



45635

POPULAR COMMUNICATIONS

SEPTEMBER 2008

**Do NOT Try To Adjust Your TV...
You Are NOW Entering The Digital Zone**

- **Data Comms Through The International Space Station, p. 17**
- **Tech Showcase: The Signalink USB Interface, p. 20**

PLUS: A Cheap And EZ HDTV Antenna Project • DXing From Prison • Space Weather And GPS

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The compact desk-top VR-5000 is Yaesu's most versatile Communications Receiver ever! With ultra-wide frequency coverage and a host of operating features, you'll be on top of the monitoring action with the VR-5000!

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- **DUAL RECEIVE**
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- **WORLD CLOCK WITH UTC/LOCAL SETTINGS**
- **PRESET SHORTWAVE BROADCAST STATION MEMORY BANK**
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COMMUNICATIONS RECEIVER VR-5000

0.1~2599.99998MHz*
LSB/USB/CW/AM-N/AM/
WAM/FM-N/WFM
*Cellular blocked

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- BNC-type antenna connector
- Straightforward 4-button operation
- Versatile 640-channel memory system



All-Mode Wideband Receiver VR-500

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The **Grundig YB-300PE Professional Edition** covers: AM, FM stereo and shortwave from 2.3-7.8 and 9.1-26.1 MHz. Tune via Direct keypad entry, 24 memories, Band button, scanning plus Up and Down tuning. The YB-300 PE features a large LCD display with display lamp for momentary illumination. Other refinements include: 24 Hour Clock, DX-Local Switch, sleep timer, Scan and Lock. The side of the radio features the DC input jack, the external antenna input jack and earphone output jack. Includes an AC adapter, vinyl carrying case, carrying strap, plug in external wire antenna, Manual and stereo earphones. Operates from three AA cells. Titanium colored case 5.9 x 3.5 x 1.25 inches 13 oz. Originally introduced at \$99.00.

YB-300PE Order #0300 \$49.98

► Purchase your Eton E1 from Universal Radio for a limited time and receive a **FREE Grundig YB-300PE** with your order!

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.

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. 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).

The E1 XM 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.

E1 XM Order #0101 \$419.95

► ► ► ► ► **New E1 version!**

We are now also pleased to offer the basic **E1** without XM upgradeability at \$20.00 less.

E1 Order #0301 \$399.95

AUDIOVOX
CNP2000



The Eton E1 XM 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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Receive a **FREE** Grundig FR-200 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 \$148.98

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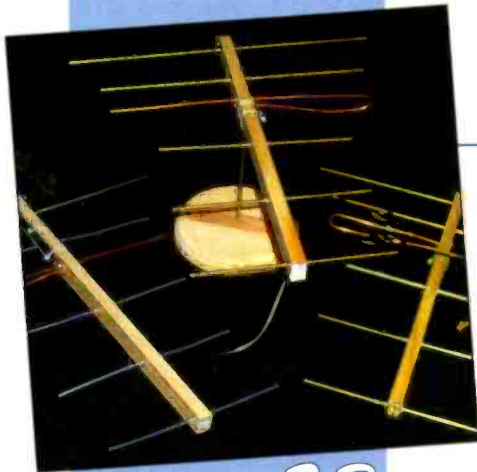
On The Cover

Like it or not, ready or not, the digital TV transition is coming. While we may not be able to help you like it, we do help you get ready for it in this issue. See "Countdown To Digital Television," starting on page 10, for Don Rotolo's helpful guide and "The Antenna Room," starting on page 23, for an easy antenna design to grab those digital signals coming your way.

Visit us on the Web: www.popular-communications.com



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Tap into secret Shortwave Signals

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

MFJ-462B
\$199⁹⁵

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

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

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

Eavesdrop on the World

Eavesdrop on the world's press agencies transmitting unedited late breaking news in English -- China News in Taiwan, Tanjug Press in Serbia, 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-1024-159⁹⁵ 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 1/8" x 1 1/4" x 4 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 1/4" x 2 1/4" x 5 1/4" inches.

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



MFJ-1800
\$29⁹⁵ 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 1/4" Hx1 1/4" D 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
\$199⁹⁵

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
\$119⁹⁵

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 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
\$42⁹⁵

MFJ All Band Doublet

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



MFJ-1777
\$59⁹⁵

MFJ Antenna Switches

MFJ-1704
\$74⁹⁵

MFJ-1702C
\$34⁹⁵

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

Morse Code Reader

Place this MFJ-461
\$89⁹⁵ pocket-sized MFJ Morse Code Reader near your receiver's speaker. Then watch CW turn into solid text messages on LCD. Eavesdrop on Morse Code QSOs from hams all over the world!

MFJ 24/12 Hour Station Clock

MFJ-108B, \$21.95. Dual 24/12 hour clock. Read UTC/local time at-a-glance. High-contrast 5/8" LCD. brushed aluminum frame. Batteries included. 4 1/2" W x 1 D x 2 H inches.



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History In The Making: A View From The Couch

In a small way, I almost wish I were older so I could have witnessed more. I have vague memories of racing home and fighting off siblings for primo couch space in front of our black and white TV for *The Ed Sullivan Show* the night the Beatles performed (I'm not even sure I was old enough to know why I was supposed to be excited). Hazier still is the memory of sitting on the floor and leaning against the same couch watching President Kennedy's funeral procession on the same B&W TV.

Much more firmly set in my mind are the many fall days my father clambered up our steeply pitched roof to adjust the TV antenna to bring in a football game from Connecticut, while numerous family members stationed themselves through the house to form a verbal bucket brigade ("that's better...that's worse...no, you had it before!"). I realize not too many hams will be impressed by that exercise, other than the inexcusable lack of a spotter.

But I'm too young to have experienced the excitement—heck, privilege—of knowing the first family on the block to get a color television set, or the first TV set, for that matter. My brothers, however, have regaled me with their accounts of watching Golden Age comedy shows and earnest dramas alike in the "near color" created by cheap tri-hued cellophane-like screens (their description, but I haven't found a better one) that overlay the picture tube. And before that, their TV viewing experience was "enhanced" by a liquid-filled magnifying lens to soup up the five-inch screen, simultaneously—and hilariously—distorting the actors earnestly plying their trade. (I imagine the cast of Studio One's *Twelve Angry Men* with gigantic, alternately blue, red, and green heads.)

The point, of course, is that as we've been sitting on our living room couch-

es, we've been bearing witness to culturally historic changes in technology itself as we watched it bring us the unique events that stand out in our lives. We'll be bearing witness to another step in "the tube's" evolution very soon. But unlike B&W TVs covered in goofy tri-color shrink wrap slowly yielding to RCA "New Vista Color TVs," this step has a definitive date: February 17, 2009—D-Day for the transition to digital TV. In another distinction, this time the public is not being given a choice. A little help perhaps, in the form of a \$40 coupon toward the price of a converter box, but no choice, in the name of more efficient spectrum usage (some achieve technology, some have technology thrust upon them...).

For many of us, it won't make a practical difference, thanks to cable and satellite services (albeit for a hefty price, of course), and will instead be another historical benchmark logged. But for those of you, like my father, still struggling up there on the roof to grab that elusive signal, the digital evolution will require a little effort—and some bucks.

Our cover story this month addresses the inevitable (unless the trials in Wilmington, North Carolina, unveil some heretofore unexpected DTV Y2K nightmare scenario) switch. Feature writer Don Rotolo, N2IRZ, provides some background, foreshadowing, and practical information on going digital from the vantage point of that living room couch. And "The Antenna Room" column this go-around tells you how you can build your own signal grabber to put up on that high-pitched roof—with a spotter this time, thank you!—on February 17, 2009. (On a personal note for that day, Happy 86th Birthday, Dad.)

Popular Communications 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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- Built-in charging circuitry for battery recharge while the unit operates from a DC supply
- Tough construction: meets MIL-STD 810 C/D/E standards for resistance to vibration, shock, humidity and light rain
- Large frequency display for single-band use
- Automatic simplex checker
- Wireless remote control function
- Battery indicator • Internal VOX • MCP software

¹Note that certain frequencies are unavailable. ²5W output

TH-F6A

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News, Trends, And Short Takes

Man Behind Construction Of Renowned "Very Large Array" Dies

Hein Hvatum, one of the driving forces behind construction of the Very Large Array (VLA) at the National Radio Astronomy Observatory near Socorro New Mexico, succumbed to cancer at his home in Virginia on May 22. He was 85.

The site's arrangement of radio telescopes is recognized around the world and was a backdrop in the 1997 motion picture *Contact*, starring Jodie Foster. It has also appeared in the Carl Sagan documentary *Cosmos* and the 1996 movie *Independence Day* starring Will Smith.

According to the American Radio Relay League's ARRL Letter, Mr. Hvatum took responsibility for computing, antenna design and electronics for the \$78 million project in 1974. It was completed in 1982.

He subsequently became acting director at NRAO in 1984 and project manager for the Very Long Baseline Array the next year. He retired in 1987.

"The VLA has made key observations of black holes and protoplanetary disks around young stars, discovered magnetic filaments and traced complex gas motions at the Milky Way's center, probed the Universe's cosmological parameters," the Letter reported, "and provided new knowledge about the physical mechanisms that produce radio emission."

Mr. Hvatum was active with national and international groups seeking to protect radio frequencies for radio astronomy.

Positive Results From DRM+ Tests on FM

Positive test results using the DRM+ standard for a radio station broadcasting on FM were unveiled at an international symposium. Throughout March, April, and May 2008, the University of Applied Sciences Kaiserslautern broadcast its experimental radio station across this southwestern German city in digital on 87.6 MHz using DRM+ in order to test this extended version of the DRM digital radio standard. Germany's Federal Network Agency, the University of Applied Sciences Kaiserslautern, and the German State Media Authority of Rhineland-Palatinate carried out extensive field tests to validate the trial.

DRM+ extends the regular DRM standard, by allowing FM stations in the 87.5 to 108 MHz frequency range to broadcast in digital. Lindsay Cornell, the Technical Committee Chairman for the DRM Consortium who spoke at the symposium, said, "these tests demonstrate that DRM+ provides clear added value for the listener by offering not only an uninterrupted service for both portable and mobile reception but also excellent audio quality. The DRM Consortium applauds the work undertaken in Kaiserslautern which goes a long way to show that DRM+ has great market potential."

The University of Applied Sciences Kaiserslautern expects to receive a new license to continue DRM+ test broadcasts from the German Federal Network Agency following this successful first test phase.

Bulgarian National Radio Begins Six-Month Trial Of Digital Broadcasts For Listeners Abroad

The Bulgarian National Radio (BNR) began trial DRM digital broadcasts for listeners abroad. The digital trials will continue with a six-hour long mix of BNR's three channels, *Horizont*, *Hristo Botev*, and *Radio Bulgaria*, in five languages. The broadcasts are designed for citizens of Central and Western Europe as well as the extensive Bulgarian diaspora there.

Presenting the project, BNR Director General Valery Todorov said, "We hope to be able to attract attention to the need for more accelerated rates in joining the digital era." The new technology will make it possible to effect substantial cut-backs on BNR broadcasting costs, improve the quality of the service and transmit an integrated multimedia product, Valery Todorov said.

According to the DRM Consortium, the trial will run for six months. Long-time DRM member Transradio SenderSysteme Berlin AG has provided the equipment for the transmission.

According to the DRM website, the schedule is:

0600-1200 Fri-Sun on 11900 kHz
0900-1200 Mon-Thu on 11900 kHz
1300-1600 Mon-Thu on 9700 kHz

WorldSpace, STMicro Sign Deal

STMicroelectronics will develop, make, and distribute chips for European Satellite Digital Radio (ESDR) receivers for WorldSpace. The latter company is planning a "pan-European" and Middle East service with 40 to 50 channels of commercial-free programming, beginning next year in Italy. Traffic, navigation, and music downloads from the satellite are also part of its plan. After Italy, WorldSpace hopes to roll out in Germany, Switzerland, Bahrain, and the United Arab Emirates. It has a deal with Fiat for aftermarket and OEM receivers in some of its upcoming models.

Noah Samara, chairman/CEO of WorldSpace Satellite Radio, made the announcement with Domenico Rossi, VP of ST's Automotive Product Group. The companies said the agreement is expected to lead to the first fully integrated device for channel decoding in ESDR receivers. Their technology is based on a European Telecommunications Standards Institute standard. Rossi said the majority of satellite digital radios in the United States now use ST chips.

Frontier Silicon Building Combined Euro-Asia DAB Radio

Frontier Silicon is developing a digital radio receiver module to work with all Eureka-147-based standards, including DAB, DAB+, and DMB-Audio. At the Broadcast Asia conference in Singapore, WorldDMB President Quentin Howard said his organization is working with the EBU, EICTA, and with

industry in Germany, France, and the U.K. to create a unified receiver standard.

He called Frontier Silicon's announcement of a receiver module supporting the Band 3 and L-band DAB standards for Europe and Asia a step towards enabling a pan-European digital radio market. The company's unified digital radio module will be based on the recently released Venice 5.1 receiver. The module is a low-cost receiver for DMB-Audio, DAB, DAB+, and FM-RDS.

The company said the unified digital radio module will only need a power supply, display, keypad, audio amplifier, and speakers to complete a radio. Frontier Silicon will start sampling to manufacturers in the third quarter and it will be available for volume production by the end of 2008.

Radio Singapore International To Close Down

Radio Singapore International (RSI), the shortwave service run by MediaCorp Radio, was to shut down at the end of July. The station, which was set up in February 1994, broadcasts to the region in four languages, including English, Chinese, Malay, and Bahasa Indonesia. It has a following in numerous countries, including Malaysia, Indonesia, Thailand, and China.

MediaCorp said in a press release that the effectiveness of a shortwave radio service has "diminished over time with changing technology and media consumption habits." While FM radio broadcast has remained strong, audiences are turning to a plethora of alternative channels for their news, such as Internet radio and the Internet, said its spokesman.

More people around the region are also tuning into MediaCorp's Channel NewsAsia (International) feed for news and information on global developments with Asian perspectives and hence it is "not optimal" to continue with a full regional radio service.

The majority of RSI's listeners, particularly those from its popular Chinese service, are middle-aged and older. Although it offers a mix of infotainment and music programs on top of its news and current affairs line-up, industry sources say RSI has been unable to attract young listeners in recent years and that that could be one reason for its demise. All RSI staff, which number about 50, will be redeployed to other areas, such as TV news and scriptwriting.

Indian State Broadcasters To Air News On Satellite Radio

The Indian government has allowed state broadcasters All India Radio and Doordarshan to broadcast their news and current affairs shows on satellite radio. The decision is part of the draft policy prepared by the Information and Broadcasting Ministry and Telecom Regulatory Authority of India (TRAI).

Satellite radio service refers to distribution of single- or multi-channel radio programs by using a satellite system that provides encrypted digital radio signals direct to the subscribers' receiver sets. The decision to restrict the dissemination of news to only the version aired by the state broadcasters shows the government's anxiety to play safe while relaxing its monopoly over radio news and current affairs, the newspaper says.

TRAI has also recommended auctioning licenses for satellite radio services if the number of eligible applicants exceeds the number of licenses being offered, depending on the availability of spectrum and satellite. It has suggested that the license could be for a period of 10 years initially, with a provision for an extension

of 10 years. The licensee will have to pay an annual fee of four percent of its gross revenue. The draft guidelines also state that the licensee must roll out the service within one year of getting the license.

Wind-Up Radios Banned In Zimbabwe

Authorities in Zimbabwe have banned wind-up receivers, a favorite among non-governmental organizations seeking to promote access to information in rural areas. Their presence has often spawned listening clubs accused of tuning in on "illegal" foreign news bulletins broadcast on shortwave. Batteries are almost unavailable in Zimbabwe. Along with satellite dishes, ownership of a wind-up radio is enough to land villagers in serious trouble.

"They have been warned that they must hand in those radios. It has become a subversive tool," said Southern Africa Editors' Forum chairperson Rob Jamieson, who was part of a week-long mission that went to Zimbabwe. "It is quite shocking to see the situation in Zimbabwe. No professional media in Zimbabwe can operate." Jamieson said. ■

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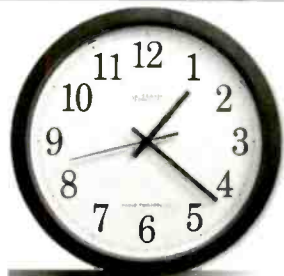
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Capitol Hill And FCC Actions Affecting Communications

Sirius-XM Deal Gets OK From FCC Chairman

After satisfying stipulations laid down by Federal Communications Commission chairman Kevin Martin, the proposed merger of satellite radio broadcasters Sirius Satellite Radio Inc., and XM Satellite Radio Holdings, Inc., took a step closer to reality.

"As I have indicated before, this is an unusual situation," Martin said in June. "I am recommending that with the voluntary commitments (Sirius and XM) have offered, on balance, this transaction would be in the public interest." Martin's recommendation was being circulated among his fellow commissioners, setting the stage for a final vote.

Sirius' buyout of rival XM received the approval of shareholders last year. It was approved by the U.S. Department of Justice in March.

The broadcasters' concessions to Martin in the \$5 billion deal included turning 24 channels over to noncommercial and minority programming and a three-year price freeze for customers. Satellite radio customers pay access to channels that provide news, talk, music, and sports programming to homes and vehicles. The broadcasts are essentially advertising-free.

According to an Associated Press report, the FCC's analysis, which has gone on for more than a year, has taken twice as long as other merger assessments. The deal has drawn criticism from land-based radio and consumer groups, which allege the merger will create a monopoly. In addition, the deal has drawn the attention of Capitol Hill, "where the National Association of Broadcasters has fought an expensive advertising and lobbying campaign to block approval," AP said.

Sirius and XM have promised to offer radios "capable of receiving both services within one year," the report said. XM, based in Washington D.C., has approximately 9 million subscribers. New York-based Sirius has about 8.3 million. While saying the merger is not necessary to keep the companies alive, both Sirius and XM have lost money each year they've been in existence. The companies have said that the merger will save hundreds of millions of dollars in operating costs, savings that will ultimately benefit their customers.

FCC Hosts Workshop On Conversion To Digital Television

In preparation for the television broadcast industry shift from analog to digital television in 2009, the FCC held a Digital Television Consumer Education Workshop in June, addressing issues related to DTV converter boxes for analog television sets that receive signals over the air. The session was held at FCC headquarters in Washington D.C., and was webcast live on the commission's website. Commissioners Michael J. Cops, Deborah Taylor Tate, and Robert M. McDowell addressed conferees.

In addition to converter boxes, the workshop also addressed

analog pass-through options, connections, channel scanning and use, and special features, including closed captions, video description, and parental control.

Senate Approves New And Emerging Technologies 911 Improvement Act

Legislation requiring operators of 911 networks to allow VoIP providers to connect has been passed by the U.S. Senate. The New and Emerging Technologies 911 Improvement Act will give dispatch centers "liability protection when handling VoIP calls," according to published reports by International Data Group. "It would require that 911 networks connect VoIP providers using the same rates and conditions they use when connecting mobile phone carriers. And it requires the U.S. government to create a plan for migrating to IP-based 911 networks."

Some VoIP providers had complained that some 911 networks, controlled by traditional telecom carriers, have blocked access and some emergency centers have worried about legal liability if VoIP 911 calls fail, IDG reported.

Sen. Ted Stevens (R-AK) "pushed an amendment to the bill that requires the U.S. government to focus on developing next-generation 911 capabilities," the IDG story said. "Many rural areas don't yet have access to the newer E911 services," Stevens said in a statement.

"Congress has been working on this important legislation for several years and I am pleased to see that it is finally moving forward," Stevens said. "This measure will ensure that our nation's 911 laws are up-to-date with new technologies and will continue to save lives."

The U.S. House of Representatives approved the legislation in November. Since the Senate made modifications to the proposed Act, it must go back to the House for review and approval.

Radio Amateurs Warned About 28 MHz Band Plan

The American Radio Relay League said it has received reports that recent band openings have revealed that "a number of U.S. amateurs have been heard using SSB (single sideband) below 28.300."

"We urge everyone to remember that 28.000 to 28.300 MHz is reserved for RTTY and data, including CW," said ARRL Field and Regulatory Correspondent Chuck Skolaut, KØBOG, in the organization's *ARRL Letter*.

"Phone is permitted from 28.300 to 28.500 for Novice and Technician class licensees with a maximum power of 200 watts. Phone and image are allowed from 28.300 up to 29.700 for General, Advanced and Extra class license holders."

Skolaut, who manages the Official Observer and Intruder Watch programs, said that people have called and emailed ARRL HQ inquiring about hearing IDs repeated in code on various 10 meter frequencies. "What they are hearing are beacons," Skolaut said. ■

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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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The handheld BC246T TrunkTracker 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. group 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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Countdown To Digital Television

What It Is, Why It's Coming, And What The DTV Transition Means To You

by Don Rotolo, N2IRZ

February 17, 2009, will be a major milestone—some say it's a millstone—in TV broadcasting. That's the date on which all full-power television stations in the United States must cease their analog broadcasts and transmit exclusively in the ATSC¹ Digital TV format. What does this mean to you? It depends.

