoustic shock of thunder, wind-blown objects, or large hail.

Myths Debunked

There are a few other lightning-related myths that need to be debunked. For example, ever have someone tell you during a lightning storm that they're perfectly safe because they're wearing rubber-soled shoes? Well, rubber is an electric insulator, but it's only effective to a certain point. The average lightning bolt carries about 30,000 amperes of current, at about 100 million volts, and its temperature is a balmy 50,000 degrees Fahrenheit. This is more than enough to burn through any insulator, even the ceramic ones on power lines. That half-inch or less of rubber on the bottom of your shoes isn't going to make any difference.

The same goes for the tires on your car. The steel frame of a hard-topped vehicle provides increased protection if you're not touching metal. For this reason, although you may still be injured if lightning strikes your vehicle, you're generally safer inside a vehicle than outside, but the rubber in the tires has nothing to do with it!

The adage that "lightning never strikes twice in the same place" is another fallacy. Just because lightning struck a place once does *not* make it less likely that it will strike again in the same place. In fact, the exact opposite may be true—it may indicate that a given place is more vulnerable to lightning strikes than other sites in the immediate area.

The last myth we'll debunk is the belief that persons struck by lightning carry an electrical charge and should not be touched. This is not true. Lightning-strike victims carry no electrical charge at all, and can be handled safely, and they should be attended to immediately. If the person has stopped breath-

ing, begin artificial respiration; if the person's heart has stopped beating, give CPR. If the person has a pulse and is breathing, look for broken bones and other possible injuries and care for those if necessary.

Check the victim for burns in two places. Someone who's been struck by lightning has received an electrical shock and should be treated as such. That means the victim may be burned both where the current entered and where it exited his or her body.

Be Safer As A Hobbyist

Of all the measures you can take to protect yourself from the dangers of severe thunderstorms—and for that matter, any other severe weather—the most important is to be aware of threatening conditions. Here's where our radio hobby comes in, because it gives us a perfectly good excuse to go out and buy another radio, specifically a weather radio equipped with the Specific Area Message Encoder (SAME) feature that will automatically alert you when important information is issued about severe thunderstorms or other weather-related hazards in your area. If you don't have one of these yet, or if NOAA Weather Radio doesn't cover your area yet, listen to a local radio or television station. However, use a battery-powered TV or radio during a thunderstorm, not one that's plugged into the wall!

The NWS will issue two types of alerts: a *watch* or a *warning*. There's a significant difference between the two. For example, a Severe Thunderstorm Watch means severe thunderstorms are possible in or near the watch area, and you should keep informed and be ready to act if a warning is issued. A Severe Thunderstorm Warning means severe weather has been reported by spotters or indicated by radar, and there may be an imminent danger to life and property.

To get through severe summer weather events in one piece, there are certain things you should do—and not do—before, during, and after a storm. Regarding the things you may *want* to do, hanging around outside to watch shouldn't be one of them! Take cover immediately. Avoid natural lightning rods such as golf clubs, fishing poles, tractors, bicycles, camping equipment—and *portable radios with metal telescoping antennas!*—lightning is attracted to metal, especially to poles and rods.

A sturdy building is the safest place to be during a severe thunderstorm. Places such as gazebos, picnic shelters, golf carts, baseball dugouts, and other isolated structures in otherwise open areas are not safe. Such places are often struck by lightning, are often poorly constructed or anchored, and easily uprooted and blown around in strong winds. Besides, how much protection do you think a golf cart is going to give you from hailstones the size of golf balls, or baseballs?

If you're driving when a severe storm approaches, avoid flooded roads. Most flood fatalities are caused by people attempting to drive through water or people playing in high water. The depth of water is not always obvious. The roadbed may be washed out underneath, and you could be stranded or trapped. Rapidly rising water may stall your engine, engulfing your vehicle—with you in it!—and sweeping it away. Look out for flooding at highway dips, bridges, and low areas. Surprisingly, it only takes about two feet of flowing water to carry away most automobiles, SUVs, and pickup trucks.

After the storm passes—especially if a tornado just dissipated—don't think someone waved a magic wand and everything's safe again. Continue listening to NOAA Weather Radio

or a local radio or TV station for updated information and instructions.

It's also possible that access may be limited to some parts of your community and roads may be blocked. If you can, help those who have special needs like infants, the elderly, people without transportation, large families who may need additional help in an emergency, the disabled, and the people who care for them. But unless you're formally involved in a disaster relief effort, stay away from storm-damaged areas. Don't put yourself and others at further risk; sightseers hamper local responders assisting those in need.

Watch out for fallen power lines and report them immediately. Watch animals closely, and keep your own animals under your direct control. Animals may become confused before, during, and after severe storms, and if there has been wind damage, they may be able to escape from your home or yard. Watch for hazards at nose and paw level, particularly debris and downed power lines. Be aware that the behavior of animals can change considerably after a severe storm. Your neighbor's friendly dog may suddenly become aggressive or defensive, and wild animals displaced by the storm can be hazardous to domesticated animals as well as to people. For that matter, some *people* may not handle things as well as others.

So do what you can to ensure your safety and that of those around you. Keep flashlights, battery-operated lights, and, of course, your radios ready to use. If the power goes out, use flashlights or battery-operated lights, candles are a fire hazard. After a tornado, *do not use* matches, lighters, appliances, or operate light switches until you are *sure* there are no natural gas leaks. Sparks from electrical switches could ignite the gas and cause an explosion.

Protecting Your Shack Against Lightning

I'm not going to waste time trying to give you advice on protecting your radio equipment against a tornado. In a storm that can blow a freight train over, there's not much you can do to keep a handheld scanner in place! However, there are a few things you can do to make sure lightning doesn't destroy your valuable equipment. The simplest such measure is also the most effective: unplug everything. Note that I do mean everything, including radios, computers, telephones, whatever. Anything you have that you want to have still in working condition



You don't have to be struck by lightning to be killed by it. These cows were standing along a wire fence when lightning struck it. (Photo Courtesy Ruth Lyon-Bateman)

after the storm, you should unplug from the household electrical system prior to the storm's arrival.

There are other measures you can take to protect your equipment as well, and you should, indeed, pay attention and carry out those measures. Antennas tend to be the highest objects on a building (remember what I said about how lightning is especially attracted to poles and rods?). An antenna is, in effect, basically a lightning rod (more on those in a moment), and you should take measures to protect your house and equipment. Entire books have been written about this subject, though, and it would be pointless to try to condense a book full of information into one section of one magazine article. Instead, I'd like to recommend a good source of information on the topic. Fire up your computer (while there isn't a thunderstorm raging in the neighborhood) and point your Web browser of choice to the following URL:

www.arrl.org/tis/info/lightning.html

Once there, download the information offered, especially the three-part series, "Lightning Protection for the Amateur Radio Station," which is in portable document format and thus readable on several different computer platforms. This information should be required reading for anyone who installs any kind of radio equipment that uses outdoor antennas, whether it's a ham transceiver, shortwave receiver, CB rig, or just a consumer-grade scanner with a ground plane antenna on the roof of your garage.

Finally, let me get back to lightning rods. I recently had a conversation with another ham who's a close friend of mine, and we touched on the topic of lightning rods. From that conversation, I learned that even people who have barns with

lightning rods on them do not necessarily understand the purpose of lightning rods on a building.

At this point, let me reiterate what I said earlier in this article about lightning. When we're talking about a lightning bolt, we're talking about electricity, some 100 million volts of it, at about 30,000 amps. There is simply no stopping that kind of energy from being released when Mother Nature decides to release it.

This needs to be understood. Simply stated, no lightning protection system of any kind will prevent a lightning strike. Lightning rods absolutely will *NOT* prevent your house, barn, or any other building from being struck. In fact, they actually increase the likelihood a building will be struck by making it taller! The purpose of a lightning rod is to direct the current from the lightning to the ground along a *preferred* path, instead of via the wiring, plumbing, or whatever other paths to ground may exist in that building.

This works only if the lightning rod is connected to the ground with very heavy gauge wire, but if this is properly done, the lightning rod helps mitigate damage by giving the lightning a better pathway into the ground. That's a Good Thing. Take my word for it, the power transistors in your rig were not designed to handle 100 million volts at 30,000 amps, and the heat sinks on those transistors were never intended to withstand 50,000-degree temperatures.

The benefit of lightning protection systems is not that they prevent lightning strikes, because they do no such thing. Their benefit is in the fact that the tremendous energy contained in the lightning bolt ends up in the ground, and not in you, your living room, or the delicate circuitry of your radios and other electronic equipment. ■

Breaking News:

The GRE PSR-500 Advanced Digital Scanner

*A Brand New Scanner From A Familiar—
But Newly Independent—Manufacturer
Is Poised To Take The Market By Storm*

by Rich Wells, N2MCA



As I write this, the 2007 Dayton Hamvention has just concluded its first day of activities and word is spreading among the scanner ranks that there's a new player in town. Well, sort of. Known for many years as a respected OEM manufacturer of various scanners for RadioShack, GRE is now striking out on its own! Just introduced (along with five other models), the new PSR-500 Advanced Digital Scanner, GRE's latest high-end handheld, is poised to set a new standard in the technologically complex arena of trunking scanners.

Rich Wells, N2MCA, is best known for his Internet presence as creator of Strong Signals (www.strongsignals.net), for writing countless detailed and timely reviews, and for his collection of over 100 receivers and scanners.

I was given a chance to test an early pre-production unit (which may or may not resemble what is actually shipped), but, unfortunately, I had less than two weeks to play with it before turning in this review.

The design team, which also developed the PRO-96, started on the PSR-500 from scratch with the goal of making it the most powerful scanner ever offered by GRE, while also placing great emphasis on ease of use. An all new, more powerful central processing unit (CPU) was selected and, more importantly, both the CPU and digital signal processor (DSP) will be firmware upgradeable by end users.

The PSR-500 covers 25–54, 108–174, 216–512, 764–824, 849–869, 896–960, and 1240–1300 MHz. On the conventional side of things, it can receive in AM, FM, and Narrow FM modes, decode both CTCSS and DCS and make frequency steps of 3.125, 5, 6.25, 7.5, 8.33, 10, and 12.5 kHz.

In the trunking realm, it can handle Motorola (VHF/UHF/700/800/900 Analog/P25), EDACS (Wide/Narrow/SCAT), and LTR. A new addition is the ability to decode and “squell” on P25 Network Access Codes (NAC), helping users to more precisely direct their listening to intended targets only. Like the PRO-96, the PSR-500 continues to use GRE's exclusive automatic adaptive digital tracking and AGC functions to provide the best reception of digital signals.

Memory consists of 1,800 locations built around a dynamic model that constructs lists as you program them so you are no longer restricted by fixed bank and channel arrangements. The PSR-500 also comes with 21 Virtual folders, each of which can hold the entire memory contents for later retrieval.

Physical Features

The PSR-500 is almost identical in size to the PRO-96, but just a smidge shorter. The 34-key keypad integrates some new touches, including three “softkeys” underneath the LCD that are used to select options provided on the bottom row of the LCD.

Another new element is the round five-way selector key. It consists of four directional arrow keys surrounding a central



The PSR-500's revolutionary tri-color LED is bright, can be seen from nearly any angle, and offers a choice of seven colors (or unlit) to assign to memory objects.

select button. Get the hang of this key since it's what you'll be using to navigate the menu system and memory contents. The design team stated that one of their goals for user interaction was the ability to manipulate the PSR-500 with just one hand.

Both the keys and the LCD have a brilliant amber backlight that must be seen to be appreciated. And the menu system allows you to select whether the LCD, the keypad, or both are illuminated!

The LCD is a bit larger than the PRO-96's and contains five rows of information: the top row consists of your usual icons (along with a real-time 5-bar S-meter—yeah baby!) while the other four rows are used to display alphanumeric text.

Last, but *certainly* not least, it offers a revolutionary new method in user interface interaction. At the top edge of the front panel is a tri-color LED that can display nearly every color of the rainbow! It can be seen from nearly any angle and you can assign specific colors to any memory object. The LED can come on solid or be programmed to flash. The radio comes with the following LED colors programmed for immediate use: red, yellow, green, cyan, blue, magenta, and white. Just be careful when using the brighter colors at night because they can literally light up a room!

Are you starting to get the idea of how different this radio is yet?

User Interface

The ease-of-use design goal involved how the hobbyist would program and use the PSR-500. The result is what the design team likes to call an Object-Oriented User Interface. Even though the scanner is to be used to scan or search a variety of different things, each "thing" is referred to as an object. And how the user interacts with these objects has been made as consistent as possible.

Instead of the fixed-size memory bank and channel arrangement we've had since the 1970s, what you get on the PSR-500 are Scan Lists. Objects are created to scan or search a particular thing, and then the object is added to a Scan List. Scan Lists are dynamic and will vary in length as you add and remove objects from them. The PSR-500 provides 20 Scan Lists, one SKYWARN Scan List, and one Favorites Scan List.

To program an object, you press the PGM key and the interface provides a "New" softkey to create a new object. You are then prompted to enter the type of



Top view of the PSR-500 showing the BNC antenna jack, earphone jack, and volume/squelch control.

object to be created (conventional freq, talkgroup ID, search limit, service search, or Signal Sweeper). Another bonus of using Scan Lists is the ability to assign an object to more than one Scan List at the same time!

All objects are created, edited, and manipulated the same way. The display prompts you at all stages so you don't have to remember which keypresses are needed to perform a certain function. Granted, the lowest level menu provided for each type of object is unique for that particular object, but the methods are always the same. This is what you call a truly user-friendly interface!

When you get into heavy programming, you'll quickly find that one new feature can aid you tremendously in your work. This feature is called DUPE and is accessed via a dedicated soft-key. It allows you to duplicate an existing memory object so you can replicate similar objects quickly and easily.

To get people up and running quickly on trunked systems, the menu defaults to a wildcard option that can be used to receive all traffic on that system. This wildcard can be used to receive all normal group or individual call IDs.

All memory objects can also be tagged with one of eight audible alerts as well as solid or flashing backlight illumination. Combined with the LED colors, you can derive a scheme to help you visually and audibly identify received signals without having to manually refer to the LCD!

The new memory-find feature can be used to locate specific objects based on string matches in the tag name, frequency, and trunking ID fields. Memory can also be browsed in a filtered mode where only objects of a specified type are displayed.

Stand-alone Monitoring

Right out of the box, the PSR-500 is capable of doing a number of operations apart from the memory system. These include frequency tuning, limit searches, service searches, spectrum sweeping, and using the weather radio features.

TUNE mode allows a frequency to be input and monitored, and you can even search up or down from it. Should a signal be received, the S-meter will display the receive strength, and any CTCSS, DCS, or P25 NAC codes will automatically be searched for and displayed if found.



Here's the battery compartment with the lid off; also shown are the black alkaline battery holder and yellow rechargeable battery holder.

One special option makes use of the tri-color LED to tie its color into the received signal strength. Weak signals start out as blue and then morph to cyan, green, yellow, and, finally, red. If an exceptionally strong signal is received, the LED turns white!

The PSR-500 also includes something called Spectrum Sweeper, which is used to quickly search specified frequency ranges to detect strong, nearby transmitters. This feature is very similar to the equivalent function on the PRO-97 with a few new twists. For one, the lockout count threshold is user adjustable in the menu system. And instead of having its own lockout list, the Spectrum Sweeper shares a set of 250 lockouts with all of the other search modes.

Performance

My first real test was to check for birdie frequencies, and I only detected 15 across the entire receive range. I then checked for receiver overload in a very RF hostile environment, once again sweeping the entire range using the stock antenna. Overall results were very good, with just a few TV images detected in a couple of ranges (which is the same for my PRO-43, PRO-92, and PRO-96).

The last piece of hard data I could collect involved the current drain used in various modes. I only had time in my testing to go through two sets of alkalines, and my guess would be that I got seven to eight hours of testing from each set. This was with volume normally set to about 40 percent and minimal use of the backlight. I was disappointed with this run time and will look into high-capacity NiMH cells, which should provide better results.

Most of this problem is likely due to the higher horsepower CPU. When just sitting on a conventional frequency and not receiving, this radio draws 137 milliamps (mA). That's a good bit of current! Sitting on an idle trunking control channel raised this slightly, to 144 mA. Interestingly, when scanning a mix of trunked and conventional systems, the current drain was 143 mA.

When receiving a signal, regardless of type, the drain jumped up to 165 mA (with 50-percent volume). Raising the volume to 75 percent put the drain at 200 mA. Turning on the LCD and keypad backlight increased the drain by 75 mA (LCD backlight alone = 57 mA, keypad alone = 20 mA).

In my monitoring for testing purposes, I scanned a few local Motorola II and P25 systems, an EDACS wide system, and a number of conventional frequencies using both PL and DPL. And while I don't have the space to give you all the details, the overall tracking of the PSR-500 was exceptional (especially in its new multi-site and talkgroup ID hold features). A handy bonus is the trunking icon at the top of the LCD, which is a real-time indication of control channel reception and decoding.

PC Interface

The PSR-500 comes with an interface jack that's used to upload/download memory data, remote control, CPU/DSP firmware update, trunked control channel data upload to a PC, and for radio cloning.

The best way to connect this radio to your PC will be to use a high-speed USB data cable, such as the GRE 30-3290 or RadioShack 20-047. GRE has also announced that StarrSoft (www.starrsoft.com), a supplier of scanner software, will be supporting the PSR-500.

In Summary

What I liked: ease of use, a gazillion tweakable features, scans (nearly) everything, great audio power and quality, CTCSS/DCS squelch/search, S-meter, brilliant backlight, tri-color LED, audible alarms, dynamic memory system, DUPE, fast USB interface, field-upgradeable firmware, and the readable and useful manual.

What I think needs work: GRE should add a rotary control, supply a worthy antenna, reduce battery drain, and lose the silver faceplate.

But, in conclusion, the mark of any good product is its ability to do what it was designed to do and do it well. GRE set out to make the best full-featured scanner on the market and make it easy to use. This is a truly formidable task given the complexity and diversity of radio systems to be scanned. And it's no small feat when you consider all the tasks that will be required of it by the monitoring community.

I believe that GRE's new PSR-500 does all that it set out to do and more. The company couldn't have designed a better product to stand behind while heralding to the world that it is striking out on its own to help inject some life back into the scanning hobby.

I've tried to do this radio justice in the space I was given, but this radio has a LOT of "stuff," so there are a lot of smaller stones I didn't have time to turn over. (I'm informed, though, that *Popular Communications* intends to rectify this soon by delving further into the scanner with a full-length feature—watch for it!) Think of these as presents for you to unwrap if you decide to become a PSR-500 owner yourself!

This radio is a gem and will make a grand addition to anyone's shack. Power, flexibility, and ease of use—what more could you ask? Now you'll just have to wait until sometime in October for it to arrive! The word right now is that the street price is expected to be \$550. So start bugging your favorite radio dealer to carry the new GRE line of scanners so you can put your order in for a PSR-500 today! ■

Steps Out

General Research of Electronics, Inc. (GRE) is a Japanese company founded in 1961, with GRE America established in 1979. Designers of a wide range of electronic equipment, GRE has been long known to radio hobbyists as the OEM manufacturer for a number of models sold by RadioShack under the "PRO" series, which includes the PRO-2004, PRO-2006, PRO-43, PRO-60, PRO-2042, PRO-92, and PRO-96. In the late 1960s and early 1970s, GRE also made a number of radios sold by Allied, Bearcat, Lafayette, RCA, and others.

While the company has enjoyed a long and satisfying relationship with RadioShack, GRE has been troubled with the direction of the scanning hobby in the past few years. As radio systems have grown increasingly complex, so have the scanners needed to monitor them. The overall effect has been to frustrate dedicated listeners and turn away beginners.

GRE believes that by exploring independent direct sales under the GRE label, it will have more flexibility to do more aggressive research, development, and engineering. Its goal is to make scanning receivers easier to use, but also more powerful than ever before. GRE has always been a company to listen to the needs of its customers and this new direction will help it grow even closer to end users and what they want in their next radio.

Part of this effort comes from using the Internet to monitor the feedback from actual users as products are rolled out. Both praise and complaints are used to guide the development of the next radios being designed.

Another positive step the company took was to work with a small development team of engineers in the United States who helped GRE tweak the PRO-92 shortly after its introduction in 1999. This team is both passionate about the scanning hobby and closely involved with modern public safety communication systems, both analog and digital.

GRE worked with this team to help the company roll out the PRO-93 and PRO-95 models. When it came time to develop the first digital scanner, this team was given a clean slate from which to start and the end result was the PRO-96. This scanner set a new standard in the industry in terms of performance and the ability to monitor a wide variety of trunked systems, thanks to its powerful CPU and digital signal processing.

The new PSR-500 Advanced Digital Scanner will be joined by two other handhelds, two mobile models, and one base model, all of which were announced at the 2007 Dayton Hamvention.

Here's To The Control Operators

These Dedicated Volunteers Are Always There When Needed—Don't Wait For An Emergency To Say Thanks

by Murray Green, K3BEQ, mgreen@erols.com

Quietly, and from behind the scenes, control operators provide a necessary service for FM repeater users during day-to-day operations as well as during emergencies. But their efforts too often go unnoticed.

Most hams who use amateur radio repeaters typically operate while driving to and from work for short periods of time, and from home when not involved in raising kids, doing taxes, and performing household chores. Repeater licensees, trustees, and control operators, however, follow a different path. As volunteers, they monitor their respective repeaters most of the day and throughout the night. This is *not* as easy as you might think, because they're placed in a unique position of having to hear everything that occurs on the repeater, including interference. What they do is often taken for granted, and many hams are simply not fully aware of what is involved in this daily volunteer service.



Mike Gregory, KB3IYQ, formerly one of approximately 10 volunteer control operators who unselfishly monitor the two Green Mountain Repeater Association VHF repeaters near Washington, D.C. (Mike Gregory, KB3IYQ, photo)

Some may think there's a certain prestige in being a control operator for a repeater; it certainly requires a lot of patience, time, and discretion. Control operators, by virtue of their continuous monitoring, become very attuned to subtle changes in the repeater's operation, a definite plus for those maintaining the equipment. They also listen to all types of exchanges and have to make decisions on illegal and poor operating practices. Sanctions, if required, must be diplomatically applied by control operators, who must make certain that they're not censuring speech or causing ill feelings.

Murray Green, K3BEQ, has been a control operator for repeaters owned and operated by the Green Mountain Repeater Association, serving the Washington, D.C., area, since 1971. He is also an ARRL Official Observer.

As a control operator, the last thing one wants to do is create an atmosphere of self-importance or come down too hard on a fellow ham. That's the way to lose a current or potential club member and create an atmosphere of unfriendliness that's not in the best interests of a repeater organization. Hams like to talk and word gets around! Control operators must have that rare combination of being assertive, straightforward, sensitive to the feelings of others, and sincere in wanting to help. Not everyone is suited for that, so control operators must be selected wisely.

Emergencies

During emergency situations our club repeaters (transmitting on 146.610 and 146.880 MHz near Washington, D.C., and maintained by the Green Mountain Repeater Association) are automatically turned over to the Amateur Radio Emergency Service (ARES) or the Radio Amateur Civil Emergency Service (RACES). Examples of when this has happened include 9/11, and numerous hurricanes, ice storms, and tornadoes. Also, many seriously ill persons are transported to hospitals for dialysis treatment, for instance, by ARES personnel during inclement weather when regular transportation vehicles are overloaded.

Although the repeaters are assigned Net Control Stations (NCS) to help conduct an orderly flow of emergency messages among participating stations, the control operators continue their monitoring in the background. They stand ready to assist if required, in addition to ensuring that the repeaters are properly used.

The Highest Standards Of Operation

Radio scanners are a multi-million (if not billion) dollar industry. In a city where the population runs into the millions, tens of thousands of people may be listening to ham VHF/UHF frequencies. Because our repeaters are located near the nation's capital, their transmissions are easily monitored by those who fund, regulate, enforce, and oversee the Amateur Radio Service frequencies and operation. Congress is only six line-of-sight miles away. It's essential, therefore, that repeater users operate in a manner that reflects the highest standard of operating practices. Control operators are there to diplomatically ensure compliance. Regardless of location, however, this

applies to all repeaters licensed in the U.S. Amateur Radio Service by the FCC.

No "Off" Switch

Monitoring repeaters can be a frustrating and irritating exercise when one has to continuously listen to all sorts of interference that the average operator does not experience or has the option of turning off. A control operator has to stick it out. Some of the interference is of short duration and inexplicable; other interference, such as that caused by open microphones or extended interference from unknown sources, requires coordination and corrective action. Add that to the equation and it's easy to see how difficult the job can be.

Call it dedication, a strong desire to help, to be involved, to want "their repeater" and its users to be the best, or just plain old stick-to-it-iveness. In any event, control operators get the job done. But, they do have some help from the FCC.

Part 97 of Title 47 of the Code of Federal Regulations, the section that defines the rules for the Amateur Radio Service, provides for three types of controls for repeaters: local, remote, and automatic; the latter gives some form of temporary relief for the control operators. Part 97.3(a)(6) defines Automatic Control as, "The use of devices and procedures for control of a

station when it is transmitting so that compliance with the FCC Rules is achieved without the control operator being present at a control point." I believe that the FCC rule makers, in their wisdom, realized that it's unrealistic to monitor a repeater every hour of every day continuously. However, there must be a responsible control operator available to bring the station into compliance with FCC rules, even if that means he or she is woken up at 3 a.m.!

Minding The Store

"...Automatic control must cease upon notification by an FCC District Director that the station is transmitting improperly or causing harmful interference to other stations..." (Part 97.109(d)).

The FCC is not bashful about issuing this notification. Why? Because in certain instances, the abuse most likely extended to a repeater operating without any designated control operators or control operators who did not monitor for lengthy, unacceptable periods of time. Essentially, no one was minding the store, and user exchanges or interference got out of hand with no corrective action taken. Still, the number of issued notifications is minimal



Police helicopters and emergency ambulance crews stand by to aid injured workers following the crash of a hijacked commercial airliner into a section of the Pentagon. Military personnel and civilians helped transport injured people on litters to ambulances for treatment and transportation to hospitals. During emergencies, the Green Mountain Repeater Assn.'s repeaters are automatically turned over to the Amateur Radio Emergency Service (ARES) or the Radio Amateur Civil Emergency Service (RACES). (U.S. Air Force photo by Staff Sgt. Gary Coppage)



The Green Mountain Repeater Association's repeaters are located near the nation's capital; in fact, the Capitol building is only six line-of-sight miles away.

when you consider the large number of repeaters in the U.S. that are properly used.

A Credit To The Community

Amateur radio operators who "show up" when needed, who face extreme hardships during major storms and other disaster-related events, who ensure communications are available (including the use of emergency power systems), who provide transportation for those in need, and who monitor the repeater for countless hours are deserving of our sincerest gratitude.

A final note on the control operator's dedication: Every repeater has a station licensee or trustee (for repeaters using club callsigns) who is the principal party responsible for the proper operation of the repeater. If the FCC calls a trustee to task for a violation, the control operator shares the responsibility. It takes a special level of commitment to assume that kind of responsibility.

So the next time you talk to a repeater control operator or ARES/RACES member on the air, thank him or her, or send an e-mail. Most repeater clubs list their names, callsigns, and e-mail addresses in newsletters or on webpages, or simply ask a club officer how to get in touch. It's the right thing to do. ■

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SWIFT FX Professional Weather Tracking Software

“This will be no Katrina,” read a simple statement on the *Wichita Eagle* website following a devastating EF5 (from the Enhanced Fujita scale, a measurement of storm strength) tornado in Greensburg, Kansas. The storm erased the town with its 200-mph winds and a 1.5-mile-wide path that racked over 22 miles. The statement was made by U.S. Senator Pat Roberts (R-KS) as he spoke to a group of residents staying at a local shelter. Luckily, early warnings reduced the loss of life.

Your Own Early Warnings

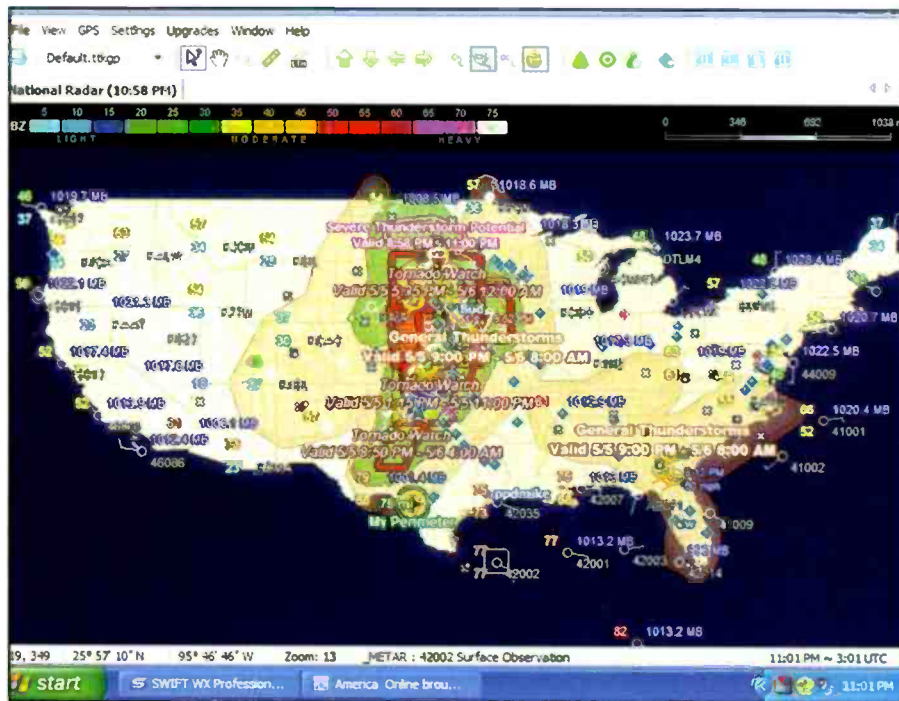
Now you have the ability to monitor local weather radar, spotter reports, National Weather Service (NWS) watches, and warnings as they happen for any point in the United States.

SWIFT WX Professional is an automated Internet downloading and GPS integration tool written for storm chasers, storm spotters, and emergency management personnel.

If you have an Internet connection, you can use SWIFT WX. The new software for consumers allows them to stay ahead of deadly weather and keep their families protected with advanced warnings—even before the weatherman makes public announcements.

SWIFT WX, which was designed for consumers by tornado chasers, features more than 1,100 weather maps, weather radar down to the street level, GPS tracking, perimeter alerts/first alerts, and up-to-the-minute data feeds from 140 weather service offices. The software allows you to track your position over any weather map by plotting your current position over radar, satellite, or surface maps using GPS technology. If you're a storm chaser you'll know where the storm is and how to intercept it.

With SWIFT WX's storm-tracking technology, you'll be able to see the path of severe storms, including thunderstorms and tornadoes, on any weather map, indicating bearing, intensity, and



SWIFT WX's national radar overlay gives users the ability to see severe weather across the United States. (Screen capture by the author)

velocity. You can also drill down into storm data, viewing reporting stations, cell ID, direction, speed, and other important variables.

According to the developers SWIFT WX is geared for storm chasers in pursuit of severe weather, spotters observing and reporting, and emergency managers acting with safety in mind. Using predefined catalogs, users can download only the pertinent weather data without browsing through pages of irrelevant information. Users can also animate a time series of maps to view a storm's progression.

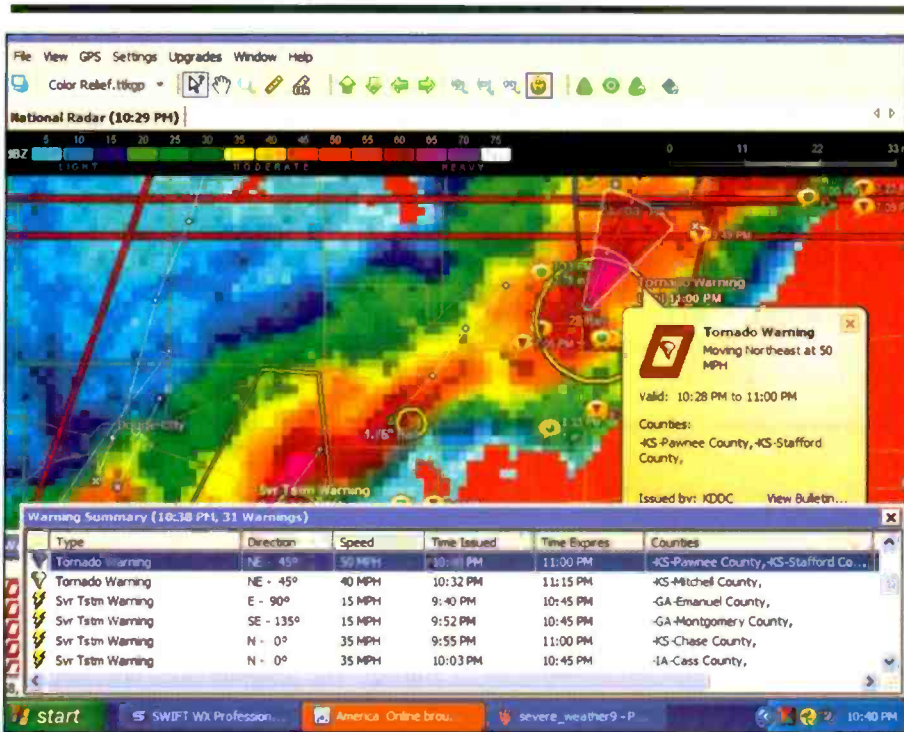
A Deeper Understanding

Everyone talks about the weather, but few people understand it. Have you ever wondered why thunderstorms form? Now you can be the person others come to with a question on the weather. Whether or not you're a seasoned meteorologist or simply someone interested

in studying weather, you should know that the SWIFT WX support staff participates in a users' forum where questions can be asked and suggestions offered for new features.