If your TVs are connected to cable, satellite, or some other non-broadcast TV service, there will be little or no change for you. These non-broadcast services are not bound by the FCC broadcast rules, and so will generally continue to be compatible with existing television sets. An estimated 88 percent of all TVs in the United States get their signal from something other than an antenna.

If, however, you do receive TV over-the-air (OTA) with an antenna, come February 2009 (August 31, 2011, in Canada) any TV not equipped with a digital TV (DTV) tuner won't have anything to receive. Don't fear, though: the government is going to help you through this change, so you don't have to throw out your TV just yet.

Some Background

Before we explore your options, let's have a quick review of the technical aspects of television. NTSC, which stands

Don Rotolo is an electrical engineer and amateur radio operator who writes the "Digital Connection" column for our sister publication, *CQ Amateur Radio*.

for National Television System Committee (though some half-jokingly say it means Never The Same Color), is the current TV standard used in the United States², and it has been in use in either black and white or color format since World War II. It's a purely analog signal, using VSB³ for the video signal and FM for the audio, with a QAM⁴ carrier used to encode the color information. The signal consumes nearly 6 MHz of radio spectrum, with a maximum horizontal resolution of about 360 TV lines⁵. The aspect ratio of the so-called Standard Definition TV (SDTV) picture is 4:3 (Horizontal:Vertical).

ATSC (digital) broadcasts use 8VSB (eight-level Vestigial Sideband) modulation, allowing for a 19.4 Mb/sec digital pipeline within the 6 MHz TV channel's bandwidth. DTV comes in several formats, and broadcast stations generally will use either the 720p or 1080i High Definition TV (HDTV) format. The number (like 720) denotes the number of vertical resolution lines in the image, and the letter (p or i) denotes whether the image is scanned progressively or is interlaced⁶. Horizontal resolution is calculated as 16/9 (the aspect ratio is 16:9, also known as "widescreen") of the vertical resolution, or 1920 pixels for a 1080i signal. For comparison, current SDTV has the designation 480i.

One clear advantage of DTV is the increased image resolution. Every reader is surely familiar with the general image quality of analog TV, but you may not yet have had the opportunity to see an HDTV signal. In the big scheme of things, it's still TV, and whether it's worth watching or not can be debated, but HDTV has noticeably better picture quality; it's not nearly photographic, but quite a bit better than what you're probably used to seeing.

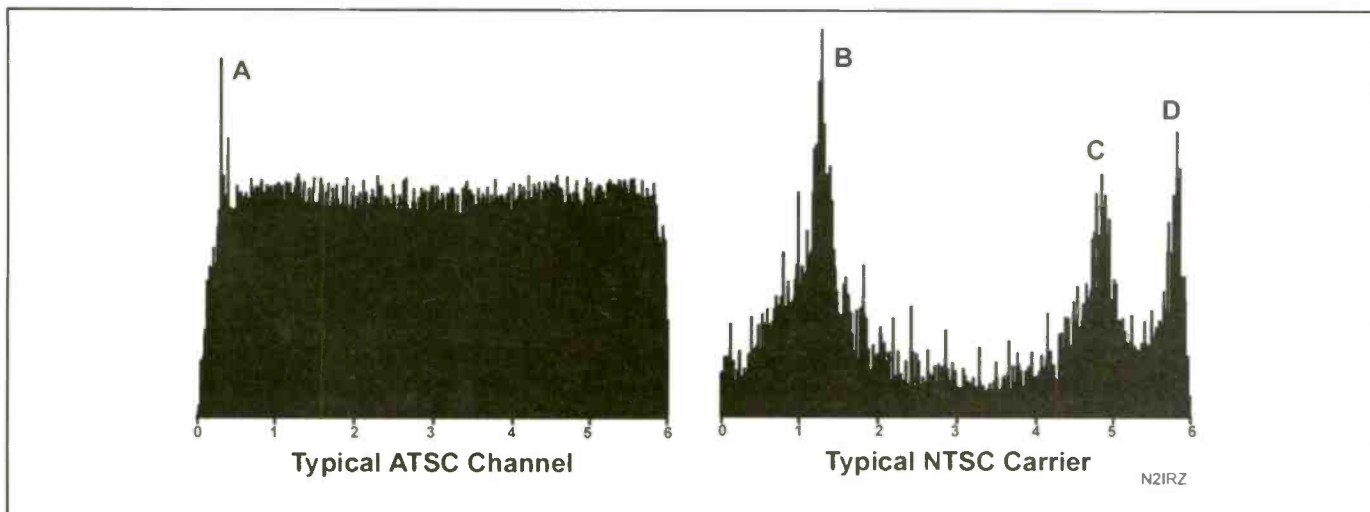
It also has that wider aspect ratio, 16:9, more like a movie screen, allowing for a more natural viewing experience since the human eye has a view that is wider than it is tall. When viewed on a standard TV, the widescreen image may get "squished up" horizontally a bit, but your eyes quickly get used to the distortion and, after a few minutes, it's hardly noticed. Some DTV tuners and converter boxes modify the image (digitally, of course!) to reduce the distortion considerably.

Another advantage of DTV to the viewer is the possibility for the TV station to use some of the excess data capacity inherent in the channel. While a 1080i signal does consume most of the



Whether you consider DTV a friend or foe, it's coming...and soon.
(Photo by Larry Mulvehill, KB2ZPI)

available data capacity of the channel, there's still some left over for such handy features as program information, a channel guide, time of day, closed captioning, and other services. Stations that are using a less data-intensive format (such as 720p) can use the excess data capacity to actually send one or more additional 480i video signals, and using the digital capabilities of the ATSC receiver, re-map these to "virtual" channels that act just like an



The spectra of typical NTSC and ATSC TV broadcast signals. Notice that the modern digital signal uses its spectrum more efficiently than the older analog format. Increased efficiency is only one of the reasons for the switch to DTV.

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Receives
AM Band



Receives
FM Band



Receives
Shortwave Band



Alarm
Clock



Headphone
Jack



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1-800-793-6542



The DTV converter box coupon I received in the mail. This program from the federal government provides for a \$40 discount on the purchase of a DTV converter box. Each family in the United States can request one or two of these coupons.

additional TV channel. Of course, the FCC has determined that stations using this additional data capacity for commercial use will have to pay 5 percent of their receipts for the privilege—this valuable new source of revenue did not go unnoticed.

The DTV initiative also has some advantages for the general public and the common good. There are three distinct frequency bands on which TV is broadcast today: VHF-Lo (Channels 2 to 6), VHF-Hi (7 to 13) and UHF (14 to 69), with most full-power stations located in the VHF spectrum. (From channel 14 up the frequency assignments used on cable TV are not the same, and should not be confused with the OTA channels.)

The Transition

As part of the DTV migration, UHF Channels 52 through 69—some 108 MHz of radio spectrum (from 698 to 806 MHz)—will be reassigned to other radio services. This will be done in two stages: Channels 60 through 69 will be first, followed by Channels 52 through 59 some time later. Some of the spectrum, about 40 MHz, has been earmarked for public safety uses, while the rest has been (or will soon be) auctioned off to the highest bidders, bringing several billion dollars into the national treasury, and surely a small explosion in new wireless services.

The way that TV stations will transition from analog to digital varies according to that station's particular circumstances. Most have elected to start DTV transmissions on a so-called "Interim DTV Channel." Here in New York, for example, WABC-DT is found on Channel 45, while WABC-TV remains on Channel 7 for now. On February 17, 2009, WABC will switch off its Channel 45 transmitter and go 100 percent digital on Channel 7. WNBC, like many other stations, will switch its analog Channel 4 transmitter off forever, and continue transmitting its DTV signal on Channel 28, where it is now. With the blessings of the FCC, several stations, such as WPIX (Channel 11) and WNET (Channel 13), will "flash-cut" from analog to digital, abruptly stopping their analog transmission and immediately starting their digital signal on the same channel. And a very few stations—mostly college-related and other smaller, nonprofit stations—have elected to go off the air altogether, unable to justify the investment in new DTV equipment.



A DTV converter box sitting atop my daughter's analog TV. I have the WNYW-DT channel guide on the screen. Where I live, in Northern New Jersey, about 15 air miles from the Empire State building, I can receive eight DT channels, each with several virtual channels for a total of 26 different programs.

Note that these regulations are for full-power TV stations. There are other TV transmitters—including the so-called Class-A, Low Power TV and TV Translators—that are being treated differently. There is currently no deadline for these stations to convert to DTV broadcasting, but eventually they will be required to switch over. Some will have to change their channels, modify their signal characteristics, or go off the air completely because of the loss of Channels 52 to 69, but for the near future they will be unaffected.

The \$60,000 Question

Okay, you may ask, "What does this mean to me exactly, and how do I cope with it?" As mentioned before, if you are a cable or satellite TV customer, your provider will take care of you, no worries. If you are one of the folks who rely on an antenna to get your TV programming, you will probably need to take action soon, unless you only get TV signals from LPTV and/or Translator stations (which, as mentioned are not changing, for now). Also, if your household is like mine and you have a set connected to cable but also use one or more with rabbit ears, action will be necessary if you want those rabbit ears to work.

The first course of action is to decide if you really need to receive your TV over the air. If the answer is no, then analog and digital don't matter any more, just use the cable signal or stop using that TV. But, if the answer is yes, then you need to decide if you want to buy a complete new television with a digital tuner (and throw your old TV away), or if you want to just get a DTV converter box. If your TV is very old, failing, or has other problems, maybe a new TV is a good idea. Otherwise, a DTV converter box will be the way to go.

The Converter Box

Very similar in appearance and function to a cable TV converter box, a DTV converter box takes the OTA DTV signals

you receive with your antenna and converts them to Channel 3 or 4 so your old analog TV can receive the signal. There are several different brands and models available, each with varying features, such as direct video/audio outputs, antenna pass-through, remote control, closed captioning, V-Chip, and more⁷.

DTV boxes cost around \$40 to \$80, with many positioned at the \$60 price point. Through the federal government, anyone can request one or two DTV converter box coupons worth \$40

off the purchase of a DTV converter box. Simply go to www.dtv.gov or call either 1-866-706-4367 or 1-888-DTV-2009 toll-free. The number of coupons is limited, so you should act soon to ensure you get what you need. On the other hand, if you don't really need one, you shouldn't get one, allowing those who really need it to have their chance instead.

I went to my local RadioShack and picked up the DigitalStream DTX9900 for \$59.95 + sales tax—with the

Sea Trials For Digital TV

As the rest of the United States prepares for the Digital TV transition on February 17, 2009, the broadcasters of Wilmington, North Carolina, will be delivering the acid test to their viewers this fall.

In cooperation with the FCC, the five full-power TV stations in this coastal North Carolina city will switch over to ASTC digital broadcasts at 12 noon on September 8, 2008, a full five months before the rest of the country. The broadcasters volunteered to use the Wilmington region viewers as a test bed in an attempt to work out any of the unforeseen bugs that might arise from the transition to DTV.

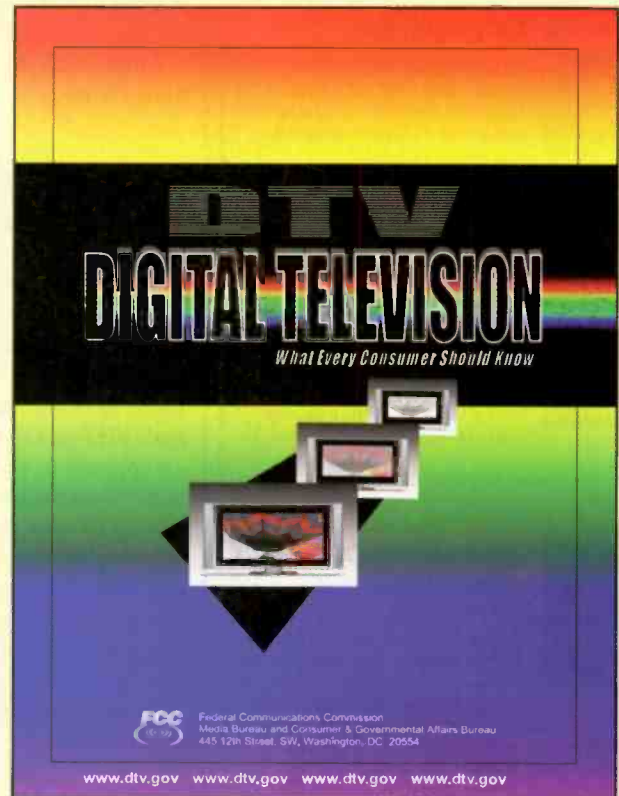
Before the switch, an intensive media campaign is planned, with the goal of making certain no viewer is caught unprepared—or at least uninformed. As explained in the main feature article, a DTV set-top converter box is required for older TVs equipped with a standard NTSC analog tuner to view digital TV signals. The NTSC standard has been around since mid-20th Century, and only recently have manufacturers sold TVs capable of receiving the new DTV signals.

Wilmington was chosen because it is one of only eight markets in the country where none of the TV stations is changing its channel assignment, but where all are already equipped to transmit digital signals. Because of this unique situation, the broadcasters can switch back to analog if it becomes necessary.

Part of the trial's purpose is to see if any unexpected technical problems appear, for either the broadcasters or the viewers. For example, broadcasters can better gauge if the new DTV signal, with its slightly more demanding signal strength requirements, results in a loss of coverage in fringe areas. The FCC has been allowing broadcasters to modify their antennas and power levels to compensate, but software predictions can only go so far as compared to actual field testing. Viewers might also have to modify their TV antenna to bring in a higher signal strength, or use a more directional antenna to eliminate the harmful effects of multipath, in which reflected signals interfere with the main signal enough to cause a loss of reception. A more directional antenna sees less of the reflected signal, reducing or eliminating the problem.

Another part of the trial will be used to gauge the relative effectiveness of various media campaigns and communications methods. In addition to print, TV, and radio announcements, and even billboards ("North Carolina: First in Flight, First in Digital"), local retailers hoping to sell some new digital-ready TVs, or at least set-top converter boxes, will cooperate with the media blitz. Even local governments will get involved, with town hall, senior citizen centers, libraries, schools, and other social agencies helping to spread the word.

Some doubt that such a test will identify all problems. The National Association of Broadcasters (NAB) wasn't consult-



ed about this test, and so issued a statement asking several questions for which the FCC should be seeking answers, including what actions will be taken to avoid confusion when Wilmington residents are exposed to national announcements of the February 17, 2009 cut-over date. Others question the wisdom of such a test during hurricane season.

Several TV broadcasters in other markets are conducting their own tests. At least 11 Orlando, Florida, area stations will conduct at least three DTV tests, the first on June 25 at 8 p.m. just as this issue went to press. KVBC, the Channel 3 NBC affiliate in Las Vegas, Nevada, ran a series of simulated analog shut-offs during newscasts in early May, in which they transmitted simulated static on their analog signal and instructions to call 888 DTV-2009 or browse DTVanswers.com for information on the digital transition. At the same time, its digital signal showed a message that anyone able to read it was already ready for the digital transition.

There's no need to travel to Wilmington to check out DTV, however: Chances are there already are digital signals in the air right where you live. Put up an antenna, get a converter box, and find out!
—Donald Rotolo, N2IRZ

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coupon it was under \$25 out of my pocket. Connecting it to my TV was simple: I unscrewed the antenna connection, connected that to the box, connected the box to the TV, and plugged it in. After the box went through its search routine, finding all the local DTV channels, I was all set. Yes, I would have preferred a converter box that had an AC outlet on the rear so I could plug in the TV, VCR, and hox into a duplex wall outlet, and I would have liked it if the Universal Remote could also control my 25-year-old TV set, but that's not the converter's fault. I don't use the TV that much, so I chose to sacrifice features for price.

The Antenna

Your TV antenna may need to be changed. Today's typical TV receive antenna is geared towards VHF (Channels 2 through 13) reception, while many DTV stations will be transmitting on UHF (Channels 14 through 51). While some antennas are designed to receive both VHF and UHF well, yours may need an upgrade to pick up the channels you want. Note that *any* antenna that picks up analog TV signals will pick up digital TV signals just as well, so don't be fooled by any marketing hype. If you have a good TV antenna that receives the channels you want, it should be just fine. If you'd like to try your hand at building one, see "The Antenna Room" column elsewhere in this issue.

A Last, Historical Look...

The FCC has mandated that all TV stations step up their public information campaigns as the DTV transition gets closer, so you'll be hearing about it more and more. Digital TV offers several advantages for the consumer, including better TV pictures, and realignment of the spectrum will benefit public safety users and several new wireless enterprises. The official DTV transition website, at www.dtv.gov, has a lot of information that may be useful.

Lastly, if you will need a converter, take advantage of the \$40 coupon offer, no sense in letting that opportunity slip by. Just make sure the DTV converter box is really the one you want, since retailers are not permitted to give a refund for the coupon part of the price. That is, once you use your coupon, it's gone—you can't get

it (or the money it represents) back, no matter what. (Of course, most retailers will replace a faulty converter box, but each retailer has their own policies.)

I hope this quick view of the upcoming DTV transition has helped you understand what's happening, why it's happening, and what (if anything) you need to do about it. For those of you into nostalgia, it might be interesting to record for future generations what an NTSC signal looked like. It may also be interesting to record or watch your local stations sign-off from analog service for the very last time ever. Television will be forever changed, and you were there to see it. ■

Footnotes

1. Advanced Television Systems Committee. You can visit www.atsc.org to learn more about this standard.

2. NTSC is used in North America and in a slightly modified form in Japan, South Korea, the Philippines, parts of South America, and some other countries. Other major analog TV standards are PAL and SECAM (derisively known as "Pray And Learn" and "System Engineered Contrary to American Methods," respectively).

3. Vestigial Sideband. A cross between full bandwidth Amplitude Modulation (AM) and Single-Sideband (SSB). VSB allows for some of the reduced spectrum width of SSB while preserving much of the enhanced resolution and ease of decoding of AM.

4. Quadrature AM. In this case, essentially a sine wave whose phase relative to a fixed reference is used to define the color hue at that instant.

5. Horizontal resolution is directly proportional to signal bandwidth, with about 80 TV lines of resolution per Megahertz. Vertical resolution is fixed by the 525 scanning lines of the NTSC format. A TV line consists of a pair of lines, one black and one white, unlike photographic resolution, which counts each line separately. In practice, most TV signals are at about 320 lines.

6. Progressive means lines are scanned one after the other, in numerical order, while interlaced means odd-numbered lines are displayed first, then even-numbered lines, at a rate fast enough that the human eye doesn't notice. For the viewer, p or i doesn't matter much, but p encoding is technically easier to implement in digital systems.

7. Most boxes support several features, and some are mandated by the FCC. A list of approved DTV converter boxes and retailers who sell them can be found at www.dtv.gov, and you can visit retailers like RadioShack, Best Buy, Frye's and K-Mart to ask questions. One feature I really miss is an extra AC outlet on the back of the box.

Data Communication Via The International Space Station

What It Takes To Work This Sky-High APRS Digipeater (Hint: Not A Ham License)

by Dan Srebnick, K2DLS

I was pretty amazed the first time I was able to communicate with the International Space Station. I should probably qualify that statement a bit—I really communicated *through* the International Space Station. The Russian module of the ISS has an APRS digipeater, which captures data packets on 145.825 MHz and retransmits them—and they certainly have antenna height on their side!

So what's it all about? Let's start with APRS. This stands for Automatic Packet Reporting System. I've seen (incorrect) references to the "P" in APRS as representing "Position," but APRS is so much more than just position reporting. The APRS protocol was invented by Bob Bruniga, WB4APR. Bob wanted to come up with a simple amateur data protocol, built on top of the AX.25 packet system's ability to make use of Unnumbered Information (UI) data frames. UI frames are like the User Datagram Protocol (UDP) used on the Internet in some ways. There is no "connection" and the protocol does not provide for guaranteed delivery, but this also makes APRS a very efficient communication delivery protocol.

A typical APRS packet is less than 128 bytes in length. It can consist of a geographical position report, a weather report, an instant message, telemetry, or a bulletin. APRS traffic may be heard on the 2 meter frequency of 144.39 MHz in the United States and Canada. In the rest of the world, you'll find APRS on 144.8 MHz. If you want to learn more about the APRS protocol, take a look at <http://eng.usna.navy.mil/~bruniga/aprs.html>. This website is full of technical and operational information about how APRS can be used to create situational awareness.