For instance, one feature being developed by a user is an overlay map showing various radio frequencies in use in a given area. These can include NOAA weather radio frequencies as well as amateur radio repeaters and SKYWARN frequencies. In fact, the software user community regularly contributes its own modifications to the program. One user created a light pollution background map, as well as a tornado map, showing activity from 1985 to 2004.

Other features include live storm reports from local law enforcement agents and trained storm spotters, custom geographical overlays, and integrated "position tracking," including custom icons and user webcams. If another user has registered his or her email address,

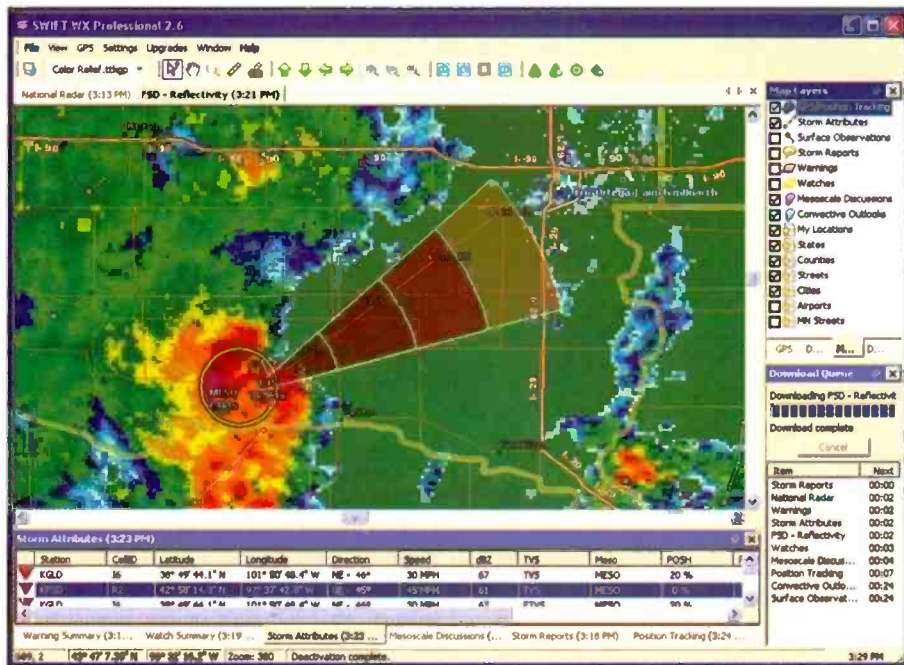


Users are able to focus on local severe weather, link to active watches and warnings, and get local spotter reports. (Screen capture by the author)

you can actually contact that user via email. Besides the mapping overlays, you can also have tables appear with different watches and warnings. When information does appear, you can click on a link to see the actual data from the NWS.

For those interested in learning more about the weather, you should know that you can receive emails with weather tuto-

rials. For instance, in late April an email was sent asking whether or not users knew why some thunderstorms intensify and produce tornadoes while others do not? According to SWIFT WX's CEO Rory Groves there are some basic trends forecasters look at to predict tornadic storms. For instance, during a severe weather event, the email explained, forecasters



The StormPath feature detects hail and tornadoes and predicts times of arrival. (Photo from swiftwx.com)

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use a special kind of radar image, called Base Velocity, to look for rotation inside thunderstorms. The email went on to provide a link to a three-minute radar tutorial explaining how it works and how SWIFT WX provides you with the same capability.

Another tutorial shows you how to customize the weather display to your preference and how to create a storm alert perimeter to warn you in advance of severe weather. You can also create loca-

tions on the map which could show a relative's home, a summer home, or a favorite vacation spot. You could create locations for cities that you travel to on business, or the location of a child away at school.

Feedback Welcome

The software developers are really interested in user comments. It's rare to have a software developer actually mon-

itoring his work email so that he can respond to a user's question in a short period of time. One user wrote,

Rory, I really want to compliment you on how well you've worked with the users and how open you are to changes! It just goes to show how good programs can be when the developer cares what the users think/want and when they are willing to provide input. However, rarely have I ever seen a programmer go to the lengths that you do to try to accommodate most/all changes requested. You've had me on the edge of my seat waiting for each upgrade to see what else you've included.

For weather tracking, SWIFT WX includes a layer of interstates and major highways, but you may add more detailed, county-level streets by importing GIS mapping files. One source of these files is from the U.S. Census Bureau. The program does not integrate with other mapping software.

Single Source

For the two weeks I had the opportunity to use SWIFT WX, the weather in Texas, Kansas, and other states brought with it death and massive destruction. Having the mapping tools at my desk enabled me to see the path of the severe storms, reports of tornados on the ground, reports of hail, flash flooding, and other information before it was on the local TV news. It gave me one source on the Web to find the information I was interested in without having to search various weather service websites.

Nitty-Gritty—And Why You Need To Buy One

SWIFT WX is available for a two-week trial period and then can be purchased for \$14.50/month or \$156/year. Once you subscribe, your price is locked in for as long as you subscribe. You can use the software on multiple computers, making it convenient to monitor the weather on your desktop or laptop while traveling.

Your computer must run Windows 98/2000/XP/Vista, have a CPU of 1.2 GHz or better plus 512 MB RAM or more memory. You'll need 50 MB of hard drive space available and an Internet connection of 56.7 Kbps or better. It will work with a DSL, cable, cell phone, or other Internet connection. For further information, contact www.swiftwx.com. ■

Pop'Comm August 2007 Survey Questions

This month we'd like to ask you about your public service involvement or interest (please circle all the appropriate numbers).

How important is public service to your radio hobby?

- Extremely important, it's the reason I'm involved 1
- Moderately important, I volunteer when I can 2
- Not important, I don't engage in volunteer services 3

I'm a member of/assist in:

- Amateur Radio Emergency Service (ARES) 4
- Community Emergency Response Teams (CERT) 5
- Military Affiliate Radio System (MARS) 6
- Radio Amateur Civil Emergency Service (RACES) 7
- Radio Emergency Associated Communications Teams (REACT) 8
- The Red Cross 9
- Salvation Army Disaster Services 10
- SKYWARN 11
- Other _____ 12
- I don't currently belong to a volunteer group, but I intend to join one 13
- I don't intend to join an organized group, but I volunteer my services when I can 14
- I am not interested in volunteer services 15

I maintain equipment for the express purpose of helping others:

- Yes 16
- No 17

I use the following equipment in my volunteer capacity:

- CB 18
- GMRS 19
- FRS 20
- Weather Radio 21
- Scanner 22
- Amateur radio 23
- Business band radio 24
- Marine VHF radio 25
- Other _____ 26

Severe Weather Scanning, Before And After

Severe weather can approach without warning, and with disastrous consequences. The hurricane season is upon us, and if you live in areas that can be affected, you probably already keep an eye on the weather forecasts. But large storms aren't the only thing to be aware of, as events of the past year have demonstrated. Severe thunderstorms, often with straight line winds or tornados embedded in them, flash flooding, and not-so-flash flooding—even winter event—can have a major impact on areas large or small.

Obviously your scanner can't help control the weather, but it can be a great help as an early warning system. A little preparation on your part can go a long way toward keeping you informed of what's coming and make you better able to deal with the situation once it's unfolded. There are really two situations we should talk about: when events hit close to home and when events hit home.

Too Close For Comfort?

If you're affected

The scanner shouldn't be your priority if a weather event is likely to hit or has hit your area and your house directly. Then it comes down to how good your overall emergency preparations are and what kind of damage has been done. The scanner might be able to keep you better informed of what's happening in the area and how widespread the damage might be, but it's not going to actually help with anything more pressing. Focus on the things that need to be done first: first aid for people and animals, food, water, shelter, heat, and clothing. If you have batteries to spare, power up the scanner, but if you need them for flashlights, don't worry about listening. You won't hear that much that will really help anyone, although it may put you at ease to be better informed.

If it's close but you're not affected

If it's close by, but you're not directly affected you have the luxury of being able



Shadowy figures engaged in the Tornado Intercept Project keep a watchful eye on a descending funnel. (Photo courtesy NOAA Photo Library, NOAA Central Library; OAR/ERL/National Severe Storms Laboratory)

to do more. You might help by volunteering in rescue efforts, or through one of the national agencies that deal with disaster relief. You might also want to do a little listening to get a feel for the situation and how widespread the problem really is.

Monitoring

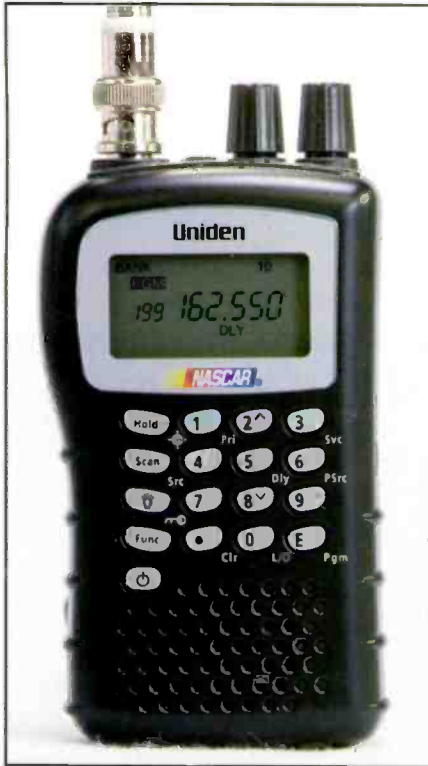
A lot of what's interesting in an emergency situation is boring as all get out the other 364 days of the year. Here's where a scanner with lots of banks comes in handy, or even multiple scanners. A computer-controlled or computer-programmable radio would also be convenient so you can have those seldom used, but highly interesting, frequencies ready at a moment's notice.

The trick with scanning an event, just like disaster preparedness overall, is to be ready *before* it happens. Once the event happens, you won't have time to

look up and research frequencies that might be in use. A little advance planning goes a long way. Perhaps a notebook or a word processor file on your computer dedicated to several types of emergencies might come in handy. When something happens, pull out the list and start programming. Of course, a computer program that was pre-loaded with banks would be faster...if you're prepared ahead of time.

At a minimum, you should have a written list of what's normally in your scanner (that's a good idea anyway, just in case) and a frequency plan for severe weather emergencies. Note that it may take more than one if the area you're in is subject to different kinds of weather emergencies.

Your first task is to determine the kinds of weather conditions that are likely in your area, as well as who would be likely to respond to that condition. If you're in a state where severe snow storms are



Virtually any scanner will work as a weather receiver when tuned to the local NOAA frequency. Another advantage is that you can also use it to keep tabs on other things. Some have specific weather modes that may be helpful as well, but a dedicated weather receiver that can receive the alert tones or SAME (Specific Area Message Encoding) codes might be very desirable.

likely, you'll need one set of agencies. If you're only likely to get tornadoes and or hurricanes, then another set of agencies is likely to respond to these disasters.

Severe Storms

Nobody needs any reminders of how devastating hurricanes can be, and how much damage can be caused after the storm is long gone. Katrina showed us that in the most graphic way possible (see "Listening To The Echoes Of Katrina" elsewhere in this issue). Severe storms like this will also expose weak links in any systems, as the New Orleans Police found when their trunked radio system failed completely.

Most severe storms, including hurricanes and tornadoes, occur in the early spring through late fall, but they can also hit at any time. So just about when you put the snow blower away, you could be in for more activity. It's not nearly as much fun to listen to this stuff if it's com-

ing your way, but being well prepared is your best defense.

One of the first things you should do, if you haven't already, is join your local SKYWARN program and get trained in the types of emergencies that are likely to strike your area. One of the things you'll

learn in that training is how to keep yourself safe. Some of the rules have changed since the days of duck under your desk or follow the teacher out into the hallway.

If you're in an area that's prone to tornadoes, in particular, there's a great need for volunteer spotters. Radar has come a

In An Emergency...

Government experts recommend that an emergency preparedness kit be made ready well in advance of need. Here are some recommended items, as well as a few extras to think about:

- Water: A gallon per person per day; a three-day supply is recommended.
- Food: A three-day supply of non-perishable food. Also think about what you might need to prepare the food if you included items that need to be heated or cooked.
- Flashlights: Consider the newer LED-based flashlights as their power consumption is greatly reduced. Several of these strategically placed can light a house (not so you can read, but so you can navigate without tripping over anything).
- Battery-powered or hand-cranked radio: For the AM/FM broadcast bands. These are becoming widely available and make a good addition to any home, even for a power outage.
- Weather radio: A NOAA weather radio or your scanner that tunes NOAA frequencies. Better still is a radio that includes emergency alerting features so you can get urgent messages and updates.
- Batteries: Have enough batteries on hand to power all the radios and flashlights you may need for at least three days. Make sure you cover all the battery types. It's no good having a large supply of AA batteries if you need AAA's for one item when the time comes.
- First aid kit: A first aid course to go with it, or a good manual, is also a great idea!
- Whistle: To signal for help (what a great idea that I didn't think of!).
- Dust mask: To filter contaminated air or dust. Plastic sheeting and duct tape may also be handy to cover leaks or build an emergency shelter within another structure.
- Moist towelettes, garbage bags, and ties: Personal sanitation items.
- Wrenches and pliers to turn off utilities.
- Can opener.
- Maps.
- Prescription medications.
- Additional items to consider:
 - Infant formula and diapers
 - Pet food and water, crates if the pets need to be transported in a hurry, or confined for safety
 - Important documents, insurance policies, etc.
 - Cash or traveler's checks
 - Sleeping bags, blankets
 - Clothing, sturdy shoes, warm clothing if you may encounter severe temperatures
 - Fire extinguisher
 - Bleach: In an emergency, nine parts water to one part bleach can be used as a disinfectant; 16 drops of bleach (unscented plain bleach, not color safe or with any additives) per gallon of water can be used as a purifier.
 - Matches in waterproof container
 - Personal hygiene items
 - Mess kits, paper plates, cups and utensils
 - Paper and pencil
 - Books, games puzzles or other activities for children (and adults)
 - Transmitter: A small ham (if you're licensed) transmitter or a pair of FRS transmitters for family use might prove useful
 - Battery charger (solar)

Source: www.ready.gov, a cooperative effort between the Advertising Council and the department of Homeland Security (with a few additions for radio people).



A small transmitter that can be powered by a battery source is a handy thing to have if worse comes to worst, but one with a wide-band receiver can do double duty as a weather receiver or to listen to public safety frequencies. Also consider an FRS radio for each family member, but make sure you consider the battery load of all these extra devices! Also remember that in a widespread disaster, you may not be able to depend on the local repeater to add to your distance.

long way in identifying likely areas for tornados to occur, but only a trained spotter can tell for sure if there's actually one there, and if it's in the air putting on a fascinating, but mostly harmless, display, or if it's in contact with the ground, destroying almost everything in its path.

Ham radio is the primary communications method for a lot of SKYWARN activities, although not in all areas. You should try to find out what's in use in your area and what frequencies are active. Put those in your scanner and lock them out until you need them, or at least put them on your weather emergency list to be programmed for when things get rough. Unless you're interested in ham radio, you'll find that the constant day-to-day activity of the repeaters ties up your scanner so you miss the good stuff.

In the St. Louis area, and a couple of other locations that I've lived in the past and am familiar with, once a severe storm watch or warning is issued, the SKYWARN program kicks into action.



This R3 receiver from ICOM also does double duty; it's also a TV receiver to keep people (particularly kids) occupied. Once again, consider the battery drain and plan accordingly, or provide an alternate source of power.

Policies on how and when the network is activated and what activities go with what level of watch or warning vary by location, but you can bet that someone will be monitoring the situation. As conditions worsen, these volunteer networks spring into action. They are often the best source of accurate and up-to-date weather and storm information, particularly for smaller storms, like thunderstorms and isolated tornados.

You'll also want to listen to police and fire channels in these events as well. The police are likely to be primary weather observers and are positioned all over town. Anything out of the ordinary will be reported quickly. Also consider listening to the next county or city out if the weather is likely to come from that direction. You do have a list of those frequencies don't you?

Once the storm has struck, police and fire services will be pressed into action quickly. Medical emergencies will be their first priority followed closely by fire

control and rescue operations. There may also be a need to set up trauma centers or patrol areas to keep visitors or looters from a severely damaged area. In severe storms, outside assistance may be brought in; however if the damage is widespread, other communities may not be able to assist. It can take some time to mobilize federal disaster teams and National Guard units and get them to the afflicted areas. Activity of local agencies attempting to cope with the situation and assess the need for outside assistance can be nothing short of pandemonium. By joining your local SKYWARN or emergency services volunteers, you'll also be more likely to know where you can volunteer to help in a meaningful way, if you're lucky enough to be unaffected by the disaster.

The utility companies will also be busy in these areas. Once again, downed wires and power problems will be their priority, depending on how well they can travel to the affected areas. Widespread power outages can take days or weeks to fix, as has been demonstrated repeatedly in the Midwest over the last year.

Frankly, I'll take dull and boring traffic stops any day over the destruction that one of these type storms can wreak in

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The newest thing in flashlights is LED units powered by AA or AAA batteries. This one uses three AAA batteries and can run for hundreds of hours. Pointed at a wall or ceiling it can provide enough light to navigate a room safely.

such a short time. I hope that none of us has anything to report at the end of the 2007 storm season, but being prepared is your best plan in case something strikes near you.

A Little "What If?" Planning

Think about the types of disasters that are likely to occur in your area. Make lists of the types of communications you think might be of use in those disasters. Don't forget the unusual stuff, like ham frequencies and utility companies.

Once you've got these lists put together, you may find there are some holes in your knowledge. That's really the whole point (no pun intended). It will give you some things to listen to in order to fill in the gaps. Remember you need to have the information before the event occurs. Perhaps you can discover something from one of our frequencies of the month, but don't hesitate to plug in frequencies that you don't see in use in your area. You may be quite pleasantly surprised with what shows up. The key is to make it a part of your scanning activity.

Hopefully you'll never need any of these lists. But if you do, it's useful—and fun—to see how they work out, and they can be a great source of additional information that people listening to AM/FM and TV won't have. I can't guaranty that your list won't be wrong in some respects, or that you won't have a list for *every* type of disaster *except* the one that actually happens, but it can be a fun part of the hobby to make the lists and revise them. So make some lists and find out what you don't know!

Until next month, good listening!

Frequency Of The Month

Each month we ask our readers to let us know what they're hearing on our "Frequency Of The Month." Give it a listen and report your findings to me here at "ScanTech." We'll pick a name at random from the entries we receive and give the lucky winner a free one-year gift subscription, or extension, to *Pop'Comm*.

The winner of our most recent drawing is **Jim Dolson of Cape Coral, Florida**. Congratulations, Jim.

This month, our frequency is 163.100. This is reported to be a frequency sometimes used by FEMA, so I'm not expecting anyone to have a lot of activity. Let me know if you do hear anything, or even if you don't, either via email to radio-ken@earthlink.net or by traditional methods to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Be sure to put the frequency on the envelope or email subject so it gets entered correctly for our one-year subscription drawing!

A Pair Of FRS/GMRS Transceivers (With NOAA Receive!) For Only \$70... Isn't Your Life Worth It?

A dramatic question, yes, but an important one. Seriously, what price tag do you put on your life, the lives of your family? I sincerely hope it's more than \$69.95 (plus tax), because that's what a set of Motorola Model T9500, FRS/GMRS transceivers will cost you at Home Depot. Are the lives of your family members worth a paltry \$70 bucks? I'd say so.

Previously in this column we've discussed the Family Radio System (FRS) and the General Mobile Radio System (GMRS) series of handheld transceivers that seem to be flooding the consumer electronics market these past few years. This month we're going to cover some of the same ground, but with the added twist of keeping you and your family safe and sound during the severe weather season; as a matter of fact, this system will be very helpful all year around.

Why A Motorola FRS/GMRS Pair?

Well, I'd like to say that they were on sale...but, I can't. I was roaming around Wal-Mart about a week ago and ultimately gravitated to the sporting goods section (my wife, the beautiful and talented Patricia, KB3MCT) knows that's where I will be should we be separated in the Wal-Mart super center for more than five minutes.

I was lusting after a very nice Leopold 3-9 variable rifle scope for my 30-06 when my eyes strayed over one case to glance at some GPS receivers that were on sale. Right next to them was a little yellow Midland radio that was an "All Hazards" NOAA weather receiver, built very much like an FRS/GMRS transceiver. That immediately got my attention and I asked to examine it. The price of the little NOAA All Hazards receiver was \$39.95 (plus tax), which initially I thought wasn't such a bad deal.

Flash forward a week and I found myself in Home Depot looking for a new lawn mower and weed-whacker (ah, the joys of home ownership!). Wandering around the huge home improvement store, I spied some blister packs of FRS/GMRS handheld transceivers. I absolutely love the advertisement on range: "10 Mile Range!" Yeah, right! If you believe that I have a bridge in New York that links two of New York City's finest boroughs that I will sell you for a great price!!!

I looked over the various offerings and spied, on the Motorola T9500 set, a little statement that really got my attention. I looked over this set closely and decided to invest my \$69.95 (plus tax) in short order. I had to try these two little gems out; they'd compliment the other three sets of FRS/GMRS handhelds strung through the house, two vehicles, and our Scamp camper. Redundancy that is the name of the game!

The Motorola Talkabout Model T9500s that I bought at Home Depot are not just your garden variety play toys you find in many stores. In addition to the normal FRS/GMRS channels,



Here's a set of Motorola T-9500 FRS/GMRS handheld transceivers, with NOAA Weather Radio receiver built in, sitting in their standup charger. The radios are furnished with a 3.6-VDC NiMH rechargeable battery pack, but they'll also accept three standard "AA" cells (either alkaline or Lithium-Ion), so you'll have plenty of power if you include an extra set of "AA" cells in your gear bag.

these units also provide a NOAA All Hazards receiver! Now that is something unique and well worth the \$70 investment.

Comparing the Motorola FRS/GMRS pair against the Midland All Hazards receiver at Wal-Mart is a bit like comparing apples to oranges. The price is about the same. Actually the Wal-Mart unit is slightly more expensive *and* all it does is receive NOAA VHF weather frequencies. The pair of Motorola T-9500s, on the other hand, not only receive all 11 NOAA VHF weather frequencies, but they also allow the user to communicate on FRS/GMRS frequencies "for up to 10 miles!"

Okay, that last statement was a bit sarcastic, but in reality with the Motorola T-9500s you have the best of both worlds. You can keep in touch with family members *and* you can receive the latest NOAA weather information, including severe weather broadcasts. Not a bad deal for \$70, if you ask me.



A close up of the rechargeable battery pack loaded into the back of the T-9500 transceiver. These Nickel-Metal Hydride packs offer a higher power density (ability to power the radio over longer periods of time under heavy usage) than the same size NiCad packs. Add a spare set of "AA" Lithium-Ion cells (three total) and you are set. I get my Lithium-Ion "AA" cells at Wal-Mart, as they seem to be the cheapest. A six-pack of Li-Ion "AA" cells coupled with the rechargeable battery pack will last a long time in the bush.

Sarcasm aside, you really cannot believe the manufacturer's hype when it comes to the range of these tiny UHF transceivers. First of all, as we covered previously, these are very under-powered radio sets, they live in the UHF portion of the RF spectrum (which means they're line-of-sight transmission radio sets), and they feed an electrically shortened vertical antenna. While the radio might boast a 4-watt RF output, you must keep in mind that the short antenna on this device is not an efficient radiator, so a lot of the RF energy generated by the transmitter is wasted as heat.

Couple this with the fact that the short vertical antenna is an omni-directional radiator and your body will skew the radiation pattern, along with the line-of-sight properties of UHF propagation, and you begin to see that most of these manufacturer's range claims are a bit on the optimistic side. (I don't want to say they're "false," that would mean the manufacturers are lying to the consumer, heaven forbid.)

Now, having said all that, I recently read an account of a stranded hiker that used his FRS/GMRS handheld to call for help after he'd hurt himself while on the trail. Believe it or not,

this transmission was heard 40 miles away! I've been playing this radio game for over 40 years, and I know that some really strange things can happen under enhanced propagation conditions. However, having his extremely low-power UHF emergency transmissions heard over 40 miles away is right up there with Moses parting the Red Sea!! Nothing short of a miracle!

The point of this is to underscore that these tiny FRS/GMRS units are good for extremely short range communications only. Anything over a couple of miles is gravy. But that should not deter you from obtaining a pair of Motorola T-9500s, and the NOAA Weather Receiver capability of this pair is yet another strong selling point.

What You'll Get

Reading over the "manual," which is actually a large folded piece of paper printed on both sides, you'll learn all about setting up your T-9500s for FRS/GMRS use. These rigs have the normal 22 channels, the standard range of CTCSS (PL or Private Line) tones, scan mode, vox mode, etc.

Now for the really interesting part of these radios: the NOAA Weather Receiver feature. This feature has several modes; in one, it will act as a stand-alone NOAA receiver. You won't be able to use the transceiver functions of the radio while in the NOAA receiver mode. However, the other mode allows you to set up the NOAA receiver to alert you to severe weather when NOAA activates its SAME (Specific Area Message Encoding) alerting system. In this mode, you can utilize the TR-9500s like normal handheld UHF transceivers, but when a weather alert is aired your 9500 automatically goes into the NOAA Weather Radio mode, alerting you to upcoming severe weather. How neat is that?

The Motorola T-9500s have a removable black front plate that can be replaced with a yellow one—I think the term of the day is "skin"—at any rate, you can customize your individual 9500 by changing this skin. Actually, if you want you can lightly sand and paint the skin any color you want for a truly unique radio!

The T-9500s are powered by a rechargeable lithium-ion battery pack or four "AA" alkaline cells. If you were going to use "AA" size batteries and be out in the bush for extended periods, I'd highly recommend using lithium-ion "AA" cells (available at Wal-Mart) instead of alkaline cells. The lithium-ion cells have a much higher power density and will last longer than alkalines. The rechargeable battery packs that come with the 9500s can be recharged using the furnished dual radio charger, just like the big Motorola radios.

And speaking of the Motorola name...are these two handhelds really Motorola radios? Well, yes and no. It seems that many large, well-established companies are "renting" out their logos and brand names to smaller manufacturers to use on their products. So, while these radios are made off-shore and marketed by a company named "General," they're labeled Motorola radios only because the General company has paid Motorola for the use of its name and logo. Does that mean these tiny T-9500s aren't worth the money? Hardly. They're most assuredly worth the \$69.95 for the pair, especially since they offer ready access to severe weather warnings, which can mean, quite literally, the difference between life and death.

The Motorola T-9500 FRS/GMRS/NOAA WX transceivers are absolute winners in my book. Don't forget, by common agreement, Channel 1 of FRS is the national emergency fre-



The Motorola T-9500s have a removable black front plate that can be replaced with a yellow one. If you wanted, you could even lightly sand ← and paint the "skin" any color you want!

quency for these tiny UHF radios (that is, no CTCSS/PL). I normally leave my 9500s set up on FRS Channel 1 when I'm out and about. If we're camping or at some event where Pat and I don't have our Yaesu VX-150 2-meter HTs, we'll change to some other FRS channel for personal communications.

A Final Word: SKYWARN

It's that time of year again—the season of severe weather across the nation. Enter SKYWARN. We need to all be aware that the National Weather Service (NWS) offers free severe weather training. County Emergency Operations Centers (EOCs) and local ham radio or REACT clubs often offer SKYWARN training. Do you have to be a ham radio operator or an emergency medical volunteer to attend? Of course not! If you have an interest in providing an extra set of eyes and ears for the NWS by volunteering to be a SKYWARN observer you've got a ticket to ride.

Check out the Internet for your local SKYWARN training sessions and make the effort to attend. Tornadoes, hurricanes, and straight-line winds all are capable of inflicting severe damage under the right conditions. Here in northeastern Pennsylvania we seldom encounter tornadoes but some of the summertime severe weather fronts that move through the area have straight-line winds that are almost as damaging as tornadoes! Do us all a favor and get involved with SKYWARN and the NWS.

As always, until next time, remember: Preparedness is not optional. ■

RSGB Books from CQ

HF Antenna Collection

RSGB, 1st Ed., 1992. 233 pages.

Outstanding articles and short pieces published in Radio Communication magazine during the period 1968-89. Ingenious designs for single element, beam and miniature antennas, provides comprehensive info on feeders, tuners, baluns, testing, modeling, and erecting your antenna safely.



Order: RSHFAC **\$16.00**

IOTA Directory - 11th Edition

Edited by Roger Balister, G3KMA. RSGB, 2002 Ed., 128 pages



An essential guide to participating in the IOTA (Islands on the Air) program. Contains everything a newcomer needs to know to enjoy collecting or operating from islands for this popular worldwide program.

Order: RSIOTA **\$15.00**

The Antenna Experimenter's Guide

RSGB, 2nd Ed, 1996. 160 pages.

Takes the guesswork out of adjusting any antenna, home-made or commercial, and makes sure that it's working with maximum efficiency. Describes RF measuring equipment and its use, constructing your own antenna test range, computer modeling antennas.



Order: RSTAE **\$28.00**

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

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

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	11690	Radio Vilnius, Lithuania	Lithuanian	0230	6010	Radio Sweden, via Canada	
0000	13760	Voice of Korea, North Korea		0300	3320	Radio Sondergrense, South Africa	Afrikaans
0000	9420	Voice of Greece	Greek	0300	7440	Radio Ukraine International	
0000	11745	CVC - La Voz, Chile	PP	0300	4976	Radio Uganda	
0000	12055	FEBC, Philippines		0300	5010	Radio Malagasy, Madagascar	vern
0000	11780	Radio Nacional Amazonia, Brazil	SS	0300	6005	BBC via South Africa	
0000	6055	Radio Exterior de Espana, Spain		0300	4780	Radio TV Djibouti	AA
0030	5890	Radio Thailand, via US		0300	7210	Radio Fana, Ethiopia	Amharic
0030	7130	Deutsche Welle, Germany, via Sri Lanka		0300	4930	Voice of America Relay, Botswana	
0030	7325	Radio Austria International		0300	9645	Radio Bandeirantes, Brazil	PP
0030	7285	Voice of Croatia, via Germany	Croatian	0300	4800	Radio Buenas Nuevas, Guatemala	SS
0030	7125	Voice of Russia via Moldova		0300	3345	Radio Voice of the People, via Madagascar	EE/vern
0030	9610	Vatican Radio	SS	0300	9635	Radio Romania International	SS
0030	9535	Radio Exterior de Espana, Spain	SS	0300	3396	Radio Zimbabwe	EE/vern
0100	7230	Radio Slovakia International		0300	5915	Radio Zambia	vern
0100	6165	Radio Nederland Relay, Bonaire		0300	4965	The Voice- Africa, Zambia	
0100	6220	Mystery Radio, Netherlands	pirate	0300	3200	Trans World Radio, Swaziland	
0100	11800	RAI Italia, Italy	II	0300	5025	Radio Rebelde, Cuba	SS
0100	9345	Kol Israel	HH	0300	9720	Republic of Yemen Radio	AA
0100	11710	Radiodifusion Argentina al Exterior	PP	0330	9720	RT Tunisienne, Tunisia	AA
0100	6200	Radio Prague, Czech Republic		0330	7215	Trans World Radio, via South Africa	unid
0100	4824.5	La Voz de la Selva, Peru	SS	0330	15425	Voice of Russia	
0100	4805	Radio Difusora do Amazonas, Brazil	PP	0330	4885	Radio Clube do Para, Brazil	PP
0100	6150	Radio Romania International		0400	9705	La Voix du Sahel, Niger	FF
0100	6175	Voice of Vietnam, via Canada	VV/EE	0400	7110	Voice of the Broad Masses of Eritrea	vern
0100	3310	Radio Mosoj Chaski, Bolivia	SS	0400	7200	Republic of Sudan Radio	AA
0130	4052.5	Radio Verdad, Guatemala	SS	0400	6080	Voice of America Relay, Sao Tome	
0130	9495	VOIRI/V of Justice, Iran		0400	7170	Deutsche Welle, Germany, via England	AA
0130	9420	Radio Cairo, Egypt	SS	0400	4915	Radio Difusora Macapa, Brazil	PP
0130	4925	Radio Educacao Rural, Brazil	PP	0400	7275	RT Tunisienne, Tunisia	AA
0130	4410	Radio Eco, Bolivia	SS	0430	7260	RT Algerienne, Algeria, via England	AA
0130	4747	Radio Huanta 2000, Peru	SS	0500	11690	Radio Okapi, Congo, via South Africa	
0200	3250	Radio Luz y Vida, Honduras	SS	0500	4770	Radio Nigeria	
0200	4815	Radio Difusora Londrina, Brazil	PP	0500	7255	Voice of Nigeria	
0200	4919	Radio Quito, Ecuador	SS	0500	9595	Radio Nikkei, Japan	JJ
0200	9925	Croatian Radio, via Germany		0500	4915	Radio Ghana	
0200	5900	Voice of Russia		0500	9630	Radio Exterior de Espana, Spain	SS
0200	11815	Radio Brazil Central	PP	0500	4777	Radio Gabon	FF
0200	4780	Radio Cultural Coatan, Guatemala	SS	0500	5005	Radio Nacional, Equatorial Guinea	SS
0230	6145	BBC Relay, Ascension		0500	7811	AFN/AFRTS, Florida	
0230	3340	Radio Misiones International, Honduras	SS	0530	5030	Radio Burkina, Burkina Faso	FF
0230	7400	Radio Bulgaria	FF	0600	6010	Radio Inconfidencia, Brazil	PP
0230	9570	China Radio International, via Albania					

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0600	6060	Radio Havana Cuba	SS	1600	15715	Voice of America Relay, Botswana	
0630	3291	Voice of Guyana	EE/DD	1600	13635	CVC International, Australia	
0630	6155	Radio Austria International	GG	1630	15420	BBC Relay, Seychelles	
0700	5446.15u	AFN/AFRTS, Florida		1630	11690	Radio Jordan	
0700	6185	Radio Educacion, Mexico	SS	1700	12005	RT Tunisienne, Tunisia	AA
0700	4835	RTV du Mali	FF	1700	11995	Radio France International	FF
0700	6300	Radio Nacional de la RASD, Algeria	AA/SS	1700	12035	SW Radio Africa, via England	
0700	6010	Radio Mil, Mexico	SS	1730	11820	Broad. Service of the Kingdom, Saudi Arabia	AA
0800	5939	Radio Melodia, Peru	SS	1800	15120	Voice of Nigeria	
0800	6010	La Voz de su Concencia, Colombia	SS	1800	17825	RDP International, Portugal	PP
0800	7355	KNLS, Alaska		1800	21630	BBC	
0900	3375	Radio Educadora, Guaruja Marim, Brazil	PP	1800	11775	University Network, Anguilla	
0900	6135	Radio Santa Cruz, Bolivia	SS	1900	15580	Voice of America Relay, Morocco	
1000	6095	Radio New Zealand International		1900	15560	RDP International, Portugal	PP
1030	6140	Radio Lider, Colombia	SS	1900	12095	BBC	
1100	9525	Voice of Indonesia	EE/unid	1900	15235	Radio Canada International	FF
1100	5009	Radio Pueblo, Dominican republic	SS	1930	9265	WMLK, Pennsylvania	
1100	7260	Radio Thailand	EE/VV	1930	15630	Voice of Greece	Greek
1100	9965	Voice of Hope, Palau	CC	2000	15345	RTV Marocaine, Morocco	AA
1100	3260	Radio Madang, Papua New Guinea	Pidgin	2000	11655	Radio Nederland Relay, Madagascar	
1100	4605	RRI-Serui, Indonesia	II	2000	17675	Radio New Zealand International	
1100	7280	Voice of the Strait, China	CC	2000	9550	FEBA, England, via Rwanda	AA
1130	7470	Radio Free Asia, via Mongolia	Tibetan	2000	15475	Africa Number One, Gabon	FF
1130	3315	Radio Manus, Papua New Guinea	Pidgin	2000	11625	Vatican Radio	
1200	4910	ABC No. Terr. Service, Tennant Creek, Australia		2000	11855	Radio Japan, via Canada	SS
1200	7295	Radio TV Malaysia/Traxx FM		2000	13720	Radio Tirana, Albania	
1230	9835	Radio Thailand		2030	11735	Radio Tanzania, Zanzibar	Swahili
1230	11530	Denge Mesopotamia, via Moldova	Kurdish	2030	15785	Galei Zahal, Israel	HH
1300	7535	WYFR/Family Radio, via Kazakhstan	unid	2030	9675	IBRA Radio, Sweden, via Germany	Hausa
1300	9580	Radio Australia		2100	9725	University Network, Costa Rica	
1300	9820	All India Radio, Panaji (Goa)		2100	9830	Adventist World Radio, via Austria	
1300	9570	KBS World Radio, South Korea		2100	9335	Radio Farda, via Sri Lanka	Farsi
1300	9485	Shiokaze (Sea Breeze), Japan, via Taiwan	various	2100	9990	Radio Cairo	
1330	9570	China Radio International		2100	9855	Radio Kuwait	AA
1330	12035	Voice of Turkey		2100	9900	Radio Varna, Bulgaria	BB-Sun-Mon
1330	9605	BBC via Japan	CC	2100	15720	Radio New Zealand International	
1330	15240	Radio Sweden		2130	9625	CBC Northern Service, Canada	
1330	11740	Voice of America Relay, Thailand	Korean	2200	11635	Radio Taiwan International	CC
1400	9335	Voice of Korea, North Korea	FF	2200	9875	Radio Vilnius, Lithuania	
1400	9600	Radio UNAM, Mexico	SS	2200	6140	Radio Budapest, Hungary	HH
1400	17725	Radio Jamahiriya/V of Africa, Libya	AA/EE	2200	7210	China Radio International, via Albania	SS
1400	15700	Radio Bulgaria	BB	2200	15345	RAE, Argentina	SS
1400	13580	Radio Prague, Czech Republic		2200	6155	Radio Austria International	GG
1400	13710	All India Radio		2200	9330	Radio Damascus, Syria	
1430	9355	Voice of America Relay, Northern Marianas	China	2230	7125	Vatican Radio	
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1500	17630	Africa Number One, Gabon	FF	2300	9565	Radio Tupi, Brazil	PP
1500	17770	Channel Africa, South Africa		2300	15500	China People's Broadcasting Station	CC
1530	15495	Radio Free Asia, USA via No. Marianas	CC	2300	9820	Guangxi Foreign Bc Station, China	CC
1530	15235	Vatican Radio		2300	11990	Radio Canada International	SS
1600	15205	Broadcasting Service of the Kingdom, Saudi Arabia	AA	2300	12115	Rikisutvarpid, Iceland	Icelandic
1600	17735	China Radio International, via Canada	CC	2300	15250	Radio Nacional Venezuela, via Cuba	SS
1600	15150	Voice of Islamic Rep. of Iran	AA	2330	12120	Adventist World Radio, Guam	CC
1600	17680	CVC - La Voz, Chile	SS	2330	12130	Trans World Radio, Guam	CC
				2330	12020	HCJB, Ecuador	PP
				2330	12010	Voice of Russia	

Product Potpourri At Dayton

There's more than just ham gear at the annual Dayton Hamvention. Here's a look at some goodies of particular interest to Pop'Comm readers in this special edition of "Power Up."

Ham radio is, of course, the primary focus of the Dayton Hamvention, but much of the gear on display is designed for the listener/monitor as well as the transmitting ham. There's not enough room to list absolutely everything on display there, especially if you include the massive flea-market, which is rumored to contain at least one of every electronics-related item manufactured since the dawn of time. So we'll just stick with really new stuff—equipment and accessories introduced at the 2007 Hamvention.

Receivers

Setting aside the receiver sections of the 10 new transceivers introduced this year at Dayton, we had two top-of-the-line, professional-grade communications receivers make their debut, AOR's AR-Alpha and ICOM's IC-R9500. (Another new arrival, the PSR-500 digital scanner from GRE, is featured in a "Tech Showcase" elsewhere in this issue.)



Photo A. The AOR AR-Alpha receiver is a professional-grade receiver covering 10 kHz to 3.5 GHz in just about any mode you can think of (and maybe a few you can't!).

The AR-Alpha (**Photo A**) covers all frequencies from 10 kHz to 3.5 GHz (cellular frequencies blocked on consumer version in the U.S.) and receives just about any mode you can throw at it, either analog or digital. On the analog side, it receives AM, synchronous AM, narrow and wide FM, FM stereo, single sideband, CW, independent sideband (ISB), and even a couple of modes that were new to this reporter: analog I/Q, sideband diversity (SBD), and Real Zero SSB, or RZ-SSB. It will also receive analog TV signals in any of the three major formats: NTSC, PAL, and SECAM, plus APCO-25 digital. The color LCD display on the front panel will show you a spectrum display, with audio, over a user-selectable bandwidth of 250 kHz to 10 MHz, extendable up to 1 GHz but without audio above 10 MHz. The display also serves as a TV monitor (minus the spectrum dis-



Photo B. ICOM's R-9500 covers 5 kHz to 3,335 GHz. Its peak search function automatically tunes the receiver to the strongest signal on the spectrum display.

play), and the radio includes a wide variety of digital signal processing (DSP) features and a built-in oven-controlled crystal oscillator for frequency stability of ± 0.1 part per million.

ICOM's IC-R9500 (**Photo B**) has a slightly wider frequency range, covering 5 kHz to 3.335 GHz, receiving AM, synchronous AM, FM, wide FM, SSB, CW, FSK (frequency shift keying, or radioteletype), analog TV (NTSC, PAL, or SECAM) and, with an optional adapter, APCO-25 digital signals. It has five roofing filters, various DSP features, and a multifunction spectrum scope covering a range of bandwidths between 2.5 kHz and 5 MHz, with a wideband scope going up to 500 MHz bandwidth. It includes a peak search function that automatically tunes the receiver to the strongest signal on the screen and permits simultaneous viewing of frequency readout, spectrum scope, and received video. It also offers an Ethernet connector linking to a network and a USB connector for plugging in memory sticks or other USB devices for importing or exporting received audio or configuration files.

Accessories

Another new AOR product of interest to scanning enthusiasts is the SR-2000 frequency monitor, which displays activity on any slice of spectrum up to 10 MHz wide in the 25- to 3000-MHz



Photo C. The dual-channel speech intelligibility enhancer from MFJ provides a separately tunable output for each ear to compensate for hearing differences from one ear to the other.

range. The Fast Fourier Transform (FFT) search function permits the monitor to scan up to 10 MHz of spectrum in two-tenths of a second, so the display on the screen appears to be continuous. The 2000 includes 1,000 memory channels and 40 search bank memories that can be set up to meet individual needs.

On the audio side of things, MFJ's new model 618 dual-channel "Speech Intelligibility Enhancer" (Photo C) lets you shape an incoming audio signal to put the most energy where the greatest amount of speech information is, and it provides separately adjustable outputs for each ear. Our ears don't always hear the same, says MFJ, and the 618 lets you customize your audio to best compensate for the differences.



Photo D. West Mountain Radio's CLRspkr is an amplified speaker featuring ClearSpeech digital signal processing. It's designed for mobile or home station use.

West Mountain Radio introduced its CLRspkr (Photo D), an amplified speaker with ClearSpeech DSP noise reduction technology. It contains a 4-inch loudspeaker and 2-watt power amplifier and runs on 12 volts DC, so it's suitable for use at home or while mobile. West Mountain has also brought out the COMspkr, a set of RF-shielded computer speakers for use where RF interference may be a problem, such as in a ham shack.

Finally among mobile listening-post accessories, the MFJ-4416 Super Battery Booster is essentially a voltage regulator for your vehicle's electrical system. It will boost DC voltages of 9 to 12 volts to the optimal 12 to 13.8 volts that most mobile equipment requires to operate at peak efficiency.

MFJ is also making a wide variety of components available, including such hard-to-find parts as roller inductors, coils, high-power relays, and even sockets for 3-500 amplifier tubes. They're the parts used in the company's most popular products.



Photo E. This is a scale model of the AS-AYL4 K9AY 4-direction receive antenna from Array Solutions. The real one is 24 feet tall and lets you remotely change receive patterns.

Antennas

AOR added a new model to its line of wideband discone antennas, the DS3000A, which has a feature that's unusual for discones; in addition to receiving anywhere between 75 and 3000 MHz, you can also use this antenna to transmit with up to 50 watts on the 144-, 440-, 902-, and 1270-MHz amateur bands.

For HF listeners, Array Solutions has introduced the AS-AYL4 four-direction loop receiving antenna designed by K9AY (Photo E). It's 24 feet tall and 36 feet in diameter at the base and features switchable terminations to change pattern directions.

If you're using a wireless computer network over a fair distance or under FCC Part 97 amateur rules, MFJ is offering a line of WiFi Yagi antennas to meet your access needs, and if you need to put up a temporary or portable antenna, MFJ also has two different extendable fiberglass masts available. One extends to 33 feet, the other to 43. Both have options for quick-release clamps for speedy setup and teardown.

That's a capsule view of listener-oriented products introduced this past May at Dayton. For information on new ham gear, see "Hot Stuff at Hamvention" in the August issue of *CQ* magazine.

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The Simple Ammeter Adapter Revisited... And More Bandswitch Repair Notes

I've been receiving a fair amount of reader feedback regarding my April 2007 Zenith Bandswitch Repair column and for my column showing how to build a simple ammeter adapter in the March issue. Reader Ed Kunsch was one of several readers who not only built the project, but he also went on to build the proverbial better mousetrap! Ed's unit is far more photogenic than the humble offering presented by your scribe, and Ed was kind enough to share these suggestions and observations for improving the project. In Ed's words:

I finally completed the ammeter project you described in the March issue of *Popular Communications*, with some modifications, of course, and was wondering if you'd like me to send a picture of it to you. I also have the parts list for the items that I purchased locally.

The adapter came out great and I have been using it all over the house to see how much power different items are using. I haven't had to use it for fixing anything yet, but it will definitely be on my list of troubleshooting items.

I decided to use a single, switched outlet so that I can apply power right at the box. I also added an in-line fuse to protect the test box. It is a 2-amp fuse, but I can change it if I need to. The red jacks are for the voltage measurement and the white jacks are for the current. Except for the added fuse, the wiring is the same as you had in the magazine. (Ed's version is shown in **Photo A**.—PB)

For the parts that I didn't have on hand, sources are shown in the parts list below:

From RadioShack:

Fuse holder #2700364
2-A slow blow fuse #2701023
1-Ohm, 10-W resistor #2710131

From Home Depot:

Switch/outlet
Outlet cover
2 gang metal box
Blank cover (where the fuse and red jacks are mounted)

Thanks again for the great article and the test box idea.

Ed, thank you for the contribution! I'm going to follow your example and build one that looks as nice as yours for permanent installation on my workbench.

A Reader's Letter

A letter written by Guy Olbrechts, NY70, appeared in the "Our Readers Speak Out" section of our April 2007 issue. Guy raised some concerns about my use of dropping resistors. I question several points he raised. First, regarding "True RMS" reading AC meters, many professionals have been lead astray by the fact that many digital meters being sold as "True RMS" AC meters are only accurate providing the waveform is symmetrical to the zero crossover point!

I mentioned this concern when using a half-wave diode to drop filament voltage. Most RMS voltmeters will show a reading of about half the applied AC voltage, say 63 volts for a 125-VAC line voltage. Unfortunately, it's easy to surmise that the



Photo A. This is a photo of reader Ed Kunsch's version of the ammeter adapter project featured in the March 2007 "Wireless Connection" column.

diode clips half the waveform, thus the result is half the voltage, as confirmed by the "true RMS" voltmeter, which is lying through it's proverbial teeth! Alas, the actual voltage is indeed 0.707 times the applied AC voltage, or about 88 volts! Consider it this way: the diode is halving the power delivered to the load, not halving the voltage.

Most RMS meters are confused by the non-symmetrical waveform and DC offset voltage produced by the diode. I always



Photo B. These two Fluke meters were part of an experiment that shows how a non-symmetrical waveform, such as is produced by a half-wave rectifier, can affect the reading of a "True RMS Multimeter." Note that the Fluke 8060A (to the left) is displaying 31.60 volts AC instead of the expected true RMS voltage of 41.71 VAC (0.707 x 59.0 volts).



Photo C. Sometimes it's a bit risky to fully remove old component leads from friable, aged Phenolic bandswitches or tube sockets. This simple technique achieves a neat splice, which is also electrically and mechanically sound, to avoid stressing those irreplaceable parts!

suggest that folks do simple bench experiments to "prove" things out, but this is one case where many folks have been lead astray. Many lab-grade true RMS meters use bolometers, devices that measure heat rise, to determine the true RMS power of an unknown voltage.

Photo B shows the results of a simple experiment I conducted to demonstrate how a "True Reading RMS Meter" improperly calculates a reading taken on a complex, unsymmetrical waveform. My test setup used a 1N4007 diode in series with the output from my variable AC bench supply set, which was set to near 60 volts AC. The 8080A Fluke meter is a relatively expensive 8080A Fluke digital meter and is labeled as a "True RMS Multimeter." The Fluke 77 is reading the output from the variable supply, which is 59 volts. While the 8060A "True RMS Meter" is erroneously showing 31.6 VAC from the half-wave rectifier, the correct RMS reading would be closer to 41.7 VAC! The non-symmetrical waveform is confusing the meter.

Regarding Guy's concerns about the use of resistors to emulate the voltage drop across tube rectifiers, I would suggest using a wire-wound resistor to better handle the instantaneous peak demands that occur only over a fractional portion of each AC cycle.

More Bandswitch Notes And Suggestions

Reader Rex Maxwell, N8ZMK, e-mailed these kind comments: "Keep more articles [coming] like "Zenith Bandswitch Repairs"—I'm currently doing a 12S475. Thanks!" Sure, Max, no problem! And that gives me an excellent segue into some more bandswitch-related repair notes I'd like to offer!

Many sets have RF decks that employ multisection bandswitch sections that are obscured by shield partition walls, tuning coils, capacitors and other components, and wiring. All too often the tube socket lugs are buried beyond reach, along with wax capacitors that are used for coupling and bypassing to various tube and bandswitch lugs. My personal preference is to completely remove any remnants of the old leads from the solder lugs before attaching a lead from the new replacement component. Alas, in many cases this risks damage to parts that may be unobtainable.

In the case of the Zenith 9S232A chassis, fortunately the bandswitch is relatively exposed, providing easy access for removing leads and soldering to the bandswitch lugs. Even so, great care is needed here! I remember attempting to change a bandswitch bypass capacitor that was buried in the bottom of an RF deck in a large-chassis Philco radio. I pulled on the unsoldered capacitor lead in attempt to pull it free of the bandswitch lug, and in the process managed to break away

the Phenolic portion of the bandswitch with the solder lug and bandswitch contact!

What do I suggest? Well, every set is different, and there is usually more than one way to do things properly. In the case of a larger communications receiver, like the SX-28 mentioned earlier, most restorers "bite the bullet" and spend the time to remove the bandswitch sections to permit open access to all the parts that need to be replaced. Otherwise, I'd suggest cutting the lead of the other component short, leaving as much of a pigtail as possible attached to the switch or tube lug.

I've set up a small demonstration of how to make a good splice between the remnant of the old lead and new component (see **Photo C**). The component lead is wrapped into a small coil of four or five turns (like a curly pigtail); this is easily done using a needle or stainless steel probe as a mandrel. This coil is wound just tight enough to allow slipping it over the remaining short wire left from the old lead, and then is soldered. The extra surface area afforded by the coil assures a good, positive electrical and mechanical bond between the new and old leads. A length of spaghetti (insulation) over the bare lead and a piece of heatshrink tubing can be added to make the splice look more professional. The heatshrink tubing then is slipped back over the soldered splice and then heated to hide the repair. A set of extra-long-reach wire cutters and long-nose pliers (examples are shown in **Photo D**) will give easy access those hard-to-reach parts.

Here's one thing you can do if you do end up with a clean break on a ceramic or Phenolic bandswitch wafer. Use a bead of epoxy (I like J-B Weld products) along the broken seam line to mend the broken pieces. Gel-type cyanoacrylate adhesives may work, but use extreme caution to avoid flowing the adhe-

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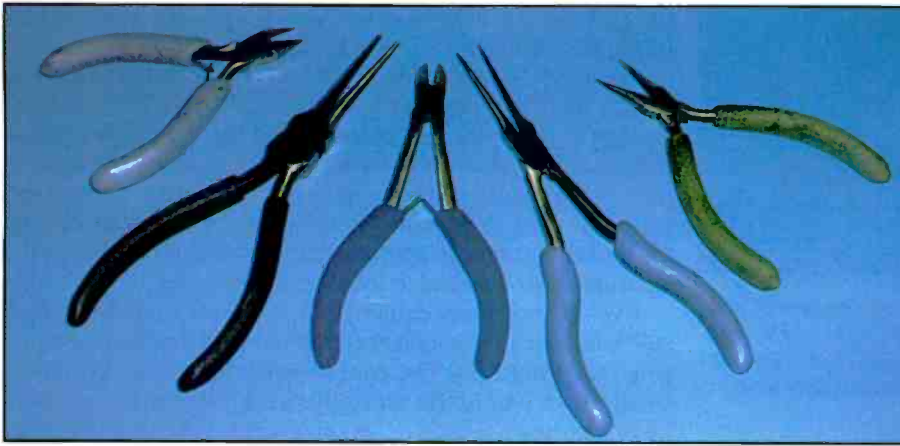


Photo D. The three tools in the center are better suited for reaching those deeply buried components in deep chassis sets.

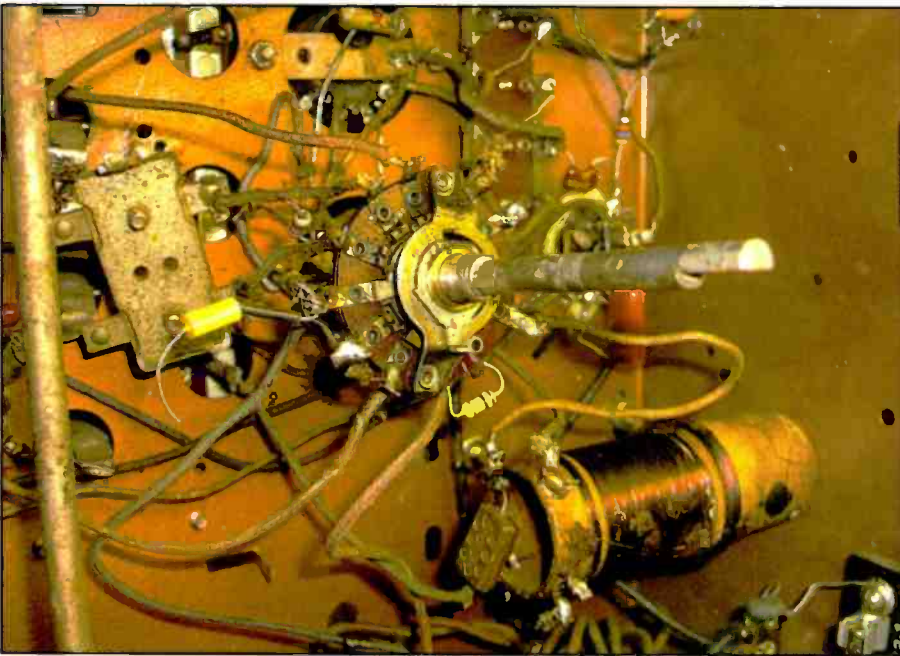


Photo E. This is the bandswitch used in the Zenith 9S232A chassis. Note that it is mounted via single 3/8-inch nut and has a small indexing pin that helps lock the switch in position on the chassis apron. Even so, a loose nut allows enough play that solid wire connections may eventually fatigue and break.

sive into the electrical contacts, as that will cause intermittents or a locked up switch! Carrying small droplets of the glue to the work using a toothpick helps control amount of adhesive you apply.

Loose Bandswitches And Other Controls!

Simple bandswitches like those used in the Zenith 9S232A (Photo E) are commonly mounted and supported by a single 3/8-inch shaft-mounting nut on the front apron of the receiver chassis. After many years of use the mounting nut can loosen, allowing the bandswitch body to shift as the bands are changed. This can

result in broken leads, or in the worst case, broken bandswitches!

Most switches have an index pin that locks the bandswitch body to the chassis. These usually limit the amount of slack if the nut loosens, but even the small amount of play can result in broken leads after many years of use. When replacing components wired to the bandswitch avoid the temptation to pull the leads tight; leave a small amount of slack to permit some movement in case the switch develops "play" in use.

Some of the Zenith wax capacitors used braided leads, which offered two useful features. First, and probably of most concern to the engineers, was the



Photo F. Here's a method to achieve the same electrical and mechanical benefits attributed to the early wax bypass caps that incorporated braided wire leads. A modern capacitor is fitted with braided leads made from lengths of 1/8-inch wide desoldering braid. The new capacitor can be hidden in the old cardboard shell that housed the original wax capacitor to maintain the original chassis appearance.

low inductance provided by the braided leads for effective bypassing. Second, the braided leads allowed a degree of flexing—helpful since they were mostly used on the Zenith bandswitches or floating tuning capacitors as bypasses.

Replacement leads on capacitors used to replace those low-inductance-type capacitors can be fitted with lengths of 1/8-inch wide Solder Wik (woven copper desoldering braid) to achieve the same benefits. In Photo F you see a small radial lead capacitor being prepped to replace a braided lead Zenith bypass capacitor. The old wax shell is rebuilt with the new capacitor hidden inside to preserve the under chassis factory appearance. Note that radial lead capacitors are especially prone to damage if any stress is placed inline on the leads with the capacitor body! Leave small amounts of slack on these parts if they are used to replace axial lead components. The same problems exist if a tone or volume control loosens. Axial lead components are generally better suited for restuffing old wax capacitor cardboard shells.

We'll revisit this material more detail and with photos as more advanced receiver restorations are presented in future columns.

See You Next Month

Well, that's a wrap for this month. Keep those suggestions, letters, and ideas coming. In the meantime, keep those soldering irons warm and those old tubes glowing! We'll be back next time with a column on making sense of receiver sensitivity measurements. ■

Welcome To Fleet Week And Willow Grove Base, And Welcome Back To Old Military Radios

First held in San Diego (then-home to the U.S. Pacific Fleet) in 1935, Fleet Week is a celebration of the Naval and Coast Guard services of the United States. Various active-duty ships of the fleet will visit the host city and tie up for a week, during which their crews can visit and learn about the city, while the city's residents can visit the ships and various displays to learn about the Navy, Marine Corps, and Coast Guard. Fleet Week often also features shows and demonstration teams, such as the Blue Angels.

Fleet Week was not a regular fixture until 1981, however, when it was revived in San Francisco on Columbus Day weekend, and it's been held there annually ever since. Fleet Week began in New York in 1984, and has been held there almost annually since; the celebration returned to San Diego in 1997.

Fleet Week San Francisco includes vessels of the Canadian Navy and Coast Guard; participant vessels of Fleet Week San Francisco 2006 included the aircraft carrier *USS Nimitz* (CVN 68); the amphibious assault ship *USS Bonhomme Richard* (LHD 6); guided missile destroyers *USS John Paul Jones* (DDG-53), *USS Higgins* (DDG 76), and *USS Chafee* (DDG

90); guided missile cruiser *USS Princeton* (CG 59); Coast Guard cutter *USCGC Steadfast* (WMEC 623); and the Canadian Maritime Coastal Defence Vessels *HMCS Edmonton* (MCDV 703), *HMCS Brandon* (MCDV 710), and *HMCS Saskatoon* (MCDV 709). While the lineup for Fleet Week San Francisco 2007 is not finalized, it should certainly be an equally impressive display.

Participant vessels in Fleet Week New York 2007 include the amphibious assault ship *USS Wasp* (LHD 1); the guided missile frigate *USS Stephen W. Groves* (FFG 29); guided missile destroyers *USS Winston S. Churchill* (DDG 81) and *USS Oscar Austin* (DDG 79); guided missile cruisers *USS San Jacinto* (CG 56) and *USS Hue City* (CG 66); and Coast Guard cutter *USCGC Katherine Walker*.

If you visit any Fleet Week celebration (the timing of the events vary according to city) and want to monitor the action, start with the regular VHF maritime channels. These will be hopping with a great deal of activity—as ships arrive and are docked as well as during the shows and celebrations—with traffic from the various vessels that one finds tooling about a major



Ships passing the Golden Gate Bridge for Fleet Week in San Francisco. (Uncredited photo from www.military.com)



The Naval Air Station/Joint Reserve Base Willow Grove runway as seen from Lee's Hoagie House (gotta check it out!) on a very snowy March morning. (Photo by Tom Swisher)

port. If the Blue Angels or another demonstration team are scheduled to appear, be sure to monitor the frequencies listed for them in various locations on the Web. And don't forget to use the search, Close Call or Signal Stalker function of your scanner; these can offer invaluable ways to locate those interesting unknown frequencies!

Naval Air Station/Joint Reserve Base Willow Grove

With a varied history and critical strategic location, Naval Air Station/Joint Reserve Base Willow Grove is well situated for a variety of military functions.

Built in 1926 as a private airfield used for research and development, the field was sold to the Navy in 1942. It became an important facility for anti-submarine patrol aircraft due to its strategic location near Philadelphia and other major East Coast ports.

Designated a Naval Air Reserve training station following the war, activity at Willow Grove increased once again during the Korean War. Further purchases of land around the facility led to today's total size of 1,100 acres. Vietnam and the first Gulf War led to further increases in activity at the facility, which required recall to active duty of many reservists, further swelling the numbers at the base.

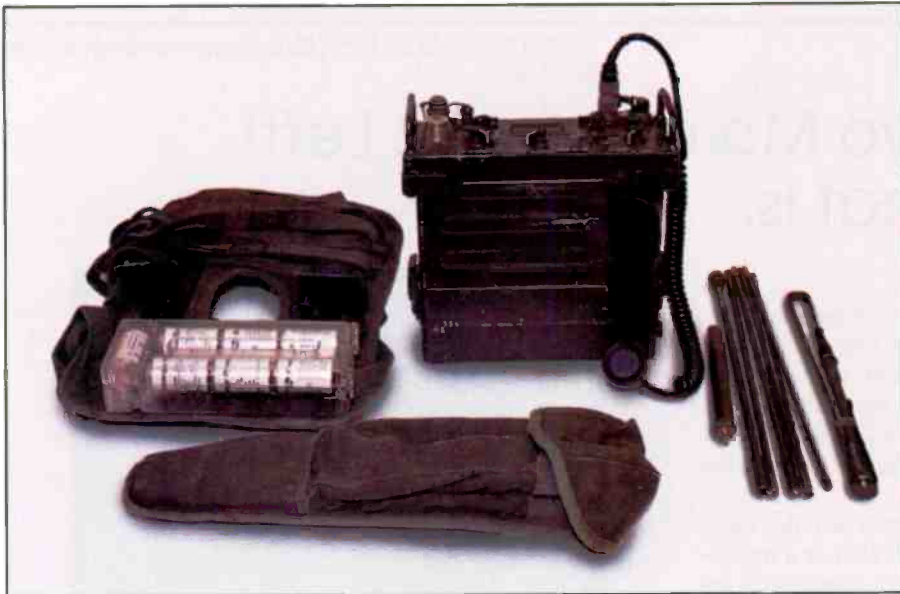
The facility name was changed in 1994 to Naval Air Station/Joint Reserve Base (NAS/JRB) Willow Grove due to its new mission of supporting units of all the armed forces and the Pennsylvania National Guard. As one of only five military facilities equipped with the Standard Terminal Automation Replacement System (STARS) radar, which allows any amount and variety of air traffic to be simulated for training, Willow Grove is an important training base as well. Units currently oper-

Willow Grove Base Frequencies

46.85000	National Guard Operations
138.1250	Base Security
140.1000	Flight Line
165.1375	Base Security
118.4500	Ground Control
119.6000	Tower
275.6000	ATIS
306.8000	Base Operations
340.2000	Tower
343.0000	Air National Guard Operations
344.6000	Weather ("Metro")
351.7500	Air Force Reserve Ground

ating at the base are the 327th Airlift Squadron (913th Air Wing) of the Air Force Reserve; the Army's 2-228 Aviation Battalion; USMC Marine Air Group 49 (MAG-49); Navy Patrol Squadron 64 (VR-64), Fleet Logistic Support Squadron 52 (VR-52) and Helicopter Antisubmarine Squadron 94 (HSL-94); and the 111th Fighter Wing of the Pennsylvania National Guard (flying A-10 Warthogs). Of these units, the 913th Air Wing made its last operational flight in March 2007 and will be disbanded in October.

Willow Grove's position as a heavily multi-role facility has not, however, prevented the Department of Defense from recommending that it be realigned and mostly closed except for a small area which will continue to host some National Guard units. Many of the units currently at NAS/JRB Willow Grove will be deactivated or moved to other bases, which has led to the Governor of Pennsylvania suing the Department of Defense on the grounds that National Guard units cannot be disbanded



A PRC-77 manpack portable radio. (Image courtesy Finnish Defence Forces webpage, www.mil.fi).

without the approval of the Governor of the state. Other efforts are underway to preserve the facility and its thousands of jobs, so it's not over yet.

If you'd like to visit Willow Grove, there's a very nice aviation museum there as well as an excellent spot at the south end of the facility where you can get a cheese steak and watch the action. Lee's Hoagie House features excellent sandwiches (the cookies are great, too) and large picture windows from which to watch the action. The accompanying photo shows the view from Lee's on a very cold, snowy day, when the only things moving were snowplows. See the sidebar, "Willow Grove Base Frequencies" for where to listen.

You Collect What???

Old military radios? Who'd want to collect those...?

Well, there is indeed an active special interest group in the amateur radio world that collects and operates old military radios. Known affectionately as "boatanchors," thanks to their large size and heavy weight, these radios are sought after for their excellent performance and almost indestructible construction. While there are a whole variety of these radios out there, covering the entire frequency spectrum from 1 MHz all the way up to microwaves, the most common units are found in the 1- to 30-MHz and 30- to 80-MHz ranges.

For years I used an old R-392 mobile/field receiver as a dedicated

11175 monitor radio and it performed flawlessly. Another popular receiver is the R-390, which is similar in operation to the R-392 and designed for fixed use on base or aboard ship and is much larger and heavier with more features. I finally sold my R-392 to a friend in favor of a less power-hungry Drake SPR-4 receiver, but sometimes I do miss it.

Another popular radio is the AN/PRC-77, a backpack-portable model introduced during the Vietnam War. All solid-state and with a power output of about 4 watts, these radios operate between 30 and 80 MHz. Resourceful hams have adapted them to operate using D-cell batteries, instead of the expensive and hard-to-find military batteries, and can be seen prowling the flea market at the Dayton Hamvention each year in search of treasure. Listen for these collectors any time on 51.0 MHz.

Many hams use old military radios on 3.885 MHz AM; some even purchase old military communications vehicles and completely outfit them with radios like the R-392 and PRC-77. There are many other interesting military radios out there. For more information, check out <http://mcgp.cellmail.com/index.html>; while this group is not active, the webpage contains many useful links. Also check out the K4CHE page at <http://solo11.abac.com/zorroab1/> for more useful links and information, as well as some really great pictures.

That's it for now. See you next time with more military monitoring tips. ■

Listening is only half the fun...

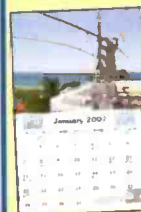
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Urgent! Only Two More Seasons Left! For TV DXing, That Is.

If you don't start now, the opportunity to catch the somewhat rare NTSC (National Television Standards Committee) television signals from stations several (or more!) states distant may well pass you by. On February 17, 2009, the official switch in the United States from the NTSC standard of television broadcasting to the new digital standards will mark the end of your opportunity for DXing VHF NTSC signals.

These NTSC signals from stations hundreds of miles away can reach your station by way of sporadic-E (Es) or a tropospheric duct (see **Photo A**). These two modes of propagation are mostly summertime phenomena in North America. That means we have only two more Es and tropospheric ducting seasons left for DXing any U.S. NTSC stations.