The International Space Station's APRS station uses the call-sign RS0ISS-4. The -4 is known as an SSID, or service set identifier. An SSID is a way of identifying a substation operation under the main callsign. If you use a wireless 802.11 class of computer network at home, then you're already familiar with the concept of the SSID. (At least, you are if you changed the manufacturer's default settings, which you should always do for security's sake!) A typical home APRS station might use an

Dan Srebnick has been a DXer since 1968 and a ham since 2006. At age 13, he hosted a monthly report for a short time on HCJB's "DX Partyline."



The screen of the TM-D710 transceiver from Kenwood displays APRS objects as they are received. (APRS website photo)

SSID of -1 or a mobile station would use -9. It's also acceptable for a home station to not use an SSID after the callsign. See the "Common APRS SSID Values" table for a list of some of the common SSID codes used in APRS.

On board the space station is a Kenwood TM-D700 VHF/UHF transceiver. The D700 is the predecessor to the new and improved D710, but the thing that differentiates these radios from your run-of-the-mill FM transceiver is the native ability to understand the APRS protocol and to print messages to the front panel. The radio can function as a stand-alone digipeater. A digipeater does exactly what it sounds like it does: It repeats digital packets received to a wider audience; however, unlike a voice repeater, it does not do so in real time, but via "store and forward." The digital message is stored in the digipeater memory and then relayed when the frequency is clear of data traffic. Just imagine the great height advantage that the ISS, hundreds of kilometers overhead, has over your local 2 meter repeater!

Receiving The ISS

You'll need the following on order to receive the ISS:

- A transceiver, scanner, or other radio that can receive the FM audio APRS transmissions on 145.825 MHz.
- A terminal node controller (TNC) or a soundcard and software that can simulate a TNC. One good emulation package is

the AGW Packet Engine Program, AGWPE. It runs on Windows, including Vista.

- A serial cable to connect the computer to the TNC or an audio patch cable to connect the audio output of the radio to the input of the soundcard.

- An APRS decoding program, such as UIView-32, or an ASCII terminal program, such as the Hyperterm program that was supplied with Windows versions prior to Vista. The ASCII option is a great way to get started because all of the APRS data transmissions are strings of ASCII characters.

Tip: You can copy the hyperterm.dll and .exe files from Windows XP to Vista and add the Hyperterm capability to Vista! Copy the exe file to C:\Program Files\Windows NT\Accessories and the dll file to C:\Windows\System32.

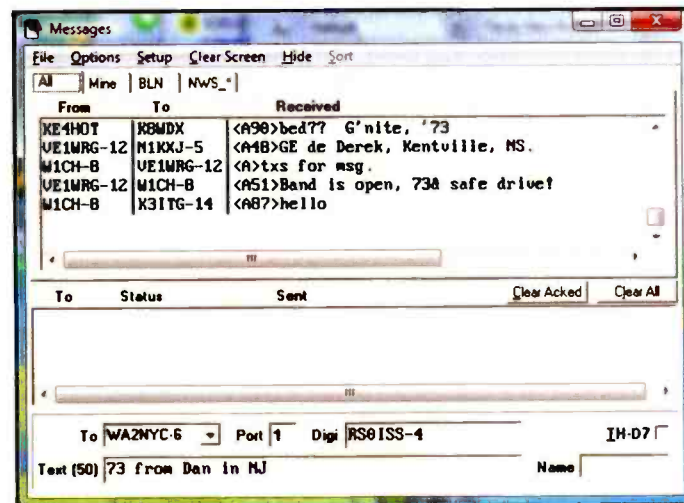
UI-View32 can be downloaded from www.ui-view.org/. The program is free to use, but a donation to your local cancer charity is requested by the family of the author, G4IDE, who is now a silent key (SK). AGWPE can be downloaded from the www.patmedia.net/ralphmilnes/soundcardpacket/2agwget.htm website. The site also has a step-by-step tutorial on getting started with AGWPE.

Rather than go through all the details of how to set up the software, I'll keep it all somewhat high level. The associated webpages that contain the downloads have enough detail to get you going. Test things out by tuning your receiver to 144.39 MHz. You'll hear data bursts fairly regularly if you monitor the frequency for more than a few minutes. Open your terminal program and connect to the appropriate serial port or device. You'll see strings like this:

```
NE2E-15>BEACON <UI>:Please use WIDEn-N
www.aprsnj.com 444.250 PI 123
```

The above message is a beacon packet from one of my local digipeaters, reminding hams transmitting APRS packets to use the WIDEn-N protocol and providing an informational message with the frequency and PL tone of their local repeater. Packets can also contain position reports:

```
N2ZRC>BEACON,N2MH-15,NE2E-15*,WIDE2-1
<UI>:!4052.72n/07354.05w-PHG5640/Arte-Riverdale
NY-n2zrc@arrl.net
```



Using UI-View32 to send a message via the ISS. Note the digi field has the callsign and SSID of the ISS APRS station.

Common APRS SSID Values

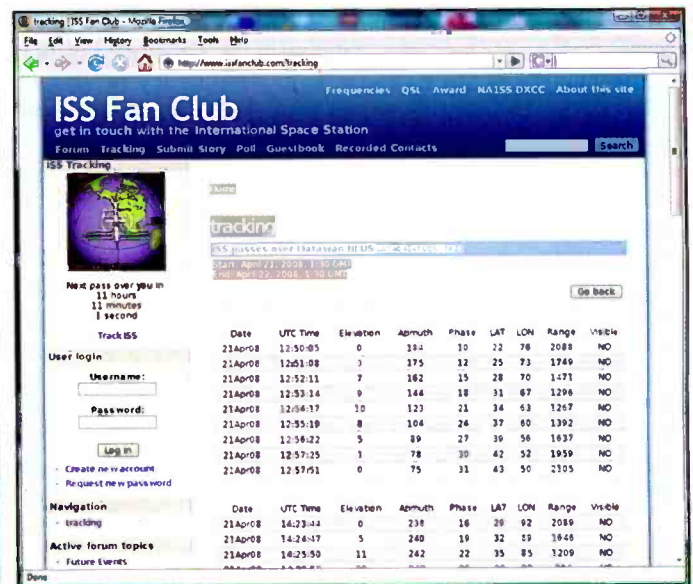
- 1 Digipeaters and home stations
- 2 Digipeaters and home stations
- 3 Digipeaters and home stations
- 4 Digipeaters and home stations
- 6 Operations via Satellite
- 7 TH-D7 walkie talkies
- 8 Boats, sailboats and ships
- 9 Mobiles
- 10 Internet only
- 11 APRStouch-tone users and balloons
- 14 Truckers
- 15 HF

The above packet from N2ZRC was "digied" through N2MH-15 and NE2E-15 and contains the geographical coordinates of N2ZRC. APRS software can use the position reports and plot object locations on a map. This type of situational awareness could also be useful in a disaster situation, such as a flood or blizzard.

If you hear the data bursts and can see data strings like those above, you're ready to try to receive the ISS. You'll need to know when the ISS will be overhead. For that purpose, I use the ISS Fan Club website at www.issfanclub.com/tracking. Enter your state and town and choose "All passes for the next 24 hours." You'll have enough information to plan your satellite DX sessions for the next day.

Tuning The Radio

The APRS station operates on 145.825 MHz. However, the ISS is a moving target and the radio signals are subject to the Doppler Effect. As the ISS approaches your location, the perceived frequency will be a little higher than the stated frequency and as the ISS moves away from your location the perceived



The ISS Fan Club website can help you schedule possible contact times for your location.

frequency will be a little lower. This presents a small challenge, depending upon the type of radio you're using, but I have worked through the ISS on an Alinco DR-135 radio using 5 watts and a J pole antenna without worrying about Doppler shifts. Some amateur transceivers can allow for continuous Doppler shift using software that calculates the speed and distance of the station relative to your location. For example, the Kenwood TS-2000 and Ham Radio Deluxe software can continuously vary both transmit and receive frequencies for a number of amateur satellites.

One way to handle the Doppler shift is to program multiple frequencies into the memory of your radio. You could program a frequency 2.5 kHz higher and one 2.5 kHz lower than the nominal frequency and then retune the radio as the position of the ISS varies in its transit.

The Fun Begins

You'll need to set up some basic information in your TNC or APRS software. Your callsign, typically MYCALL in most software, needs to be set. You can use -6, as in K2DLS-6 for an SSID to differentiate this as a satellite SSID if you want to. Other recommended settings include:

MONITOR ON—This allows monitoring of “unconnected” packets.

PACLEN 72—It is better to use short packets to communicate with the ISS.

UNPROTO CQ VIA RS0ISS-4—Tag unconnected packets to route via the ISS.

When the ISS is moving into line of sight with your location, you'll start to hear the same type of databursts that you heard earlier on 144.39 MHz on 145.825 MHz. This means that you're receiving the APRS packets. You should see messages in your terminal windows such as:

```
N0AN-6>APRS,RS0ISS-4*:=4205.48N/09400.76WS73' Via
Sat {UISS52}
W6MSU>APU25N.RS0ISS-4*::EMAIL :n6upg@verizon.net
VFC 113-10-03|10
N6UPG>CQ.RS0ISS-4*:=3441.40N/11807.36Wy73' Via
Satellite {UISS50}
N6UPG>CQ.RS0ISS-4*::Hello To All USCG Aux 1404
```

The first time around, your goal is to just send some packets up to the ISS and have them digied. The best way to do this is to put your TNC into CONVersational mode using the CONV command. Then, start typing. The best message is a short message, starting with your Maidenhead grid square. The simplest format to use is:

```
[FN20] 73 de Dan
```

The grid square locator, in brackets, will allow the APRS software used by stations monitoring the ISS digi to plot your approximate location on a map. Remember situational awareness?

You can send a short message like this a couple of times a minute while you hear the satellite overhead. But how will you know that the ISS received you? Well, you might get an answer back with the ISS digi, but you might not. However, you can check the webpage at www.ariss.net to see if your packets have been logged.

Having your packet show up on the ariss.net webpage is enough to qualify for a QSL, so don't be disappointed if you



QSL received for my APRS contact through the International Space Station.

don't get a reply from another ham on your first outing. The way to get the QSL is to send a card and an SASE with all the usual information to:

ARRL Headquarters
ARISS QSL
225 Main Street
Newington, CT 06111-1494 USA

Chatting Via The ISS Digi

Now that you have the basics down, let's take it to the next step. It's possible to have a quick chat session with someone through the ISS digi. Rather than roughing it with the text window, I enjoy using the UI-View32 message window. In the “To” field you would type CQ and in the “Digi” field you would type RS0ISS-4. Then type your message in the text field, press enter, and wait for a reply. A typical overhead pass might be no more than seven minutes, so you should not expect to have more than a quick exchange.

Instead of calling CQ, if you received a particular station, you could always use their callsign in the “To” field and acknowledge that you received them. Typically, you might send QSL de K2DLS FN20. This will let the station know that you received them. The grid square is traditionally the minimum exchange of information that would qualify as an actual contact.

More To Come...

APRS is a great data communication tool for transmitting short messages that can create situational awareness around location, status, and conditions. There are many ways to make contact with a satellite, but APRS through the ISS is probably the easiest for many, once you get through the basic software setup tasks. To get the QSL, you just need the ISS to receive and digipeat a single packet containing your callsign. You also don't have to be a ham to participate. There's no reason you can't channel the output of your scanner into a computer's soundcard to see the APRS messages or to plot them on a map.

There's plenty more to APRS, though. In an upcoming article I'll tell you about how the nationwide APRS network on 144.39 MHz is being used to track local weather conditions and how my local club is using it to monitor flood conditions on the South River in New Jersey. ■

The Signalink USB Interface— A Plug-And-Play Solution For Digital Communications Modes

Anyone who has experimented with receiving digital format signals by radio has undoubtedly experienced one or more of the difficulties that typically arise when you set out to decode digital signals using a radio and computer. Your sound card is incompatible with your software, or you don't want it tied up doing digital decoding. You have more than one radio you want to use and don't want to have to buy or build separate interfaces for each. Or perhaps you just don't want to pay a fortune for all the software you need in order to decode the numerous digital modes that exist (with new ones seemingly being invented daily). If this is the situation you've found yourself in, you'll find this article to be just what the doctor ordered.

Earlier this year, I purchased a Signalink USB interface (Photo A) from Tigertronics in Grants Pass, Oregon. This device, which costs less than some of the competing commercially available radio/computer interfaces (\$104.95 if ordered with a cable to fit Kenwood and ICOM radios using a 13-pin DIN accessory port; \$99.95 for everybody else), not only interfaces your computer to any radio, it also contains its own built-in USB sound card. That means that the sound card already in your computer is left free for whatever else you want to do with it.

How It Works And What You Get

The Signalink USB connects to your computer's USB port and is powered from the USB port so that no external power source is needed. All the necessary cables come with the device, including the USB cable, the cable to interface the

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



Photo A. The Signalink USB from Tigertronics. (All photos by the author)

Signalink USB to your radio, and a mono cable to connect to radios that don't have receive audio on the mic or accessory jack. Additional cables can be ordered if you have more than one radio and they don't use the same cable.

The mono cable can be used to connect the Signalink USB to an external speaker jack on a scanner or shortwave receiver, or if using a transceiver, the connection is made using the radio cable. This can be accomplished using a connection to a 4-pin round, 8-pin round, RJ-11, or RJ-45 mic connector, or you may instead order the radio cable to connect to a data or accessory port that uses a 5-pin DIN, 8-pin DIN, 13-pin DIN, or 6-pin mini-DIN connector. An un-terminated cable for radios that use a different type of connector is also available in case you have an unusual situation, such as wanting to build a cable for a handheld radio.

Also included with the device is a set of jumper wires that simply push into a

socket on the Signalink USB's circuit board. A software CD is also included with the device and contains jumper settings for the most popular radios. Settings for other radios can be determined by following the procedure in the included manual, or by contacting the Tigertronics tech support staff.

Since I have three Kenwood rigs (TS-450, TS-50, and TM-241A) that all use the standard 8-pin DIN microphone plug, I ordered this cable with my Signalink USB. However, since most of the time the device will be used with my TS-450, I also ordered the cable to connect to the TS-450's 13-pin DIN accessory jack. This allows me to leave the mic connected while using the Signalink USB to operate digital modes.

Simple But Powerful

Basically, once your Signalink USB is delivered, you unpack everything, open

the case using the supplied Allen wrench, and insert the jumper wires to configure the Signalink USB for your radio. You then put the cover back on, connect the device to your radio and computer, and run whatever software you want to use for operating the digital mode(s) you wish to use. That's all there is to it. This is as close to plug-and-play as it gets for operating digital modes.

You can select from a variety of software that comes on a mini-CD with the Signalink USB. Software for PSK-31, SSTV, MT-63, CW, RTTY, AMTOR and packet is all included on the CD. For CW, for example, I found that the included MixW works especially well the Signalink USB.

I chose to get a bit more out of my station though, and downloaded Ham Radio

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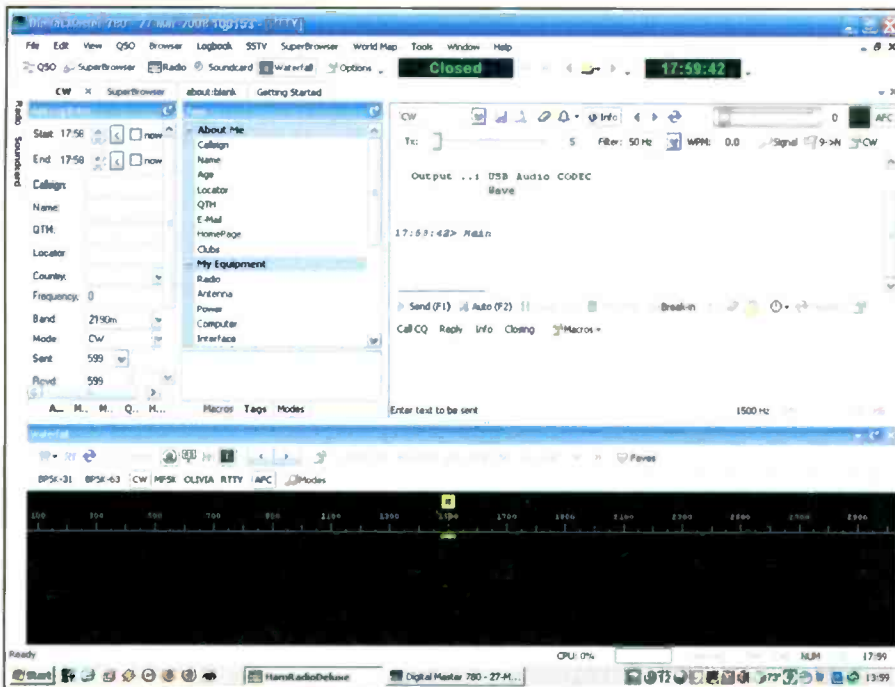


Photo B. Screenshot of Digital Master 780 set for CW operation

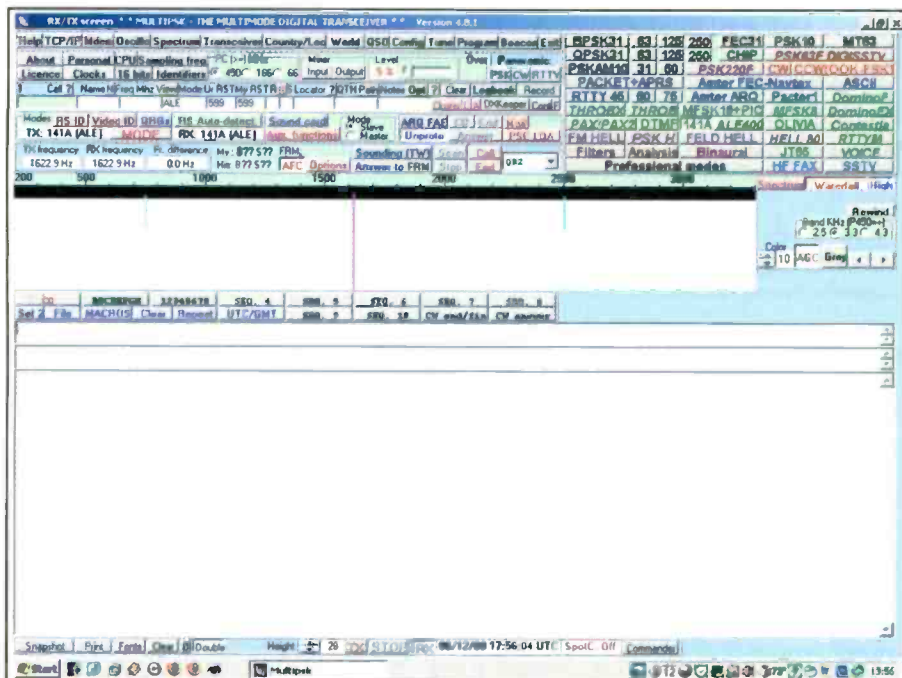


Photo C. Screenshot of MultiPSK set to decode MIL-STD-188-141A ALE

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"When everything is made this simple, there really is no longer any excuse for not trying the ever-expanding world of digital operation."

Deluxe (HRD). by Simon Brown, HB9DRV. This program, designed for Windows 2000 or higher, is free for hams, SWLs, and charitable organizations, is a suite of free Windows programs providing computer control for commonly used transceivers and receivers, including mapping, and also includes the digital mode program Digital Master 780 (DM780, see **Photo B**).

It's when you run HRD and DM780 and start using it with your rig and the SignalLink USB that this device begins to really shine. The program supports a staggering list of modes, including virtually every flavor of PSK, QPSK, CW, MCW, DominoEx, MFSK, MT63, Olivia, RTTY and Throb that I had heard of. It also supports automatic logging (with eQSL, ADIF, Cabrillo, callsign lookup and Google Earth interfaces!) and allows easy transmission and reception/decoding of all these modes.

Interface your rig to a serial port for rig control and HRD/DM780 will even tune your radio and provide full rig control. You can even set up HRD to allow remote control of your rig via an Internet connection. I tested this with the assistance of Tom Shaffer, KB2URI, of Buffalo and was able to *fully* control Tom's Kenwood TS-480 (which also happens to have a SignalLink USB attached) from the comfort of my own shack, just as if I had been sitting in his shack with the rig right in front of me.

A Slight Snag And A Quick Fix

The one thing I wanted to do that I could not do with the SignalLink USB using the HRD/DM780 setup was decode ALE, because the current version of the program does not support this mode. Still, I wanted to see if it was possible to decode ALE using a SignalLink USB, and since I did not want to have to join yet another Yahoo e-mail group in order to be able to download Charles Brain's program, PC-ALE (there already being too many unread messages in my inbox), I instead downloaded MultiPSK by Patrick Lindecker, F6CTE (see **Photo C**).

Using the free version of MultiPSK, I was able to decode the MIL-STD-188-141A flavor of ALE used by U.S. (and other countries') military and government stations (the program also decodes ALE400, which is used by hams) using the SignalLink USB. The only hang-up was that I had to reboot my computer after having used HRD/DM780 in order to get MultiPSK to fire up. Apparently, once HRD/DM780 have been run on my computer, the sound card input remains "tied" to HRD/DM780 and cannot be released for use by MultiPSK (when MultiPSK is started, it pops up a window stating that the sound card input is in use by another program, and disallows entry into MultiPSK's TX/RX screen).

Simply rebooting the machine cured this, and upon restarting MultiPSK after the reboot, everything worked fine. I don't know if this is an issue with the hardware, the software, or the version of Windows that I'm running, but since it's easily enough remedied via a reboot, I didn't worry about it much.

It's A Winner

In conclusion, for less than it would have cost me to purchase an interface without an internal sound card from one of Tigertronics' competitors, the SignalLink USB, in combination with the free HRD/DM780, MultiPSK, and the software on the mini-CD included with the SignalLink USB, has armed me with everything I need to transmit and receive in a plethora of HF digital modes with either of my two HF rigs, as well as AX25 packet and most anything else I may want to try on 2 meters using my TM-241A.

I can also use the same interface, connected to a scanner or a shortwave receiver, to decode digital signals without using a transceiver—and all the software I needed to do all this was either included or available for free just by downloading it from the Internet.

When everything is made this simple, there really is no longer any excuse for not trying the ever-expanding world of digital operation.

More information on the SignalLink USB can be found on the Tigertronics website: www.tigertronics.com. Information on HRD/DM780 can be found at, and the program downloaded from: www.ham-radio-deluxe.com/. And MultiPSK, which supports a variety of modes besides ALE, can be found at:

http://f6cte.free.fr/index_anglais.htm.

A Cheap And EZ HDTV Antenna Project

Here's an inexpensive way of helping along that new Digital TV converter you just got with the government HD converter coupon you requested. And the good news is that this antenna (**Photo A**) is not limited to just DTV, but will also work well with the UHF low-power analog and translator stations which are not covered by the new laws (see "Countdown to Digital Television" elsewhere in this issue for more on the topic).

Haven't gotten a converter yet? First make sure you pay a quick visit to www.dtv2009.gov, fill out the on-line form, and in a few weeks you'll get your coupon for \$40 toward the purchase of a converter. Not connected to the Internet? Then you can call 1-888-DTV-2009 (1-888-388-2009) and apply for a mail-in form. The HDTV coupons work like credit cards and are tracked by address, so you can apply for your parents, grandparents, great aunt, etc. Just use their address to help them get ready for the switch over.

As I mentioned last time, when choosing your converter you really want a model that has an antenna bypass switch. The cheapest converters usually don't. And that automatic antenna

switch is worth a few extra bucks. As with your VCR, when you turn off the VCR, it connects the cable or TV antenna back to the TV set. Many of the low-cost HDTV converters saved a few pennies by leaving off the antenna switch, but remember, *not all the analog stations are going off the air*. Stations running 10 kW ERP or less are not required to go off the air. And, while the government plans to auction off TV Channels 53 to 68, not all of those channels will be going off the air. Many of the low-power and translator TV stations get to stay on until the new owner actually starts to use the frequency. And that may be a long time in some parts of the country.

Theory

Yagi-type antennas are limited in how wide a frequency range they will cover, so I'm pulling several tricks on this one. At the low end of the band, we have the driven element and the longer reflector. Down at 470 MHz for TV Channel 14, this is basically a two-element Yagi. The directors are pretty short at TV Channel 14 and are helping a little bit, but not much. Up at 700

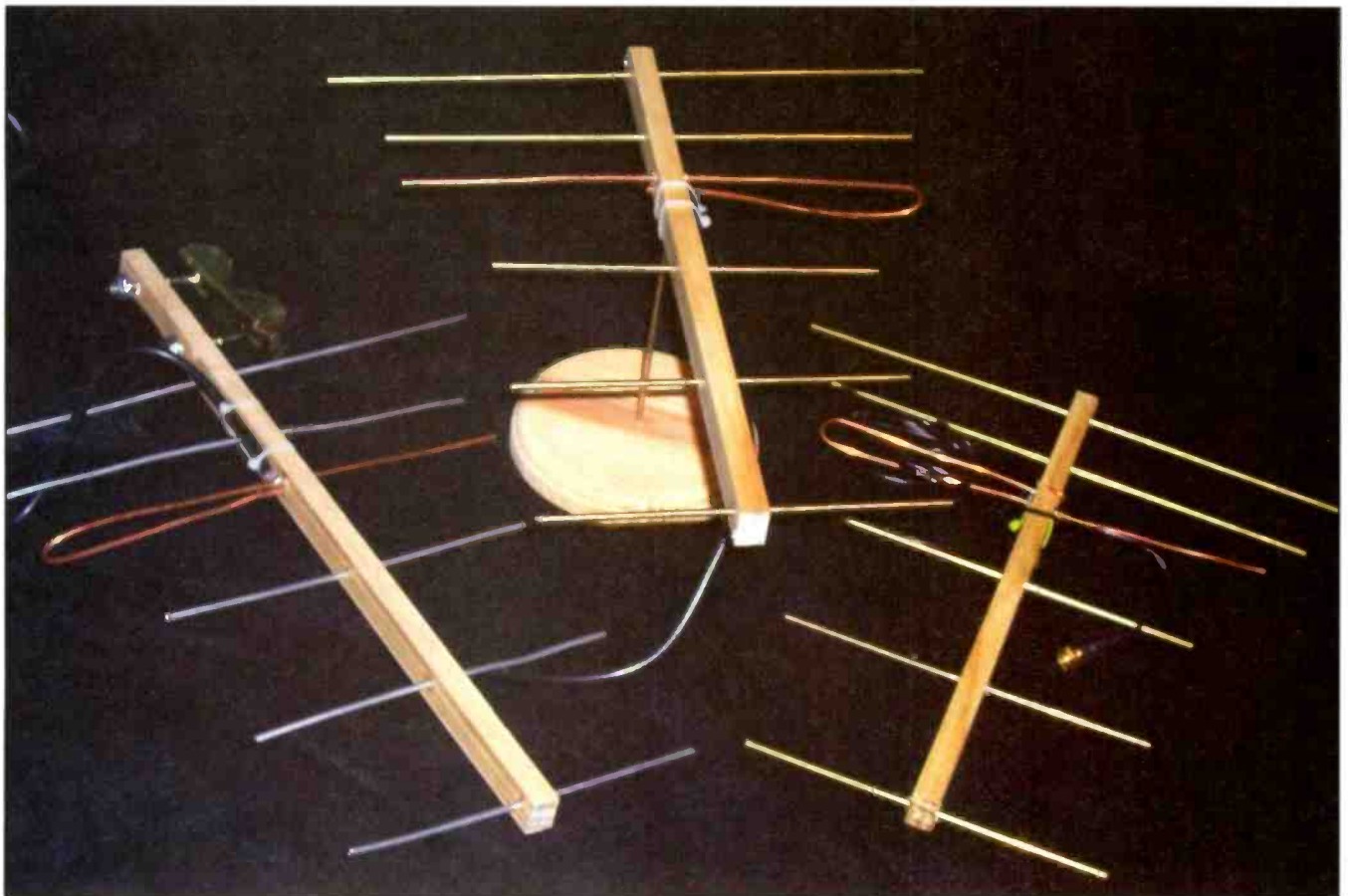


Photo A. Easy-to-build HDTV antennas.

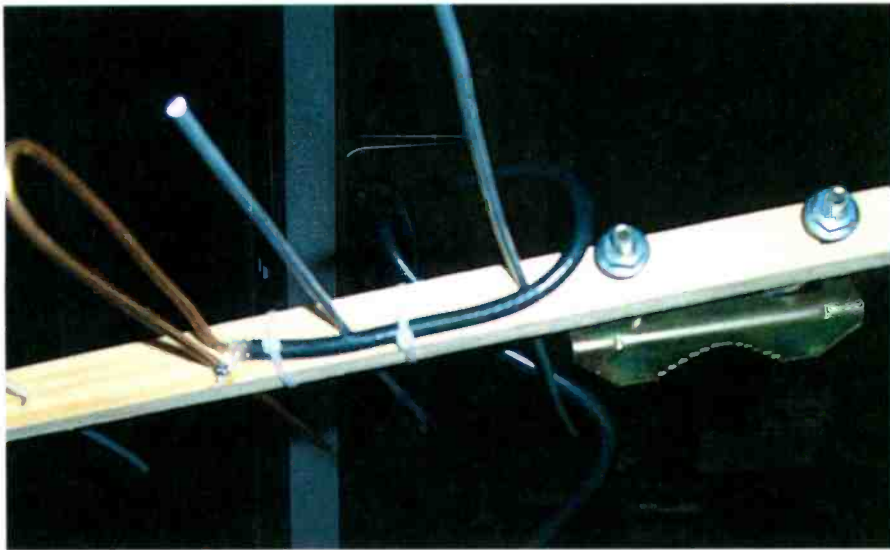


Photo B. Close up of the coax connection.

MHz for TV Channel 58, the reflector is too long, and too far back, so I've added the second reflector element, which is tuned to the higher end of the band.

The three directors are now doing their job and really helping the gain of the Yagi. This means the antenna has more gain at the UHF channels in the 50s than it does in the teens, but this works out just fine. As you go up in frequency the signal has more path loss and the walls of the house have more loss. And even the coax itself

has more loss as you go up in frequency so the extra gain is put to a good use.

Figure 1 is the pattern of this Yagi at 476 MHz for the low end of the band, and **Figure 2** is the pattern at 700 MHz.

Construction

Figure 3 shows the lengths and spacings for the elements. The elements can be made from almost any rod material

about 1/8 inch in diameter. You can use #10 to #12 copper wire, aluminum ground rod wire, tubing from a hobby store, or, my favorite, bronze welding rod as element material. Desperate? Clothes hanger wire can even be used, but find some rod or wire made out of brass or copper for the driven element (it's kind of hard to solder coax to iron wire).

With an antenna this broad, element diameter is not as critical as it would be for single-frequency Yagis. For the boom I used 1/2-inch wide wood. Wood dowel also works. I know several of you will also ask about PVC pipe. Personally, I don't like it, and it will look pretty ugly on the TV set, but, yeah, it works. Just paint it black or something!

Again, I want to stress that the driven element needs to be made from copper or brass so you can solder the coax more easily. The element spacing is designed to allow the driven element to directly drive 72 Ohm coax (**Photo B**). Now you can use that old RG-59 or RG-6 jumper with only one good end. Dimensions for the driven element are given in **Figure 4**.

Use

For one version I made a small pedestal to get it up off the shelf a bit since

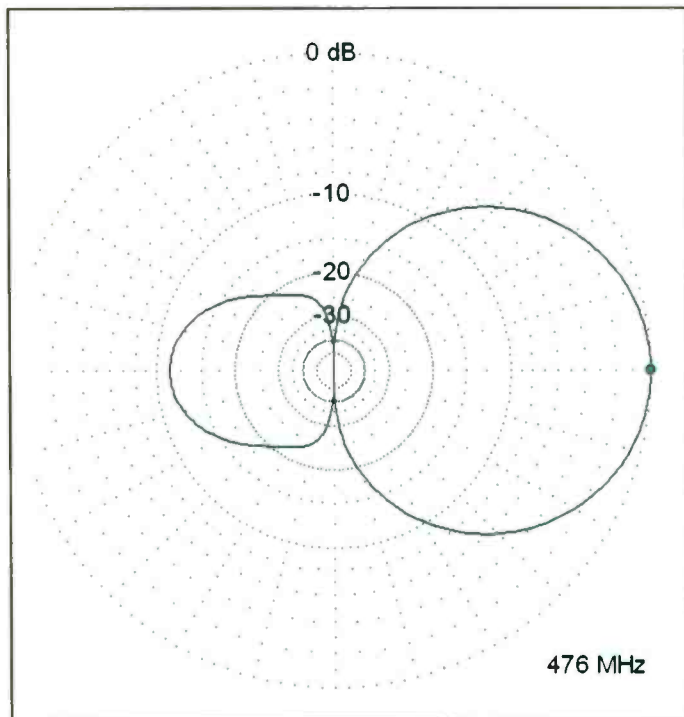


Figure 1. EZ HDTV pattern on UHF TV Channel 14.

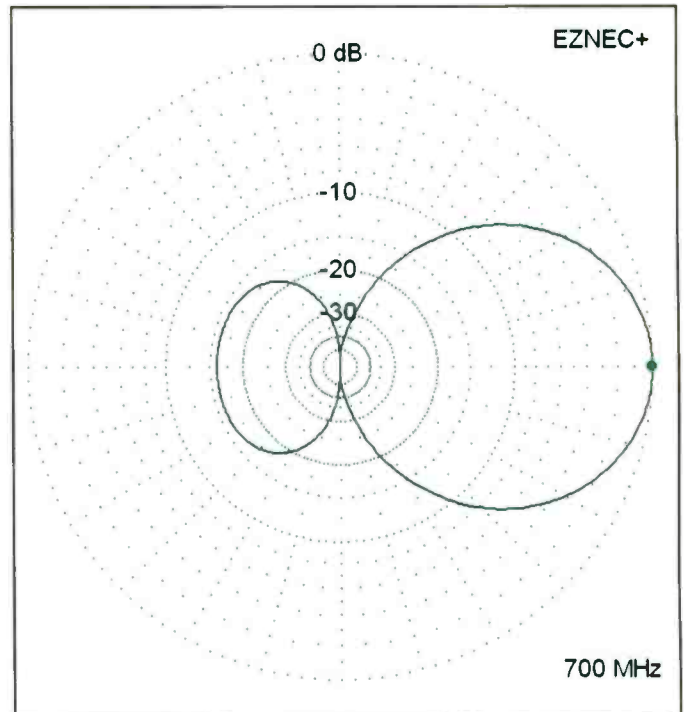
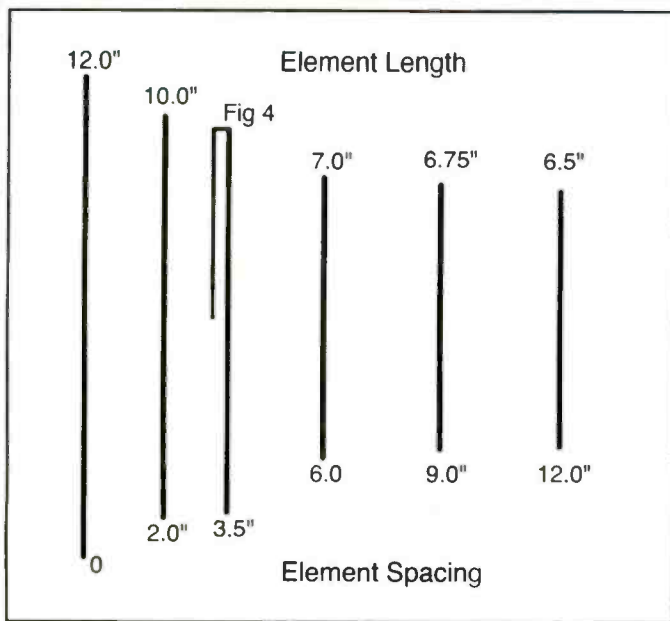


Figure 2. EZ HDTV pattern on UHF TV Channel 52.



← Figure 3. Element lengths and spacings.

metal a few inches from the elements can detune the antenna. For another version I made the boom several inches longer and drilled holes for a U-bolt so I could attach it to a mast. But I must confess that mine is really in the attic sitting on a cardboard box. The box got the antenna a foot higher and away from some electrical wires. Again, remember to point the end with the shorter elements toward the TV transmitters.

Figure 5 is a spectrum analyzer plot of one of the prototype's coverage of the UHF TV band in the Dallas, Texas, area. It shows us virtually "channeled out." At last count only two channels do not have a signal, so the band is pretty busy. Figure 6 is a plot of a local UHF analog TV signal. On the left side is the Video carrier; the noisy area is the video signal and over on the right is the Audio carrier. Down and almost in the noise is the Chroma carrier. Kind of weak isn't it? Now you know why the picture fades back to black and white when the TV signal is weak—the TV loses the color signal.

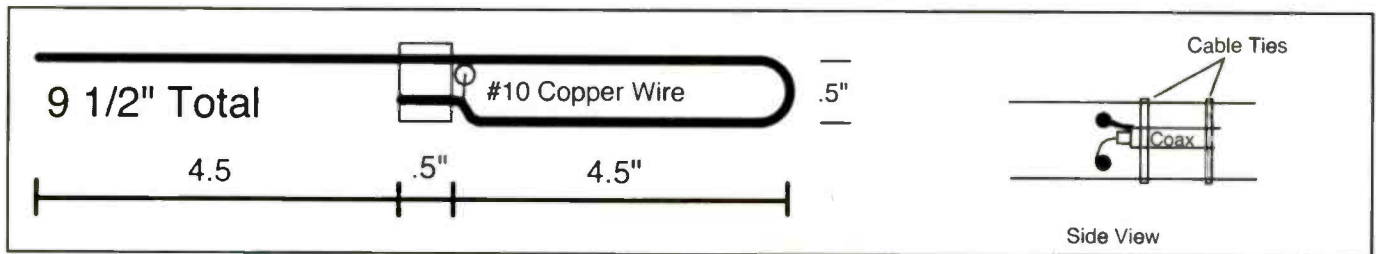


Figure 4. Driven element dimensions.

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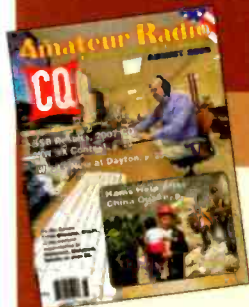
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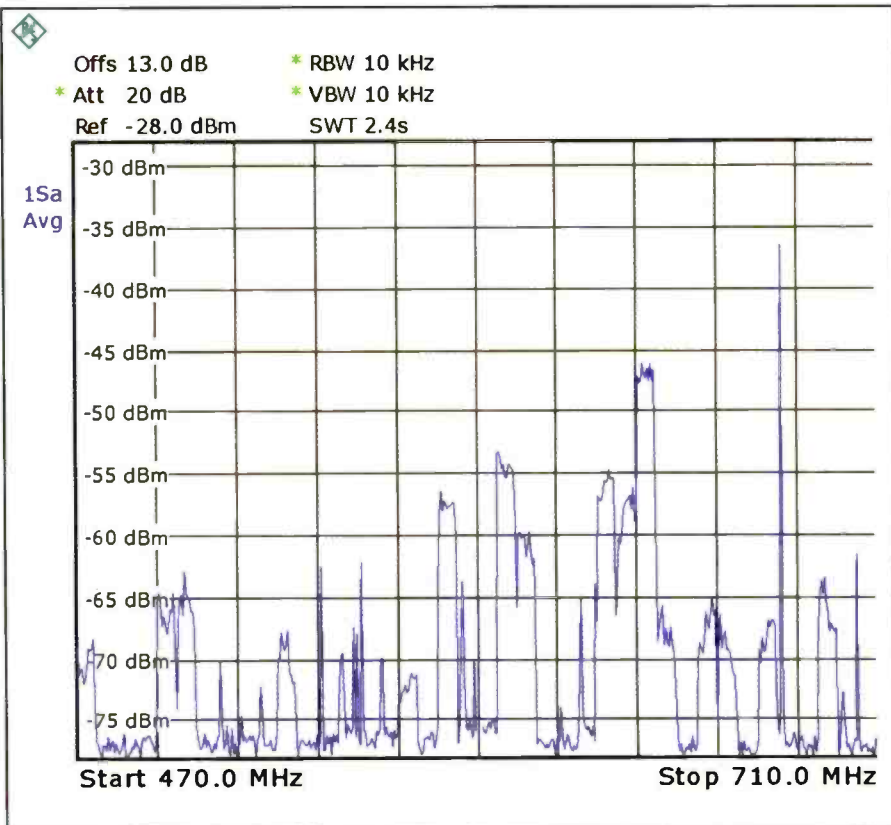


Figure 5. Dallas area UHF TV band.