What's NTSC TV DXing?

NTSC is the acronym typically used to describe the standardized transmission of analog color television signals as

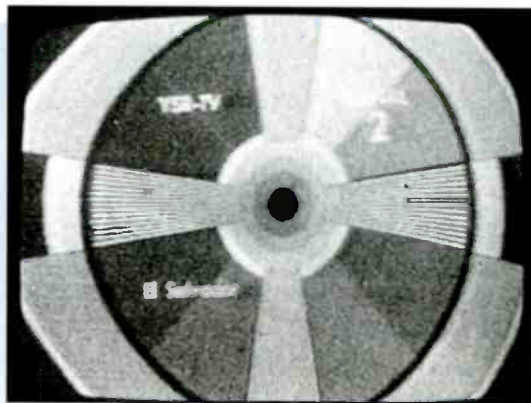


Photo A. This is a photograph of the sporadic-E (Es) Channel 2 signal from YSR-TV, San Salvador, El Salvador (1,200 miles!) on June 13, 1980, at 1204 CST as received by WA5IYX, Patrick J. Dyer in Texas. (Source: <http://home.swbell.net/pjdyer/>; reprinted with permission)

The Ap Index And Understanding Propagation Terminology

The Ap index, or Planetary A index, is a 24-hour averaging of the Planetary K index. The Planetary K index is an averaging of worldwide readings of Earth's geomagnetic field. High indices ($K_p > 5$ or $A_p > 20$) mean stormy conditions with an active geomagnetic field. The more active, the more unstable propagation is, with possible periods of total propagation fade-out. Especially around the higher latitudes and especially at the Polar Regions, where the geomagnetic field is weak, propagation may disappear completely. Extreme high indices may result in aurora propagation, with strongly degraded long distance propagation at all latitudes. Low indices result in relatively good propagation, especially noticeable around the higher latitudes, when trans-polar paths may open up. Maximum K-index is 9, and the A-index can exceed well over 100 during very severe storm conditions, with no maximum.

Classification of A indices is as follows:

A0–A7 = quiet	A30–A49 = minor storm
A8–A15 = unsettled	A50–A99 = major storm
A16–A29 = active	A100–A400 = severe storm

Solar Flux (SFI): This flux number is obtained from the amount of radiation on the 10.7-cm band (2800 MHz). It is closely related to the amount of ultraviolet radiation, which is needed to create the ionosphere. Solar Flux readings are more descriptive of daily conditions than the Sunspot Number. The higher the Solar Flux (and, therefore, the higher the Sunspot Number), the stronger the ionosphere becomes, supporting refraction of higher frequencies.

Ionosphere: A collection of ionized particles and electrons in the uppermost portion of the Earth's atmosphere, which is formed by the interaction of the solar wind with the very thin air particles that have escaped Earth's gravity. These ions are responsible for the reflection or bending of radio waves occurring between certain critical frequencies, with these critical frequencies varying with the degree of

ionization. As a result, radio waves having frequencies higher than the Lowest Usable Frequency (LUF) but lower than the Maximum Usable Frequency (MUF) are propagated over large distances.

Smoothed Sunspot Number (SSN): Sunspots are magnetic regions on the Sun with magnetic field strengths thousands of times stronger than the Earth's magnetic field. Sunspots appear as dark spots on the surface of the Sun. Temperatures in the dark centers of sunspots drop to about 3700° K (compared to 5700° K for the surrounding photosphere). This difference in temperatures makes the spots appear darker than elsewhere. Sunspots typically last for several days, although very large ones may last for several weeks. They are seen to rotate around the Sun, since they are on the surface, and the Sun rotates fully every 27.5 days.

Sunspots usually occur in a group, with two sets of spots. One set will have positive or north magnetic field while the other set will have negative or south magnetic field. The field is strongest in the darker parts of the sunspots (called the "umbra"). The field is weaker and more horizontal in the lighter part (the "penumbra").

Galileo made the first European observations of sunspots in 1610. The Chinese and many other early civilizations have records of sunspots. Daily observations were started at the Zurich Observatory in 1749; continuous observations were begun in 1849.

The Sunspot Number is calculated by first counting the number of sunspot groups and then the number of individual sunspots. The Sunspot Number is then given by the sum of the number of individual sunspots and 10 times the number of groups. Since most sunspot groups have, on average, about 10 spots, this formula for counting sunspots gives reliable numbers even when the observing conditions are less than ideal and small spots are hard to see. Monthly averages (updated monthly) of the Sunspot Numbers show that the number of sunspots visible on the sun wax and wane with an approximate 11-year cycle.

For more information, see <http://prop.hfradio.org>.



Photo B. This photograph shows the Es signal received by WA5IYX, again in Texas, of KDIX-TV (now KXMA), Channel 2, from Dickinson, North Dakota. That's a long-haul for a VHF signal. Pat created this image using 8-mm camcorder imaging with a Snappy 3.0 from a summer 1965 620 print. The reception was made with his 1957 21-inch RCA B&W TV with six-element hi-low VHF Yagi at 14 feet, fix-aimed southeast! (Source: <http://home.swbell.net/pjdyer/>; reprinted with permission)

adopted by the National Television Standards Committee. The NTSC standard is used in the United States, Canada, some of the other Americas, and in Japan and some other Asian countries. Television stations that broadcast their NTSC signals on the VHF and UHF channel allocations in the United States are required by the FCC to switch their transmissions to a digital standard. This digital method of television broadcasting is known as High-Definition Television, or HDTV.

NTSC TV DXing is the exciting attempt at "catching" and viewing the analog broadcasts on TV Channels 2 and higher from distant stations. During moderate-to-intense *Es* activity, it's possible to receive VHF signals from stations hundreds of miles away. Using a beam antenna with some gain, you may be able to see TV station broadcasts on the low-VHF channels, if you don't live near a TV station in your area broadcasting on the same channel.

TV Channel 2 is quite popular since it's at the lowest VHF frequency of all TV channels. Just imagine viewing the broadcast of a TV station from across the United States, such as the signal Pat Dyer of Texas captured of the North Dakota TV station KDIX, now KXMA (see **Photo B**). He has a website dedicated to this activity at <http://home.swbell.net/pjdyer/>.

How Is This Possible?

In the last few months, we've been exploring some of the components of a radio signal path and we've touched on the ionosphere. As you might remember, one of the layers of the ionosphere is the *E* region, the lowest of regions. Under the right conditions, very dense clouds of ionization develop that may become so dense and large (several miles in diameter, for instance) that they refract VHF radio signals. This is what causes *Es* propagation.

Because of the height of these clouds, the distance a VHF radio signal can "hop" is not as far as the distance of a radio signal refracted off the higher *F* regions of the ionosphere.

However, it's rare for the *F* regions to become ionized enough for VHF signals to refract back to Earth; it's more common for *Es* propagation of VHF signals to occur.

Another mode of propagation of VHF signals that occasionally occurs is tropospheric ducting. This mode can open the TV band between you and a station over a thousand miles away from you. Tropospheric ducting is caused by weather typical of late summer conditions in the Northern Hemisphere. These conditions begin to form over wide areas of North America, and over the Atlantic and Pacific Oceans, late in June or mid-July, through late August to mid-September.

Watch for stalled high-pressure cells between your location and the DX. Stalled high-pressure weather cells, with pressures reaching above 1025 millibars, are known to cause ducting of VHF radio signals. When ducts occur, VHF radio signals may propagate through these ducts far beyond the normal line-of-sight distances. This is because the VHF radio wave is "trapped" inside a layer of warm, moist air that is bound by cool, dryer air above and below. This warm layer forms a "duct" that "guides" the radio wave along the layer, often hundreds, and even thousands, of miles.

Tropospheric ducting forms each year between Hawaii and the U.S. West Coast, and from San Francisco to Los Angeles, Denver to Dallas, Texas to Florida, the Great Lakes to the eastern seaboard, the Great Lakes to Texas, Nova Scotia to Miami, and from the Midwest to the Southeast. Very strong storms can cause these ducts, as well as other weather events.

NTSC TV signals on the lower VHF frequencies, such TV Channel 2, are often propagated during strong *Es* openings (an "opening" is that time when *Es* allows you to receive those distant broadcasts, and a frequency band is considered "closed" or "dead" when there is no propagation possible on the path you are discussing). These TV signals are often weak, and all that comes through on the television receiver is a lot of snow with a hint of a picture and some sound. However, when the *Es* is strong, the signal can present a very clear picture and perfect sound. During a ducting event, the signal may remain strong for hours, while signals during an *Es* event can be very short and intermittent.

It's possible that you'll be able to DX the high-definition digital broadcasts when they dominate the airways after 2009. However, because of the nature of that standard, there will either be a picture with sound, when the signal is very strong, or there will be nothing to see or hear, as the signal has to be complete in order to be properly decoded. And that's why you only have two seasons left to DX U.S. NTSC TV signals via *Es* and tropospheric ducting propagation.

Already in May, *Es* propagation of TV signals has been reported in the United States. For example, Willis, K4APE, of Tennessee reported on the AMFMTVDX reflector on May 22, 2007, that he received WDTN-TV Channel 2, from Dayton, Ohio. He saw ads for a long-distance phone service, as well as local news and weather. He also reported that Atlanta's WSB, also on Channel 2, mixed signals with WDTN, but he was able to catch some local news from Atlanta when it was strong enough to overcome WDTN's signal.

HF Propagation For August

Propagation on the higher frequencies will fluctuate less drastically during August, as the hours of sunlight are quite long and the ionosphere has very little time to recombine dur-

Optimum Working Frequencies (MHz) - For August 2007 - Flux = 75, Created by NW7US

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

ing the hours of darkness. Higher HF frequencies are going to be unusable over most paths, but when *Es* openings occur on the higher HF frequencies, expect good domestic signals. These *Es* openings will be strong at times and fairly

common, but might be short-lived. They may, however, bring some very interesting catches (see **Photo C**).

Nineteen and 22 meters will compete with 16 for the best daytime DX band during August. These bands will open for DX

just before sunrise and should remain open from all directions throughout the day, with a peak in the afternoon. Nighttime conditions will favor openings from the south and tropical areas. Look for gray-line propagation from Asia, with long-path common from southern Asia, the Middle East, and northeastern Africa, as well as the Indian Ocean region via the North Pole.

The 25- and 31-meter bands have an incredible amount of activity, since many broadcasters target their audiences during prime times (morning and early evenings). Expect 11 MHz to be an excellent band for medium-distance (500 to 1,500 miles) reception during the daylight hours. Longer-distance reception (up to 2,000 to 3,000 miles) should be possible for an hour or two after local sunrise, and again during the late afternoon and early evening. Heavy congestion will occur here, too, as many international and domestic broadcasters make use of 25 meters.

The backbone of worldwide shortwave broadcasting, 31 and 41 meters, will provide medium-distance daytime reception ranging between 400 and 1,200 miles. During August, reception up to 2,500 miles is possible during the hours of darkness and until two to three hours after local sunrise.

Forty-one and 49 meters should be still best for worldwide DX from sunset to sunrise. From early evening and into darkness, increasingly longer paths develop, up to several thousand miles. As propagation conditions don't change much on the lower HF bands through the solar cycle, a high number of HF broadcasters rely on these bands. International and domestic broadcasts compete with amateurs on the 41-meter band and with each other. This makes for a lot of interference, especially during the late afternoon and evening hours, making reception of weak, exotic signals a bit more of a challenge.

Don't expect any improvement in nighttime DX conditions on 41 through 120 meters during August, since we are not yet close enough to the seasonal decrease in the static levels of winter. The 5-, 3-, and 2-MHz shortwave bands are used mostly in designated tropical areas for domestic broadcasting. The entire 4-MHz band is set aside for domestic broadcasting in Asia, and some of this band is used throughout Europe.

On all of these bands, during daylight, reception should be possible from up to 500 miles away. After sunset until an hour

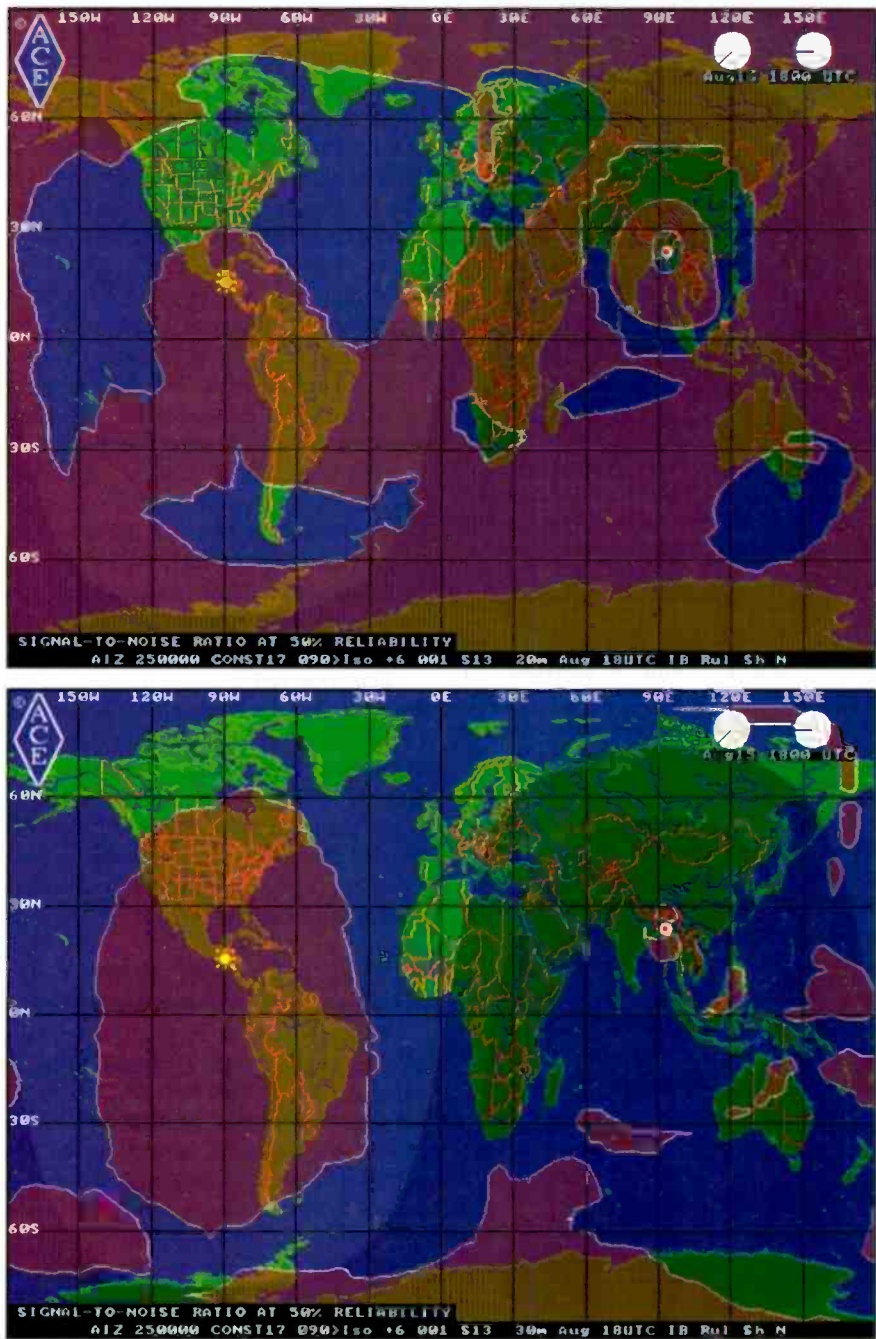


Photo C. These two propagation maps created with ACE-HF Pro, in the Shortwave Radio mode, show the reception areas of an international shortwave transmission originating in India. The transmission is a 250,000-watt AM radio signal with a high-gain transmitting antenna system. The blue areas outlined by the white border are those areas where this signal would be heard at 1800 UTC on about half the days in August 2007. The map on top shows the area covered by a radio signal in the 19-meter band (about 15.1 MHz). The map on the bottom illustrates the area covered by a radio signal in the 31-meter band (about 9.5 MHz). It clearly shows how listeners in most of the Continental United States would want to tune to the 19-meter transmission, while listeners in Africa would want to tune to the 31-meter transmission (Source: NW7US, using ACE-HF Pro <http://hfradio.org/ace-hf/>)

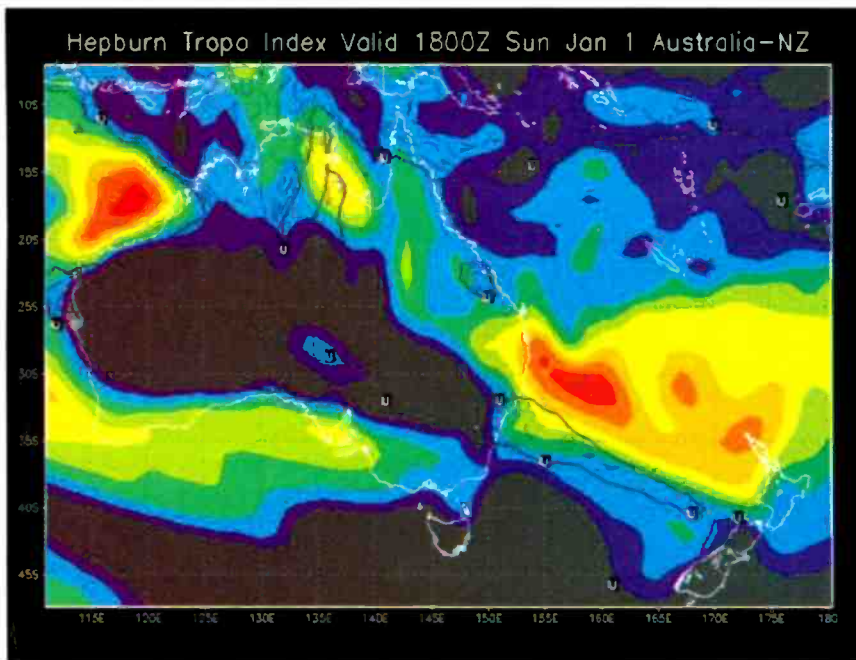


Photo D. During the period shown on this weather map, radio operators were able to catch VHF radio beacons on the amateur radio 2-meter band between Australia and New Zealand. Notice how the duct (shown by the red color) extended well into the Indian Ocean in this Hepburn Tropo map. (Source: William R. Hepburn, www.dxinfocentre.com/tropo.html)

or so after sunrise, reception of signals from 1,000 to perhaps 2,000 miles away is possible. There will still be a high level of static during August, so these bands will be a challenge to those looking for long-distance DX of exotic tropical stations. The best time to search for these would be just before sunrise and an hour or so after daylight.

VHF Conditions

Statistical studies show that a sharp increase in *Es* propagation takes place at mid-latitudes during the late spring and summer months. During August, short-

skip propagation over distances as great as 1,400 miles should be possible for about 10 percent of the time on 6 meters. Higher VHF (2-meter) openings may also be possible during periods of intense *Es* ionization (see Photo D).

Advanced visual and infrared weather maps can be a real aid in detecting the undisturbed low clouds between the West Coast and Hawaii or farther during periods of intense subsidence-inversion band openings. This condition occurs also over the Atlantic. There's a great resource on the Internet that provides a look into current conditions. Meteorologist Bill Hepburn has created forecast maps and

presents them at www.dxinfocentre.com/tropo.html, which includes maps for the Pacific, Atlantic, and other regions.

Current Cycle 23 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for April 2007 is 3.7, down from March's 4.8. The lowest daily sunspot value recorded was zero (0) on April 2, April 4 through April 16, and April 18 through April 24. The highest daily sunspot count was 21 on April 30. The 12-month running smoothed sunspot number centered on October 2006 is 14.2, down from September's 15.6. A smoothed sunspot count of 13, give or take 13 points lower to 13 points higher, is expected for August 2007.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-centimeter observed monthly mean solar flux of 72.4 for April 2007. The 12-month smoothed 10.7-centimeter flux centered on October 2006 is 79.4, down from September's 80.2. The predicted smoothed 10.7-centimeter solar flux for August 2007 is 75, give or take about 15 points.

The observed monthly mean planetary A-Index (Ap) for March 2007 was adjusted from 7 to 8. The observed monthly mean planetary A-Index (Ap) for April 2007 is 9. The 12-month smoothed Ap index centered on October 2006 is 8.6. Expect the overall geomagnetic activity to vary greatly between quiet to disturbed during most days in August.

I'd Like To Hear From You

You can join in with others in discussing space weather, propagation, and shortwave or VHF listening at <http://hfradio.org/forums/>. Be sure to check out the latest conditions, as well as the educational resources about propagation, which I have put together for you at <http://prop.hfradio.org/>. I also provide a WAP/WML resource for wireless devices. If you want the latest propagation information such as the solar flux, Ap reading, and so forth using a cell phone or other WAP device, check out <http://wap.hfradio.org/>, the wireless version of my propagation site.

Please don't hesitate to write and let me know about any interesting propagation you've noticed. Do you have questions about propagation? I look forward to hearing from you.

Until then, happy signal hunting! ■

HF Operator's Survival Guide

A practical, hands-on getting-started guide for newcomers to high-frequency (shortwave) Amateur Radio. Among other topics, this book discusses the characteristics of each HF ham band and explains which is best and when, basic HF operating practices, choosing your first HF transceiver, antenna basics and various HF modes and operating activities. There's also an HF band chart!

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Radio Fun And Going Back In Time

Q. What's the latest news from "Whiz Bang Corners," aka the world of high-tech?

A. There's a company that has come up with a new device on parking meters. It reads the presence of a car parked in the parking spot. If the car moves away while there's still time left on the meter, the meter is zeroed out. With this system there will never be time left on a meter for the next person. Don't these people realize that there are some things that don't need to be invented? Talk about technology run amuck!

Q. Who was the first person to use the term "amateur" in relationship to amateur radio operators?

A. R.P. Howgrave-Graham wrote a book, which was published in England in 1908, entitled "Wireless Telegraphy for Amateurs." It was one of the first books on radio for the "Wireless Experimenter" market. This seems to be the first time the term was used. As early as 1905 the British Postmaster General suggested to Parliament that "Wireless Telegraphy for experimental purposes" be licensed under the Wireless Telegraphy Act of 1904. The request was made in order to "to promote experimental investigations in this promising field."

From 1914 to 1918 the British closed down all amateur radio stations because of World War I. By that time, there were some 1,600 Experimental Transmission Licenses in the country.

Q. When did America begin to authorize reciprocal licensing with other nations?

A. Although it seems like it's been with us forever, reciprocal licensing didn't begin until the Goldwater Bill was signed by President Lyndon Johnson on May 28, 1964. This allowed foreign hams in the United States, or Americans overseas, to have their licenses accepted as though they had been issued in that nation. Such reciprocity, with all nations except Canada, had been expressly outlawed by the Radio Act of 1934, but with the Goldwater Bill the State Department was able to negotiate reciprocal operation treaties with other nations. The bills sponsor, of course, was Senator Barry Goldwater, K3UIG and K7UGA, of Arizona.

Q. What kind of interview process does someone have to go through to be an Intercept Operator, given the security level needed for the job?

A. During the early part of World War II the British needed a large number of people to listen to the Nazi Enigma Code traffic, copy the coded messages, and pass them on to the Codebreakers at Bletchley Park. This was boring work that required meticulous attention to detail. Because of the security level involved, those interviewed could not be told anything about the job except that it required secretarial skills. The men doing the interviews needed not just secretaries but detail-oriented ones.

Not knowing exactly how to find out what they needed to know without revealing too much, the interviewers asked some of the female supervisors who were setting up the operation exactly how they would spot the detailed-oriented secretaries they were looking for. The women already on the team said that the best ones would be very careful in their personal appearance. "Look for girls who are very careful about how they shave their legs. If they are 'our kind of girls' they will shave themselves very closely, but not have any nicks."

Confidently the interviewers went about their work taking careful note as they'd been advised. A little while after the interviews started word got back to the interviewers that their close observations had been noticed and made the interviewees nervous, and the women being interviewed had to be assured it wasn't "that" kind of a job.

Q. Samuel Morse designed his first telegraph equipment as a printing receiver that printed the dots and dashes on a paper tape. When did telegraph operators start "reading the code by ear"?

A. It appears that as early as 1845 telegraph operators had picked up the skill of listening to a Morse Register rather than reading the dots and dashes off a tape marked by the register. Commercial telegraph companies thought that this particular trend was dangerous because it would allow errors to find their way into the messages. Operators who read messages by ear had to keep the tapes of their messages to prove their accuracy.

By 1847 businessmen were being fined for picking up stock market reports and other business information by hanging around the telegraph office and listening to the operator key outgoing messages or overhearing the printing register record incoming traffic. They were fined for this because they were reading traffic without a Telegraph Operator's License. They were also receiving stock market reports without paying for them.

In 1852-53 the Erie Railroad had train conductors who refused to accept train orders taken by operators who received by ear. The operators demanded to be tested to prove their accuracy. The testing showed that the operators were not only accurate but also cheaper than the printing registers. By 1856 the telegraphic sounder was invented and became standard equipment in telegraph offices around the world. ■



A Great Advance In DX— The Terminated Corner-Fed Super Loop

The development of terminated broadband loop antennas represents one of the most significant advancements for long-distance (DX) mediumwave AM broadcast reception in recent years. Many of these loop antenna designs were first developed by amateur radio operators for applications in the 80- to 160-meter bands, later discovered by mediumwave DXers to be useful in the AM broadcast band as well. The following outlines the development of a variant antenna: the Terminated Corner-Fed Super Loop.

Ewe Antenna

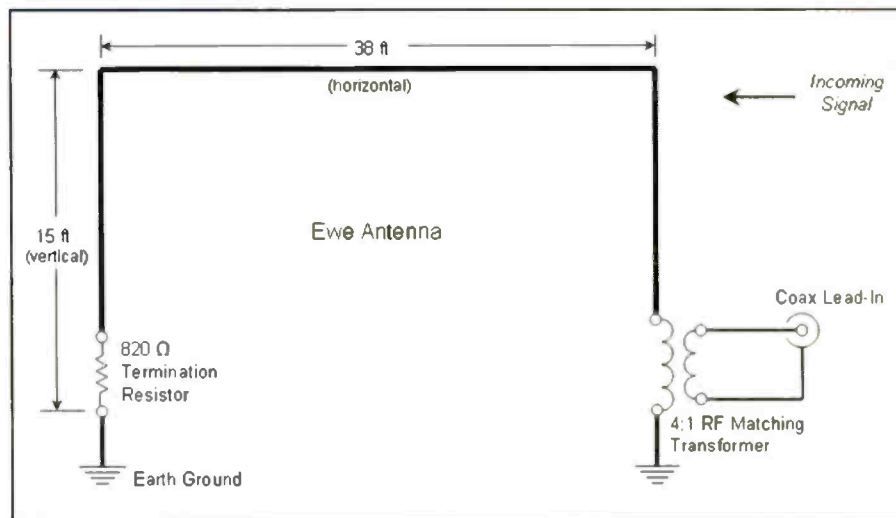
Technically, the Ewe antenna is not a loop, but it does represent a starting point in the Super Loop development process.

The Ewe was first introduced by Floyd Koontz, WA2WVK, for 80 and 160 meters (*QST*, February 1995). The Ewe is especially attractive to mediumwave DXers because of its relatively compact size and Beverage-like unidirectional performance, achieving a greater than 30 dB backside null.

The design is simple. It basically consists of two vertical wires connected at the top by a horizontal wire, thus forming the shape of an upside-down “U,” which supposedly gives this antenna its name. The bottom of one vertical is terminated to earth ground through a resistor, and the bottom of the other vertical is connected to the receiver via an RF matching transformer and coaxial lead-in. The separation of the verticals is typically 2.5 times their height. For example, if the verticals are 15 feet tall, then the horizontal length of the antenna should be approximately 38 feet, or 37.5 feet to be exact ($15 \times 2.5 = 37.5$ feet).

These dimensions are generally considered the standard for the Ewe antenna, but as it migrated toward mediumwave DX applications, the dimensions were found to be very forgiving and adaptable to almost any situation. Patrick Martin, a prominent transpacific mediumwave DXer on the Oregon coast, has been using Ewe antennas of various sizes and vertical to horizontal ratios successfully over the years, in particular with a horizontal length of 100 feet, over six times the vertical height. I have used a “super-sized” Ewe in New Hampshire, measuring 50 feet tall and 75 feet long—a ratio of only 1.5—also with good results.

I soon became interested in the Ewe as a “stealth” antenna. I ran 50-foot verticals up the trunks of tall pine trees with the horizontal hidden in the canopy, using double-insulated 14-gauge stranded copper wire purchased at the local hardware store—perfect for a receive-only antenna. I tried the super-sized Ewe dimensions based upon the hypothesis that the tall verticals would improve reception of long-distance signals that typ-



Ewe antenna construction diagram.

ically arrive at low angles, and a larger antenna would provide plenty of gain, thus not requiring amplification.

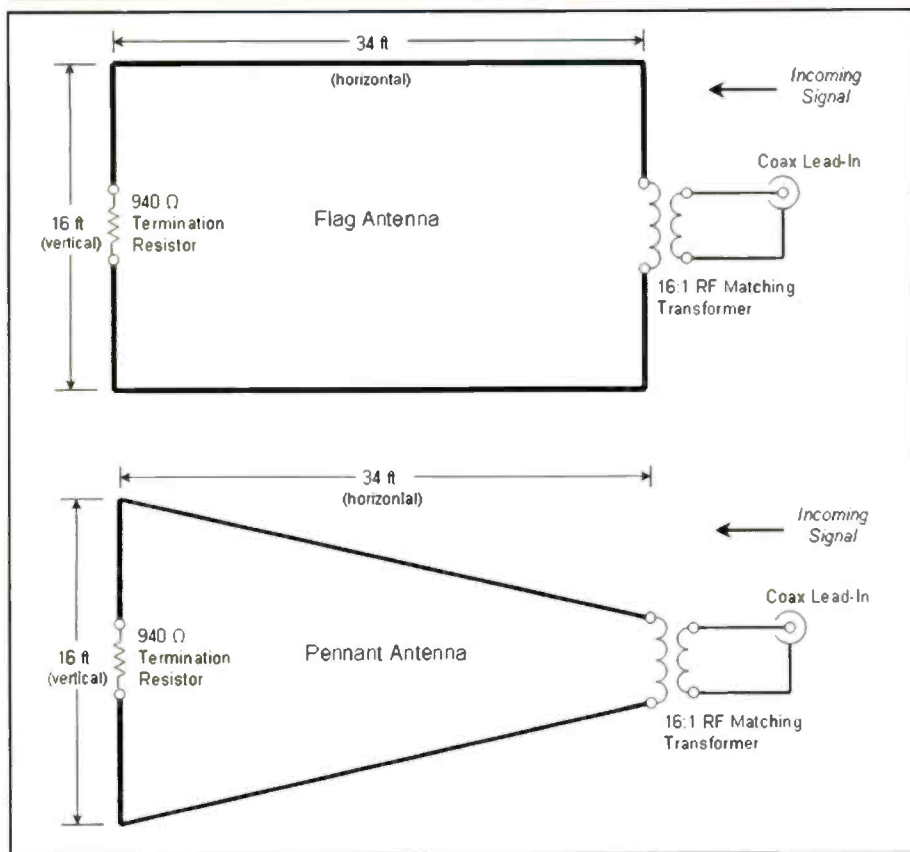
The Ewe performance was outstanding, nulling domestic signals to the west, while improving transatlantic reception over previous random-length longwire antennas.

So the key to Ewe performance doesn't seem to be its size. Instead it depends more upon the termination resistance, and this, in fact, is where the Ewe tends to be problematic. The termination resistance of the standard 15 x 38-foot Ewe antenna is approximately 820 ohms, approximate because the resistance value will vary based on earth ground conductivity. The Ewe antenna is extremely ground dependent. Experimentation with grounding techniques and resistor values is required to optimize performance, yet performance is still subject to change according to ground conditions, such as frozen ground in winter, moist soil during the rainy season, or an extended drought.

At my New Hampshire location, for instance, earth ground conductivity is generally poor, because the ground is mostly sand and rock with a thin layer of topsoil. Termination resistance varied from 1000 to zero ohms (a short-circuit to earth ground) for best overall performance. While the Ewe performance was impressive, nonetheless, I wasn't totally satisfied because of the grounding problem.

Flag And Pennant

Ground-independent terminated broadband loop antennas were introduced in the mid-'90s to amateur radio by designers Earl Cunningham, K6SE, and José Mata Garriga, EA3VY, and later refined and summarized by K6SE in the article “Flags, Pennants, and Other Ground-Independent Low-Band Receiving Antennas,” *QST*, July 2000. The Flag and Pennant antennas are variations of the terminated loop, so-named for their shapes: the



Flag and Pennant construction diagrams.

Flag is a rectangular and the Pennant is a triangle, both in a vertical plane.

Like the Ewe, these antennas provide for unidirectional reception with a greater than 30 dB backside null. Unlike the Ewe, they “float” above earth ground; meaning termination to earth ground is not required. The loop design is also inherently low-noise. This makes the Flag and Pennant the ideal receive-only antennas for almost any situation.

Again like the Ewe antenna, the Flag and Pennant loops are very flexible in terms of actual size. Adjustment of the termination resistance will compensate for any deviations from the standard dimensions. The standard Flag dimension is 16 feet high by 34 feet long, while the Pennant measures 14 feet high by 29 feet long, per various published designs. Both the Flag and Pennant dimensions follow the same height versus length ratio of approximately 2.1 (length = height x 2.1), although this ratio can also vary and still perform well. Therefore whatever best fits your location is acceptable, rather than trying to maintain standard dimensions. Just remember that some experimenting with termination resistor values will be required to maximize performance.