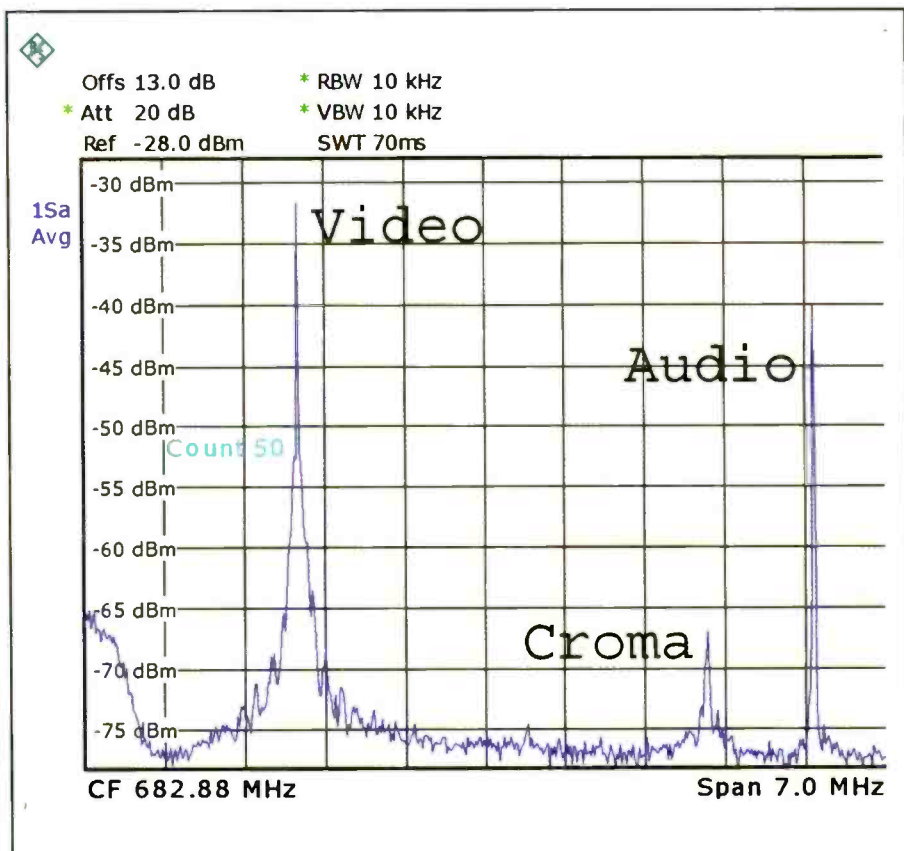


Figure 6. Spectrum analyzer plot of an analog TV signal.

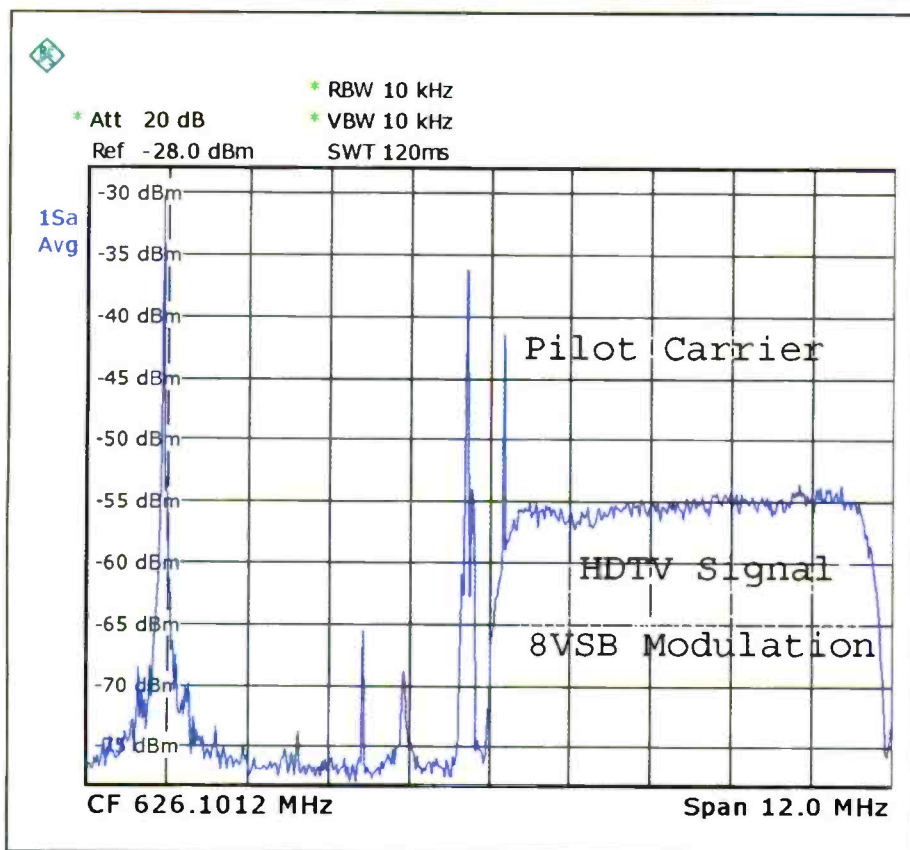


Figure 7. Side-by-side analog NTSC and digital 8VSB.

In **Figure 7** you see the HDTV signal which uses 8VSB modulation (again, refer to the "Countdown..." feature for more information and explanations of unfamiliar terms). In the industry this waveform is affectionately called a "Bart's Head" since it looks like Bart Simpson's hair. You can clearly make out the Pilot carrier. This reference carrier for your 8VSB demodulation chip is exactly 309,441 Hz, or 309.441 kHz above the bottom of the channel. This carrier is specified to never have a frequency error exceeding 3 Hz, so they make great calibration standards for wide-band receivers and even spectrum analyzers. Just put your ICOM R-7000 or similar radio in SSB mode and zero beat the carrier. As an example, TV Channel 14 is assigned 470 to 476 MHz. The Pilot carrier for HDTV Channel 14 would be 470.309411 MHz, and usually with less than 1 Hz of error.

There are several mathematical ways of measuring NTSC and 8VSB power, but the 8VSB transmitters are running 14 to 17 dB less power. That means the digital transmitters only need 2 or 4 percent of the power to get the same coverage as an analog signal requires—that makes a big

difference in the station's power bill at the end of the month. I saw one VHF HD 8VSB transmitter covering an entire major population center, and it just plugged in the wall.

At the moment I don't know how those in charge plan to transition channel numbers. In this area analog TV Channel 8 uses Channel 9 for its digital signal, but TV Channel 2 uses Channel 43 for its digital signal. Over 95 percent of the digital stations are on UHF, but there is no rhyme or reason to the channel allocated for the analog's digital signal. Your HDTV or TV converter figures all this out, but there are few channel lists. However, for a list of available TV channels in your area, and recommended antennas, visit www.AntennaWebb.org.

Until Next Time

As always, we appreciate your questions and suggestions for column topics. Just drop me an email at wa5vjb@cq-vhf.com or you can visit www.wa5vjb.com for other antenna projects. You, our readers, provide some of the best topics for columns. ■

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Things That Go Beep In The Night— Tone Controls

Signaling tones are used in all kinds of ways throughout the communications industry. As we move forward into a digital age, it becomes less about tone and more about protocol, but the basic idea is to use a radio signal to cause some event to happen, whether that's opening a garage door on the fire house or just opening the squelch to allow the correct signal through. The squelch application turns out to be by far the most common type of tone signal on the air as it prevents unauthorized users—otherwise known as interference—from being received.

As radio listeners we hear tones constantly, but how many of us ever give them much thought? So this month we take a look at (listen to?) this fundamental, but little considered, aspect of the hobby.

Audible Tones

In the good old days, you could remotely control a device by simply setting up a receiver, and then if it heard a signal on a particular frequency a switch was activated. This worked pretty well until garage door openers became so common that one click on the remote would open several of the neighborhood garages. Obviously, some kind of password system was needed.

It turns out that it's fairly simple to build an electronic circuit to not only monitor a frequency, but also to monitor for a tone, or a pair of tones. The most common of these systems is the DTMF (Dual Tone Multi-Frequency) tone system that's used by the touch tone pad on every phone device. These tones are actually made up of two tones, and if you listen closely you can hear both the individual tones and the mixed product of the two. If you go across one of the rows pressing the buttons, you'll notice that one of the two tones stays the same; and if you go down a row, the same thing happens. The mixing of the two unique tones produces a multi-tone that the phone equipment (and radio equipment that also uses this system) can listen for.

The point is that the tones we can hear are used for lots of things. In its most basic form, an audible tone can simply be used to let those listening know that there's something important coming or that an important situation is underway. The beep that many police departments put out just before an all points bulletin serves just this purpose (i.e., if you weren't paying attention to the radio before, you should now because there's something important about to be said). Our local police also use a "situation" tone that beeps every 30 seconds or so to let everyone know that there's an emergency and any non-essential traffic (like license plate checks) should be held or taken elsewhere.

These tones that serve as a warning or a "pay attention dummy" signal are meant for human consumption. Unlike the signaling tones that are used to control phone equipment or garage doors, there is no circuit listening for the correct tone to activate.

Tones have all sorts of uses in electronics in general, and in two-way radio in particular. By building a device that listens for a particular tone or sequence of tones, you can effectively get



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If you're looking for CTCSS/DCS decode as a feature, it will almost certainly appear listed, as it's still rare enough that the manufacturer will want to call attention to it. It's listed right under trunking on this BC-246 Trunktracker packaging.



CTCSS used to be optional even on the high-end receivers. The AOR AR-8200 requires an external card be installed for it, as did many early Uniden models. And they weren't all that easy to install, either.

remote control of that device. The simplest form of tone control is probably that used by the old tone-based pager that came out in the early '60s. This was essentially a radio receiver that listened to only one frequency and waited for its special tone to be broadcast. When it detected that, the receiver would open its squelch and the next part of the transmission was the actual message, say "call your office. Bob."

With the more sophisticated circuitry in today's digital era, audible tones may also contain data. Some good examples of this include the emergency call button on many police and fire handheld transmitters, or telemetry data sent back from satellites or transmitted via shortwave (or by local sources in some cases). In any case, such a tone is probably not a pure one, but will have some changes in it as it's broadcast. Those changes (for instance, cessation of the tone or replacing one tone with another very rapidly) represent the encoded data to provide information so that, say, the dispatcher knows which radio pressed an emergency button or what the temperature of the spacecraft is just before it crashes into Mars. If you tune to the frequency these devices are using, you'll hear an audible tone, although you may not know its meaning.

Tone Squelch

Not all tones are audible. In fact, probably most of the tone control systems are now based on tones you don't hear on your scanner. They're used for all kinds of purposes, from simple operator convenience to the basis of the operation of trunked radio systems. These tones are called sub-audible tones.

CTCSS, or Continuous Tone Coded Squelch System, is sometimes known by

the trade names of Private Line (Motorola) and Channel Guard (GE). Other alphabet soup tone examples include DCS, for Digital Code Squelch, and DPL, for Digital Private Line. Many public safety systems use these, and they are becoming much more common for ham radio and other two-way radio systems. If you've looked at FRS or MURS radios, you'll have noticed that some of them offer a "Privacy Code"—that's probably a CTCSS sub-audible tone.

With CTCSS, the receiver doesn't simply wait for a signal to appear, but rather is "looking for" the correct tone. This tone that is transmitted below the level of our hearing, or filtered out by the receiver, acts like a "password" and says to the receiver "this signal is for you." Any interfering signal, or even other users on the same frequency who don't have the password, won't get through.

Most, though not all, two-way systems in the VHF range use one of the two systems, and many on UHF do as well. Trunked systems have a control channel and another type of password system used to help them control interference.

It's this CTCSS and DCS feature on scanners that prompts the most email. For those readers who want to know what it is and how to use it. Well, there are two things you can do with CTCSS or DCS information.

One is to use it just like the two-way folks: to stop interference from getting through to your receiver. If you've got a situation where two stations share a frequency, or you're getting interference from an adjoining or nearby transmitter, a CTCSS- or DCS-equipped scanner can be a real lifesaver! Of course, for this to work, the agency you're trying to listen to has to be transmitting a CTCSS or DCS



Handhelds are not left out of the tone fun. Many high-end receivers, including the PRO-96 from RadioShack, now include this feature.

signal, or there won't be anything for your scanner to use as the password.

The other thing you can do with sub-audible tones is use them to help in identifying the station you're hearing. If your scanner can identify the tone (or through trial and error you find out what it is) you'll have more information about what's "normal" in your area. At a minimum, if the station you typically listen to uses a tone of 103.5 and you suddenly start seeing 123.0 tones show up, then you know that you're receiving something out of the ordinary.

Locating Tone Information

Once you have a tone reader, or CTCSS-capable scanner, you have to find the tone information for the channels you're interested in. There are a number of public safety agencies that don't yet use CTCSS or DCS, but most do, especially in larger metropolitan areas, and particularly agencies that still use the VHF and UHF bands. Conventional 800 MHz systems are likely to use tone, but trunked systems do not as they rely on the central controller for receiver control.

You may get lucky and be able to find the tone information published, or you may have to do some detective work to find it. If you have a reader, you can just sit back and wait, because the reader will

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Trunking systems are controlled completely by data, much of which is transmitted sub-audibly. The BC-246 has a setting to listen for the end of the transmission tone so that the receiver shuts off before the squelch tail. The pros use it...why shouldn't you?

report them to you. Of course, once you find the info, you should send it into *Popular Communications* so we can publish it and save everyone else the work.

Other Tones

If you've ever stumbled across the control channel for a trunking system when you weren't using a trunking scanner, you'll have heard a lot of tones, or data to be more specific. Of course, the trunking radios have controls to make sure that the users of the trunked system never have to hear that racket, and if you're using a trunktracker it will eliminate the din for you as well.

There's another "tone" that you may encounter in your hobby travels. Trunked radios send out data constantly, even on the voice channels. This low-speed data contains information about talkgroups and other users and works very much like a digital tone squelch in a trunked system. Newer trunktracker scanners have a control for the End Code detect (data code sent by a sub-audible tone), which is sent by the controller over the voice frequency (in the slow-speed data stream) to tell the radio that the transmission is complete and it can return to the control channel. This helps pick up the next call sooner and also makes sure that the user doesn't have to hear squelch tail or other artifacts.

On some of the newer scanners you

can choose to ignore this sub-audible control and stay on the channel until the carrier drops. You'll have to experiment with your local system to see what works best, but on some systems this helps you hear more of the reply transmissions; on others it has little effect.

An Ear To The Future

Of course, we've now crossed the line from a pure tone to a data stream—encoded data that's sent digitally with the voice information. In the digital age, this will become increasingly common, and the level of sophistication of the equipment involved will continue to rise. There are many channels devoted exclusively to data transmission (like cellular control channels and high-speed data channels on the cell network, just to name a couple) and that will also become more common as time goes on.

A large portion of the just auctioned 700 MHz spectrum will be dedicated to digital communications (mostly cell phone-type services), but if it's digital what difference does it make if it's digits that make up a voice transmission or digits that carry text information? Or control information? It will be most interesting to see what happens as this hobby of listening to communications continues to evolve.

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 that lucky winner a free one-year subscription, or extension, to *Pop'Comm*. I have to remind you, though, that we also **NEED** your address when you send in your entry. We can't very well put you in for a free subscription without that, and I'm still trying to track down this month's winner because he didn't include it. Don't forget that address!

Our frequency this month will be **456.175**. Have a listen and let us know what you hear. Please be sure to put the frequency in the subject of your email, or on the outside of the envelope so it can be handled correctly. You can send your info to radioken@earthlink.net, or via snail mail to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126.

DXing On The Inside: Inmates Escape By Radio

A special connection exists between broadcast DXing (the art of long distance radio broadcast listening) and those who are paying their debts to society behind bars. Here's a behind-the-scenes visit with three broadcast DXers currently serving time in prison. Although their accounts are real, only the first names and associated correctional institutions are cited in this piece at the request of the individuals. Now let's take a look at what it's like DXing on the inside.

Introductions

Eric and Gerry are currently inmates at the Federal Medical Center in Devens, Massachusetts (FMC Devens). Kevan is serving time at the Airway Heights Corrections Center in a suburb of Spokane, Washington. Eric and Kevan had similar radio backgrounds before circumstances led to their long-term incarceration, which helped them discover broadcast DXing as a way to pass the time and remain connected to the outside.

"I was 12 years old when I returned an old transistor radio, picked up Radio Nederland, and was hooked," reminisced Kevan. "My first real shortwave receiver was a RadioShack Globe Patrol kit. It was a lame little radio, but for a kid it worked. Over the years I got out of shortwave, into VHF and UHF scanning, and eventually got my ham ticket, which expired while [I was] incarcerated. My favorite mode was digital. I did a lot of packet radio, some APRS, and even worked the International Space Station on packet and voice once. In here my options are limited. However, I've found DXing the AM broadcast band to be entertaining and I plan to continue, but with a better radio upon my release. Now the new ultralight DXing craze has me feeling like I'm connected to the real world again. I've been ultralighting for over three years now." (See "Broadcast Technology," May 2008 *Pop'Comm*, or point your browser to www.dxer.ca to learn more about the ultralight DX phenomenon.)

"I've been involved with radio since I was a kid," said Eric of his background. "At one time I was even a licensed amateur radio operator, although mediumwave DXing specifically is still relatively new to me."

Gerry didn't have a radio background, but thanks to Eric demonstrating the camaraderie typical of the DX community, Gerry caught the DX bug. "I met Eric when we were both in jail at Lincoln County, Missouri, in 2005," recounted Gerry. "At first I thought he was a crackpot, talking about getting radio stations from other states and different countries. My first QSL came from 1070 CBA Moncton, New Brunswick, and I was hooked. Then I was transferred to USP Leavenworth, Kansas, for two years where I was unable to DX. Eric and I also lost contact. Upon being transferred to FMC Devens, I bumped into Eric at the prison hospital where our friendship was renewed. Being a fellow DXer and good friend, Eric bought me a Sony SRF-M35MP Walkman along with Koss R/10 headphones, a pack of batteries, *World Radio TV Handbook*, and notebook to help me get started DXing again. I think he regrets getting me started though, as I've surpassed him with over 130 stations logged and a total of 13 QSLs."

Overcoming Obstacles

DXing on the inside has its own unique set of challenges. Different prison systems have different rules. At Airway Heights, male inmates are not allowed to use batteries, so radio listening is basically limited to inside a jail cell with access to an AC outlet. "At 'Their Way Heights' as inmates like to refer to this place, it's all AC," lamented Kevan. "Outlets are limited and far enough from the bunk that I had to purchase a four-outlet power strip to give me some additional length to get the radio into the 'sweet-spot' in my cell. You try everything to improve reception. Bedframes work [as antennas] but they also increase interference. One learns to hold the radio up at odd angles for long periods of time to



Gerry and Eric, broadcast DXers on the inside. (FMC Devens photo)

keep the local signals nulled. Any modifications to a radio will subject it to confiscation, including removal of a little sticker that prevents the opening of the battery compartment."

Batteries are required at FMC Devens because none of the radios have AC adapters, making DXing an expensive proposition. "The general public probably has no idea that prison wages are paid out at pennies on the dollar," said Eric. "Here it's typically 12 cents per hour, so a 4-pack of AAA batteries sold at \$2.20 works out to 12 hours of labor. It's crazy. You really can become a slave to the DX hobby."

"Each letter and self-addressed stamped envelope represents four hours of labor," added Kevan regarding the cost of something as simple as writing a reception report, "and most stations ignore letters from inmates. Out of 24 attempts, two replies, CKWX Vancouver and KEX Portland, Oregon. KEX enclosed a balloon and small magnet, both items confiscated by the mailroom. It took months to save enough money for my copy of the *NRC AM Radio Log*. One has to have dedication to DX in prison."



FMC Devens on the outside. (Author photo)

World Radio TV Handbook for about \$8 last year from Edward R. Hamilton. Inmates earn so little money that the luxury of a new copy is a fantasy!"

Prison Radios

Radios made available specifically for prisoners are housed in a clear or translucent chassis for easy inspection by security. "I bought a Sony FX271FP Walkman a few years ago," said Kevan. "It appears that the clear case is a third-party modification as it cannot be sent back to Sony in the event of a problem. Only two radios are currently available for purchase, the Sony DFJ003FP Walkman for \$64.20 or a reconditioned Memorex MP3227 boombox for \$67.20 plus sales tax."

"Currently the Sony SRFM35FP Walkman is the only model offered at FMC Devens," said Eric. "Years ago it was the Sangean DT-110 clear-case model, many of which are still around. However, due to the Bureau of Prisons' multitude of institutions and inmate transfers a vast assortment of other makes and models also appear in this institution, including Sony SRF-37, 39, and 59 models, along with radios from Coby and other manufacturers. We are not permitted to have any radios sent in from the outside."

Broadcast DX Targets

Despite the overwhelming odds, broadcast DXing can be a very rewarding

There are time limitations as well. "The best time for DXing is early morning before the dayroom lights get turned on at 5:45 causing major QRM," said Kevan. "Also TVs start coming on around 6 a.m. at the time of top of the hour station identifications. The fly-backs in the TVs are extremely noisy at startup. DXing at night while the cellie is trying to sleep is not polite as the light would have to be on and I'd make noise with the logbook pages. Not cool. So most of my log entries are 6 to 9 p.m. or 4 to 5:30 a.m."

Battery operation gives Eric and Gerry a little more flexibility. "We are not allowed to use our radios during work assignments or while in the dining hall where reception is presumed to be horrible anyway," said Eric. "We are allowed to remain outdoors until around 8:30 p.m. The DX always seems better outdoors with less structural obstructions."

"Because we are not allowed to take our radios into the chow hall, the idea of dinner and music is out of the question," Gerry joked, "You can however cook in your dorm room. Our irons make really good grilled cheese sandwiches, but you did not hear that from me." Eric also commented about "a mean grilled cheese sandwich."