Mark Connelly, WA1ION, internationally recognized for his antenna phasing unit designs, has developed an elegant solution for convenient remote adjustment of the termination resistance. In doing this, Connelly discovered that the backside null could be steered by varying the termination resistance to increase the null in specific directions. The termination resistor is replaced by a Vactrol through which the resistance value is adjusted by a DC voltage. Consult Connelly’s “RF Circuits” website at www.qsl.net/wa1ion for more about Vactrols, plus complete instructions for assembly of his Flag and Pennant circuitry designed for mediumwave applications.

Be aware of a couple caveats with the Flag and Pennant, however. The gain of the standard size loop antennas is rather low at mediumwave frequencies, so some RF amplification is required. If you have the space available, the antennas can easily be super-sized to increase gain to a level where no amplification is necessary. More importantly, though, the Flag and Pennant loop design doesn’t allow for stealth installation, at least in my particular situation. For best performance, the bottom of the loop needs to be a few

feet above the ground, typically 6 feet. This would place the lower section of the antenna and coax lead-in within view of neighbors or anyone cutting through the yard. I needed to find another solution that would provide the advantages of a floating design while maintaining a stealth profile.

Terminated Corner-Fed Super Loop

The Terminated Corner-Fed Super Loop is the result of years of experimentation with various antennas for mediumwave DX purposes. It combines the low-angle performance and stealth installation of the super-sized Ewe antenna with the floating ground-independent design of terminated loops like the Flag and Pennant. Similar to the Ewe, Flag, and Pennant, size doesn’t really matter for receive-only applications. Just make it as big as possible, according to the hypothesis that the larger the antenna, the better the low-angle performance, while reducing—if not eliminating—the need for amplification.

I’ve experimented with sizes ranging from a minimum of 20 feet tall to a maximum length of over 100 feet, and in all cases have been able to achieve Beverage-like performance. In one test, a 50-foot-tall by 85-foot-long Super Loop outperformed 425-foot and 1000-foot wires in side-by-side comparisons during a mediumwave coastal DXpedition. At my base station in New Hampshire, a 50-foot-tall by 75-foot-long Super Loop aimed east has netted a number of new and exotic logs, including more than one Middle Eastern station on 702 kHz and, most recently, Israel on 1287 kHz for a new mediumwave country.

The Super Loop is essentially a modified Flag antenna design. It’s a floating terminated broadband loop, but the termination resistor, RF matching transformer, coax lead-in, and bottom horizontal wire rest on the ground to maintain a stealth profile. But a Ewe antenna is easily converted to a Super Loop. Simply disconnect the termination resistor and matching transformer antenna winding from earth ground and replace it with an insulated horizontal wire connecting the resistor to the transformer to complete the loop. Again, the horizontal wire lies on the ground, maintaining the stealth installation of the Ewe as described earlier.

With a termination resistance of 800 to 1000 ohms, a 16:1 RF matching trans-

former is recommended for the Super Loop, but the 4:1 transformer of a Ewe will provide adequate performance until an appropriate transformer can be installed.

Similar to the Ewe, Flag, and Pennant, in theory a height-to-length ratio of 2.1 to 2.5 might be optimal, but field tests so far suggest more flexible dimensions are acceptable. My 50 by 75-foot Super Loop has proved worthy at its 1.5 ratio.

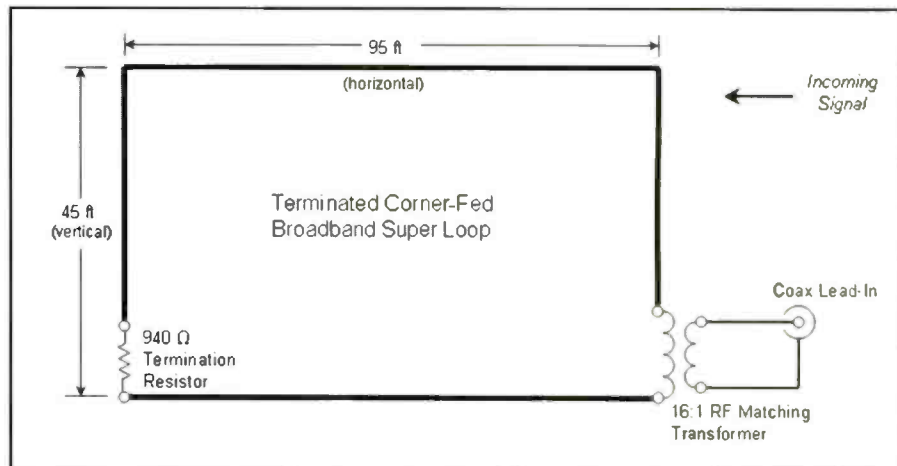
Additional Design Notes

The Ewe, Flag, Pennant, and Super Loop all require a matching transformer with coax lead-in to connect the antenna to the standard low-impedance input of a communications receiver. Furthermore, the high-impedance antenna winding must be physically isolated from the low-impedance coax lead-in winding; in other words, there can be no common ground between primary and secondary windings of the transformer.

I've always used Mini-Circuits (www.minicircuits.com) wideband RF transformers for this purpose, 4:1 model T4-6T and 16:1 model T16-6T, both in the X65 6-pin DIP (dual in-line package). The miniature design of these Mini-Circuits transformers allows for long-wave, mediumwave, and shortwave operation with low-insertion loss, specified at 1 dB from 100 kHz to 20 MHz. However, the transformer core is reported to easily overload in high signal areas, and the tiny internal wiring is susceptible to static discharge and lightning damage. The transformer can be protected by conventional means, using ceramic capacitors to block any DC bias currents, and lightning arrestors such as discharge tubes that may, at minimum, prevent damage from nearby strikes.

For those living in high signal areas or severe lightning zones, winding your own custom RF matching transformer is the best option, because commercially available transformers for amateur transmit and shortwave applications all have internal common grounds. An Internet search for RF matching transformers will locate any number of do-it-yourself instructions as well as sources for fully assembled homebrew units.

As with any antenna installation, remember safety first. Keep away from power lines, not only for safety, but also to reduce potential noise pick-up from power, cable TV, and telephone lines. To protect your equipment from lightning or static damage, any outdoor antenna



Super Loop construction diagram. Note the similarities with Ewe and Flag construction.

should be physically disconnected from the receiver when not in use. Even a nearby lightning strike can cause damage to the sensitive front-end of a communications receiver.

Tree climbing to install antennas is discouraged. A line thrower like the "EZ Hang" can be used to shoot fishing line up to 100 feet over trees. The fishing line is then used to pull rope and wire up. EZ Hang is available from Ham Radio Outlet (www.hamradio.com) and other amateur radio retailers. A cheap practice bow and arrow set can be used for the same purpose. As a last resort, hire a professional tree climbing service to install the antenna for you.

Broadcast Loggings

Now that you've installed an outdoor mediumwave antenna, it's time to put it to the test while solar activity remains at a minimum. Here are some targets courtesy of broadcast DXers coast to coast. All times are UTC.

612 RTM A, Sebaa-Aioun, Morocco, at 2305 excited Arabic talk by man, highly compressed; superloud, something like S9+25 on the meter. (Connelly-MA) At 2352 excellent with very lively North African music, male vocal in Arabic with flutes, drums, and horns. (DeLorenzo-MA)

640 WGST Atlanta, Georgia, at 0051 ads for Jos A Banks store in Atlanta area, followed by station ID and Braves baseball. Faint. (Wood-TN)

660 KGDP Orcutt, California, at 1130 peeking in and out from behind powerhouse KTNN, still coming through but attenuated with my loop nulling it out, running religious programming, heard over the beat of TNN's tom-toms. (Barton-AZ)

660 XEAR La Mexicana, Tampico, Mexico, at 0518 ID, "50.000 wats de éxitos

mexicanos, La Mexicana 660 AM." Dominant, often booming, at times another XE, perhaps XESJC; 0518 WFAN New York with ID and sports, 0525 WFAN and another U.S. station, perhaps KTNN. New. (Wood-HI)

670 WMTY Farragut, Tennessee, 2047-2115 "Hand Jive," "I Fought the Law," and many other 1950s and 60s pop and Motown songs. IDs as "Farragut's Oldies Station—the Mighty 670" and "The Heart of Rock and Roll." Faint with static. Listed at 2.5 kW. (Wood-TN)

700 ZYK686 R.Eldorado, São Paulo, Brazil, at 0032 Portuguese talk. Eldorado and São Paulo mentions; good. (Connelly-MA)

760 KKNZ Thornton, Colorado, at 1230 weather, traffic reports, promo for "The Tom Leykis Show," and ID, "AM 760. Progressive Talk Radio." Many references to towns in Denver area. By 1345, was mixing with KFMB San Diego. (Barton-AZ)

760 ZYH588 R.Uirapuru, Fortaleza, Brazil, at 0035 with a man in Portuguese; mixed with Venezuela. (Connelly-MA)

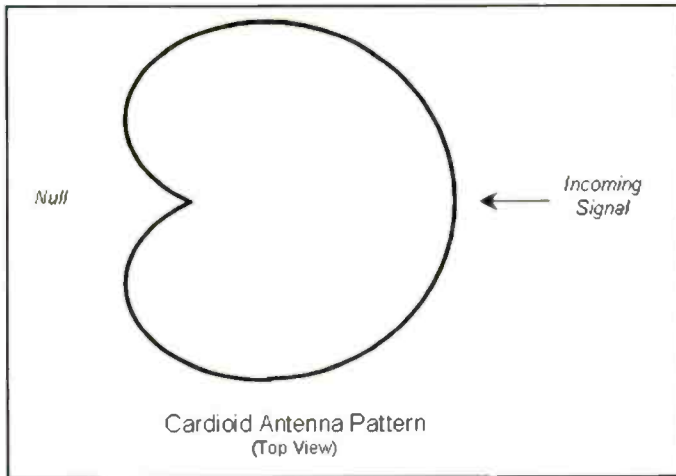
780 KNOM Nome, Alaska, at 1407, "It is 14 degrees in downtown Nome at 7:07 a.m. on KNOM, country music for western Alaska," into old country music. Very good. 650 KENI also good then. Coinciding with a run of good conditions to central Asia and the Middle East, but not Europe. (Wood-HI)

820 CMCA R.Ciudad de la Habana, Cuba, at 2325 "Monday, Monday" by the Mamas and Papas, then Spanish music. Good signal (20 over S9) with slight static. (New-GA)

870 WWL New Orleans, Louisiana, at 1043 a long string of ads including one for the "Muffaletta Hut" followed by sports talk about the Saints. Good signal. (Wood-TN)

870 CMDT R.Relej, Sancti Spiritus, Cuba, heard at 0419 news from Matanzas and Provincia de la Habana, time ticks, "RR" code. Very good, level with booming WWL, amazing for listed 1 kW. (Wood-HI)

900 WKXV Knoxville, Tennessee, at 1800 full ID and Mark Ward with "It's Still



The unidirectional cardioid (heart-shaped) beam of the Ewe, Flag, Pennant, and Super Loop antennas.

the Blood Program," followed by several other Appalachian preachers presenting the Gospel with great zeal, fervor, and panache. Good. (Wood-TN)

910 YVRQ Caracas, Venezuela, at 0244 station IDs, a short spot for the "Talento Nacional" program, and a progressive flavored '70s Venezuelan rock tune in the style of Vytas Brenner, but with soothing vocals, followed by "Tradición venezolana en el circuito AM Center" and a joropo vocal. Not that regular now, thanks to CMAF R.Cadena Agramonte, Cuba co-channel interference. (Chiochiu-QC)

930 KIUP Durango, Colorado, at 0130 with ESPN Sports and local ID, "AM 930, KIUP Durango." (Barton-AZ)

963 CRI Hohhot, Inner Mongolia, China, at 1454 Chinese language lesson taught in Russian, teaching words like "self-confidence." 1455 gave Internet address of www.crirussian.com. Sign-off wording, "Peredacha iz Pekina okonchena. Do svidaniya." No times or frequencies announced. 1456 into usual Chinese fill music. Very good. (Wood-HI)

963 R.Renascença, Seixal, Portugal, at 0115 parallel 594 kHz with a Portuguese vocal; in a multi-station pile-up. With once-adjacent CHNS gone, this channel is a total DX shooting gallery. (Connelly-MA)

963 RTT Tunis, Tunisia, at 0117 likely this with chanting; under Portugal and Spain mix. (Connelly-MA)

990 XECL Mexicali, Mexico, at 1330, heard with a relatively new format, playing old school romantic ballads, and still using the "Rocola 990" slogan, but with a male shouting the "¡Rockola!" followed by a female chorus singing the "nueve noventa" part. The sing-song sound of the "nueve noventa" should help other DXers ID this one, even if the words are not clearly heard. The slogan/jingle is practically given after each song. (Barton-AZ)

999 COPE Madrid, Spain, at 2342 parallel 1296 kHz with talk, segment of "My Generation" by the Who. and COPE ID; local-like. (Connelly-MA)

1044 RTM A/C, Sebaâ-Aioun, Morocco, at 0023 Arabic talk; huge signal. On the air later than usual. (Connelly-MA) At 2300 good, over Spain; North African string instrumental, ID in Arabic, "Huna ribat..." and two cycles of interval signal or fanfare into news. 2355 recheck found Spain alone on the frequency after RTM C signed off early. (Conti-NH)

1062 Rai Radiouno synchronos, Italy, at 0351 good with pre sign-on test tones. 0415 woman in Italian parallel 1575 kHz. Test tone audio uploaded to dxclipjoint.com. (Conti-NH)

1116 Rai Radiouno synchronos, Italy, at 0346 pre sign-on test tones just getting started; under SER Spain synchronos. (Conti-NH)

1120 WKCE Maryville, Tennessee, at 2159 "The Line Score Show," a local sports talk show, live from Rooster's Bar and Grill. Good signal (S9) with fades, but above KMOX in St. Louis, MO. (New-GA)

1134 Glas Hrvatske, Zadar, Croatia, at 0224 a jazz instrumental. Good signal. (Beu-TX) At 0005 Slavic news by a woman; huge signal. This and 1521 Saudi Arabia were the loudest transatlantic signals. (Connelly-MA)

1251 Voice of Russia, Ussuriysk, Russia, at 1359 Chinese sign-off, Russian national anthem (same melody as old Soviet anthem) by a military band. At 1400 surprise! ID in Farsi by woman, "Inja Mosko," and opening music "The Great Gate of Kiev," then audio abruptly cut at 1401. Carrier remained on. Very good, the only Russian usually heard here. (Wood-HI)

1280 VSB2 Hamilton, Bermuda, at 0504 "Amazing Grace" and other standard hymns, mostly choral with organ, Anglican Church-style. 0600 ID. "This is the Bible Broadcasting Network, 1280, Hamilton, Bermuda." Good to very good atop KXTK and occasional Tupi Brazil. Last heard here in 1980s. (Wood-HI)

1287 Galei Zahal, Ramle, Israel, at 0240 with pop music, then a man in Hebrew announced presumably the song and artist, followed by further announcements and more pop music; transmitter site dawn enhancement, fading out before 0300. Audio uploaded to dxclipjoint.com. New country! (Conti-NH)

1395 The Big L, Trintelhaven, Netherlands, at 2335 "Let's Spend the Night Together" by the Rolling Stones, then a Big L ID and talk about football; good. (Connelly-MA)

1404 ERA Komotini, Greece, at 0345 fair with a woman and mel-low music parallel 1494 and 1512 kHz on a transmitter site dawn high-band opening to Greece. (Conti-NH)

1440 KPUR Amarillo, Texas, at 0130 with a sports update into network ESPN Sports. (Barton-AZ)

1440 Quazaq Radyosy, Qyzylorda, Kazakhstan, at 1500 time signal, man in Kazakh, "Qazaq Radyosy, Khabar." Alternating man/woman, items from Astana (the capital), Almaty, and Moskva. Good, new, no parallels noted. I consider this my best Asian catch. (Wood-HI)

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1440 BSKSA Damman, Saudi Arabia, at 2329 parallel 1521 kHz with Arabic strings and percussion; slightly over WJAE and other domestics. (Connelly-MA)

1467 TWR Roumoules, France, monitored at 0405 fair to good with somber vocals. German program per *WRTH*. 0415 one cycle of interval signal, then off. (Conti-NH)

1467 TWR Bishkek, Kyrgyzstan, at 1430 Russian religious transcription. 1455 gave mailing address in Kazakhstan. ID, "Vy slushaete Transmirovoye Radio iz Monte-Karlo." Music box interval signal three times, momentarily off (probably changing antenna from north beam to Kazakhstan and Siberia which would favor Hawaii, to non-direction-

al for Kyrgyzstan). 1446 into Kyrgyz religious program. Booming 1430-1445, weaker with Korea and Fiji interference after 1446. (Wood-HI)

1512 BSKSA Jeddah, Saudi Arabia, at 0110 fair with Call of Islam parallel 1521 kHz. (Conti-NH) At 2323 an Arabic vocal; dominant. Pop music station (Greece?) under. (Connelly-MA)

1521 BSKSA Dubai, Saudi Arabia, at 0243 talk by man in Arabic on a good signal peak. (Beu-TX) At 0015 excellent, stronger than 1520 WWKB: discussion by women in Arabic. (Conti-NH) At 2342 fast Arabic talk in interview; over Spain. Stronger than adjacent WIZZ and WWKB. (Connelly-MA)

1530 R.Vaticana, Vatican City, at 0420 one cycle of interval signal into choral music; in WCKY null. At 0439 three cycles of interval signal under WCKY. (Conti-NH)

1548 Deutsche Welle, Tricomalee, Sri Lanka, at 1452 Urdu talk about Sri Lanka, Bharat (India), and Pakistan. 1459 ID, "Deutsche Welle. Voice of Germany," into Hindi. Good. (Wood-HI)

1550 RASD Tindouf, Algeria, at 2256 parallel 6300 kHz with an Arabic rock male vocal; good, blasting over phased WNTN. (Connelly-MA)

1550 Cuba, bubble jammer, at 0505 loud. Against WRHC La Poderosa, Coral Gables, Florida? Does WRHC (which seems to stand for Radio Habana Cuba) have political programs late nights? Cuba 640, 710, 770, 1180, etc. were good then. Do listeners in Florida hear this? (Wood-HI) Received nightly in New Hampshire, too. (Conti-NH)

1550 WRHC Coral Gables, Florida, at 2302 Spanish music and programming. Good signal mixed with WAMA in Tampa, FL, and WIRV in Irvine, KY. WAMA and WRHC eventually faded away at 1804 leaving WIRV alone on the frequency. (New-GA)

1575 R.Farda, Al Dhabiya, United Arab Emirates, at 2300 peaked up way over pile with clear R.Farda ID; Spain and Italy mixing at times. (Connelly-MA) At 0130 good with hourly news/talk segment in Farsi until 0145, then pop music. (Conti-NH)

1600 KLEB Golden Meadow, Louisiana, at 0305 zydeco, oldies and blues music. Decent, steady signal above the mix of stations on the frequency. "The Rajun' Cajun. KLRZ, 100.3" and "1600, KLEB Golden Meadow" IDs. (New-GA)

1640 KDIA Vallejo, California, at 0400 with religious programs and a good ID as "KDIA...the Light of the Dial," but giving location as "San Francisco." Very solid, strong signal. (Barton-AZ)

1650 KBJD Denver, Colorado, at 2345 with the Mike Boyle Restaurant Show. IDs as both KBJD and AM 710 KNUS. (Barton-AZ)

1680 HISV R.Senda, San Pedro de Macoris, Dominican Republic, at 0235 an energetic preacher in Spanish, 0259 full ID, "...San Pedro de Macoris, República Dominicana, esta es HISV 1680 AM Radio Senda. la emisora de unidad...senda de vida." over nulled WTTM contemporary Spanish vocals and WDSS R.Disney. Callsign is supposed to be HIC82, but that's not what's announced in this ID, uploaded to dxclipjoint.com. New log. (Conti-NH)

Thanks to Rick Barton, Mike Beu, KD5DSQ, Bogdan Chiochiu, Mark Connelly, WA1ION, Marc DeLorenzo, Bert New, Joe Wood (Tennessee), and Richard Wood (Hawaii).

Till next time, 73 and Good DX!

Note: The FCC has not posted a list of call-sign changes since the last list was compiled.—BC

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Morse Code In The No-Code Era

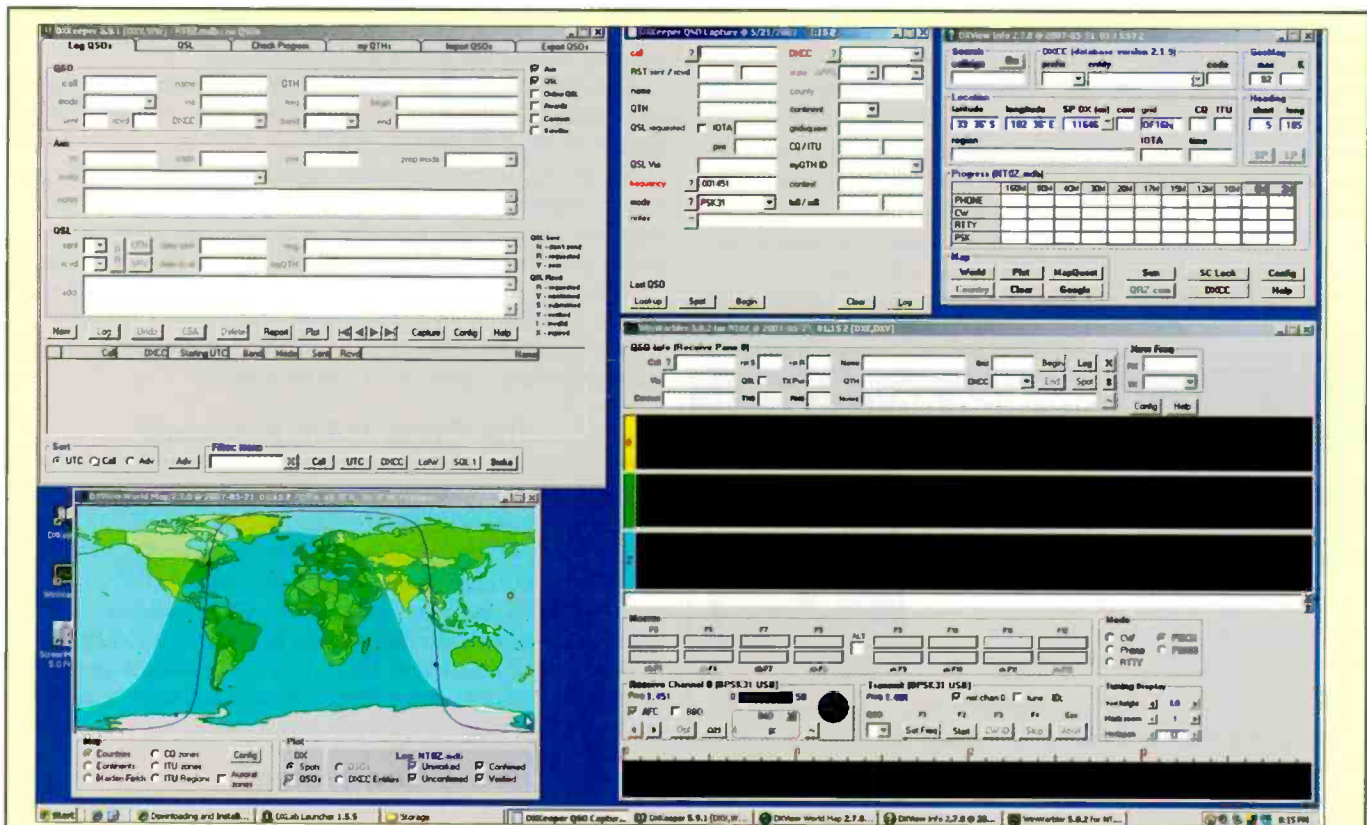
Now that Morse code D-Day (February 23, 2007) has come and gone, U.S. hams aren't required to know squat about Morse. Period. The U.S. Coast Guard stopped listening for Morse code calls, distress or otherwise, in the mid 1990s. Everything, or so it seems, has gone digital, high-tech, or satellite!

Isn't it ironic that, in this era of "code demise," that TV satellites, among other orbiters, still broadcast their transponder IDs in Morse code! Satellites are satellites by definition—and they're certainly high tech. And Morse *is* digital. It's a single-carrier, on/off digital code that's processed in the time domain, unlike most "modern" digital modes.

Time-domain codes require lots of fuzzy logic and parallel processing to successfully decode. Computers aren't too good at it, but the human brain is! And when you add signal fading, interference, and noise, the human brain, arguably the most advanced analog computer ever developed, leaves "digital" computers in the dust.

So, if it helps you to see Morse code in a new light, just remember that Morse code *is* digital, and that the best computer for demodulating its on/off, time-domain code is *your brain!*

That revelation aside, why should you bother with an "abandoned digital mode" now that it's no longer required for amateur licensing?



Every Ham Should Have One...

Ham radio software has been getting more and more sophisticated over the years, and more hams than ever are using it in the shack for multiple tasks. We need loggers, DX spotters, propagation forecasters, digital mode terminals, demodulators, rig-controllers, spectrum analyzers—you name it! The problem is, there's just not enough screen real estate to comfortably display everything at once!

Enter Westinghouse's new LCM-22W2 22-inch LCD flat panel monitor. Although I didn't get it for my shack, after playing around with it as my main PC monitor, I'm dying to get another for various radio purposes. This affordable, yet monster-size, LCD has a screen resolution of 1680 x 1050 pixels, with digital and analog inputs. As you can see in the photo, I can run four or five of my DXLab modules at once, with room to spare. Once prohibitively expensive, prices on flat panels have plummeted in the last year or so.

This one, or it's cousin, the LCM-22W3, can be purchased at Best Buy or elsewhere online for as little as \$250! And it's also nice to see the venerable Westinghouse brand doing so well; its LCD monitors and TVs are fetching excellent reviews. I concur!

There are plenty of reasons, of course. Some were very briefly touched on in the August issue ("Talk Back To Your Radio..."), but I'll highlight some of them in greater depth in this month's column. Over the years I haven't written too much about Morse code in these pages, and because of that, some of you might be surprised to discover that it's my favorite mode! More than 90 percent of the many thousands of QSOs in my logbooks since 1977 have been via Morse code. And not because I couldn't have chosen other modes.

Get Involved

Communicating via Morse—when you can speak it fluently, like any other foreign language—provides a hard-to-define *intimacy* that's difficult, or impossible, to experience with SSB, RTTY, or whatever.

Maybe it's because your brain is *so involved* with generating and decoding Morse. If you close your eyes when listening, an audio "landscape" opens up in your headphones (always the best way to copy Morse). Sounds take on a spatial quality. Noise might come from slightly to the left in your personal soundscape, while signals, desired and otherwise, seem to come from all over. Your brain, the fabulous fuzzy logic processor that it is, somehow sorts all this stuff and locks in on the desired signal. Communication results. It's a lot more involved than trying to pick out a weak voice signal in the noise, or even from among multiple voices.

It's difficult to explain with enough clarity, because everyone experiences Morse code in his or her own way.

To use the foreign language metaphor again, imagine that you've flown to Italy and that you're sitting at a busy sidewalk

cafe, surrounded by dozens of native speakers. You don't speak Italian, by the way, and when you listen, you hear fragments of sounds, but almost nothing is recognizable except for a few words you heard on TV over the years. Someone might say "ciao," or you might hear "pizza" echoing from somewhere in the crowd.

It's the same with Morse code. If you're not fluent in Morse, you might recognize the sounds that comprise the distress call "SOS," for example, because most hams know it from somewhere, or you picked it up from TV as a kid, etc. But the rest of the code sounds like Italian! You're separate from it, and you can't understand it.

If you knew Italian, however, with even moderate fluency, most everything you hear at the sidewalk cafe is understandable; you immediately "understand" the communications taking place and you don't have to manually translate in your head. You belong to the group. You're not separate. You understand the contexts without thinking.

It's the same for Morse code. And, like Italian, it takes practice to gain fluency, and if you never reach a certain level of fluency, you'll never know "the intimacy of the code." And, like learning Italian, not everyone can do it well.

The code is like that. Paradoxically, unless you can speak it somewhat fluently, you'll never know what you don't know (paraphrasing Donald Rumsfeld).

So, technically, it's probably a good thing that the code is no longer required to become a ham. The technology that we call radio has come a long way since it was created some 100 short years ago. Where it will be in another 100 years is anyone's guess.

Wherever it ends up, and wherever it is today, turning a carrier on and off in an agreed-upon sequence of patterns will always constitute radio at its most basic. It's still fun, unique, and worthwhile—even if it's not mandatory!

The Code Is Still Relevant!

Enjoying and understanding Morse code is still a perennial topic, despite its slightly tarnished reputation of late. Morse code—"ancient" though it is—still has a lot to offer, even in the age of Internet chatting, speech compressors, digital signal processing (DSP), and even digital radio. Continuous-wave (CW) transmissions are *roots radio*. They're basic. They're primitive. And when you get tired of QSOs that are broadcast quality and digitally enhanced, don't forget about ham radio's founding mode, the one that started it all: Morse code!

Need More?

Need more encouragement to learn the code? Morse code *blows away* SSB when conditions are poor, you're running low power, you have a crappy antenna, you're running a home-brew rig, you're operating portable in the field, you just *have to* work the DX station, and so on. And because the code benefits the most from that amazing DSP processor between your ears, it really *involves you* in the process. You're the most important part of a Morse code QSO, and no other mode requires so much participation.

And don't worry about the code disappearing just because the FCC has done away with it as a licensing requirement. When the code barrier falls completely, the CW subbands will be populated by true believers for decades to come. You'll always have plenty of fellow "dit slingers" to chat with.

Now, I know that Morse code isn't for everyone, but I've also noticed that most ops' frustration with the mode comes from

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not really knowing how to use it effectively. Maybe they didn't give it enough time, or maybe they didn't become proficient enough to "get into the groove."

Practice makes perfect, of course, but practicing correct techniques right from the start can reduce the time it takes you to perfect your Morse code skills and reduce the time it takes to actually *enjoy* the experience

Morse Code On The Air

First, forget about calling CQ for a good long while. Until your confidence and proficiency are suitable, you should look for big, fat CQ calls *from someone else*—someone with a "good fist" who is sending at a speed that's comfortable for you to copy.

Once you've replied to the other guy's CQ, you're almost home. If there were no other hams you'd be the only game in town! But what happens if others respond, too? Your biggest challenge is to be the caller the CQer responds to. And don't think that having a big signal is all it takes. In fact, timing and knowing exactly where, when, and how to transmit makes all the difference.

Finding The Right Frequency

Where to transmit is almost always *exactly on the same frequency as the station calling CQ*. This is called *zero beating*, as the audio tone produced in each receiver is at the same pitch. Most stations tune only 1 to 2 kHz when listening for replies to their CQs, so if you're too far away, the CQer won't hear you. If you're right on frequency from the start, the CQer will hear you right in the center of his receiver's passband. And chances are good that he'll hear you instead of some other caller who's slightly off frequency. (DX stations sometimes prefer off-frequency replies to manage the sheer volume of callers.)

Correct Timing

Now that we know *where* to call, it's time to talk about *when* to call. This is pretty simple. As soon as the CQing station finishes calling and signs K, immediately start your reply. If you hesitate, another station might jump in. If you transmit first, the other station may wait, not wanting the competition. As long as you're on frequency, the CQer will start copying the first reply he hears, which is hopefully yours.

Here's an old-timer's trick that still works today: Many ops use full break-in keying (QSK) while they're calling CQ. That is, they can hear their receiver audio between the dits and dahs they're sending. If you send something to get their attention—a short string of dits, perhaps, or a long dah—the QSK CQer usually stops to hear what's going on.

Quickly, just after the CQer pauses, give the op a quick call (his callsign DE your callsign) and you've snagged him! There might have been a half-dozen ops waiting to reply to the same CQ! Don't abuse this tactic, though, and be discreet. If the CQer isn't QSK, you'll simply interfere with his call—and that's not a display of good manners.

Tips For Good Sending

How to send is more complex than where and when to send, so let's break it down into simpler parts:

- Send at the same speed the CQing op is using. Assume that he's sending at a speed that's comfortable for him, and that he'll want your reply to be in the same ballpark.

- Learn to adjust the length of your reply. If the CQing op sounds savvy (good fist, strong signal), a short reply will usually do the trick (his callsign once and your callsign once or twice). If conditions are poor or if the sending op sounds less sure of himself, send both callsigns two or three times. Experience will help you get a feel for this.

- Your Morse code should be crisp and accurate. Nobody wants to answer calls from sloppy senders. In fact, many sloppy calls are *ignored* (and these callers thought the bands were dead or that their signals were weak...). Practice sending code off the air until it sounds good. Have a friend who's a good CW op listen to your code. Work toward excellence! This makes all the difference when conditions are less than ideal.

- Make sure your signal is clean. Don't overdrive your rig or do anything foolish. And don't run out and buy a linear amplifier. Keep your rig tuned and adjusted properly and put up the best antenna system you can manage.

- Learn from your on-air experiences. Carefully see what works and what doesn't, and always stay in the realm of good behavior.

- Try to get comfortable sending with a solid paddle and a decent electronic keyer. I know that's anathema to some purists, but sending good code with a straight key (for any length of time) may

indeed be a lost art. And forget about using bugs (semi-automatic keys). Sending with these relics *should*, for the most part, be a forgotten art! Historical and sentimental references aside, *don't* try to make your sending distinctive by having your own "swing." I'm sorry folks, but nonstandard code is *bad* code, no matter what the reason.

- Learn to copy code in your head without having to write it down. This makes Morse code more fun and less work.

Additional Help

Unfortunately, you can't learn Morse code from this column alone! If you're serious about becoming a good CW operator, check out the appropriate sections in *Ham Radio for Dummies*, a Wiley and Sons book written by Ward Silver, NØAX, and *The ARRL Operating Manual*, which will get you straightened out about Morse code and just about every other operating mode you can think of! Both are available from your favorite amateur radio products dealer. You can also point your browser to www.k8zt.com/morse.html for a big list of Morse code resources on the Internet.

That's it for this month. Until next time, I'll be listening for that CW. ■

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August in the northern hemisphere is, generally speaking, a wonderful time of the year when outdoor activities are at the top of everyone’s “To-Do” list. Wash the car. Mow the lawn. Put up that new antenna, or perform maintenance on our existing ones. Maybe take in a baseball game (even though the weather warmed up a few months ago, the pennant races are just beginning to heat up).

But, ah yes...the weather. In August in the “top half” of the world, it’s usually pretty nice—but not always. Sometimes we just get a rainy day or two. That might be a good time to fire up your radios and have some fun (if there’s no lightning in the area), because you have the perfect excuse to stay indoors. On the other hand, there are those nasty thunderstorms and tornadoes to worry about, and August is also most definitely in hurricane season. No, sometimes the weather in August just isn’t as nice as we would like; in fact, it can get downright destructive!

Fortunately, nasty summer weather doesn’t always destroy everything in sight. It does, however, often present some minor difficulties (although they may not seem minor at the time) for a few days. Often, it doesn’t take a hurricane or tornado to knock down power lines, the high winds that accompany some thunderstorms can easily do this. Lightning from a typical thunderstorm might strike a nearby transformer. So, the storm moves away, the lightning and high winds vanish, leaving their destruction behind them, and you must wait several hours for the local utility companies to deal with the resulting damage to the local power grid. You don’t really want to go outside because everything’s just been drenched by rainfall—even your favorite patio lounge chair has an inch of water on top, right where you sit.

You’re stuck inside, with no electricity. What to do? If you’ve prepared for such an eventuality in advance, you know exactly what you’ll do. You’ll do just what I said two paragraphs ago: fire up your radios and have some fun!

Getting Ready

In order to prowl the shortwave bands in search of nifty utility catches to add to our logs, we basically need three things: our receiver, a suitable power source for the radio, and, of course, an antenna. If you’ve chosen wisely when acquiring the radio, you’ll have one that not only meets the technical requirements of a good receiver, but also one that gives you a few different options for providing the rig with electrical power. This means that if the radio has its own built-in power supply and is designed so that you can simply plug it into an AC wall outlet, it will also have some provision for using DC power instead so you can run it on either internal or external batteries when AC power is unavailable.

Of course, if your radio doesn’t have its own internal power supply and is designed to be run from an external power supply that converts AC house current to DC, then your rig is already set up and you simply need to provide an alternative to the power supply you normally use with the radio.

The best source I’ve found of alternative power for radios is the typical deep-cycle marine battery, widely sold in discount department stores as well as specialty stores that cater to boaters.



A portable generator makes a great source of power for your radios (and other things) during a power outage.

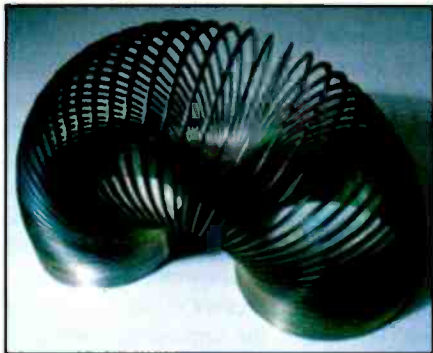
I’ve seen these batteries power a 50-watt mobile VHF transceiver for a couple of days during emergency use, and a typical 100-watt ham transceiver for several hours during a contest, when the radio was being used to transmit almost as much as to receive (transmitting uses much more power than receiving). If you’re only going to listen, the battery will last even longer.

If you have one of the better deep-cycle marine batteries with a high capacity (in terms of ampere-hour rating) and you’re simply going to connect a typical receiver to listen, that battery might power the radio for a few days.

The trick is to get a good battery that’s well suited to the purpose. The key to this is to understand that there are two types of marine batteries: cranking batteries and deep-cycle batteries. A marine cranking battery is designed to start the engine or engines on a boat that has its own electrical system to power the vessel once its engines are running. This is much like the battery in your car or truck, and the battery capacity rating will be expressed the same way, in cranking amps and cold cranking amps.

Frankly, though, we’re not concerned with the difference between those two ratings or even what they mean. We only need to understand that this is not the type of battery you want for running radios in the absence of commercial power sources. This type of battery is designed to be used for a short time to start an engine. Repeated use of a cranking battery to run radios for hours, running the battery down to a significantly discharged state, will quickly ruin that battery. It just isn’t designed for this.

Deep-cycle batteries, on the other hand, *are* designed to be run way down and then recharged. This type of battery is sold for use on boats and recreational vehicles and is intended to power electric motors, as well as accessories such as lights and radios. The deep-cycle battery will be rated in ampere-hours, which expresses the current the battery can provide for a given period of time. For example, if a battery is rated at 100 amp-hours (100 AH), that means it can provide one ampere of current for one hour. It can also provide 50 amperes for two hours, 25 amps for four hours, or 10 amperes for 10 hours. If your radio draws 1



This classic toy can easily be turned into a serviceable antenna for ham and SWL use. And you thought these were just for kids!

ampere on receive, a 100-AH battery should power that radio on receive for about 100 hours.

For what it's worth, the one I use for this purpose is rated at 115 AH, and my HF rig consumes 2 amps on receive, so when (not if!) the power goes out here, this battery will run my radio on receive around the clock for a couple of days!

The one factor that may sway some of you away from the deep-cycle marine battery is the cost. The one I have set me back about \$80. And, of course, once you've used the battery you need a charger to recharge it, which also adds to the cost if you don't already have a suitable one. There are lower-cost alternatives. Sealed lead-acid batteries offered for camping and automotive use, for instance, will work just as well and probably cost less if you shop around. However, you're not going to get as much bang for your buck with these; they're generally rated at 20 AH or so, so you'd need half a dozen of them to give you the capacity I get from my deep-cycle marine battery.

Nevertheless, I do have two of these, each of which is rated at 17 AH. Each has a cigarette-lighter-type plug on the side, into which I can plug an automotive map light and have a source of illumination that will last for several hours of continuous use (more on lighting considerations later). They can also be used to power a handheld ham transceiver, or even my mobile VHF rig on low power if need be, and they can be used to jump-start a car with a weak battery.

On the other hand, if money is no object, you might opt for a generator. I've one rated at 3000 watts, which will not only power the radio and a few lights, but also the coffee pot or a small hot plate, though not all at once—you'd need a larger capacity generator for that. As long as

you pay attention to maintenance, have fuel to run its engine, and keep an eye on the oil level so the engine doesn't seize from lack of lubrication, a generator is a source of electricity you can count on. It can even be used to recharge batteries while you're still using them!

If you do have a portable generator, remember that its engine will produce carbon monoxide, which can kill you in short order. Run the generator outdoors and bring the power to your equipment with an extension cord.

Now To Give It Some Antlers

Once you have the radio and a source of power, the other piece of this puzzle is an antenna. As we all know, every radio needs some kind of antenna. Without one, a radio is useless, and if there's just been a severe storm with high winds, you might not be able to depend on your "regular" outdoor antennas still being where they used to be before the storm hit.

This is especially true of wire antennas, which are pretty much like power lines, in that if whatever object you've hung them from (tree, pole, doghouse, whatever) comes down in a windstorm, so does the antenna. If the rope securing the wire antenna to a tree snaps, down comes the antenna. The effect of gravity is quite predictable. If a tree or large branches are blown down and fall onto your wire antenna, chances are that the antenna will be taken down. Therefore, if you're planning to listen to HF after the storm passes, you also need to ensure that you'll have an antenna you can quickly press into service in case the "regular" antenna does not survive the storm.

Fortunately, there are commercially sold antennas that are relatively short (less than 50 feet) and thus easy to deploy. You'll want one constructed of highly flexible and durable materials so they're as convenient to roll up and store as they are to break out and toss up a tree or out a window when you need to use them.

You can also "roll your own" antenna, and there's a seemingly endless array of designs available for the purpose. This might involve throwing a couple of ropes over two trees that have survived the storm and using the ropes to haul up a wire dipole. Alternatively, you might wrap a very tight coil of small gauge wire around some sort of form, such as a broomstick or length of PVC pipe. Another design I've seen involves 300-

ohm TV-type twin lead, which, depending on how you wire it, can be used to construct a two-element single-turn loop antenna, a single-element series loop antenna, or even a bent dipole antenna that's folded back on itself. With the latter two designs, it's possible to incorporate a simple single-pole, single-throw switch at the junction of the loop ends and instantly (well, almost) switch from one design to the other.

One of the "quick-up" antennas I have in my arsenal is the "Slinky" antenna, so-called because it's constructed from coils of flat wire of the type used to make the child's toy known by the name "Slinky" for decades. I have two such antennas. One is basically a dipole, made using a pair of these handy metal coils as the legs, and it makes a great portable antenna that covers the entire HF range. It can be used indoors or outdoors, and with a tuner it can be used for transmitting. I also have one made from a single coil that pulls out to about 30 feet, and with which I've heard signals from the near the bottom of the AM broadcast band (down at 550 kHz) to up in the VHF range (nearly 50 MHz). You can build these yourself or, if you're all thumbs or simply don't have the time, you can buy them already made if you hunt around on the Internet using a good search engine.

Needless to say, you'll also have to make sure that you've got all the necessary cables, cords, connectors, and other hardware you'll need to connect the antenna, power supply, and radio together to assemble a working station. Therefore, it's a good idea to make a "test run" as soon as you think you have everything you need, just in case something's been overlooked, or perhaps has been stolen by your dog or cat for use as a chew toy. Hook everything up and make sure it all works *before* the power goes out and you want to use it.

Other Considerations

Aside from providing temporary replacements for the infrastructure that normally supports our monitoring efforts—the commercial power grid and the structures we hang our antennas from or on—there are a couple of other items we need to think about as well.

Not all storms happen during the daylight hours, so you might want to think about providing some light so you can see the various controls on your radio. In fact, I recommend making your "test run" at

night so you'll know right away if you need additional light; then you just have to figure out how to provide it. The inexpensive "trouble light" devices sold for automotive use often are designed to plug into an automotive cigarette lighter, or have clamps to allow you to connect them directly to a battery. This is one way to ensure you'll be able to see while you're hooking up and using your no-infrastructure listening post at night.

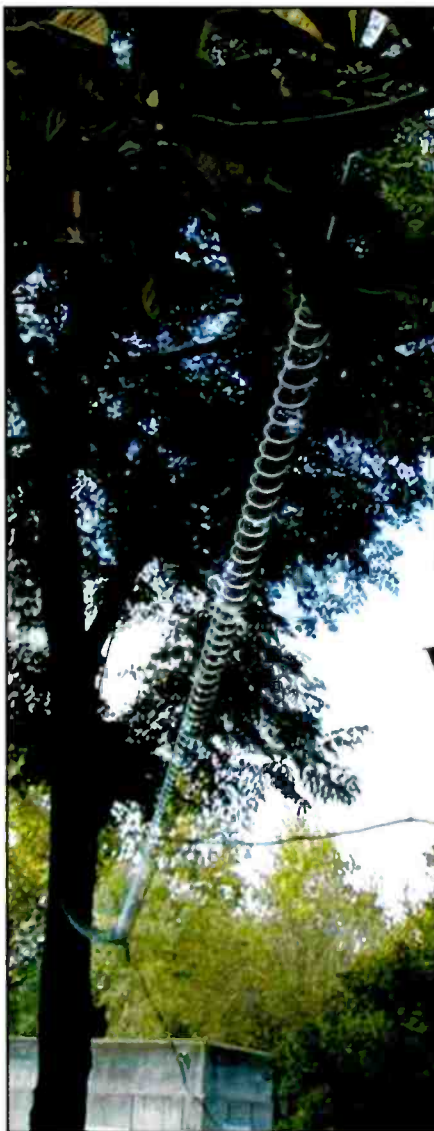
A flashlight, of course, is another way. You should always have an ample supply of flashlights on hand anyway, along with a good supply of spare batteries for them. They're easily portable, so you can shine them right where you need to shed some light, and the larger aluminum models also make a nifty club if you wake up in the middle of the night to find a burglar rummaging around in your sock drawer.

Candles are *not* a good idea. Yes, I know they're cheap, but they don't provide you with nearly as much light as a good flashlight or automotive trouble light. That's bad enough, but they're also a fire hazard, which makes them an even worse choice. Having the power go out for a few days, or even a few hours, is stressful enough. Don't add to your misery by burning your residence to the ground because you were too cheap to buy a flashlight!

In discussing these considerations with some of my EmComm associates prior to writing this column, another point related to illumination was brought to light (pun intended), which has to do with fluorescent lights. Beth Wilcox, K2ACH, of North Tonawanda, New York, notes that she has one of those portable camping lanterns that uses batteries to power fluorescent tubes. She's noticed that when the temperature is relatively low, compared to normal room temperature (a situation that can easily develop when the power is out), fluorescent lights seem a lot less efficient.

Beth's observation is dead on: fluorescent lights work best at around room temperature, say, 70 degrees or so. If the temperature gets significantly higher or lower than that, the efficiency of fluorescent lighting decreases noticeably. At freezing temperatures, in fact, fluorescent lights may not even start at all. This is one of the basic disadvantages of fluorescent lighting as opposed to incandescent lighting.

In addition to her observation concerning this type of lighting, I have one of my own, which is that fluorescent lighting tends to produce noise which ends up



Here's another photo of the classic—and very practical!—toy being put to use as a home-made antenna strung across a backyard.

in your receivers as unwanted "QRN" (which is how hams refer to man-made interference, such as static from fluorescent light fixtures—not that I've ever heard of such a thing as "wanted QRN").

The point here is that you might want to avoid depending on a light that uses fluorescent bulbs. Give Thomas Edison his props: he got a lot of things right when he invented the good old incandescent light bulb!

QSLing Armed Forces Day Stations

Since this magazine operates with a three-month lead time, this article is being written in mid-May and the annual Armed Forces Day Crossband

Military/Amateur Radio Communications Test has just been completed. This event is part of the annual celebration of Armed Forces Day and features traditional military to amateur crossband communications SSB voice tests, as well as copying a Secretary of Defense (SecDef) message sent via digital modes. The event gives hams and SWLs an opportunity to demonstrate their technical skills and to receive recognition from SecDef and/or the appropriate military station(s).

Although a lengthy document was posted to the Internet listing QSL addresses for the various Army, Air Force, and Navy/Marine Corps stations that participated in this event, word comes to us from Army MARS HQ, via the UDXF reflector courtesy of Jim Pogue at the USACE Memphis, Tennessee, District Office, that all SWL requests for QSLs may be sent to Juanita Portz at Ft. Huachuca, Arizona. SWLs may request QSLs for all the Army stations in the event via email at kk7wa@cox.net, but please note that this is for the Army stations only!

Jim also advises that the Army's WUG-231 station will issue its own "SWL only" card, in addition to the standard card that Army MARS HQ will send for ham QSOs and SWL reports. So if you caught WUG-231 during the test, you can pick up an extra piece of "wallpaper" directly from Jim by requesting it in an email to KH2AR@comcast.net or via the following postal address (no return postage or SASE necessary):

Jim Pogue, P.O. Box 3777, Memphis, TN 38173 USA

Jim is also the contact person for hams who want to QSL WUG-231. If you're a licensed ham who worked WUG-231 during this event, or for that matter if you want to QSL the other Army stations as a ham or QSL one of the Air Force or Navy/Marine Corps stations as either a ham or SWL, refer to "QSL Addresses..." which I've taken the liberty of lifting from the somewhat lengthy, a slightly raw, document posted to the Army MARS website on Netcom, and which I've condensed for the convenience of both my editor and our readers!

Coast Guard Asks Public For Information

This month I've also received word from Richard Webb, NF5B, that the U.S.

Coast Guard is soliciting public comments on the need to continue providing HF broadcasts of weather forecasts and warnings.

A notice posted to the Federal Register by the Department of Homeland Security in late April indicated that the USCG needs this input from the public in order to assess the demand for its FAX, SITOR, and SSB voice broadcasts of weather forecasts. According to the document summary, the equipment used to provide these services has exceeded its life expectancy, is no longer manufactured, and repairs are difficult to accomplish, partially because spare parts are no longer available.

Because of the cost of continuing to provide these services, the USCG wants public comment on the extent to which the public uses these services, and what alternative services are available or are being used by the public to obtain weather forecasts and warnings.

This news should be a matter of concern to mariners. The notice stated that comments and related material needed to reach the Docket Management Facility on or before August 24,

2007, so if you stand to be negatively impacted should the USCG opt to discontinue these services, you'd best let them know about it right NOW.

"Utility Communications Digest" will keep an eye on further developments on this issue, because these broadcasts have been the object of considerable interest to the monitoring community. Naturally, we wouldn't expect the USCG to continue to bear the expense of providing these services solely for us hobbyists to have something to listen to, but as Richard noted in his e-mail to me, it is the smaller vessel operators who conduct fishing operations, charters, and cruises who have real cause for concern.

The Latest BPL News

Another issue this column is keeping an eye on is BPL, due to the enormous potential for interference to radio communi-

Glossary Of Utility Terms And Acronyms

AFB—Air Force Base

ALE—Automatic Link Establishment, a link control system that includes automatic scanning, selective calling, sounding, and channel selection, without human intervention using processor control.

AM—Amplitude Modulation

ANDVT—Advanced Narrowband Digital Voice Terminal, a secure voice mode used by the military.

ATC—Air Traffic Control

CAMSLANT—Communications Area Master Station Atlantic, the U.S. Coast Guard's primary HF radio station for the Atlantic region, located at Portsmouth, Virginia.

CAMSPAC—Communications Area Master Station Pacific, the U.S. Coast Guard's primary HF radio station for the Pacific region, located at Pt. Reyes, California.

COMMSTA—Communications Station, for example: COMMSTA Kodiak, a communications station of the U.S. Coast Guard, located at Kodiak, Alaska.

CGAS—Coast Guard Air Station

Cut Numbers—The use of letters in place of numbers when sending a long string of numbers, for brevity's sake. This is often done by "numbers" stations, such as sending one long dash instead of five normal dashes to indicate a zero, or the letter N instead of the number nine, etc.

CW—Continuous Wave (Morse code)

DE—The Morse code operating prosign DE, meaning "from," as in DE NMN, meaning from station NMN

D-Layer Absorption—A phenomenon where the sun's rays ionize the D layer of the atmosphere causing it to absorb, rather than propagate (reflect/bounce), radio signals at certain frequencies.

Duplex—A means of radio communication where a station can both transmit and receive at the same time.

EAM—Emergency Action Message, coded instructions commonly sent by U.S. military stations. Despite the name, they usually aren't emergency traffic at all.

EHF—Extremely High Frequency (30-300 GHz)

FAX—Facsimile, a transmission mode used to send maps, charts, and other non-textual material.

FEMA—Federal Emergency Management Agency, a part of the Department of Homeland Security.

FM—Frequency Modulation

Ham Station—A licensed station operating in the Amateur Radio Service under the control of an operator who is licensed to operate the station.

HF—High Frequency (3-30 MHz)

LINK-11—Also called TADIL-A for TACTical Digital Link, a secure digital data mode used by the military. Utilizes a 16-tone data modem to allow assets to share digital information, such as radar data.

M/V—Merchant Vessel

NAS—Naval Air Station

Propagation—The means by which radio signals get from one place to another; some forms are quite simple (such as line of sight) while others are much more complex (such as EME, or earth-moon-earth).

QRM—Man-made interference to radio signals

QRN—Natural interference to radio signals, such as the static crashes often heard due to thunderstorms

QSO—A contact between two or more stations

QSY—Change frequency.

QTH—Location

RTTY—Radio TeleTYpe

SELCAL—SElective CALling, a method for activating a radio or data terminal at one station without disturbing other stations that are monitoring the same frequency.

Simplex—A means of radio communication where a station may transmit or receive at any given time, but not do both at the same time.

SITOR—Simplex Teletype Over Radio, a transmission mode used to transmit text messages over radio. There are two SITOR modes: SITOR-A (also called AMTOR) uses Automatic Repeat Request (ARQ); SITOR-B uses Forward Error Correction (FEC).

SWL—Shortwave Listener, a person who enjoys listening to shortwave radio stations.

UHF—Ultra-High Frequency (300-3000 MHz)

USAF—United States Air Force

USB—Upper Sideband

USCG—United State Coast Guard

USMC—United States Marine Corps

USN—United States Navy

UTC—Coordinated Universal Time, formerly known as Greenwich Mean Time, and also commonly referred to as ZULU time and abbreviated as in 1200Z.

UTE—Utility Station

Utility Station—Stations transmitting material that is not intended for reception by the general public and is not originating from an amateur (ham) station.

VHF—Very High Frequency (30-300 MHz)

VOLMET—Station that transmits aeronautical weather information. Comes from a French term that literally means, "flying weather."

cations caused by the emission of RF from medium-voltage power lines.

In the latest development, less than two years after unveiling its Powerline LV Access BPL project, Motorola has decided to suspend development of this product and devote its resources to more promising markets. The company indicated that its decision reflects declining interest on the part of utility companies in providing residential broadband service and the more immediate demand for in-building BPL systems.

However, Motorola's involvement at least produced one positive development with respect to the BPL issue: The Powerline LV system was designed by Motorola in close cooperation with the American Radio Relay League (ARRL) technical staff. This resulted in a system that restricted the application of high-frequency RF to the low-voltage side of the power transformers that serve a customer's home, rather than to the medium-voltage power lines that then emit RF and thus produce interference.

Motorola's approach to this issue not only raised industry awareness of the interference potential, it also resulted in a system design that other vendors can work with to minimize interference from their own BPL systems. Thus, while BPL remains a serious concern for other users of the radio spectrum, Motorola's development of the Powerline LV system demonstrates that the interference to radio communications can be significantly reduced through proper system design—definitely a step in a positive direction.

Correction Department

Finally, a correction to something that appeared in a previous column. The round-robin connection host for the IRC-GLOBAL network that was published in the sidebar in the May issue was incorrect. It's irc.ircglobal.org not irc.irc-global.net as published; the hyphen does not belong in the host address. I apologize for any inconvenience this may have caused.

And with that, we'll turn things over to our readers...

Reader Logs

We have a nice batch of loggings this month. Many thanks and a tip of the "Utility Communications Digest" hat to those who contributed logs this time around: Steven D. Jones, Lexington, KY (SJ/KY); Mark Cleary, Charleston, SC

(MC/SC); Glenn Valenta, Parkside, CO (GV/CO); Allan Stern, Satellite Beach, FL (ALS), Richard Webb, Eads, TN (RW/TN), and John Kasupski, Tonawanda, NY (JK/NY).

2872.0: Gander Radio, YL/EE, working various aircraft, in USB and SELCAL at 0336Z. (JK/NY)

3065.0: Link-11 data transmission at 1141Z. (MC/SC)

3455.0: NY Radio working Continental 1553, passed 6586.0 as secondary frequency, in USB at 0406Z. (JK/NY)

4014.9: NNN0ZLC (US Navy/Marine Corps MARS) as net control taking check-ins during a MARS net, in USB monitored at 0115Z. (RW/TN)

4030.0: MARS net in progress w/AAR8DB, heavy QRN, in USB at 0307Z. (GV/CO)

4081.4: HOTEL FOXTROT, DELTA, JULIET in USN Link-11/16 coordination net, in USB at 1121Z. (MC/SC)

4106.0: Unid stations in QSO, good levels, in Tadiran (digital encrypted speech) at 0343Z. (GV/CO)

4703.0: Link-11 data transmission at 1139Z. (MC/SC)

4772.0: Link-11 data transmission at 1323Z. (MC/SC)

5550.0: New York Radio (YL/EE) working United 412 and handing off onto VHF, in USB at 2155Z. (RW/TN)

5616.0: Gander Radio working several US Military transport aircraft—REACH 549 for posrep and SELCAL check in USB at 0253Z; working REACH 332 and handing him off to Shanwick on 2871.0 in ISB at 0332Z; working REACH 129 for radio check, says he is at McGuire AFB, NJ, in USB at 0343Z; and working REACH 844 in USB at 0353Z: one of the busiest nights in a long time as far as REACH flights. (ALS)

5696.0: USCG CAMSLANT Chesapeake wkg CG-1502 (C-130, CGAS Elizabeth City) which passes "Ops Normal," and position 32-54N, 77-08 W, in USB at 0410Z. (ALS)

5708.0: R05198 (AH-64D # 00-5198) sounding in ALE USB at 0358Z. (MC/SC)

5717.0: RESCUE 915 (CH-149) p/p via HALIFAX MILITARY to HALIFAX SEARCH who directs them to proceed on SAR for fishing vessel, in USB heard at 2352Z. (MC/SC)

5732.0: USCGC HARRIET LANE clg OPBAT BAHAMAS for radio check in USB at 1409Z. (MC/SC)

5800.0: Cuban V2a numbers station in modulated CW at 0612Z. (GV/CO)

6131.0: Link-11 data transmission at 0125Z. (MC/SC)

6210.0: Two unid stations in QSO in Russian language, in USB at 0535Z. (GV/CO)

6224.0: Taupo Maritime Radio, weak but readable w/local wx condx in USB at 0553Z. (GV/CO)

6265.5: V7ET3, CROWLEY UNIVERSE, 9,082-ton Marshall Islands-registered Ro-Ro

cargo ship w/AMVER/SP for departure from Puerto Cortez, Honduras in SITOR-A at 0247Z; 9VID7, IKAN PROGRESO, 37,681-ton Singapore-registered bulk carrier w/AMVER/FR for arrival at Kingston Pilot Station, Jamaica, in SITOR-A at 0641Z; V7ET2, CROWLEY SUN, 9,200-ton Marshall Islands-registered Ro-Ro cargo ship w/AMVER/SP for departure from Gulfport, MS en route to Santo Tomas, Guatemala w/detailed course near Glover Reef and Ragged Cay off the coast of Belize, to arrive in 2 days; in SITOR-A at 0511Z; ELLA8, HYDRA STAR, 305,846-ton Liberia-registered crude oil tanker w/open text wx observations, in mid-Atlantic 1,800 mi E of North Carolina coast, in SITOR-A at 0721Z; WDB5483, FREEDOM, 19,884-ton U.S.-registered vehicles carrier w/MMSI and abbreviated ID "FREE" at 1205Z. SITOR-A. (SJ/KY) (*The ONLY situation you'll find in which FREEDOM is FREE—jk*)

6519.0: Female operator wkg tug KANSAS in USB at 1235Z. (MC/SC)

6604.0: New York VOLMET with aviation wx in USB at 1640Z. (RW/TN)

6697.0: DOMICILE (US Mil) with EAM broadcast in USB at 2211Z. (MC/SC)

6715.0: HALIFAX MILITARY clg PATHFINDER 36 in USB monitored at 1112Z. (MC/SC)

6718.0: Link-11 data transmission at 1707Z. (MC/SC)

6721.0: ADW (Andrews HF-GCS) clg R05197 (AH-64D # 00-5197) in ALE USB at 1536Z. (MC/SC)

6721.0: UKE301 (RAF E-3D AWACS) ALE initiated p/p via Andrews HF-GCS to Tinker AFB at 2207Z. (MC/SC)

6761.0: TOPCAT 2 (KC-135, 108 ARW) clg GRITS 31 (C-17A, 315 AW) in USB at 1434Z. (MC/SC)

6790.0: Link-11 data transmission at 2311Z. (MC/SC)

6942.0: Link-11 data transmission at 1706Z. (MC/SC)

6980.0: Unid fishermen in heavy southern EE talking about draglines, in USB heard at 0503Z. (GV/CO)

7887.0: M8a numbers station with five-character groups, old format, good levels, tks Jon-FL, in CW at 0640Z. (GV/CO)

8294.0: Unid station making callouts to EMERALD EXPRESS in USB at 1205Z. (MC/SC)

8294.0: NMN (USCG Portsmouth, VA), idling SITOR with CW marker monitored at 2100Z. (RM/TN)

8337.6: SHARK 11 (USCGC FORWARD WMEC 911) accepts radio guard for STINGRAY 02 in USB at 1931Z. (MC/SC)

8378.0: Unid, vessel attempting to send telex to IAR, Rome R., Italy, in SITOR-A at 2308Z. (SJ/KY)

8379.0: WCY4148, GREEN POINT, 14,930-ton U.S.-registered vehicles carrier w/AMVER/PR, MMSI and abbreviated ID "GNPT," 70 mi NE of Nassau, Bahamas en route to Jacksonville, FL, to arrive in 24 hours.

QSL Addresses For 2007 Armed Forces Day Crossband Military/Amateur Radio Communications Test

ARMY STATIONS

STATION: AAZ
Location: Fort Huachuca, AZ
Address:
Commander NETCOM/9th ASC
ATTN: NETCOM-OPE-M (MARS) (31)
2133 Cushing Street
Ft. Huachuca, AZ 85616-7070
POC: Mr. Dwayne Smith
DSN: 821-7324
Commercial: (520) 533-7324

STATION: AAC
Location: Lexington, KY
Address:
HQ 1st BDE, 100th DIV (IT) MARS
Station
Barrow Army Reserve Training Center
1051 Russell Cave Pike
Lexington, KY 40505
POC: Barry Jackson
Commercial: (859) 227-0137

STATION: ABH
Location: Schofield Barracks, HI
Commander, 396th Signal Company
30th Signal Battalion, 96857
POC: CPT Maribel Ostergaard
Commercial: (808) 656-2814

STATION: ALM
Location: Fort Wainwright
Commander, 507th Sig Co, 99703
POC: CW4 Roderick Mitchell
507th Signal Company
Commercial: (907) 353-0082

STATION: WAR
Location: Newark, DE
Address:
500 North Wakefield Dr
Newark, DE 19702
POC: Mr. John Scoggin
DSN: 343-3654
Commercial: (302) 451-5000

STATION: WUG-231
Location: Memphis, TN
Address:
USACE Memphis District Office
ATTN: Jim Pogue
Public Affairs Office Room B-202
167 N. Main St.
Memphis, TN 38103-1894
POC: Mr. Jim Pogue
Commercial: (901) 544-4109

AIR FORCE STATIONS

STATION: AIR
POC: MR. VINCENT MACANAYNAY
Address:
89TH CS/SCOR
Andrews AFB, MD 20762
COMMERCIAL: (301) 981-0365

STATION: AIR-2
POC: DON POQUETTE
ADDRESS: AFCA / AF MARS
203 W LOSEY ST
SCOTT AFB, IL 62225
COMMERCIAL: (618) 229-5944

NAVY/MARINE CORPS STATIONS

STATION: NAV
ADDRESS: HQ NAVMARCORMARS
RADIO STATION NAV CHEATHAM
ANNEX BLDG. 117
108 SANDA AVE
WILLIAMSBURG, VA 23185-5830
POC: BO LINDFORS
COMMERCIAL: (757) 887-4494
DSN: 953-4494

STATION: NAV3
ADDRESS: NAVMARCORMARS
RADIO STATION NAV3
9035 OCEAN DR SUITE 3A
CORPUS CHRISTI, TX 78419-5234
POC: ITSC (SW) BROWN
COMMERCIAL: (361) 961-5002
DSN: 861-5002

STATION: NAV4
ADDRESS: NAVMARCORMARS
RADIO STATION NAV4
615 PREBLE AVE
CAMP BARRY, BLDG. 153
GREAT LAKES, IL 60088-2850
POC: MR. DAVID OUELLETTE
COMMERCIAL: (847) 688-3787
DSN: 792-3787

STATION: NBL
ADDRESS: NAVMARCORMARS
RADIO STATION
PO BOX 161 NAVAL SUBMARINE BASE
GROTON, CT 06349-5161
POC: ITC (SW) DEVER
COMMERCIAL: (860) 694-2061/3716
DSN: 694-2061/3716

STATION: NPL
ADDRESS: NAVMARCORMARS
RADIO STATION
937 NORTH HARBOR DRIVE
SAN DIEGO, CA 92132-5100
POC: ITC (SW) THOMASON
COMMERCIAL: (619) 532-1490
DSN: 522-1490

STATION: NUW
ADDRESS: NAVMARCORMARS
RADIO STATION
260 W. PIONEER FSC BLDG.
NAS WHIDBEY ISLAND, WA 98277
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Transcripts of the RTTY, PACTOR, AMTOR, PSK-31, MFSK and MT63 receiving test should be submitted "as received." No attempt should be made to correct possible transmission errors. Provide time, frequency and call sign of the military station copied, including name, call sign, and address (including ZIP code) of individual submitting the entry. Ensure this information is placed on the paper containing the test message. Each year a large number of acceptable entries are received with insufficient information, or necessary information was not attached to the transcriptions and was separated, thereby precluding issuance of a certificate. Entries must be sent to the appropriate military address as follows:

Stations copying Secretary of Defense message transmitted from AAZ or WAR send entries to:

Armed Forces Day Celebration
Commander NETCOM/9th ASC
Armed Forces Day Celebration
Attn: NETC-OPE-MA (MARS) (31)
Fort Huachuca, AZ 85613-5000

Stations copying Secretary of Defense message transmitted from NAV, NAV-3, NAV-4, NBL, NPL or NUW send entries to:

Armed Forces Day Celebration
Chief, Navy-Marine Corps MARS
Cheatham Annex Bldg 117
108 Sanda Ave
Williamsburg, VA 23185-5830

Stations copying Secretary of Defense message transmitted from AIR-2 send entries to:

Armed Forces Day Celebration
AFCA / Chief, AF MARS
203W Losey St
Scott AFB, IL 62225

In SITOR-A at 1716Z; 3FCV3, *PROTEO*, 99,392-ton Panama-registered VENFLEET crude oil tanker w/AMVER/PR central Gulf of Mexico en route to Corpus Christi, TX pilot station, arrive in just over a day, in SITOR-A at 1902Z; KAWM, AMERICAN PROGRESS, 46,095-ton U.S.-registered crude oil tanker w/AMVER/PR, 25 mi SE of Key West, FL and sailing WSW, in SITOR-A at 2125Z; WABU, LIVORNO EXPRESS, 43,715-ton U.S.-registered container ship w/msg to WLO, Mobile R., AL to confirm service charges, in SITOR-A at 2142Z. (SJ/KY)