While on the topic of batteries, Eric suggested, "When dropped on a linoleum floor, triple-A batteries tend to bounce if depleted. Charged batteries tend to fall flat. It's true! It comes in very handy when you have no test equipment and need to do a quick check."

Airway Heights is one of many correctional institutions that no longer allow donations of published materials of any kind from the general public, a policy that is being challenged as a freedom of speech and freedom of the press issue. Security is cited as the primary reason for the restriction because some inmates have found quite inventive methods of smuggling contraband into prison. "Books that come to the inmate have to come directly from the publisher or retailer like Amazon or Edward R. Hamilton," said Kevan. "In fact I was able to buy a 2006



An assortment of ultralight radios available in a clear chassis for prisoner use. (California Substance Abuse Treatment Facility catalog)

pursuit while in prison. "During mail call when I receive a QSL, everyone wants to know from where," exclaimed Gerry, "When I get a QSL from their hometown station, I think they get more excited than I do!"

"I like the graveyard frequencies because it's hard to get a steady signal and I enjoy the challenge," said Gerry of his favorite DX targets. "I also like the X-band because when I do get something there, it's usually from far away. When I'm not DXing, I listen to 'Coast-to-Coast AM' on 940 CINW Montreal and 'The Twilight Zone' on 1500 WWWT Washington, D.C. The furthest station QSLed is 1630 KCJJ Iowa City. My most prized QSLs are from 1070 CBA New Brunswick, which is no longer on the air, and hometown radio station 1120 KMOX St. Louis. I can usually receive signals from Nova Scotia to Florida, along with Cuba, the U.S. Virgin Islands, and the Midwest."

The graveyard frequencies—1230, 1240, 1340, 1400, 1450, and 1490 kHz—are so-called because they're the most congested on the AM broadcast band. There are over 170 radio stations on 1230 kHz in the U.S., for example. Conversely, the X-band, short for the expanded band frequencies from 1610 to 1700 kHz, is the least congested segment of the AM broadcast band.

"What do I enjoy listening to the most?" asked Kevan rhetorically, "I guess it would be 'The Twilight Zone' or old-time radio shows like 'Dimension X.'" Kevan submitted a list of favorite catches from his Airway Heights log, "DXing barefoot behind steel reinforced cinder blocks and under a metal roof." They are:

540 CBK Regina, SK
 660 CFFR Calgary, AB
 660 KTNN Window Rock, AZ
 760 KKZN Thornton, CO
 770 KKOZ Albuquerque, NM
 1030 KTWO Casper, WY
 1180 KOFI Kalispell, MT
 1220 KNTS Palo Alto, CA
 1370 KXTL Butte, MT
 1390 KLTX Long Beach, CA
 1600 KOHI St. Helens, OR
 1700 XEPE Tecate, BCN

Eric also enjoys listening to "Coast-to-Coast AM" and episodes of "The Twilight Zone," plus "National Geographic Weekend." "I suppose in a nutshell I enjoy listening to anything strange or unusual, and if it's a mystery then I try my best to solve it." Eric listed 1550 WMRE West

Virginia, 1620 WDHP St. Croix, and 1700 KVNS Brownsville among his best catches.

Upon personal reflection, however, Eric concluded, "I've always liked to travel yet in my current situation obviously I can't go anywhere. DXing allows me to go to many far away places in a sense without actually leaving the prison grounds. Scanning the dial is like traveling. The *NRCAM Radio Log* is like a road atlas and the QSL cards like postcards of where I've been on my trips. I've always liked radio but in my current situation it takes on this

extra dimension. It's like my vacation from everything else in here. I can close my eyes and be someplace else."

With that sentiment, the following from *Oh, the Places You'll Go!* by Dr. Seuss (Random House, 1990) seems appropriate; "Congratulations! Today is your day. You're off to Great Places! You're off and away! And will you succeed? Yes! You will indeed!" Thanks to Eric, Gerry, and Kevan for sharing their experiences while DXing on the inside.

Until next time, 73 and Good DX! ■

Pop'Comm September 2008 Reader Survey Questions

This month we'd like to ask you about the digital TV transition. Please use the Reader Survey Card and circle all appropriate numbers. Thanks for participating.

Were you aware of the upcoming digital TV transition?

Yes 1
 No 2

Do you understand what is happening and why?

Yes 3
 No 4
 Not sure 5

What type of TV do you presently have?

Analog 6
 Digital 7
 Both 8
 Not sure 9

Will you be affected by the transition?

No, I have a pay subscriber service 10
 No, I have a TV with a built-in converter 11
 No, I can watch translator or low-power stations 12
 Yes, I receive analog free TV through an antenna 13

If you will be affected, have you applied for/received your TV converter box coupon?

Yes 14
 No 15

Have you purchased a converter box yet?

Yes 16
 No 17

Have you installed a TV converter box yet?

Yes 18
 No 19

Do you plan on changing your antenna?

Yes 20
 No 21
 Not sure 22

If you're currently watching digital TV do you think it's worth all the fuss?

Yes 23
 No 24
 What fuss? 25

Radio's Old Time Way To Let Everyone Have A Say...And Do So Very Politely



“Except for maybe emptying the trash, I’ve got nothing to do and all day to do it,” my Grandpa Wilkinson loved to announce. Whenever I’d spend my school vacations at his Otis Reservoir, Massachusetts, cottage, he would start each morning with that motto and a brief wakeup sing-a-long in unison with whatever campy song hummed from a tiny, just warmed up, tube-type table radio. The four-tube midget was nestled between aluminum flour and sugar canisters under a short row of white kitchen cabinets. Travelers Insurance Company’s Hartford-based WTIC 1080 was his station of choice.

This 50,000-watt AM’s footprint stepped from the next state south, but its signal (emanating from Avon Mountain, north of Connecticut’s capital city) comfortably fit Grandpa’s shrimpy Silvertone like an old shoe. And, WTIC always had a leg up on the radio in his Dodge Dart, too. This compact car figured largely into Grandpa’s famous “nothing to do promise,” as the blue two-door served as our magic carpet for whisking me to places where we weren’t ever required to get anything in particular done.

By 8 a.m. we’d be on the road, first to some favorite breakfast place, and then on to various and sundry venues from horse farms to hardware stores. No matter where we ventured, Grandpa would introduce me and immediately exercise his bragging rights. With few exceptions, there’d always be some old timer there who remembered my mom and declared me “as pretty as redheaded Hannah Wilkinson when she was a girl.”

About the only time I suspected my doting grandfather wasn’t completely focused on showcasing me occurred for an hour or so after lunch. That’s when WTIC ran what I vaguely remember as an incredibly boring talk show named Mike Line. He appeared absolutely mesmerized by this program’s mundane content, commenting that Mike Line provided smart listeners with a free education on things useful in real life.

“Go Ahead Caller, You’re On The Air”

After trying to recall specifics about WTIC’s tepid talker, the only thing that came to mind was the benign polyester humor of its ad hoc hosts—as Mike Line was typically backed up by a pair of whichever staff announcers happened to be on duty that afternoon. Their friendly way of signaling the next participant to begin offering his or her pearls of wisdom essentially went something like this: “Ah yes...Go ahead caller, you’re on the air.” And then the tinny-sounding guest might launch into an over-explanation of how to use a cocktail of limejuice, ground-up pumpkin seeds, and mothballs for ridding one’s car-

pet of “pet soil.” Such euphemisms were law on Mike Line. “Dog do,” “poop,” or other more direct nomenclature regarding “delicate topics” was strictly off limits in the world of old school mass-appeal radio. After all, what if children or sensitive senior citizens were listening? It was a gentle broadcasting era in which today’s best-known “in-your-face” air-personalities could not function.



Though this promotional postcard featured 1950s–60s WTIC-TV kiddie show host Hap Richards of the old WTIC-TV Channel 3, the Hartford broadcaster pictured on the left (and right, as yet another alto ego character, Henry Tebbits) was also well known to WTIC radio listeners as Floyd Richards. During his long tenure at the impeccable 50-kilowatt Connecticut AM outlet, Richards was one of WTIC’s gentlemanly staff announcers who dutifully served as master of ceremonies for the legacy station’s Mike Line program.



This late 1960s WAAB AM/FM logo predated what some might recall as the station's most glorious radio contribution: its 1970s pioneering progressive FM rock format under the call WAAF-FM. But other broadcast buffs with an eye for history might cite WAAB-AM's 1940's scramble to retain its FCC license as its finest hour. Back then its legal wrangling with adversary Mayflower Broadcasting prompted the FCC to issue a ban on station personnel expressing their opinions, especially on political matters.

Skeptical readers might wonder how, as a child, I thought to snap a color photograph of my Grandpa's kitchen counter and resident Silvertone radio. Truth be told, the little model 6401 Silvertone's digital image was recently staged in my house. Even so, this borrowed receiver sure looks a lot like the one I remember it at Grandpa's lakeside cottage. Get out a magnifying glass and you might even be able to decipher that the dial on that four-tube set is positioned in the vicinity of 1080 kHz, WTIC's assigned frequency.

On more than one occasion, Grandpa, having been hit with a Mike Line epiphany related to helpful household hints, pointed in agreement at the Dodge radio's slide rule dial and quickly pulled over to the side of the road. He'd involve me in his eureka moment by requesting a pint-sized plastic clipboard neatly nestled in the glove compartment. As soon as it reached his right hand, Grandpa would also grab the mechanical pencil rubber-banded to the visor, and scribble some caller's ingenious suggestion. "Brilliant!" my Grandpa would exclaim. "We'll have to try that one!" he cheerily added, even though his beagle/basset hound mix, Corky, passed away long before I ever arrived on the scene. That notwithstanding, he'd soon navigate us to the neighborhood of a friend with a canine and enthusiastically convey this latest rug accident remedy.

According to Grandpa, Mike Line had unfortunately deteriorated a bit by the time we were gallivanting around Western Massachusetts. My father confirms this mid-1970s perceptual shift was due to WTIC recognizing that the station's increasingly top-heavy demographics were fast becoming unattractive to big advertisers. Actually, the changes occurred in more of a palsied nature than through an instantaneous diplomatic-to-edgy transformation. For Mike Line this

meant that its hallmark show-opener admonition, "You're welcome to call if you've got something to share that's of a non-controversial nature," was quasi-rescinded to make way for what was hoped would be a more compelling brand of caller armed with opinions rather than apple cobbler recipes.

Admittedly, I jogged my memory of this Mike Line period by digging up an old aircheck on the Internet. Within a few keystrokes, three decades evaporated and I was back in the cushy bench seat of Grandpa's car. My Mac computer's speakers offered audio devoid of road noise, but 1976 sensations engulfed me as the calm-voiced Mike Line announcer invited listeners to call in with whatever happened to be on their mind, "and we'll talk about it, *within reason*." That comma caveat wasn't the only remnant of earlier editions of WTIC's talk show. Probably for the sake of exuding an even-handed tone, the host sounded only partially invested in what he was about to unleash. "Go ahead," he said while depressing the button that put an elderly caller on the air.

Those Darn Kids Carry Matches!

"I didn't expect to be first," a caller said rather fearfully, though she had obvious-

ly and purposefully dialed in *before* the program began. "I don't like to be first," the woman protested. There was a brief pause, perhaps engineered by the host in order to steel himself with patience. And then he drolly quipped, "The first shall be last," likely little comfort to the old lady. No matter, she boldly launched into a five-minute virtual monologue about her fear of "all of the fires all over the country." Enigmatically, there had been no mention of such hot disasters on the hourly newscast preceding her terrified admission.

In any event, she continued, "I'm concerned about young people [ironically, the very demographic 'TIC officials were hoping to lure]... Young people high on drugs and alcohol. They should be given the death penalty for starting these fires and destroying property," she opined, but then reconsidered with, "Maybe they should just put them in a mental institution. They could be on welfare or something and should be made to repair the damage," the woman figured.

Subsequent to issuing another series of social solutions to audience members who were scratching their heads and wondering, "What fires?" she stopped long enough for the host to politely agree that unchecked conflagrations could certainly be seen as a problem in American society in general. Eventually, the caller's emotional boiler ran out of steam with the conclusion, "Well, I don't know, but these fires are upsetting."

Grandpa hated these kinds of calls. "Get her off the air and find someone with something practical to say," he'd lecture towards the dashboard. "My granddaughter and I would even settle for a trivia question that'd exercise our brains!" Happily,

a mile or two later, Mike Line would “return to normal” and we’d be idling on the shoulder again so Grandpa could jot down some guy’s surefire ingredients for baked bean, tomato, and bacon stew.

Like Grandpa, that amateur chef might have been an out-of-towner—a listener outside of WTIC’s Hartford calling area—who was able to reach the studio switchboard toll-free via an Enterprise line. Prior to 1-800 numbers and monthly rate unlimited national calling plans, this was a way for radio stations to increase their potential participant base. In Mike Line’s case, distant callers were instructed to dial the operator and ask her for Enterprise 9842. The phone company was supposed to oblige and then, as a public service to the talkative out-of-area listener, the station would pick up the “shipping” for the call.

A “Fair” Appraisal Of The Mayflower Decision, Or... Not To Decide Is To Decide

While it might seem strange to contemporary talk radio listeners who are used to strongly opinionated hosts, the FCC was once adamant that broadcasters should not be in the preference expression business. In other words, prior to the 1980s, the Commission essentially told licensees to keep their opinions to themselves whenever covering controversial issues. Ideally, interview or talk programs would include two sides of a featured topic, with the host simply moderating with nice interjections like, “I see,” or “That’s an interesting position on this particular subject matter.” Nobody participating in such a forum was usually called a “moron, right-wing bigot,” or even “red diaper doper baby.”

A pre-World War II ruling set this precedent for decidedly wishy-washy coverage. As reported by Frederic A. Leigh in *The Encyclopedia of Radio* (2004, Museum of Broadcast Communications; Taylor & Francis Books), something dubbed “the Mayflower decision,” issued by the FCC in 1941, is most noted for its conclusion that, as public trustees, “broadcasters could not use their stations to advocate their own causes. [That is to say] broadcasters should not editorialize.” The decision’s name was derived from one Mayflower Broadcasting Corporation, an outfit hoping to enter the Bean Town media market by way of challenging the Yankee Network’s



Originally a daytime-only facility, WNPV of Lansdale operated with 500 watts, but wasn't the 1970s Pennsylvania AM noted in our story. Its Sunday public affairs program wore the banner, "PARADE," not "View Point." After recording their own points of view, some of "PARADE's" guests were treated to a souvenir mug like this one. Some guests might even score a cassette tape of the "PARADE" episode in which they marched.

license for WAAB (1,000 watts at 1410 kilocycles) in Boston (later moved to 1440 k.c. at Worcester, Massachusetts).

In its attempted coup, Mayflower contended that Yankee’s “WAAB was violating federal law by broadcasting editorials that endorsed certain candidates for political office.” Yankee admitted to having, several years earlier, briefly slipped into this preferential practice, but proved it had already stopped pushing particular politicians. With Yankee’s reminder of its on-the-record mea culpa and the subsequent finding that Mayflower didn’t have the bucks to build or operate a radio station, Commission officials renewed WAAB’s license. Regulators took the opportunity, however, to fire a warning shot over every station owner’s bow.

“In writing the Mayflower decision,” Leigh notes, “the FCC pointed out that the broadcaster has the initial responsibility for the conduct of the station. But because radio frequencies are limited, the interests of the public must be paramount over those of the licensee...In the language of the Mayflower decision, the FCC was expressing its interpretation of the Communications Act of 1934 and the

[Commission’s most sacred] phrase, *public interest, convenience, and necessity.*”

This mandate for station management to always transmit information (over the borrowed “public property” airways) that is *in the public interest* was further entrenched in 1949 when the FCC decreed that “broadcast licensees have an affirmative duty generally to encourage and implement the broadcast of all sides of controversial public issues over their facilities, over and beyond their obligation to make available on demand opportunities for the expression of opposing views.”

In short, this late ’40s legalese, dubbed the Fairness Doctrine, should have produced a panacea of viewpoints—all in a row, like some happy little United Nations peace conference. After all, the Commission included in its manifesto a line item okaying station editorializing—as long as management prominently offered an inviting disclaimer like, “That’s our viewpoint, and we would like to air yours. Please feel free to contact us to arrange for the dissemination of that viewpoint.” You can just imagine a nervous radio man praying that such an open invite wouldn’t bring all of the local nut jobs out of the woodwork and into his studios. Especially back then, when most broadcasters operated with the Golden Rule: *If you can’t say anything nice about someone—or something—don’t say anything at all.* This translated into an almost phobic attention to keeping one’s airwaves clean.

Arguably, until President Reagan put the Fairness Doctrine out of its misery in the 1980s, most broadcasters opted to observe the rule by tip-toeing around controversy or avoiding it altogether. And when obligatorily airing coverage of such subjects, many station owners did so with the blandest of representatives on even blander “public service” programming aired during an early Sunday morning or middle of the night ghetto. In retrospect, lyrics in the average three-minute Beatles song probably delivered more controversial content than did many an hour-long 1950s–70s public service program.

A Public Affairs Program By Any Other Name...

My dad tells me about one of his radio buddies who used to joke that his station had a public affairs show known to its staff by the nickname “Get It Over With!” On the fellow’s 500-watt rural Pennsylvania daytimer, the 6 to 6:30 a.m. (and earlier

in the spring and summer when sunrise came sooner) slot was reserved for "View Point," a 30-minute collage of local know-it-alls stating their opinions on a particular topic. Cursorily outlined in the station's original 1951 FCC application, "View Point's" format had never been subsequently updated. Designed to show Commission officials exactly what they wanted to see in an equitable licensing request document, the program was described as, "an unbiased opportunity for opposing viewpoints of local issues to be identified and robustly discussed by a proponent on each side."

Over the years, "View Point's" production shifted from the one-and-a-half person News Department (of which both its full and part-time members complained they'd long before run out of people with legitimately newsworthy views), to the station's Sales Manager (who incorrectly estimated the air exposure would make him more recognizable in the business community), and was eventually foisted upon whomever held the afternoon DJ gig. Because most applicants for this noon-to-6 p.m. announcer position were bona fide newcomers to the broadcasting industry, none imagined what truly awaited them when being told that producing/recording the station's "cornerstone public affairs show" would become their responsibility—if selected for the p.m. DJ job.

Like some horrendous fraternity hazing, however, "View Point's" week-in/week-out production became infamously legendary in station culture and made many a fledgling air-personality there even hungrier to move on to a bigger market where such shows were the province of some longtime idiosyncratic news/public affairs staffer, à la WKRP's Les Nesmond. In fact, no meeting of the station's former personnel is complete without some humorous recollection of that notorious program that insiders laughingly admitted they hastily tossed together just to *get it over with* for another Sunday morning.

"As soon as I was hired, the station owner suggested that I should always get in the habit of thinking up interesting "View Point" topics on Sunday, my day off," one of the show's legion of short-lived producers remembered in an email about his tenure at the hometown-oriented Keystone State AM. He continued,

And then he tells me to, by lunchtime every Monday, line up two guests with opposite views, arrange for one to come to the studio to

record his side on Tuesday or Wednesday and the other guy for Thursday or—by the latest—Friday morning. This naively ideal timetable worked for maybe two or three weeks, and even then, not consecutively. With few exceptions, nobody had ever heard of me or "View Point" and so was understandably skeptical of my spiel and related request for them to drive out to the station and get recorded.

"Is this one of those prankster calls?" the Grand Master or some such big shot at the Knights of Columbus shouted when I proposed he explain his group's view of Columbus Day. I could almost never get the guests to come when scheduled. Some would call at the last minute and want a rain check. A lot simply forgot altogether! Worse yet, those who appeared were often shakily nervous and talked so fast that their segment of the program seldom came close to 15 minutes. I was supposed to stick the guest in front of the production room microphone, reach over their shoulder to get a decent sound level on the old Sparta control board, start the Revox reel-to-reel recorder, and let him or her have their say.

Except for a local windbag who could lecture ad infinitum about some arcane town ordinance barring certain-sized mobile homes from being placed within 50 feet of a public sidewalk (and then he'd demand to hear the playback and do a retake), no "View Pointers" really had much to say.

One late Friday morning, after a devastating double guest no-show, the desperate DJ took matters into his own hands. He rationalized that, in terms of him staying employed, any "View Point" was theoretically better than none at all and seized an opportunity to go for broke when hearing a near altercation in the station lobby area. There, the secretary/bookkeeper and a third of the station's three man sales team were screaming about fast food.

Apparently, the volatile pair had recently broken up after a year of serious dating. In a reconciliation effort, he'd brought her a hamburger meal from the local Dairy Queen restaurant. On the surface, that doesn't seem to be a valid argument starter, but the young woman quipped he should have known by now that she liked the Brassier chicken breast sandwich better than burgers. The guy retorted that he couldn't have possibly known this because she'd *never* ordered chicken when they'd been to DQ. This quickly escalated into a dual diatribe along the lines of, "Yes I did!" – "No you didn't!"