8381.0: 3EAA6, SAN FERNANDO, 48,315-ton Panama-registered chemical tanker attempting to send Direct Telex, w/MMSI and abbreviated ID "SAFX" in SITOR-A at 1538Z. (SJ/KY)

8386.0: Unid. vessel w/SELCAL QVYV (2070) for IAR, Rome R., Italy, no contact. SITOR-A at 2135Z. (SJ/KY)

8388.0: WFKW, *OVERSEAS NEW ORLEANS*, 43,644-ton U.S.-registered oil products tanker w/BBXX coded wx observations, 50 mi WSW of Key West, FL, in SITOR-A at 2325Z; WUQL, *OVERSEAS JOYCE*, 16,141-ton U.S.-registered vehicles carrier w/AMVER/PR, 150 mi WSW of Jamaica, en route to Jacksonville, FL, arrive in 2 days, in SITOR-A at 0417Z. (SJ/KY)

8389.5: MLTH5, *HATSU SMILE*, 78,693-ton United Kingdom-registered container ship w/MMSI, abbreviated ID "HASM" and wx observations, 350 mi WSW of San Jose, CA at 0608Z; DGAF, *ANTWERPEN EXPRESS*, 67,145-ton Germany-registered container ship w/callsign and TEST command in SITOR-A at 0631Z; 9VHF, *MADAME BUTTERFLY*, 28,223-ton Singapore-registered vehicles carrier w/MMSI and abbreviated ID "MBUX" in SITOR-A at 0931Z. (SJ/KY)

8502.0: NMN (USCG Portsmouth, VA) w/gulf forecast in synthesized voice, good levels here, in USB at 0353Z. (GV/CO)

8912.0: CG 1503 (HC-130, CGAS Elizabeth City) p/p to E-CITY AIR. Ground party passes cruise ship position, in USB at 1833Z. (MC/SC)

8918.0: New York Radio wkg AF Rescue 76 (Patrick AFB C-130) which announces they are headed to a point 400 mi NE of Patrick AFB for search mission, in USB monitored at 1525Z. (ALS)

8957.0: Shannon VOLMET, weak with Tadiran burst over the top, in USB at 0538Z. (GV/CO)

8983.0: CAMSLANT and SECTOR NEW ORLEANS making callouts to CG 1500 (HC-130, CGAS Elizabeth City) in USB at 1345Z; Q2S wkg CAMSLANT with TOI report in USB at 1533Z. (MC/SC)

8983.0: USCG CAMSLANT wkg "X2R"; X2R is RTB homeplate, in USB at 1740Z; CAMSLANT wkg "Coast Guard 2120" (HU-25 Falcon Jet) for "ops normal" msg in USB at 1750Z; CAMSLANT also heard wkg CG 2120 another day when 2120 was also heard on Miami Ctr ATC freqs while inbound Miami IAP, in USB at 1308Z. (ALS)

9007.0: CANFORCE 2305 wkg TRENTON MILITARY for WX at Trenton and Ottawa and closing watch, in USB heard at 2111Z. (MC/SC)

9020.0: Link-11 data transmission at 2311Z. (MC/SC)

9028.5: Unid encrypted 75/850 RTTY, broken/intermittent at times, in RTTY at 0339Z. (GV/CO)

9121.5: Link-11 data transmission at 1217Z. (MC/SC)

10188.0: Link-11 data transmission at 1815Z. (MC/SC)

10445.0: V2a numbers station at good levels w/no fades, in CW at 0309Z. (GV/CO)

10588.0: WGY901 (FEMA Region 1, Maynard, MA) weekly radio check, in USB at 1616Z. (MC/SC)

10780.0: Cape Radio (Cape Canaveral AFS) wkg "JSTARS Radio Maintenance" for radio check in USB at 1341Z; Cape Radio wkg WB774 (USN P-3C 162774, Patuxent NAS VX-20) for radio checks in USB monitored at 1615Z. (ALS)

10993.6: SHARK 57 (USCG Cutter) taking guard for DOLPHIN 62 (HH-65C), in USB at 1419Z. (MC/SC)

11016.0: Link-11 data transmission at 2312Z. (MC/SC)

11175.0: Andrews HF-GCS with EAM traffic in USB at 1635Z. (RW/TN)

11175.0: KING 79 p/p via Offutt HF-GCS to RESCUE OPS at Gabreski ANGB in USB at 1749Z; ASCOT 7008 (RAF E-3D AWACS) p/p via Puerto Rico HF-GCS for wx at Tinker AFB, in USB at 2143Z; JAPAN NAVY 13, p/p via Offutt HF-GCS, in USB at 0025Z. (MC/SC)

11175.0: OMNI-01 w/PP through MCCLELLAN and hollering into microphone, requesting HF freq on 14, 11, or 6 megs, in USB at 0123Z. (GV/CO)

11175.0: Pelican 01A (P-3C, NAS Jacksonville VP-45) calling MAINSAIL with no joy in USB at 0630Z; "Station Offutt" (YL) wkg "LN 451" (P-3C) in USB at 1838Z; "Station Hickam" wkg HAWK 21 (Dyess B-1B bomber) for phone patch to DSN number for Dyess HAWK Ops in USB at 0257Z; HF-GCS "Puerto Rico" wkg "Extender 66" for phone patch to Travis CP in USB at 0306Z; HF-GCS "Station Offutt" wkg "Lima Lima 26" (P-3C, NAS Jacksonville VP-30 "Pro's Nest" Sqdn) for phone patch to Brunswick NAS re 1315L ETA KNHZ. (NAS Brunswick), in USB at 1419Z. (ALS)

11175.0: HF-GCS "Station Puerto Rico" wkg CHILL 14 (B-52H) for phone patch to DSN number for Minot AFB Metro in USB at 0503Z; HF-GCS "Station Offutt" wkg "DARK 42" (B-1B, Dyess AFB), interrupted by higher precedence traffic, in USB at 1443Z; HF-GCS "Station Andrews" wkg "YK 25" over Minneapolis for radio check after YK 25 had called for "Station Yokota" with no joy, in USB at 1450Z. (ALS)

11205.0: REACH 2858 (C-130E, 171 AS) checking in with SMASHER and reporting departure from Guantamo Bay, in USB at 2210Z. (MC/SC)

11220.0: DEATH 13 (B-2A, 509 BW) and Andrews HF-GCS, radio checks in clear USB and ANDVT at 1948Z. (MC/SC)

11232.0: RESCUE 316 calling Trenton Military for radio check with no joy, in USB at 2250Z. (RW/TN)

11232.0: ATLAS 38 (CC-130) wkg TRENTON MILITARY for SELCAL check, in USB at 2037Z; PEACH 01 (E-8 JSTARS) p/p via TRENTON MILITARY to PEACHTREE for wx and to pass line code report, in USB at 2038Z. (MC/SC)

11244.0: DOOR BELL (US Mil) with EAM broadcast, simulcast on 6697 and 8776 kHz, in USB at 0121Z. (MC/SC)

11494.0: USCG CAMSLANT calling J11 for flight following with no contact, in USB at 0047Z. (JK/NY)

12359.0: Various vessels checking into Herb Hilgenberg's Southbound II net and prenet including S/V *Indra* with position and wx report at 1959Z; S/V *Tamarind* from approx. 21W 40N at 2003Z; *Spirit of Massachusetts* from just north of Cuba heading for Florida at 2017Z; *London Harrier* at 0212Z; VAX498 (net control) calling S/V *Anna Gale* at 2003Z; calling and working S/V *Serenity* at 2004Z; on another evening working S/V *First Lady* at 2042Z and *Serenity* (YL/EE) en route Trinidad at 2050Z; all comms in USB. (RW/TN)

12479.0: P3BN8, *HANJIN KAOHSIUNG*, 43,925-ton Cyprus-registered container ship w/AMVER/DR, MMSI and abbreviated ID "HAKS" for course diversion, 1,200 mi SE of Newfoundland en route to NYC, to arrive in 4 days, in SITOR-A at 1430Z; 3FQC3, *EOS*, 99,440-ton Panama-registered VENFLEET crude oil tanker w/AMVER/PR and abbreviated ID "EOSS" 300 mi S of Cuba sailing NW toward Yucatan Strait en route to Corpus Christi, TX, to arrive in 3 days, in SITOR-A at 1710Z; S6NK3, *EAGLE TOLEDO*, 107,092-ton Singapore-registered AET crude oil tanker w/AMVER/PR 180 mi N of Caracas, Venezuela sailing W, in SITOR-A at 1945Z; H3UM, *SOLENT STAR*, 9,709-ton Panama-registered refrigerated cargo ship w/AMVER/TEST, MMSI and abbreviated ID "SLST" in SITOR-A at 2008Z; H3QX, *LAS CUEVAS*, 45,299-ton Panama-registered chemical/oil products tanker w/monthly NBDP test, MMSI and abbreviated ID "LACU" in SITOR-A at 2312Z. (SJ/KY)

12481.0: A8CP4, *ERNST SALAMON*, 74,002-ton Liberia-registered bulk carrier w/vessel name and traffic in Spanish to CBV, Chilean Navy, Valparaiso, Chile, in SITOR-A at 2318Z. (SJ/KY)

12486.5: HBLR, *LAUSANNE*, 39,429-ton Switzerland-registered container ship w/MMSI and callsign to NMO, USCG Honolulu in SITOR-A at 0010Z; JPPT, *JINGU MARU*, 17,216-ton Japan-registered vehicles carrier w/callsign for msg check to NMO in SITOR-A at 0205Z. (SJ/KY)

12490.0: 3EEZ6, STAR FIRST, 13,300-ton Panama-registered refrigerated cargo ship w/AMVER/PR, 500 mi ENE of Puerto Rico sailing at 20 knots en route to Antwerp,

Belgium, to arrive in 7 days: abbreviated ID "FIRS" and 5-digit SELCAL 37197 in SITOR-A at 1650Z: same vessel heard again 3 days later w/PR just over half-way across the Atlantic at 1535Z: 3EFO9, ATLANTIC DREAM, 28,350-ton Panama-registered bulk carrier w/garbled AMVER/PR 12 mi off northernmost tip of Colombia, in SITOR-A at 1730Z. (SJ/KY)

12510.5: Unid. vessel w/SELCAL QVXY (2017) for XSQ, Guangzhou R., China, no contact, good signal here, SITOR-A then again briefly in SITOR-B a few minutes later, at 2041Z. (SJ/KY)

13282.0: Honolulu VOLMET w/local wx, readable but weak, in USB at 0256Z. (GV/CO)

13927.1: USAF MARS AFA2HS (Florida) wkg SENTRY 60 (E-3 AWACS, Tinker AFB 966ACS) for phone patch to DSN number for 966ACS Ops; SENTRY 60 upset because F-5s and F/A-18s he expected near Jacksonville are working over Key West; advises that AWACS Flight F be told to go to Key West, not to Jax, for tomorrow's mission. In USB at 1434Z; USAF MARS AFA6PF (Los Angeles) wkg SENTRY 60 (Tinker AFB E-3 AWACS); SENTRY 60 says his location is "northeast CONUS," makes M&W phone patch, in USB at 1613Z; USAF MARS

AFA2HS wkg SHARK 54 (C-130), 200 miles west of Puerto Rico, southbound, for M & W phone patch to 787/668-xxxx, in USB at 1234Z; USAF MARS wkg "SHARK 55" (C-130) for pp to Coronet Oak Ops, San Juan PR, passes msg to Oak Ops in Spanish, in USB at 2140Z; (ALS)

13927.1: USAF MARS AFA2PA (Patrick AFB) wkg SUMIT 14 (C-130) for phone patch to DSN number for Peterson AFB "High Country" Ops, four hours out, ETA 1630L, has three pallets to offload; in USB at 1836Z; USAF MARS AFA3HS wkg KING 74 (C-130) for phone patch to Shaw Metro, gets wx at KCEW (Sykes A/p, Crestview FL) for 1515Z, in USB at 1448Z; USAF MARS AFA3HS (Kansas City) wkg AirEvac 60413 (C-130H, Pittsburgh 911AW) for phone patch, wants to divert to Oceana NAS instead of going into Norfolk due to wx, is directed to divert to Langley instead, in USB monitored at 1525Z. (ALS)

13927.1: USAF MARS AFA3HS (Kansas City) wkg CODY 01 for phone patch to DSN number for Keesler AFB "TEAL Ops" re: radar failure and thunderstorms; is inbound for radar repair, in USB at 1541Z; USAF MARS AFN2AC (Miami) wkg SENTRY 05 (Tinker AFB E-3 AWACS) for phone patch to RAY-

MOND 24 (Tinker AFB), passes formatted report in USB at 1737Z. (ALS)

13927.1: USAF MARS AFA6PF wkg "SENTRY 61" (AWACS) for phone patch; SENTRY 61 passes formatted report, in USB at 1811Z; USAF MARS wkg "Reach 8226" (Stewart NY-ANG 105AW C-5A) for radio check on two radios, in USB at 1845Z; USAF MARS "Operator AFA2XZ" (Salt Springs, FL) wkg KING 77 (Patrick AFB 920RQW C-130) over GA, for phone patch to Patrick AFB, gets wx forecast for Patrick AFB and passes PiRep, in USB at 0016Z; USAF MARS AGA2PA (Patrick AFB) wkg REACH 70 for M&W phone patch to 407/927-xxxx, 30 min out, in USB at 1818Z. (ALS)

15016.0: DEDICATE (US Mil) calling MAINSAIL and raising McClellan for phone patch to a DSN number for orderwire coordination, in USB at 1808Z. (JK/NY)

16693.0: 9VGD6, IPANEMA, 24,378-ton Singapore-registered container ship w/MMSI and garbled ID in SITOR-A at 2305Z. (SJ/KY)

16696.5: LAGE6, ARCTIC PRINCESS, 74,400-ton Norway-registered LNG tanker w/TEST msg to NMN, USCG CAMSLANT, Portsmouth, VA plus MMSI and abbreviated ID "LAGE," in SITOR-A at 1440Z. (SJ/KY)■



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Radiodifusion's Blown Tube, CFRX's Fried Antenna, And More

If you've recently noticed a particular absence on 6060, 9690, 11710, or 15345, the missing signal was probably that of Radiodifusion Argentina al Exterior. Late word had one of the RAE transmitters with a blown tube and the downtime for such an occurrence can run from an hour or two to a couple of months or more, depending on a variety of factors. We're hoping this one will be on the short side and that, by the time you see these words, we're talking history!

CFRX-Toronto continues in silent mode, leaving 6070 to whatever lies underneath these days, usually CVC's La Voz, from Chile. Turns out that the CFRX antenna system took a lightning hit, which caused a nervous breakdown in the transmitter, so the problems are more serious than originally believed. According to Charles Maxant in West Virginia the station's engineer-in-charge says the shortwave will return, though there's nothing akin to a specific timeline.

That new station in the Central African Republic destined for 6030, which we mentioned last month, is using the name Radio ICDI (for Integrated Community Development International) and also Radio Tuma Yere, which is probably a localized version of the English name. Whatever. No one in North America has reported it yet and I'm not holding my breath.

Ditto for Dunamis Shortwave, also mentioned here a month or two ago, now said to be active from Uganda on 4750. But as things stand at the moment we can just forget about reaching for the tuning knob. This new religious broadcaster is operating in the middle of our daytime—1500 to 1900—so unless or until they significantly expand their schedule we can forget about this one as well.

The Zimbabwe opposition broadcaster, SW Radio Africa, may have a new fat-wallet benefactor, as it has recently added more outlets in an attempt to defeat the jamming harassment from Mugabe and his gang. 4880 remains in use from 1700 to

1900, but also being employed at those times are 11775 (via Moscow), 11810 (via Meyerton), 11975 (Kvitsoy, Norway), and 12035 (Rampisham). Some of the transmitter sites noted are based on educated guesses.

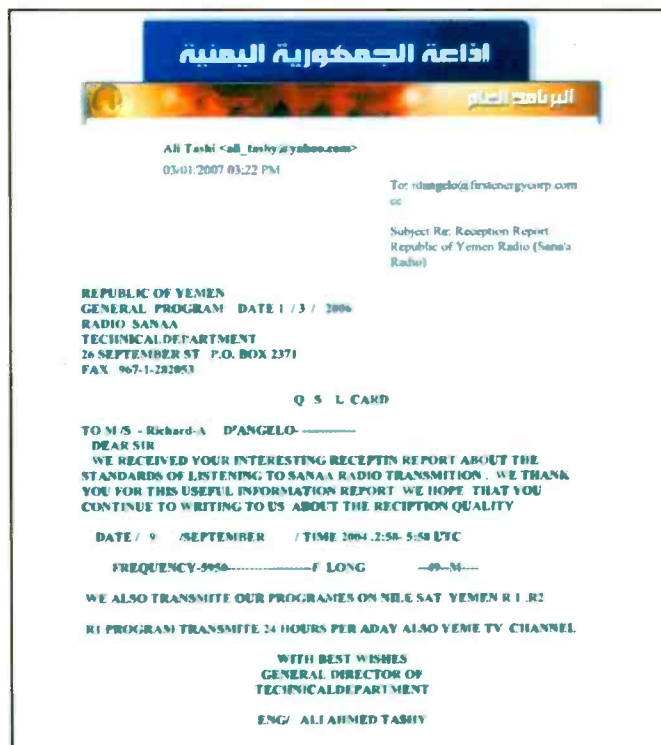
It may still be possible to catch Finland on shortwave, despite YLEs skeedaddle a few months ago. Polish Radio is supposed to be using the Pori site for one of its relays. It's scheduled on 7170 from 2100 to 2200 (in Polish), which will make it a marginal possibility right around the time the A-07 season ends in late October.

Now they're saying that, before long, we should get ready to kiss Radio Budapest goodbye! The only activity left will be a domestic relay on shortwave in the native language. Didn't you think these East Europeans had more smarts?

Would you believe that the VOA's Greenville, South Carolina, site is also in trouble? Actually there have been two sites there all along, ingeniously differentiated as "A" and "B." Use of the "A" site was discontinued some time ago and its only purpose now is serving as a used parts supply house to keep the "B" site operating. What with the drastic downsizing of VOA languages and services you have to wonder what sort of lifespan the remaining installation has and what will happen when the "B" site is no longer operable. Maybe it will be time to hire some of the engineers from Radio Havana Cuba. They seem to



"Good. More mail! Wonder what's in this big envelope?" (SFX: paper rustling) "Hmmm. Could it really be? Ohmigosh it is! An actual shack photo!" Here's Rick Rogovin, KD4LEG, ready for action in his Florida shack. Thank you, Rick. Bravo!



Republic of Yemen Radio used to bedevil DXers with its lack of replies. Rich D'Angelo got his QSL via email—eventually!

Help Wanted

The "Global Information Guide" consistently presents more shortwave broadcast loggings than any other monthly SW publication! (Some 425 shortwave broadcast loggings were processed this month!*) Why not join your fellow SWLs, let us know what you're hearing, and also become eligible for our monthly shortwave book prize! Send your logs to Gerry Dexter, "Global Information Guide," 213 Forest St., Lake Geneva, WI 53147. Or e-mail them to gdex@genevaonline.com (please see the column text for basic formatting tips.) Come join the party—we look forward to hearing from you!

**Not all logs get used; there are usually a few which are obviously inaccurate, unclear, or lack a time or frequency.*

have a special talent for keeping things going while working with the electronic equivalent of rubber bands and paper clips!

In contrast to VOA's ill-considered pullback, Radio Ukraine International is increasing the amount of English on its schedule. English hours are now 0000 to 0100 and 0300 to 0400 on 7440, 0500 to 0600 and 0700 to 0800 on 9945, 1100 to 1200 on 15675, 1900 to 2000 on 7490, and 2100 to 2200 on 7510.

A Guide To "GIG-Speak"

Here's a partial list of abbreviations used in the "Global Information Guide."

<p>* — (before or after a time) time the station came on or left the air</p> <p>(l) — (after a frequency) lower sideband</p> <p>(p) — presumed</p> <p>(t) — tentative</p> <p>(u) — (after a frequency) upper sideband</p> <p>v — variable time or frequency</p> <p>// — in parallel</p> <p>AA — Arabic</p> <p>ABC — Australian Broadcasting Corporation</p> <p>AFN — Armed Forces Network</p> <p>AFRTS — Armed Forces Radio TV Service</p> <p>AIR — All India Radio</p> <p>Alt — alternate</p> <p>AM — amplitude modulation, AM band</p> <p>Anmt(s) — announcement(s)</p> <p>Anncr — announcer</p> <p>AWR — Adventist World Radio BC broadcast(er)</p> <p>BSKSA — Broadcasting Service of Kingdom of Saudi Arabia</p> <p>CA — Central America</p> <p>CC — Chinese</p> <p>Co-chan — co-channel (same frequency)</p> <p>comm(s) — commercial(s)</p> <p>CP — Bolivia, Bolivian</p> <p>CRI — China Radio International</p> <p>DD — Dutch</p> <p>DJ — disc jockey</p> <p>DS — domestic service</p> <p>DW — Deutsche Welle/Voice of Germany</p> <p>EE — English</p> <p>ECNA — East Coast of North America</p> <p>f/by — followed by</p> <p>FEBA — Far East Broadcasting Association</p> <p>FEBC — Far East Broadcasting Company</p> <p>FF — French</p> <p>freq. — frequency</p> <p>GBC — Ghana Broadcasting Corp</p> <p>GG — German</p> <p>GMT — Greenwich Mean Time (UTC)</p> <p>HH — Hebrew, Hungarian, Hindi</p> <p>HOA — Horn of Africa</p> <p>ID — station identification</p> <p>II — Italian, Indonesian</p> <p>Int/Intl — international</p> <p>Irr. — irregular use</p> <p>IRRS — Italian Radio Relay Service</p> <p>IS — interval signal</p> <p>JJ — Japanese</p> <p>KK — Korean</p>	<p>LSB — lower sideband</p> <p>LV — La Voz, La Voix (the voice)</p> <p>MW — mediumwave (AM band)</p> <p>NBC — National Broadcasting Corporation (Papua New Guinea)</p> <p>OA — Peru/ Peruvian</p> <p>OC or O/C — open carrier</p> <p>PBS — People's Broadcasting Station</p> <p>PP — Portuguese</p> <p>PSA — public service announcement</p> <p>QQ — Quechua</p> <p>QRM — man-made interference</p> <p>QRN — noise (static)</p> <p>QSL — verification</p> <p>RCI — Radio Canada International</p> <p>Rdf. — Radiodifusora, Radiodiffusion</p> <p>REE — Radio Exterior de Espana</p> <p>RFA — Radio Free Asia</p> <p>RFE/RL — Radio Free Europe/Radio liberty</p> <p>RNZI — Radio New Zealand International</p> <p>RR — Russian</p> <p>RRI — Radio Republik Indonesia</p> <p>RTBF — RTV Belge de la Communate Françoise</p> <p>Relay — transmitter site owned/operated by the broadcaster or privately operated for that broadcaster</p> <p>relay — transmitter site rented or time exchanged.</p> <p>SA — South America</p> <p>SEA — Southeast Asia</p> <p>SCI — Song of the Coconut Islands (transition melody used by Indonesian stations)</p> <p>s/off — sign off</p> <p>s/on — sign on</p> <p>SIBC — Solomon Is. Broadcasting corp.</p> <p>sked — schedule</p> <p>SLBC — Sri Lanka Broadcasting Corporation</p> <p>SS — Spanish</p> <p>SSB — single sideband</p> <p>SWL — shortwave listener</p> <p>TC — time check</p> <p>TOH — top of the hour</p> <p>TT — Turkish</p> <p>TWR — Trans World Radio</p> <p>Unid — unidentified</p> <p>USB — upper sideband</p> <p>UTC — Coordinated Universal Time (as GMT)</p> <p>UTE, ute — utility station</p> <p>Vern — vernacular (local) language</p> <p>via — same as "relay"</p> <p>VOA — Voice of America</p> <p>VOIRI — Voice of Islamic Republic of Iran</p> <p>WCNA — West Coast of North America</p> <p>ZBC — Zimbabwe Broadcasting Corporation</p>
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The wild world of relays is on a path to even greater confusion. Deutsche Welle has discontinued use of its powerful Wertachtal site and now transmits only from Nauen in the former East Germany. The remaining DW transmissions come out of Ascension, Rwanda, Sri Lanka, Russia, England, Portugal, and the UAE, and perhaps even others beyond those. Don't look to the DW website for any help figuring out what's where. A careful check offers nothing, even though it's the one thing you'd think it should certainly include!

Reader Logs

Remember your shortwave broadcast loggings are always and ever welcome! But please be sure to list each station log individually (please don't group them), with country name first, and double or triple the space between logs, with your last name and state abbreviation after each one. Also much wanted are spare QSLs you don't need returned (or good color copies), station schedules and other literature, brochures, pennants, station photos, and anything else you think might tickle some interest. And, foolishly, I continue begging for a photo of you in your shack. Someone needs to break the ice!

Here are this month's logs. All times are in UTC. Double capital letters are language abbreviations (SS = Spanish, AA = Arabic, FF = French, RR = Russian, etc.). If no language is specified the broadcast is assumed to have been in English (EE).

Okay, let's get to it!

ANGUILLA—University Network, 11775 at 1810 with Dr. Gene Scott asking for money. (Maxant, WV)

ARGENTINA—Radiodifusion Argentina al Exterior, 11710 in PP with an ID heard at 0100. (Charlton, ON) 15345 in SS with rumbas at 1815. (Maxant, WV) 1916 in SS. (MacKenzie, CA)

ASCENSION—BBC Atlantic Relay, 6145 at 0240 and 15400 at 1730. (Brossell, WI)

AUSTRALIA—Radio Australia, 6080 with news at 1437, 9580 at 1800, 15230 at 2226, 15515 at 0320 and 17785 at 2318, all from Shepparton. (MacKenzie, CA) 9580 at 1313. (Charlton, ON) 1330. (Fraser, ME) 9660-Brandon at 0327, 13690 at 0301, 15240//15515 at 0225. (Parker, PA) 15715 with "Talk Back" at 1608. (Yohnicki, ON)

ABC, Alice Springs, 4835 with live sports at 0805 to 0835 close, //4910 Tennant Creek which went off at 0830. (MacKenzie, CA)

CVC International, 13635 at 1637. (Charlton, ON)

AUSTRIA—Radio Austria International, 6155 in GG at 0627. (Parker, PA) 2210. (Brossell, WI) 7325 at 0020, 13675 via Canada at 1615 and 17855 in GG at 1333. (Charlton, ON) 7325 with "Report from Austria" at 0030. (Maxant, WV)

BELARUS—Radio Belarus, 7105 at 2105 with news, commentary, ID and local music. (Alexander, PA)

BOLIVIA—Radio Eco, Reyes, 4409.8 at 0140 with SS ballads, Bolivian music, SS anmts. (Alexander, PA)

BONAIRE—Radio Netherlands Relay, 6165 at 0125. (Charlton, ON) 9625 at 0710 and 15365 at 1820. (Maxant, WV) 11730 in DD at 2251 and 17810 at 1920. (Parker, PA) 15315 at 2228 and 17605 in SS at 2308. (MacKenzie, CA)

BOTSWANA—VOA Relay, 4930 at 0305. (Brossell, WI) 0315. (D'Angelo, PA) 15580 at 1614. (Charlton, ON)

BRAZIL—(All in PP) Radio Difusora, Londrina, 4815 at 0231 with religious vocals and talk by man. Off in mid-song at 0254. (D'Angelo, PA)

Radio Difusora do Amazonas, Manaus, 4805 heard at 0122 with talk and some instrumentals. Off at 0141 without announcement. (D'Angelo, PA)

Radio Educacao Rural, Tefe, 4925 with pops and anncr at 0137. (Parker, PA)

Radio Educadora, Guaruja Marim, 3375 from 0901 sign on. (Alexander, PA)



An aerial view of the IBB/VOA relay site at Pinhiera, Sao Tome.
(Thanks Rich D'Angelo)

Radio Bandeirantes, Sao Paulo, 9645 with discussion and spirited commercials at 0325. Dominant over co-channel stations. (Parker, PA)

Radio Tupi, Curitiba, 9565 at 2327. (Parker, PA)

Radio Inconfidencia, Belo Horizonte, 6010 with vocals at 0655. (Maxant, WV)

Radio Nacional Amazonia, Rio de Janeiro, 11780 with comments at 0007. (MacKenzie, CA)

BULGARIA—Radio Bulgaria, 7400 in FF at 0244. (Brossell, WI) 0031 in EE. Also 9700 at 0017 and 15700 in BB at 1402. (Charlton, ON) 9400 in SS at 0138. (Parker, PA) 1835. (Maxant, WV)

Radio Varna, 9900 at 2050 abrupt sign on, time pips and anthem at 2100. Sundays only. (Alexander, PA) (BB pgmng—gld)

BURKINA FASO—Radio Burkina, 5030 at 0527 opening with a tone, anthem. Afro-pops and FF anmts. Mixing with University Network. (Alexander, PA) 2210 with hi-life music and FF talks. (Brossell, WI)

CANADA—Radio Canada Intl., 9710 at 2108 and 13650 at 1805. (Charlton, ON) 9755 at 0035. (Maxant, WV) 11990 in SS at 2306. (Parker, PA)

CBC Northern Service, 9625 with "Studio One" pgm heard at 2140. (Maxant, WV)

CHILE—CVC-La Voz, 6109.8 at 0510 in PP with contemporary Christian music and QRM from Japan via Sackville. (Alexander, PA) 11745 in PP at 0010. (MacKenzie, CA) 0052. (Parker, PA) 17680 in SS at 1611. (Charlton, ON)

CHINA—China Radio Intl, 5915 in CC at 1415, 6100-Beijing at 1300 in listed Mongolian, 9765 in CC at 2352 and 11845 in CC at 0005. (MacKenzie, CA) 7210 via Albania in SS at 2203, 7275 via Albania at 2040, 9665 via Brazil in CC at 0322 and 13645 via Mali in an African dialect at 1726. (Brossell, WI) 9570 via Albania at 0007, 11640 via Mali at 2021, 13675 via Canada at 1411, 13740 via Cuba at 1449, 15230 via Canada at 1350 and 15540 via Chile at 1359. (Charlton, ON) 5950 in CC at 0557, 9570 via Albania in CC at 0255 and //9580 via Cuba. Also 9710-Kashi at 0038, 11975 via Mali in CC at 2304, 13655 in CC at 0103 and 13760 in EE at 1755. (Parker, PA) 9785-Jinjua at 1545 and 17735 via Sackville in CC at 1658. (Barton, AZ)

CPBS/CNR, 4460 in CC at 1400, 5925 in CC at 1420, 5935 in CC at 1422, 7110 in CC at 1730, 11750 in CC at 0543, 11960 in CC at 0000, 12055 in CC at 2337 and 15500 in CC at 2321.

In Times Past...

Here's our blast from the past for this month:

CLANDESTINE—La Voix du Pathet Lao (believed to be based at Sam Nue, Laos) 4660 in Lao at 1212 GMT on January 19, 1972. (Dexter, WI)

Guangxi Foreign Broadcast Station, Nanning, 9820 with VV service at 2306.

"Firedrake" Music Jammer, 7260 against RFA at 1734 and 7280 at 1835, also against RFA. (MacKenzie, CA) 7330 at 1248 against BBC via Vladivostok. Also 11945 against RFA at 1713. (Brossell, WI)

COLOMBIA—Radio Lider, Bogota, 6139.8 at 0338 with Latin music hosted by man in SS. Significant splatter from Cuba on 6140. (D'Angelo, PA) 1041 in SS. (Charlton, ON)

CROATIA—Croatian Radio/Voice of Croatia, 6165 at 0600 with three-minute EE program of IDs and news, //9470 via Germany. Also 9925 via Germany at 0200. (Alexander, PA) 7285 via Germany in Croatia at 0029. (Charlton, ON)

CUBA—Radio Havana Cuba, 6060 with local vocals at 0635. (Maxant, WV) 6180 at 0552. (MacKenzie, CA) 6180 at 0119 and 12000 in SS heard at 1454. (Charlton, WV)

Radio Rebelde, 11655 in SS at 1811. (Charlton, ON)

CZECH REPUBLIC—Radio Prague, 6200 at 0115, 13580 with news at 1401 and 15710 at 1700 with IS, ID, news. (Charlton, ON) 9415 in FF at 2220 and 13580 in SS with IS and anmts heard at 1826. (Parker, PA)

DJIBOUTI—Radio Djibouti, 4780 at 0300 sign on with anthem, vernacular talk, Koran and local music. (Alexander, PA) On at 0301 with anmts and into Koran. (Brossell, WI) 0304—my first log of this one. (Wood, TN) (*congrats!—gld*)

DOMINICAN REPUBLIC—Radio Pueblo, Santo Domingo (p), 5009.8 at 2350 with SS talk closing at 0001. (Alexander, PA)

ECUADOR—Radio Quito, 4919 at 0156 with SS talks, ID and ad string. (D'Angelo, PA)

HCJB, 9745 in SS at 0342, 12020 in SS at 2308 and 12040 in GG at 2310. (Parker, PA) 11920 in PP at 0013. (Charlton, ON) 12000 in SS at 2142, 12020 in SS at 2345 and 12040 in "High German" at 2340. (MacKenzie, CA)

EGYPT—Radio Cairo/Egyptian Radio, 7270 in SS at 0149, 9900 in EE at 2120 and 12050 in AA at 1845. (Charlton, ON) 9420 in SS heard at 0150, 9460 at 2310 and 12050 in AA at 2312. (Parker, PA) 9990 at 2120. (Maxant, WV) 2140. (Fraser, ME)

ENGLAND—BBC, 5875-Wooferton in DD at 0108, 12095 via South Africa at 1806, 15485-Skelton at 1358. (Charlton, ON) 5980 Thailand Relay at 1426, 13640 at 2150 and 15575 Oman Relay at 0320. (MacKenzie, CA) 5975 at 2210 and 12095 at 1915. (Maxant, WV) 6005 via South Africa at 0333, 7105 via Thailand at 1345, 9605 in CC at 1338. (Brossell, WI) 5875-Skelton in RR at 0540, 6110 in AA at 0618, 7160 at 0400, 9410-Rampisham at 0140, 13730 at 0108, 13745 in RR at 1742, 17795 via Cyprus at 11911, 21470 at 1820, 21630 in FF at 1827. (Parker, PA)

Far East Broadcasting Assn., 9550 via Rwanda in AA at 2026. (Brossell, WI)

ERITREA—Voice of the Broad Masses, Asmara, 7100 with Program One service at 0354 sign on with IS in local language. 7175 (Program Two) also at 0354 sign on. (Alexander, PA)

ETHIOPIA—Voice of the Tigray Revolution, 5970 at 0356 with IS. Soon wiped out by Radio Nederland-Bonaire sign on. Also 6185 at 0357 weak under Vatican Radio. (Alexander, PA)

FRANCE—Radio France International, 9800 via French Guiana in SS at 0105, 11705-Issoudun in FF at 1840, 13695-Issoudun in FF at 1845. (Parker, PA) 11995 in FF at 1715. (Brossell, WI) 15160 via South Africa at 1604 and 17630 via French Guiana in SS at 1813. (Charlton, ON)

GABON—Africa Number One, 15475 in FF at 1805. (Parker, PA) 1747. Also 17630 in FF at 1501. (Charlton, ON)

Radio TV Gabonaise, 4777 at 0500 sign on with short anthem, "Radio Gabon" ID and into Afro-pops. (Alexander, PA)

GERMANY—Deutsche Welle, 9430-Nauen in GG at 0158, 9545 in GG at 0035, 9655 in GG at 0051, 9850 at 0114 in unid lang, 9825 in GG at 0346, 11615 in African dialect at 1833, 11690 via Sri Lanka in GG at 2245, 11725 in GG at 1844, 11865 via Rwanda in SS at 2258, 13790 in AA at 1823 and 15275 via Portugal in GG at 1738. (Parker, PA) 7130 via Sri Lanka at 0045. (Maxant, WV) 11695 via Sri Lanka in an Asian lang at 1708. (Brossell, WI) 11690 via Rwanda at 2112,



Some are managing to hear The Mighty KBC in Holland, via Lithuania. Unfortunately KBC isn't quite "mighty" enough to be heard in the western half of the United States. (Thanks Rich D'Angelo)

11725 via Rwanda in GG at 1908, 11945 via Wooferton in GG at 1832 and 15680-Wertachtal at 1749. (Charlton, ON) 11690 via Rwanda in GG at 0015, 15275 Rwanda Relay in GG at 1911 and 15640 via Petropavlovsk in GG at 2313. (MacKenzie, CA) 15275 at 1905. (Maxant, WV)

IBC Tamil, 7225 via Wertachtal from 2357 open to 0100 close with many features, interviews and speeches. (D'Angelo, PA)

GREECE—Voice of Greece, 9420 in EE at 0025. (Charlton, ON) 15630 in Greek at 1928. (MacKenzie, CA)

GUAM—Adventist World Radio, 12120 in CC at 2332. Also 15320 in EE at 2233. (MacKenzie, CA)

Trans World Radio, 12130 in Cantonese at 2325. (MacKenzie, CA)

GUATEMALA—Radio Verdad, Chiquimula, 4052.5 in SS at 0344. (Wood, TN)

Radio Buenas Nuevas, San Sebastian 4800 in SS heard at 0324. (Wood, TN)

GUYANA—Voice of Guyana, 3291 at 0302 with man hosting ancient pop vocals. (D'Angelo, PA) 0640 with man/woman discussion. (Maxant, WV)

HONDURAS—Radio Misiones Intl., 3340 heard at 0225. (Parker, PA) 0535 with SS ballads, LA music, SS anmts to 0605 close. (Alexander, PA)

Radio Luz y Vida, 3250 with soft SS music at 0216. (Parker, PA) 0319 with LA vocals, woman and ID. SS religious talk from 0329. (D'Angelo, PA)



Feel like a swim? Ocean or pool—you can take your pick, based on this recent QSL from Radio Bulgaria. (Thanks Rich D'Angelo)



OLYMPIA-RADIO SVO



C/S OLYMPIA RADIO/SVO
153 42 AGIA PARASKEVI
ATHENS
GREECE

QTH: 37° 36' 11.7" N
21° 29' 11" E

THIS CARD CONFIRMS THE RECEPTION BY: Mr. Richard D' Angelo

DATE	14-03-2007	TIME UTC	00:00 -01:05
FREQUENCY	5.865 KHz	MODE	AM
CALL SIGN	ERA	POWER	10KW
Tx MODEL	MARCONI	ANTENNA LP	TCl 570B

I. FLITOURIS
MANAGER OF OLYMPIA RADIO

The Voice of Greece was being relayed by Olympia Radio, a utility station at Pyrgos. (Thanks Rich D'Angelo)

HUNGARY—Radio Budapest, 6140 in HH at 2205. (Brossell, WI)

ICELAND—Ríkisutvarpid, 12115 heard at 2316 with news in Icelandic. (Parker, PA) *(This is to be discontinued before long.—gld)*

INDIA—All India Radio, 9445-Bangaluru at 2220. (Parker, PA) 9620-Aligarh in unid language at 1313 and 13770-Bangaluru in unid lang. at 1313. (Brossell, WI) 9820-Panaji (Goa) at 1258 with "Song of India" IS and opening anmts. (Strawman, IA) 10330 with vocals at 1345. (Barton, AZ) 11625-Bangaluru in RR at 1632 and 13710-Bangaluru with news at 1405. (Charlton, ON)

INDONESIA—Voice of Indonesia, 9525 at 1100 with ID, URL and into unid lang. ID again at 1130. (Strawman, IA) 1329 with mostly pop ballads. (Strawman, IA)

IRAN—Voice of Islamic Rep. Of Iran, 7160 at 0147 and 15150 in AA at 1611. (Parker, PA) 9495 with "Voice of Justice" service opening at 0126. Koran at 0132 and news at 0136. (Alexander, PA) 15150 at 1620 with AA vocals, three chimes at 1630 and into apparent AA headlines. (Strawman, IA)

ISRAEL—Kol Israel 7545 at 2225 in HH. (Brossell, WI) 0027 and 13630 in HH at 1436. (Charlton, ON) 9345 in HH at 0130. Also 11590 in EE at 1907 and 13675 in HH at 1815. (Parker, PA)

Galei Zahal, 6973 in HH at 0302. (Parker, PA)

ITALY—RAI Italia, 9760 with news at 1942 and 11830 at 1830 with IS, ID, news in II. (Charlton, ON) 11800 in II at 0045. (Fraser, ME) 2225. (Parker, PA)

Italian Radio Relay Service, 9510 with 0928 sign on in EE and into religious programming. (Alexander, PA)

JAPAN—Radio Japan/NHK, 6110 via Canada at 0555, 9535 at 1730, 9835 at 1840, 11715 in RR at 0540, 11970 via Gabon in Swedish

This Month's Winner

To show our appreciation for your loggings and support of this column, each month we select one "Global Information Guide" contributor to receive a free book. Readers are invited to send in loggings, photos, copies of QSL cards, and monitoring room photos to me at *Popular Communications*, "Global Information Guide," 25 Newbridge Road, Hicksville, NY 11801, or by e-mail to popularcom@aol.com. The e-mail's subject line should indicate that it's for the "Global Information Guide" column. So come on, send your contribution in today!

Our book winner this month is **Richard Parker of Pennsburg, Pennsylvania**. Richard receives a copy of the 2007 *World Radio TV Handbook*, courtesy of Watson Guptil Publications. The *WRTH* is now in its 61st year of providing complete information on international broadcasting for DXers, SWLs, and professional broadcasters alike. You should have a copy. You *need* to have a copy!

at 0550, 13650 in Thai at 2325, 13680 in JJ at 2212, 13650 in Burmese at 2320, 15265 via Bonaire at 2328, 17810 in Indonesian at 2322 and 17825 in JJ at 0257. (MacKenzie, CA) 6115 via England in JJ at 2205 and 17815 at 2150. (Brossell, WI) 9535 opening in EE at 1700 and 9875 with commentary at 1445. (Barton, AZ) 1707. (Strawman, IA) 11705 via Canada in JJ at 1359 and 15355 via Gabon at 1751. (Charlton, ON) 11855 via Canada in SS at 2018. (Maxant, WV) 21630 via Dhabbaya in JJ at 1658. (Parker, PA)

Radio Nikkei, 6055 in JJ at 2202. (Brossell, WI) 9595 in JJ at 0530. (MacKenzie, CA)

JORDAN—Radio Jordan, 11690 at 1643 with pops and RTTY QRM. (Charlton, ON)

KUWAIT—Radio Kuwait, 9855 in AA at 2005. (Maxant, WV) 2021. (Charlton, ON) 2140. (Brossell, WI) 2250. Also 15505 at 1815. (Parker, PA)

LATVIA—Radio Marabu, 9290 with rock and GG at 1320. (Brossell, WI)

LIBYA—Radio Jamarihiya, 7320 with EE news heard at 2225. (Brossell, WI) 17600 at 1403 opening EE. Also 17725//21695 opening EE and 17870//21695 at 1547 to 1559 close. (Alexander, PA) *(Sites for these are now unclear; many, if not all, may be direct.—gld)*

LITHUANIA Laser Radio, 9710 at 1131 with pops, several IDs at 1147. (Alexander, PA)

Radio Vilnius, 11690 in Lithuanian at 0013. (Charlton, ON) 9875 at 0040. (Maxant, WV) 2225 with repeated IDs. (Parker, PA)

MADAGASCAR—Radio National Malagasy, 5010 from 0254 with local vocals prior to official sign on. Choral anthem came at 0300, anncr in Malagasy with ID and into pgm of short talks, anmts and music features. (D'Angelo, PA)

MALI—Radiodiffusion Television du Mali, 4835.4 heard at 2320 in FF with talks, discussion, pops. Off at 0001. (D'Angelo, PA)

MEXICO—Radio Educacion, 6185 with SS drama at 0650. (Maxant, WV) 0740 with SS ballads, //with mediumwave 1060. (Alexander, PA)

Radio UNAM, 9600 at 0339 with mix of Spanish and classical music, man anncr with multiple IDs at 0348. (D'Angelo, PA) 1458 with continuous classical music. (Strawman, IA)

MOROCCO—Radio Medi Un, 9575 heard at 2256 with FF ID and anmts at 2259 and into W with news in AA. (D'Angelo, PA) 2359. (Parker, PA)

RTV Marocaine, 5980 in AA at 0400. (Parker, PA) 7135 in AA at 2220. (Brossell, WI) 15345 in AA at 1939. (Charlton, ON) 2010. (Maxant, WV)

NEW ZEALAND—Radio New Zealand Intl, 6095 at 1045 to 1100 close before moving to 9870. (Barton AZ) 11725 with conversation at

1809 and 17675 at 2025 with QRM from Chile. (Charlton, ON) 13730 with news at 0210. (Parker, PA)

NETHERLANDS—Radio Nederland, 11655 via Madagascar at 2017. (Charlton, ON) 11650-Flevoland at 1840, 11655 via Madagascar at 1915. (Parker, PA) 12080 via Madagascar to South Asia at 1506. (Strawman, IA)

The Mighty KBC, 6255 via Lithuania in EE with rock at 2214. (D'Angelo, PA)

NIGER—La Voix du Sahel, 9705 in FF at 2010. (Maxant, WV)

NIGERIA—Radio Nigeria, Kaduna, 4770 at 0105, on late for election coverage. (Alexander, PA) 7275-Abuja with news at 0603. (Alexander, PA)

Voice of Nigeria, 7255 in dialect at 2220. (Brossell, WI) 2256 in Hausa to 2301 off. (D'Angelo, PA) 15120 with news item at 1752. (Charlton, ON) 1805. (Maxant, WV)

NORTH KOREA—Voice of Korea, 9335 at 1428 in listed FF. (Strawman, IA) In KK at 1742, 9975 in EE at 1825, 11735 in SS at 0013, 13760 in FF at 0337. (MacKenzie, CA) 12015 in SS at 2020. (Maxant, WV) 13760 in EE at 0014. (Parker, PA)

OMAN—Radio Sultanate of Oman, 15140 with news items at 1433. (Charlton, ON)

OPPOSITION—Radio Voice of the People (to Zimbabwe), 9765 via Madagascar at 0400 sign on with time pips, opening music, talk by man in local language. (Alexander, PA)

Radio Okapi. (to Congo), 11690 via South Africa in FF and vernacular at 0505. (Alexander, PA)

Radio Free Asia, 13800 via No. Marianas in CC at 2312, 13865 via Sri Lanka in CC at 2220, 15585 via No. Marianas in CC at 2317 and 17615 via Saipan in CC at 0308. (MacKenzie, CA) 15495 in CC at 1542. (Strawman, IA)

Denge Mesopotamia. ("Kurdistan") 11530 via Moldova in Kurdish at 1335. (Strawman, IA)

Radio Farda. (Iran) 9735 via Sri Lanka in Farsi at 2114 to 2130 close. (D'Angelo, PA) 15165 via Lampertheim in Farsi at 1642. (Strawman, IA)

Radio Solh. (Afghanistan), 15265 via Rampisham with continuous music and Afghani anmts at 1228. (Strawman, IA)

Radio Nacional de la RASD, (Morocco) 6300-Rabuni, Algeria, from 0700 sign on with anthem and into Korean. (Alexander, PA)

Radio Free Europe, 11805-Morocco in RR at 1710. (Brossell, WI)

SW Radio Africa. (Zimbabwe), 11975 via Kvitsoy opening EE broadcast at 1700. Also 12035 via Rampisham opening EE at 1700. (Alexander, PA)

PERU—La Voz de la Selva, Iquitos, 4824.5 at 0105 with SS talk, flutes, commls, ID and off at 0114 without anthem. (D'Angelo, PA)

Radio Melodia, Arequipa, 5939.3 heard at 0835 with SS ballads, IDs. (Alexander, PA)

PHILIPPINES—Far East Broadcasting Co. (p), 12055 at 0011 with flute music and easy vocals to close at 0015. Very weak. (D'Angelo, PA)

PIRATES—WKNR relay, 6952.2 sign ons noted at 2209, 0008, 0030 and 0109 including North Kent Radio relay and Western North Kent Radio relay. Possible mention of a relay by Channel Z Radio at closedown. (Zeller, OH) 0030 and 0100 with above relay and "Dave Martin Show." (Hassig, IL)

WTCR, 6950u at 0116 with April Fools broadcast with wide range of music, announcer Belfast address and asking for 3 first-class stamps or \$1-2 for QSL. Off at 0143. (Wood, TN) 0000 and 0035 on 6925u with various songs and Belfast address. (Hassig, IL) 0018, 0028, and 0038 with various classic rock from 60s and 70s. 20th Century Radio slogan, Belfast address. (Zeller, OH)

Radio Ice Cream, 6925u heard at 0127 with barking dogs IS and giggling children, announcer "Ice Cream Man." Also 2218 with rock and some produced jingles. (Zeller, OH)

KIPM, 6925u at 2254 open with Alan Maxwell and "Masters of the Mind" fable. (Zeller, OH)

The Crystal Ship, 3274.6 at 0205 with rock, leftist folk hosted by "The Poet" "Official voice of the Blue States Republic" slogan. Belfast address. (Zeller, OH) 0241 to 0340 with 80s pop non-stop. tcssshort-



Radio Taiwan International seems to have an inexhaustible variety of QSL card designs. (Thanks David Weronka, North Carolina)

wave@yahoo.com. (D'Angelo, PA) 6876 at 0130 with pops. Mentioned they were also using 1710 kHz but were not heard there. (Alexander, PA)

Maple Leaf Radio, 6925u at 0116 open with Canadian National Anthem, ID and pops. (Alexander, PA)

Voice of Captain Ron, 6925u at 0101 open with unknown songs, several Captain Ron IDs. (Zeller, OH)

United Patriot Militia Radio, 6950u at 2350 sign on with non-stop bits with Jay Smilkstein voice segments, talk of collecting money for a new bingo machine. (D'Angelo, PA)

"Back Door Show," 6950u at 2325 with man announcer, Doors tunes and garbled talk. Nothing resembling an ID. (D'Angelo, PA)

Radio April Fool, 6925u at 2200 with many domestic station IDs and R-rated comedy songs. (Hassig, IL)

Bull Ring Radio, (ID tentative) 6925u at 0221 open carrying NPR's "Car Talk" pgm. On another date heard at 0132 with IDs and various rock things. (Zeller, OH)

WEAK, 6940 monitored at 2304 with host "Leonard Longwire" also carrying an NPR show relay and miscellaneous political spoofs. Gave email address as: weak_Chicago@yahoo.com. (Hassig, IL)

WBNY, 6925u at 2307 open with Commander Bunny in solidarity with the Rodent Freedom Fighters. Mostly rock and IDs for WBNY and "Radio Bunny." (Zeller, OH)

PIRATE—(Euro) Mystery Radio (England) 6220 at 2322 and 0120 with non-stop techno dance. (D'Angelo, PA)

Weekend Music Radio (Scotland) (p), 6400 at 0405 with pops, possible ID. Barely audible. (Alexander, PA)

Cupid Radio (Holland) 6265.1 with rock and IDs. 0010 to past 0100. Weak to fair. (Alexander, PA)

PORTUGAL—RDP Intl., 15560 in PP with live sports at 1923. (MacKenzie, CA) 1820 with traditional music. Also 17680 in PP at 1855 and 21655 with soccer at 1830. (Parker, PA) 17825 in PP at 1800. (Chandler, ON)

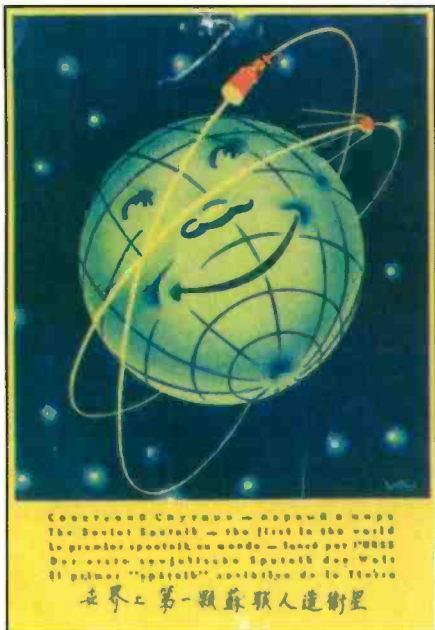
ROMANIA—Radio Romania Intl, 6150 in EE at 0120, 15105 with frequency anmt at 1353 and 15235 in AA at 1503. (Chandler, ON) 9635 in SS at 0312 and 11765 in RR at 1850 to abrupt close at 1855. (Parker, PA)

RUSSIA—Voice of Russia, 5900 in RR at 0239, 7125 in RR at 0357, 9360 in AA at 0040, 9665 at 0115, 9880 at 0352, 11510 at 1825 and 13635 at 0235. (Parker, PA) 7125 via Moldova in RR at 0040. (Maxant, WV) 11500 via Tajikistan in Hindi at 1320, and 11630 in RR at 1345. (Brossell, WI) 12010 in RR at 2350, 13635 at 0350 and 15425-Petropavlovsk at 0338. (MacKenzie, CA)

Kamchatka Radio, 6075 in RR at 1250. (Brossell, WI)

Russian International Radio, 7125 via Moldova in RR at 0131. (Chandler, ON)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 15205 in AA with Koran at 1614. (Parker, PA)



Radio Moscow issued this QSL to mark the launch of Russia's Sputnik satellite in 1957. (Thanks Mike Adams, Florida)

SEYCHELLES—BBC Relay, 9750 with "The World Today" at 0312. (D'Angelo, PA) 15420 at 1644. (Strawman, IA) 1656. (Charlton, ON)

SLOVAKIA—Radio Slovakia Intl., 7230 in Slovak at 0104. (Charlton, ON)

SOUTH AFRICA—Channel Africa, 3345 with news at 0304, then into sports. (D'Angelo, PA) 0330. And 6120 in an African dialect at 0340, 15235 at 1730 with report on Darfur crisis. (Brossell, WI) 7390 at 0325. (MacKenzie, CA) 15235 in FF at 1624. (Parker, PA) 1600 sign on. (Yohnicki, ON) 15235 in FF at 1632 and 17770 at 1507. (Chandler, ON)

Radio Sondergrense, 3320 with pops at 0333. (Brossell, WI) Tentative at 0520 but with a very distorted signal. (Alexander, PA) Trans World Radio, 7215 at 0332 in local language to 0345 close. (D'Angelo, PA) 0350. (Brossell, WI)

SOUTH KOREA—KBS World Radio, 9560 via Sackville in EE to NA at 0250. (Parker, PA) 9570 at 1311. (Charlton, ON)

SPAIN—Radio Exterior de Espana, 5965 opening SS at 0600. (Barton, AZ) 6055 in EE at 0012, 11680 in EE at 2019, 15170 via Costa Rica in SS at 1358, 17595 in SS at 1500. (Charlton, ON) 9535 in SS at 0033, 9620 in SS at 0046, 17715 in SS to abrupt close at 1856. (Parker, PA) 9630 in EE at 0522, 15110 in SS at 1909. (MacKenzie, CA) 11625 with music, Spanish sports at 2115. (Maxant, WV)

SUDAN—Republic of Sudan Radio, 7200 strong in AA at 0415. (Parker, PA)

SWAZILAND—Trans World Radio, 3200 with religious chorals heard at 0310. (Brossell, WI)

SWEDEN—Radio Sweden, 6010 via Canada at 0245 but actually on 6009.92. (Alexander, PA) 15240 with news items in Swedish at 1328. (Charlton, ON) 1340. (Fraser, ME)

IBRA Radio, 9675 via Julich in listed Hausa service at 2036. (Strawman, IA)

SYRIA—Radio Damascus, 9330 with AA music, EE news at 2115. (Alexander, PA) 2125 but severe het from WBCQ. (Maxant, WV) 2208 with very poor modulation. Ends with anthem and abruptly off at 2209. (Strawman, IA)

TAIWAN—Radio Taiwan Intl, 6145 in CC at 1725, 9680 via WYFR in Cantonese at 0508, //5950. (MacKenzie, CA) 11635-Paochung in CC at 2237. (Parker, PA) 11850 via France at 1710. (Brossell, WI)

TANZANIA—Radio Tanzania-Zanzibar, 11735 in Swahili monitored at 2030. (Charlton, ON) 2053 with pop-style vocals, annis and sign off. (Strawman, IA)

THAILAND—Radio Thailand, 5890 via US heard at 0033. (Charlton, ON) 0045. (MacKenzie, CA) 0226. (Parker, PA) 9835 to 30 seconds past 1258. (Strawman, IA)

TURKEY—Voice of Turkey, 5960 at 2323 with "From Our Correspondent." And 12035 in EE at 1340 (Fraser, ME) 9460 in TT at 0233. (Parker, PA)

TUNISIA—RT Tunisienne, 7190 in AA at 2205 and 12005 in AA at 1715. (Brossell, WI) 9720 in AA at 0336. (Parker, PA) 12005 in AA at 1838. (Charlton, ON)

OUR READERS SPEAK OUT

Each month, we select representative reader letters for "Our Readers Speak Out" column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid e-mail address. Upon request, we will withhold a sender's name if the letter is used in "Our Readers Speak Out." Address letters to: Edith Lennon, Editor, Popular Communications, 25 Newbridge Road, Hicksville, NY 11801-2909, or send email via the Internet to editor@popular-communications.com.

Yet Another Reader Hat Tip To Shannon

Dear Editor:

Just got the April copy of *Popular Communications* and really enjoyed Shannon Huniwell's piece on Radio Shack history. I, too, have spent thousands of my hard-earned cash on "Shack" goodies. My very first shortwave radio that I bought back in 1973 was the start, then many, many CB transceivers, many more scanners, and then 2-meter rigs. Golly, I miss having the Shack for all its communication parts and pieces!

Thanks for the "History of Scanning" also. Somehow I missed Part I of that; which issue do I need to find for this?

I'll say you have the best magazine for us radio hobbyists. Thanks, and pass on many thanks to Shannon for her work on the Shack stuff. Keep up the great work!

Randy Swain, SSB 78K
Farmington, B.C., Canada

Dear Randy:

Part I of Ken Reiss's "History of Scanning" ran in our January 2007 issue. If you'd like a copy of that, or any other back issue, you

can contact our circulation department at circulation@cq-amateur-radio.com or call the main office at 516-681-2922.

Consider your thanks passed on to Shannon. We're very glad you enjoy Pop'Comm, and I'm sure Shannon's excellent articles are one reason you do.

—Editor

Wave Lover

Dear Editor:

As a *Pop'Comm* subscriber since the 1980s, I take my love of shortwave seriously. Having just become a recreational boater, I needed a good name for the boat. The choice was obvious...Of course, the boat is appropriately provisioned for DXing at sea.

David Trachtenberg
Via email



UGANDA—Radio Uganda, 4976 at 0309 with Afro-pops. (Brossell, WI)

UKRAINE—Radio Ukraine Intl. 7440 in EE at 0310. (Parker, PA)

UNITED STATES—Voice of America, 7200 at 0050. (Maxant, WV) 9535 via Northern Marianas in Cantonese at 1432. (Strawman, IA) 11980 Philippines Relay in Burmese at 2355, 13755 Northern Marianas Relay at 2340 and 15410 Morocco Relay at 1919. (MacKenzie, CA) 12110 via Germany in an Asian language at 1715. (Brossell, WI) 11805 Lampertheim Relay going into RR at 1800. (D'Angelo, PA) 15580 heard at 1925. (Fraser, ME)

AFN/AFRTS, 5446.5-Key West carrying ABC News at 0715. (Maxant, WV)

Family Radio/WYFR, 7535 via Kazakhstan in an Asian language at 1315. (Brossell, WI)

WMLK, Bethel, PA, 9265 at 1950 with religious talk to 2000 close. (Alexander, PA) University Network, 9725 via Costa Rica at 2145. (Maxant, WV) 11870 via Costa Rica at 1355. (Charlton, ON)

KAJI, Dallas, 9480 with a sermon at 2100. (MacKenzie, CA)

VATICAN—Vatican Radio, 7125 at 2259. (Strawman, IA) 9610 in SS at 0042 and 13765 in Latin at 1853. (Parker, PA) 11625 with ID for African Service at 2005. (Maxant, WV) 15235 at 1558. (Yohnicki, ON)

VENEZUELA—(All in SS and all via Cuba) Radio Nacional, 11670 at 2243 and 13750 at 1746. (Parker, PA) 13680 at 1448. (Charlton, ON) 2317 and 15250 at 2332. (MacKenzie, CA)

VIETNAM—Voice of Vietnam, 6175 via Canada in VV at 0122. (Charlton, ON) 0228 in EE. (Parker, PA)

ZAMBIA—Radio Zambia, 5915 with Radio One service from 0241 sign on with Fish Eagle IS. Radio Two Service, 6165 also with sign on at 0241. (Alexander, PA)

ZIMBABWE—Radio Zimbabwe, 3396 at 0115 with hi-life music, vernacular talk with some EE as well. (Alexander, PA) 0300 with man and multiple IDs, also mentioning 6045. (D'Angelo, PA)

And that's it! Lets hear three resounding rounds of cheers for the good guys who contributed this time: George Zeller, Cleveland, OH; Joe Wood, Greenback, TN; Brian Alexander, Mechanicsburg, OH; Jerry Strawman, Des Moines, IA; Stewart MacKenzie, Huntington Beach, CA; Robert Brossell, Pewaukee, WI; Michael Yohnicki, London, ON; Robert Charlton, Windsor, ON; Richard Parker, Pennsburg, PA; William Hassig, Mt. Prospect, IL; Charles Maxant, Barboursville, WV; Bob Fraser, Belfast, ME; Rick Barton, Phoenix, AZ and Rich D'Angelo, Wyomissing, PA.

Thanks to each one of you, and until next month, good listening!

readers' market

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More Morse Madness

It's no secret among my friends and my readers that I like CW (or Morse code, or dits and dahs, or dots and dashes) and I always have, even from the days before I knew all the letters, numbers, and symbols. And I have to admit, I was both excited and nervous when I was accepted to the U.S. Coast Guard Radioman "A" School in Groton, Connecticut, right out of boot camp in 1966. Granted, it took a certain demonstrated aptitude for copying Morse code and other communication talents to be accepted, but the "wash-out" rate was fairly high, and was usually among those who just couldn't copy "the code."

And copying "the code" didn't just mean you learned that "A" was "didah." No, not by a long shot. You had to know all 26 letters of the alphabet, all 10 numerals, period, comma, colon, semicolon, dash, slant bar, open quote, close quote, open parenthesis, close parentheses, apostrophe, and the combined origins of BT AR AS VA (SK), which were sent as one group.

Oh, and the elusive dollar sign. Yes, there really is a symbol for the dollar sign: DS, sent as one group. Gets you every time.

There were also the Q-signals, known well to hams and commercial civilian CW operators (no longer in existence), such as QRV ("I am ready; go ahead") and QRN ("Natural noise, like static") or QRU IMI ("Who is calling me?"). In addition to those, and there were quite a few that were used more in military and commercial communications than in ham radio, such as the Z-signals, which were used exclusively by the military.

Here's a funny story that sprang from the Z-signals in the Bermuda triangle. It had nothing to do with ships disappearing but instead with some miscommunication, even with the most concise signal system devised.

A navy ship's radioman had called a Coast Guard ship's radioman (using CW) and asked,

"What are the broadcast stations in Bermuda—we want to tune the rec-deck radios to them."

The CG RM replied simply, "ZBM1 and ZBM2."

You should know that ZBM1 means "put on a qualified operator" and ZBM2 means "put on a qualified speed-key operator."

The navy ship waited, and another operator took over and said, "I am ZBM1 and ZBM2, now what are the broadcast stations in Bermuda?"

The CG RM again replied, "ZBM1 and ZBM2."

There was a long pause from the navy ship, then another operator came on and said, "THIS IS MASTER CHIEF RM so-and-so, I am ZBM1 and ZBM2, now cut out the nonsense and tell me what the broadcast stations are in Bermuda or I'll contact your bridge and have your communication officer take disciplinary action against you!"

The CG RM replied, "Hi, Chief. The callsigns of the only two broadcast stations in Bermuda are ZBM1 and ZBM2."

I understand that the radio shack crews of both ships met in Hamilton, Bermuda, and had a few drinks together.

Once you learned all these symbols, you had to learn to copy them, and not with a pen or pencil, but on a typewriter. Oh, did I mention that the typewriter had all blank keys? Yes, it helped

if you knew how to touch type before you go there, otherwise you had two things to learn at the same time.

Morse Madness

I know so many would-be hams who say they could never quite get the code. I also know many hams who only got the code by years of determination against what seemed to be "Morse Dyslexia" or something like it, and an awful lot of people using computer keyboards today once told me they couldn't possibly learn to touch type.

I wonder how many civilians would have "gotten the code" (at 20 WPM or higher) and learned to touch type (a minimum 60 WPM) in the allotted 26 weeks if given the same incentive that we were given:

"Learn the code; learn to type—or learn to cook breakfast for those who can."

There is no substitute for motivation.

I think, too, that knowing Morse code is a bit like knowing a foreign language; you know, having a secret "code" (well, it is a code) that can often be fun in non-radio circumstances. I think one of the most useful situations I'm aware of was when a radioman friend and I rented motorcycles in San Juan, and used the code to communicate as we rode single file and could not yell back and forth to each other. The shrill motorcycle horns and the buttons mounted conveniently for the right thumb made it downright natural for sending R and L for suggesting directions, or AS (for "wait"), along with comments about the scenery, sidewalk, and whatnot.

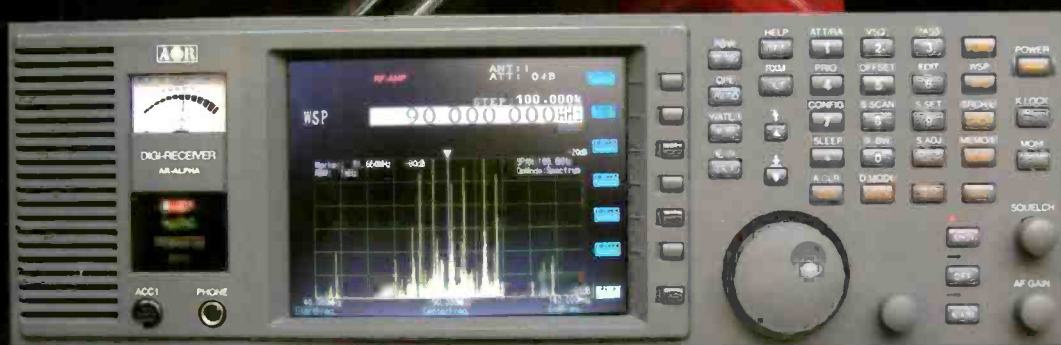
True, noise, whether static from a thunderstorm or other stations near your frequency interfering with the station you want to hear, can make communication difficult and sometimes blur the meaning intended by the sender. At times such as these, verification of the sender's intent is called for. For instance, take the time I was riding in front of my friend (on our rented motorcycles) and sent the signal "L," which sounds like 'dih-dahdidit' (or -.-), but with the traffic noise, he heard 'dihdahdit' (or -.-) which is the letter "R." Already, I can see the gears turning in some of the heads reading this as you wonder what might have happened.

Well, it was a fork in the road, and I indicated L because the Right fork was a one-way coming toward us, but that last 'dit' never got through the noise to him, hence his choice of the right (wrong) turn. As I stopped at the curb I heard him send an SOS as he must have faced a sea of oncoming cars and I turned around to see him walking his cycle around the corner sheepishly toward me. From that point forward, we decided that it would be best to echo each other's signal to be sure it was heard correctly. Problem solved. ■

Editor's Note: Coming next month (and Bill swears this is true), a Brigadier General hears rats sending Morse code in Viet Nam.

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