As if providentially paving the way for a great radio tale, the station's contract engineer, who that particular week thought to log his billable hours by checking the facility's spare microphone cords, had plugged all of their XLR connectors

in a long row and was doing an obligatory, "Testing, Test, one, two..." when our afternoon DJ/"View Point" producer grabbed the unsuspecting Electrovoice 635A from the shocked technician and raced down the hallway towards the combatant couple.

At full VU, he managed to snag their finale. And under the guise of sharpening his razor blade-assisted tape editing skills, as well as "getting over with" the production of an almost dead "View Point" edition, the junior jock doubled, quadrupled—and so on and so on—the lobby battle cries until his 7-inch tape was filled with "View Point's" eternal theme music, scripted opener ("*We now present, in an unbiased forum, two ways of looking at a vital issue on which you may decide...*"), and 29 minutes of arguably the world's most universal set of opposing opinions; "Yes I did! - No you did not! Yes I did! - No you did not!"

My Yahoo archive indicates that I immediately sent him a reply email aimed at finding out how "View Point's" listeners reacted to that classic disagreement. The following words are his...

I'm sorry to report that in the 30-some-odd years since the "Yes I did - No you did not!" loop was aired, the only comment my clever editing ever generated came from the station owner. I think it was Tuesday when my boss popped his head into the air studio and quizzically wondered if something had gone haywire with the "View Point" tape. He said someone whom he ran into at the supermarket told him we let a record skip for half an hour early Sunday morning. Deathly afraid the head honcho would ask for the reel and listen for himself, I put on a long record, scooted into the production room, frantically searched for the handheld magnetizer, and then making sure nobody was in the vicinity of its studio windows, thoroughly erased the evidence.

The fatal buzzing of that deed still haunted me when, rather coincidentally, the high school kid who served as the station go-fer and Sunday board operator showed up that very afternoon. Plotting how to bribe him to keep his mouth shut about my inane "View Point" stunt, I casually mentioned the program and wondered if he noticed anything out of the ordinary about last Sunday's show.

"Huh? You mean that half-hour taped thing I run right after the sign-on cart?" he asked. Following my affirmation, he responded, "No, I don't remember anything unusual. Anyway, I got better things to do with my day around here than to listen to that garbage."

...And so ends another day of the nearly forgotten side of broadcast history at *Pop Comm*. ■

Radio Fun And Going Back In Time

Q. Which country involved in World War II was the first to see clandestine transmitters working within its borders?

A. Actually it was Poland. Amateur radio started in Poland around 1927, about the time of the formation of the first radio organization, the *Polish Wireless Transmitters Club*, in Pozen. Almost immediately the Ministry of Posts and Telegraph, citing 1924 regulations, refused to issue licenses or allow any form of amateur radio. The Poles, who had a pretty long history of underground activity, went right ahead and developed their radio skills anyway. In 1930 amateur radio was legalized and licenses were issued as a matter of national interest with some pressure from the Army. Amateur radio remained legal until the Nazi Invasion of Poland.

Amateur radio began in Italy around 1923. When Mussolini came to power in 1929 licenses were no longer issued and radio transmission by anyone outside the military or specific research facilities was outlawed. Some Italians who already had transmitters kept right on sending, just like the Poles. We can only guess whom they were talking to.

Q. When did RACES get started and what was its original mission?

A. Radio Amateur Civil Emergency Service formed on June 26, 1952, as a temporary measure to provide amateur communications during periods of local, regional, or national civil emergencies. It was originally thought that the service would only be necessary during the Korean War and possibly for a short time afterwards. On January 13, 1966, the organization was turned into a permanent part of the Civil Defense system of the country. Organized by the FCC and set up by its Memorandum Opinion and Order, it has been under the Commission's control since its inception.

Q. UHF and VHF seem to have a lot of characteristics that we don't really appreciate completely. We bounce signals off the moon and comet tails, push them through satellites, repeaters, and the Internet. When will we find out "everything" about these signals?

A. We probably never will. Back in 1967 and '68 there were folks trying to bounce signals off aircraft as they flew overhead. The idea was to calculate the altitude and speed and then hit the plane's metal skin with your signal. There were reports that stations as far away as 100 miles were able to pick up the signal. The problem was that so much calculation was needed for what might be only a few seconds of air time. Who knows what we can do with our faster computers? I don't live near an airport that has regularly scheduled flights. I need some readers out there to let me know how *they* do. Radio is all about using your imagination.

Q. What were some of the problems early radio amateurs faced that we don't have today?

A. Well, in the early days there were two types of radio amateurs. Even before commercial broadcasting started there were "radio amateurs" (folks who built their own sets and listened in, probably working toward setting up their own licenses and stations). Then there were "transmitting amateurs" who sent as well as received, as hams do today. But there were no nice dials that lit up and showed you exactly what frequency you were listening to or sending on. Everything was guess work. You'd tune your receiver to a station you knew was inside or just outside the band you were working, then back off from it until you thought you were inside your band. Careful operators used a monitor tuned to their favorite

marker station and kept its dial in place with a set screw. The monitor was usually put high up on a top shelf and never touched. The transmitter and receiver were then tuned to be inside the proper band, with the operator making sure the monitor could not hear the signal.

Transmitting outside the amateur bands was the chief complaint against transmitting amateurs throughout the '20s and '30s. There were a lot of court cases and amateurs in America got a bad reputation for being outside the assigned bands by their annoyed foreign "cousins."

Q. What is an Army loop antenna and is it any good for ham transmissions?

A. Back about 1966 the Army came up with a loop antenna for field use in Vietnam. It was an octagon shaped out of eight pieces of five-foot-long 1-1/2-inch aluminum tubing. The military version worked great, especially because the loop was only 16 feet tall when placed on a four-foot stand. This made it perfect for working from dense jungles, ravines, and ditches. It was reported to work better than a dipole on 40 and 80 meters.

Amateurs who tried to duplicate the Army loop by homebrewing found that this was not the case: there was simply too much resistance in the system. The Army used special 45-degree fasteners and gold-plating on the joints. But then the Signal Corps had a bigger budget than most hams. Back in the '60s most hams stuck with regular dipoles, but they didn't have to worry about snipers. ■

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This listing is designed to help you hear more shortwave broadcasting stations. The list covers a variety of stations, including international broadcasters beaming programs to North America, others to 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	9955	WRMI, Florida	SS	0300	4780	Radio Djibouti	AA
0000	9625	CBC Northern Quebec Service, Canada	vern	0300	3340	Radio Misiones Internacional, Honduras	SS
0000	4825	Radio Cancao Nova, Brazil	PP	0300	7210	Radio Fana, Ethiopia	Amharic
0000	7400	Radio Bulgaria	BB	0300	7110	Radio Ethiopia	Amharic
0000	6190	International Radio of Serbia		0300	6170	Voice of the Tigray Revolution, Ethiopia	Amharic
0000	15240	Radio Australia		0300	7155	Radio Liberty, USA, via Hungary	RR
0000	9420	Voice of Greece	Greek	0300	5010	RTV Malagasy, Madagascar	Malagasy
0000	9705	All India Radio (Goa)	EE/Hindi	0300	4828	Zimbabwe Broadcasting Corp.	
0000	13725	Radio Marti, USA	SS	0300	7200	Sudan Radio TV	AA
0000	12095	Radio Thailand		0300	7440	Radio Ukraine International	
0000	6055	Radio Exterior de Espana, Spain	SS	0300	7440	Radio Ukraine International	
0000	7205	IBC Tamil, England, via Germany	Tamil	0300	4965	The Voice-Africa, Zambia	
0100	4985	Radio Brazil Central	PP	0300	9780	Republic of Yemen Radio	AA
0100	4905	Radio Anhanguera, Brazil	PP	0300	15180	Voice of Korea, North Korea	FF
0100	6135	Radio Santa Cruz, Bolivia	SS	0330	9750	BBC Relay, Seychelles	
0100	4717	Radio Yura, Bolivia	SS	0330	3240	Trans World Radio, Swaziland	vern
0100	5010v	Radio Cristal Intl/Radio Pueblo, Dominican Republic	SS	0400	6165	Radio Nederland Relay, Bonaire	
0100	11710	Radio Argentina al Exterior		0400	4950	Radio Nacional, Angola	PP
0100	6290	Radio Cairo/Egyptian Radio	CC	0400	7260	RT Algerienne, Algeria, via England	AA
0100	5910	Radio Republica, via Germany	SS	0400	3975	Radio Budapest, Hungary	HH
0100	5860	Radio Farda, USA	Farsi	0400	7245	Deutsche Welle, Germany, Rwanda Relay	
0100	6300	Radio RASD, Algeria	SS/AA	0400	7100	Voice of the Broad Masses, Eritrea	Tigrinya
0100	12085	Trans World Radio, via Russia	Nepali	0400	4790	Radio Vision, Peru	SS
0100	6010	Radio Sweden, via Canada		0400	6185	Radio Educacion, Mexico	SS
0100	11985	All India Radio	Sinhala	0400	7250	Voice of Russia, via Armenia	RR
0200	5910	Marfil Estereo, Colombia	SS	0400	7125	Voice of Russia, via Moldova	
0200	11780	Radio Nacional Amazonas, Brazil	PP	0400	6175	Voice of Vietnam, via Canada	
0200	4800	Radio Buenas Nuevas, Guatemala	SS	0400	7335	Vatican Radio	
0200	3250	Radio Luz y Vida, Honduras	EE/SS	0400	11610	R. Voice of the People, Zimbabwe, via Madagascar	
0200	4052.5	Radio Verdad, Guatemala	EE/SS	0400	4976	Radio Uganda	
0200	6973	Galei Zahal, Israel	HH	0400	4976	Radio Uganda	
0200	3280v	La Voz del Napo, Ecuador	SS	0400	5446.5	Armed Forces Network/AFRTS, Florida	
0200	7270	Radio Cairo/Egyptian Radio		0400	7275	RTV Tunisienne, Tunisia	AA
0200	4815	Radio El Buen Pastor, Ecuador	SS	0400	3215	WWCR, Tennessee	
0200	9480	Voice of Russia		0400	6010	La Voz de tu Concencia, Colombia	SS
0200	7125	Russian International Radio	RR	0430	4775	Trans World Radio, Swaziland	EE/GG
0200	4755	Radio Imaculada Conceicao, Brazil	PP	0430	7390	Channel Africa, South Africa	
0200	3320	Radio Sondergrense, South Africa	Afrikans	0500	9470	Voice of Croatia, via Germany	
0300	6020	China Radio International, via Cuba		0500	4905	RNT Tchadienne, Chad	FF
0300	4915	Radio Difusora Macapa, Brazil	PP	0500	5030	Radio Burkina, Burkina Faso	FF
0300	4885	Radio Clube do Para, Brazil	PP	0500	4777	RTV Gabonaise, Gabon	FF
0300	4930	Voice of America Relay, Botswana		0500	5005	Radio Nacional, Bata, Equatorial Guinea	SS
0300	7425	Radio Tirana, Albania		0500	9600v	Radio UNAM, Mexico	SS

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0500	4800	Radio Transcontinental, Mexico	SS	1700	9460	Voice of Turkey	TT
0500	4960	Voice of America Relay, Sao Tome	FF	1700	15410	La Voz, Chile	PP
0500	4770	Radio Nigeria		1800	15085	Voice of Islamic Republic of Iran	FF
0500	11645	Voice of Greece	Greek	1800	9815	Voice of America	PP
0600	4845	Radio Mauritanie, Mauritania	AA	1830	9515	Radio Canada International	FF
0600	4990	Radio Apinte, Suriname	DD	1900	11620	All India Radio	
0600	4760	ELWA, Liberia		1900	9580	Africa Number One, Gabon	FF
0700	5025	Radio Rebelde, Cuba	SS	1900	15400	BBC Relay, Ascension Is.	
0700	9525	Star Radio, Liberia, via Ascension		1900	11990	Radio Kuwait	
0700	10320	Armed Forces Network/AFRTS, Hawaii		1900	15120	Voice of Nigeria	
0730	9800	Trans World Radio, Monaco		1900	11995	Radio Jamahiriya, Libya	
0800	6020	Radio Victoria, Peru	SS	1900	11759	Adventist World Radio, via South Africa	Swahili
0800	7145	Radio New Zealand International		1900	12005	RT Tunisienne, Tunisia	AA
0800	9690	Voice of Nigeria	Hausa	1900	12035	Radio Exterior de Espana, Spain	SS
0800	9625	Channel Africa, South Africa		1900	11750	Adventist World Radio, via South Africa	
1000	3315	Radio Manus, Papua New Guinea	Pidgin	1900	17850	Radio Exterior de Espana, Spain, via Costa Rica	SS
1000	3260	Radio Madang, Papua New Guinea	Pidgin				
1000	3335	Radio East Sepik, Papua New Guinea	Pidgin	1900	9330	WBCQ, Maine	
1000	3310	Radio Mosoj Chaski, Bolivia	SS	2000	15235	Radio Canada International	
1030	6035	La Voz del Guaviare, Colombia	SS	2000	13600	Radio Tirana, Albania	
1100	4910	ABC Northern Territories Service, Australia		2000	9765	RT Algerienne, Algeria, via England	AA
1100	6020	Radio Australia		2000	9800	Voice of Islamic Republic of Iran	AA
1100	7370	KNLS, Alaska	R	2000	17620	Radio France International, French Guiana Relay	FF
1130	3905	Radio New Ireland, Papua New Guinea	Pidgin				
1200	9525	Voice of Indonesia	various	2000	9550	Far East Broadcasting Assn, England, via Rwanda	AA
1200	9760	Voice of America Relay, Philippines					
1230	15240	Radio Sweden International		2000	11940	Radio Romania International	
1230	9650	KBS World Radio, South Korea, via Canada		2000	17650	Voice of Biafra International, via WHIR	
1300	13580	Radio Prague, Czech Republic		2030	11735	Voice of Tanzania, Zanzibar	Swahili
1300	11660	China Radio International		2100	9970	RTBF, Belgium	FF
1300	9580	Radio Australia		2100	15345	Radio Argentina al Exterior	SS
1300	9910	All India Radio		2100	13630	China Radio International, via Mali	
1300	12090	Deutsche Welle, Germany, Sri Lanka Relay	CC	2100	15345	RTV Marocaine, Morocco	AA
1300	6110	BBC Relay, Thailand	Tibetan	2100	9980	WWCR, Tennessee	
1300	15480	Democratic Voice of Burma, via Armenia	BB	2130	7360	Radio Belarus	EE/RR
1300	11710	Voice of Korea, North Korea		2200	15525	HCJB Global, Australia	JJ
1300	17725	Radio Jamahiriya, Libya	AA	2200	17785	Radio Australia	
1300	11905	Sri Lanka Broadcasting Corporation		2200	11920	HCJB, Ecuador	unid
1330	17700	Radio Solh, England	Pashto/Dari	2200	9705	All India Radio	
1400	9930	KWHR, Hawaii		2200	15320	Adventist World Radio, Guam	Indonesian
1400	11705	Radio Japan/NHK, via Canada		2200	7475	Voice of Greece	Grek
1400	11530	Denge Mesopotamia via Moldova		2200	7380	Deutsche Welle, Germany, Madagascar Relay	Indonesian
1400	7110	Voice of Russia	RR	2200	12000	HCJB, Ecuador	SS
1400	9885	Radio Nederland Relay, via Madagascar		2200	9855	Radio Kuwait	AA
1400	11625	Radio Thailand		2200	13775	Radio Free Asia via Northern Marianas	CC
1400	11680	Korea Central Broadcasting System, North Korea	KK	2200	9435	FEBC, Philippines	Indonesian
1400	17660	BSKSA, Saudi Arabia	SS	2200	6195	Voice of Turkey	
1500	17690	Sudan Radio Service, USA, via Portugal		2200	7320	Magadan Radio, Russia	RR
1600	15605	Radio France International		2200	9265	WINB, Pennsylvania	
1600	15580	Voice of America Relay, Botswana		2230	11725	Voice of America Relay, Philippines	
1600	13590	Bible Voice Broadcasting, England, via Germany		2230	12020	Voice of Vietnam	CC
1600	9605	BBC Relay, Singapore		2300	9550	Radio Havana Cuba	
1600	15225	BSKSA, Saudi Arabia	AA	2300	17680	CVC-La Voz, Chile	SS
1700	11890	Radio Okapi, DR Congo, via South Africa	FF	2300	6160	CKZN, Canada (Newfoundland)	
1700	15475	Africa Number One, Gabon	FF	2300	11700	Radio Bulgaria	
1700	11720	Radio Pilipinas, Philippines		2300	13640	Radio New Zealand International	
1700	15690	Radio Taiwan International, via France		2330	6040	Radio PMR, Moldova (Pridnestrovie)	GG, etc.
1700	15435	BSKSA, Saudi Arabia	AA	2330	9875	Radio Vilnius, Lithuania	
				2330	5995	RT Malienne, Mali	FF
				2330	17705	Radio Nacional, Venezuela, via Cuba	SS

Hamvention Hotties '08

It's called the Hamvention, but Dayton's annual ham radio extravaganza also has plenty of goodies for those whose primary radio pleasure is listening. Here's a sampling of new products we found in the exhibit halls this year...

Wandering the exhibit halls at the Dayton Hamvention is enough to give even the most hardened radio-head a case of RF overload...which is why it's such a fun thing to do! And this doesn't count the humongous flea market, where, among other things, you can find original World War II Enigma machines on display! Touring the five inside exhibit halls, focusing only on new products, took us an entire morning. In addition to dozens of new goodies for hams, the various vendors also had on display a good number of products for those whose preference is listening. Among them are four new standalone receivers, as well as some really cool cloak-and-dagger stuff. Here's a look.

New Tools For Big Brother

AOR introduced several new radios intended primarily for law enforcement work, starting with the SR2000M software-controlled surveillance and monitoring receiver. It covers 25–3000 MHz (no cellular blocking if you're authorized), and can be both controlled and monitored over the Internet. This means you no longer have to be sitting outside the bad guy's house in a converted bread truck to listen in on what's going on.

**For complete coverage of the ham radio-focused new products seen at Dayton this year, see the August and September 2008 issues of CQ magazine.*

Also in the law-enforcement/cloak-and-dagger receiver category is the AR-STV wireless camera detector. This not only lets you know if it detects signals from wireless video cameras operating in the 900–2800 MHz range, but it will also show you what they're watching on the monitor screen. (If you see yourself, you know you're being observed while observing!)

Next up is AOR's Wings location monitor mobile data terminal. This combines satellite and Internet technology to help you keep track of all vehicles in a fleet. It takes their locations—relayed from a GPS receiver in each mobile unit—and plots them on a Google Earth map. The system also includes a digital voice transceiver with scrambling capability, as well as the ability to upload still photos and to plug in a keyboard and send text messages.

AOR's final new goodie for this year is an add-on to its AR8200 DC-daylight handheld scanning receiver to help the FAA and search-and-rescue teams track down emergency locator transmitters (ELTs). These are activated when an aircraft crashes, but are also commonly set off by accident. Their signals are picked up by satellite and relayed to a search coordination center, but the satellites can't provide a precise location. This means searchers with direction-finding gear need to finish the job. AOR's FA-8200 includes an AR-8200 handheld receiver as well as a loop antenna tuned to the ELT frequency and an attenuator to let you keep tracking even when the signal is very strong.

For Your Handheld Listening Pleasure...

ICOM had a prototype of its new IC-RX7 wideband handheld receiver on display. Covering 150 kHz to 1.3 GHz (with cellular frequencies blocked in the United States), it receives AM, narrow FM, and wide FM and gives you up to 1,650 mem-



This shot of the main Dayton Hamvention arena gives you a pretty good indication of how lively and exciting this annual event is (here you see CQ, Pop'Comm's publisher, busily taking subscriptions!). There are other rooms and a bustling flea market, too, all crammed with good stuff and bargains to be had. If you've never been there, you owe yourself at least one visit. (Photo by Dan Moseson, KC200M)

ory positions that can each store an alphanumeric tag as well as frequency and mode information. To help you make sense of so many channels, the RX7 will let you organize them by category (26 maximum), group (up to 100), and memory name (up to 100). To make your life easier still, the RX-7 will come with pre-set memories for aircraft, auto racing, railroads, ham bands, and more. You simply pick your desired activity and press the scan button, and the radio will monitor only those frequencies. At a scan rate of 100 channels per second, it will run through a fully loaded memory bank in just 16 seconds (if there's no activity for it to stop on).

...And For The Well-Equipped Listening Post

If you prefer doing your listening at home (or at work...), Ten-Tec has brought out its new RX-400 receiver, tuning in SSB, ISB (independent sideband), CW, AM, and FM (narrow and wide) signals between 2 MHz and 3 GHz, with 1,000 memory channels that it will scan at a rate of 100 per second or faster. The RX-400 also provides you with more than 50 built-in DSP (digital signal processing) filter bandwidths between 100 and 300 kHz, as well as user-programmable AGC (automatic gain control) and connections to your computer via either RS-232 or TCP/IP connectors. It can also be remotely controlled over a phone line, with no computer needed. The RX-400 comes in a half-rack mount for professional installations.

Gettin' Really Hi-Tech

Software defined radios, or SDRs, are the hot new thing on the leading edge of radio technology, and Dayton featured several. One of the coolest is the Perseus SDR receiver from SSB Electronic, which lets you record and play back entire chunks of spectrum! You can monitor all frequencies between 10 kHz and 30 MHz (actually, up to 40 MHz with reduced sensitivity) in your choice of AM, synchronous AM, CW, SSB and narrow-band FM, as well as RTTY (radioteletype) and Digital Radio Mondiale (DRM). You can also import a variety of frequency lists and "plug them in."

But this is the really cool part: The radio provides a real-time visual "waterfall" display of any 800 kHz chunk of spectrum you want to monitor, and it lets

you *record* that entire segment of spectrum for later playback. You can tune through it as though it were in real time! This means an SWL can record a busy band segment at the top of an hour, then go back and pull out the IDs of every broadcast station that was there! Look for a review of the Perseus in an upcoming issue of *Pop'Comm*.

Another SDR entry is FlexRadio's Flex-5000C, which features a built-in computer, so all you need to do is plug in a keyboard, a monitor, a mic and/or code key and an antenna. Plus, FlexRadio introduced a second receiver module that works with both the A and C models of the Flex-5000, featuring the identical performance specifications as the radio's primary receiver.

Get Out That Soldering Iron

If the technology behind SDR is as interesting to you as using one on the air, and especially if you like kit-building, you'll be intrigued by the HPSDR, or High Performance Software Defined Radio, from Tucson Amateur Packet Radio (TAPR). It's a modular system, with each module being a traditional build-it-yourself kit that performs a different function. The newest module is the Mercury receiver board, whose prototype was completed just a week before the Hamvention. Other current boards include Penelope, a 7 watt exciter/transmitter board; a digital-to-analog and analog-to-digital board named Janus (yes, the names are nearly all rooted in mythology); Ozy, or more properly Ozymandias, which is an interface controller board providing connections to the outside world; and Pinocchio, an extender board (get the pun?) used for testing and troubleshooting other modules. They all plug into the Atlas backplane, which supports all the other components and includes an all-important power connector. The system is designed to fit into a standard personal computer enclosure and use a computer power supply. Obviously, this is not "plug & play," unless your version of "playing" with technology includes getting out the soldering iron and "rolling your own."

Same Time Next Year

This is just a broad-brush look at some of the many new products featured at this year's Hamvention. Your best bet, of course, is to go there and see it all for yourself. Next year's show is May 15-17, 2009. Start planning now...and wear comfortable shoes!

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Romania Rising, So Long Singapore, And That Cryptic Costa Rican...

Unlike most of Europe, which can seem tired and confused and no longer particularly enthusiastic about shortwave broadcasting (indeed they are down on it), once backward Romania is stepping up defiantly in the face of all this negativism. In late May the transmitting facility at Galbeni was temporarily closed in order to install new 300 kW transmitters complete with new antennas. As soon as that job is finished the same process is to take place at the Tiganesti site. There will also be a couple of 100 kW transmitters placed at the seldom-reported Saftica site. After all that Radio Romania International will have been fully modernized and powered up to bring us better signals, which hasn't exactly been the norm over the past few years.

The new in-country transmitters at Radio Nacional Venezuela will be installed at Calabozo in Guarico State, about 250 miles south of Caracas. There's still no known timeline telling us when to expect any active frequencies. So we continue to wait.

Papua New Guinea's National Broadcasting Corporation is inactive on both 4890 and 9675 because its 50 kW transmitter is still on the blink, which has been the case for several years now. There's talk of replacing this inoperative unit with a pair of 25 kWers.

There's scuttlebutt afoot that says the days are numbered for Russia's Samara transmitter site; it's due for closure in as early as a couple of months. If that happens there will be several broadcasters that will have to move their transmissions to other facilities as early as the next broadcast season.

And another one bites the dust! Radio Singapore International has tossed in the towel, having decided that shortwave broadcasting is no longer germane to the fast-paced world we live in, because, as we all know, everyone under 90 is busy with their iPods or BlackBerrys or laptops or the new Pink Goofus unit (okay, I made that one up). Anyway if you've never added RSI to your log, too bad, you're out of luck.



I've got company! Tom Gavaras, Minneapolis, Minnesota, and Bill Dvorak, Madison, Wisconsin, talk radio in the "GIG" shack.

The mystery in Costa Rica continues. Miss Marple is befuddled, Nero Wolfe and Archie Goodwin are in a pickle, and Sam Spade hasn't anything to dictate to Effie. None of the great detectives have managed to come up with an answer. The unidentified broadcasts continue on 5954, normally for an hour or so from around 2230, but sometimes starting an hour or so earlier. It's been a long, long time since we've had a monitoring puzzle that caused so much head scratching.

A new pseudo station is IRIN Radio (Integrated Regional Information Network) with studios in Nairobi, Kenya. It's intended for Somalia and is being broadcast via Meyerton. The most recent schedule has it on 9665 from 1730 to 1745. IRIN is a United Nations effort.

You may have read about a name change for the Voice of Tanzania. In fact the change applies only to the facility in Dar es Salaam, where the name now used is the Tanzania Broadcasting Corporation (TBC). The station in Dole, Zanzibar, is independently run and keeps "The Voice of" name.

Reader Logs

Remember, your shortwave broadcast station logs are always welcome. But *please* be sure to double or triple space between the items. Also please list each logging separately according to the station's home country and include your last name and state abbreviation after each. Also needed are spare QSLs or good color copies you don't need returned, station schedules, brochures, pennants, station photos, and anything else you think would be of interest.

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

ALBANIA—Radio Tirana, 7425 at 0335. Also 9390 with times and frequencies at 0040 and into Albanian. (Maxant, WV) 13600-Shijak with ID at 2007. (Charlton, ON) 7430 in Albanian at 2208. (Brossell, WI)

ALGERIA—RT Algerienne, 7260 via England in AA at 0414. (MacKenzie, CA) 9765 via Rampisham in AA at 2029. (Charlton, ON)

ANGUILLA—University Network, 6090 at 2350 with Melissa Scott asking for donations. (Maxant, WV)

ANGOLA—Radio Nacional, 4950 at 0310 with songs in PP. (Brossell, WI) 0323 with W in PP hosting pops and tribal songs. M at 0358 with time pips and into news at 0400. (D'Angelo, PA) 0350. (Ronda, OK) 2256 to time pips at TOH and news. (Parker, PA)

ARGENTINA—RAE, 11710 at 0207 with M/W and SS news. (Parker, PA) 11710 poor at 0155. (Maxant, WV) 15345 at 2107. (Charlton, WV) 2234. (MacKenzie, CA)

ASCENSION IS.—BBC South Atlantic Relay, 15400 at 2130 with "One Planet" program, //12095. (Fraser, ME) 21470 to South Africa at 1535. (Parker, PA)

ANTARCTICA—Radio Nacional Arcangel/LRA36, 15476 (t) at 1918 with M in SS talk, apparent Argentine folk music. (Taylor, WI)

Help Wanted

The "Global Information Guide" consistently presents more shortwave broadcast loggings than any other monthly SW publication! (A full 590 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.*

AUSTRALIA—Radio Australia, 6020 at 1145. (Fraser, ME) 9580-Shepparton at 1822, 12080-Brandon at 2206, 13630-Shepparton at 2250, 15515-Shepparton at 2213 and 17785-Shepparton at 2205. (Mackenzie, CA) 9710 at 0910, 11650 at 2100, 15240 at 0025, 15515 at 0215 and 17750 at 0020. (Maxant, WV) 11660-Brandon at 2105 and 12080-Brandon at 0416. (Ronda, OK) 15240 to Oceana at 0041. (Parker, PA) 15515-Shepparton at 2111. (Charlton, ON)

ABC Northern Territories Service, 2310-Alice Springs with country pops at 1239.

A Guide To "GIG-Speak"

Here's a partial list of abbreviations used in the "Global Information Guide."

*	— (before or after a time) time the station came on or left the air	LSB	— lower sideband
(l)	— (after a frequency) lower sideband	LV	— La Voz, La Voix (the voice)
(p)	— presumed	MW	— mediumwave (AM band)
(t)	— tentative	NBC	— National Broadcasting Corporation (Papua New Guinea)
(u)	— (after a frequency) upper sideband	OA	— Peru/ Peruvian
v	— variable time or frequency	OC or O/C	— open carrier
//	— in parallel	PBS	— People's Broadcasting Station
AA	— Arabic	PP	— Portuguese
ABC	— Australian Broadcasting Corporation	PSA	— public service announcement
AFN	— Armed Forces Network	QQ	— Quechua
AFRTS	— Armed Forces Radio TV Service	QRM	— man-made interference
AIR	— All India Radio	QRN	— noise (static)
Alt	— alternate	QSL	— verification
AM	— amplitude modulation, AM band	RCI	— Radio Canada International
Anmt(s)	— announcement(s)	Rdf.	— Radiodifusora, Radiodiffusion
Anncr	— announcer	REE	— Radio Exterior de Espana
AWR	— Adventist World RadioBC broadcast(er)	RFA	— Radio Free Asia
BSKSA	— Broadcasting Service of Kingdom of Saudi Arabia	RFE/RL	— Radio Free Europe/Radio liberty
CA	— Central America	RNZI	— Radio New Zealand International
CC	— Chinese	RR	— Russian
Co-chan	— co-channel (same frequency)	RRI	— Radio Republik Indonesia
comm1(s)	— commercial(s)	RTBF	— RTV Belge de la Communate Françoise
CP	— Bolivia, Bolivian	Relay	— transmitter site owned/operated by the broadcaster or privately operated for that broadcaster
CRI	— China Radio International	relay	— transmitter site rented or time exchanged.
DD	— Dutch	SA	— South America
DJ	— disc jockey	SEA	— Southeast Asia
DS	— domestic service	SCI	— Song of the Coconut Islands (transition melody used by Indonesian stations)
DW	— Deutsche Welle/Voice of Germany	s/off	— sign off
EE	— English	s/on	— sign on
ECNA	— East Coast of North America	SIBC	— Solomon Is. Broadcasting corp.
f/by	— followed by	sked	— schedule
FEBA	— Far East Broadcasting Association	SLBC	— Sri Lanka Broadcasting Corporation
FEBC	— Far East Broadcasting Company	SS	— Spanish
FF	— French	SSB	— single sideband
freq.	— frequency	SWL	— shortwave listener
GBC	— Ghana Broadcasting Corp	TC	— time check
GG	— German	TOH	— top of the hour
GMT	— Greenwich Mean Time (UTC)	TT	— Turkish
HH	— Hebrew, Hungarian, Hindi	TWR	— Trans World Radio
HOA	— Horn of Africa	Unid	— unidentified
ID	— station identification	USB	— upper sideband
II	— Italian, Indonesian	UTC	— Coordinated Universal Time (as GMT)
Int/Intl	— international	UTE, ute	— utility station
Ir.	— irregular use	Vern	— vernacular (local) language
IRRS	— Italian Radio Relay Service	via	— same as "relay"
IS	— interval signal	VOA	— Voice of America
JJ	— Japanese	VOIRI	— Voice of Islamic Republic of Iran
KK	— Korean	WCNA	— West Coast of North America
		ZBC	— Zimbabwe Broadcasting Corporation



Here's the HQ building of Radio Nacional Paraguay, now sadly silent on shortwave. (Thanks Rich D'Angelo, Pennsylvania)

(Brossell, WI) 2325-Tennant Creek at 1030. 4910-Tennant Creek at 1030. (Wilkner, FL) 2130. (Ng, Malaysia)

HCJB Global, Kununurra, 15525 at 0022 and 15405 at 0031 in listed Rawang. (Ronda, OK) 15525 in JJ at 2225. (MacKenzie, CA)

BELARUS—Radio Belarus, 7390 at 2150 with local pops pgm in EE. Into listed RR at 2200. (Alexander, PA)

BELGIUM—RTBF, 9970-Wavre at 2054 poor in FF, ID at 2100. (Ronda, OK)

BOLIVIA—Radio San Jose, SJ de Chiquitos, 5580 (t) in SS at 0130. (Wilkner, FL)

Radio Universitaria, Cobija, 4732 in SS heard at 1105 and 2350. (Wilkner, FL)

Radio Mosoj Chaski, Cochabamba, 3310 monitored at 0950 in SS. The strongest and most consistent Bolivian here. (Wilkner, FL)

Emisoras Camargo, Camargo, (t) 3390 monitored at 0010 in SS. Seems irregular. (Wilkner, FL)

Radio Yura, Yura, 4717 at 0055 with music and excited talk. (Strawman, IA) 2343, M/W with SS talk. (Parker, PA)

Radio Santa Cruz, Santa Cruz, 6135 at 0044 with lots of SS talk, frequent IDs and "musica popular Boliviana." (Ronda, OK) 0045 with live futbol. (D'Angelo, PA) 0100 with IDs, music. (Strawman, IA) 0104 to 0108 close. (Alexander, PA) 0105, but lost at 0115. (Taylor, WI)

BONAIRE—Radio Nederland Relay, 6165 at 0410 and 17605 in DD at 2202. (MacKenzie, CA) 6165 at 0405. (Maxant, WV) 17605 heard at 2335. (Parker, PA)

BOSNIA—International Radio of Serbia, 6185 with IS at 0000, open and EE news. (D'Angelo, PA) 7115 at 0130. (Maxant, WV)

BOTSWANA—VOA Botswana Relay, Moepeng Hill, 4930 at 0341. (D'Angelo, PA) 0413. (MacKenzie, CA) 0305 and 12080 in FF at 1952. (Brossell, WI) 15580 at 1600. (Ronda, OK)

BRAZIL—(All in PP—*gl*) Radio Alvorada, Londrina, 4865 at 0507 with talks. (Parker, PA)

Radio Aparecida, Aparecida, 11855 at 2049. (Charlton, ON)

Radio Nacional Amazonas, 11780 at 0216. (Parker, PA)

Radio Anhanguera, Araguaina, 4905 monitored at 0248, long talk, reverb. (Strawman, IA) 2325 with M/W talk, EZL music. (Parker, PA)

Radio Clube do Para, Belem, 4885, 0322 talk, ID, echo. (Wood, TN) 0515. (Parker, PA)

Nossa Radio, Rio, 4905 monitored at 0240 with talks, cutting out. Two days later heard with pops and several IDs. (D'Angelo, PA)

Radio Imaculada Conceicao, Campo Grande, 4755 at 0149. (Strawman, IA) 0253 with hymns. (Parker, PA) 0325. (Ronda, OK)

Radio Cultura Ondas Tropicais, Manaus, 4845.2 at 0145 to ID at 0203 and off at 0205. (Parker, PA)

Radio Brazil Central, Goiania, 4985 at 0051 with Manner, pops, and commercials. (Parker, PA)

In Times Past...

And now for some nostalgia. Here's a blast from the past.

Costa Rica—Radio Athena, San Jose, Costa Rica, 11972 in SS at 0100 on July 3, 1952. 3 kW. (Dexter, IA)

Radio Difusora Amazonas, Manaus. 4805 at 0950. (Parker, PA)
Radio Difusora, Macapa, 4915 at 0215 with Manner and echo. (Parker, PA) 0300, ID at TOH. (Wood, TN)

Radio Trans Mundial, Santa Maria, 11735 at 1753 with pops, IDs, URL addresses and frequencies. (Ronda, OK)

Radio Cancao Nova, Sao Paulo, 4825 at 0040 with Manner, reverb, pops. (Parker, PA)

BULGARIA—Radio Bulgaria, 5900 at 2130 and 15700 at 1140. (Fraser, ME) 7400 in BB at 0025 and 11790 at 2310. (Maxant, WV) 2313. (MacKenzie, CA)

BURKINA FASO—Radio Burkina, 5030 heard at 2214 with talks in FF. (Brossell, WI)

CANADA—Radio Canada International, 6155 at 2150 with "As It Happens." news and off at 2200. (Fraser, ME) 9515 at 1605 and 15235 at 2010. (Maxant, WV) 9515 in FF at 1853. (Charlton, ON)

CBC Northern Quebec Service, 9625 at 0045 in local Indian dialect. (Maxant, WV) 0130 with EE news and back to Inuit. (Blanco, NY) 1501 with pops. (Parker, PA)

CKZN, St. John's (Newfoundland), 6160 heard at 2330 with CBC pgms. (Paradis, ME)

CHAD—RN Tchadienne, 4905 in FF at 0521. (Parker, PA)

CHINA—China Radio Intl, 7285 via Albania at 2120. (Fraser, ME) 6020 via Cuba at 0355. (Maxant, WV) 11660-Kashi with news at 1355 and 15540 via Chile at 1355. (Brossell, WI) 13700 via Canada in SS at 2222. (MacKenzie, CA) 15135-Beijing monitored heard at 0845 in II. (Ng, Malaysia)

China National Radio/CPBS, 4800-Geermu in CC at 2120 and China Huayi Broadcasting Co., 4830 with CC at 1350 phone-ins. (Ng, Malaysia) 7150-Xi'an in CC at 2150. (Brossell, WI)

Firedrake Music Jammer, 9335 against Radio Free Asia at 1712, 9865 against RFA at 1830, 17640 at 2155, 13625 at 1755. (MacKenzie, CA) 9930 vs. KWHR at 1309. (Brossell, WI) 11925 vs. VOA-Philippines at 0242, 15385 also against VOA-Philippines at 0022 and 15490 against VOA to South Asia at 1305. (Parker, PA)

CHILE—CVC-La Voz, 17680 in SS monitored at 1403. (Charlton, ON) 2334. (Parker, PA)

COLOMBIA—Marfil Estereo, Puerto Llaras, 5910 at 0213 with variety of pop/rock, romantic ballads, IDs. (Ronda, OK)

La Voz del Guaviare, SJ de Guaviare, 6035 at 0004 with news and features pgm, interviews. (D'Angelo, PA) 1038 with ballads. (Schieffelbein, MO)

CONGO (DR)—Radio Okapi, 11890 via South Africa in FF heard at 1742. (Charlton, ON)

CROATIA—Voice of Croatia, 3985 at 0110 in Croatian. EE at 0200. Also 9470 via Germany at 0600 with EE news to 0603 and 9925 via Germany at 0200. (Alexander, PA) 7285 at 0220. (Blanco, NY) 9470 at 0510. (Maxant, WV)

CUBA—Radio Havana Cuba, 6180 at 0358, //6000. (MacKenzie, CA) 9550 at 2302. (Charlton, ON) 13760 in SS at 0053 and 17705 in PP at 2351. Into Quechua at TOH. (Parker, PA)

Radio Rebelde, 5025 in SS at 0710. (Maxant, WV)

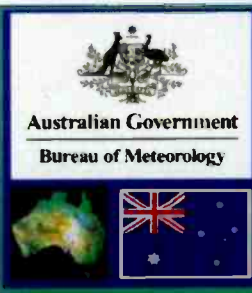
CZECH REPUBLIC—Radio Prague, 7345 in Czech at 2310. (Maxant, WV) 13580 at 1308. (Fraser, ME) 1411. (Charlton, ON)

DJIBOUTI—Radio Djibouti, 4780 heard at 0306 with Koran. (Brossell, WI)

DOMINICAN REPUBLIC—Radio Cristal Intl/Radio Pueblo, 5009.8 at 2353 with lively LA vocals. Carrier cut at 0001 during talk. (D'Angelo, PA) 2355—2359.* (Alexander, PA)

ECUADOR—HCJB, 3220 in QQ at 1020, 11920 in PP at 2333, 12000 in SS 2225 and 12040 in GG at 2238. (MacKenzie, CA) 21455

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Fax: (2628, 5100, 11030, 13920, 20469) KHz

VMW: Wiluna WA Voice: (2056, 4149, 6230, 8113, 12362, 16528)
Fax: (5755, 7535, 10555, 15615, 18060) KHz

Freq. Switching: Grey = Night hrs, Red=Day hrs, Blue= All hours.
Day Hrs(UTC): VMC: Voice 2100-0800, Fax 1900-0900,
VMW: Voice 2300-1000, Fax 2100-1100
For Fax: Tune 1.9KHz below above freq. if using standard SSB receiver

QSO WITH	CONFIRMING QSO -VMC, VMW			
	DAY/MO/YR	UTC	FREQ	MODE
Richard A. D'Angelo USA	28 Jan 2008	1236 -1251 Hrs	6230 KHz 8113 KHz	SSB/USB

Sender: Bureau of Meteorology, Melbourne, Australia

*A rare Aussie catch—one of the marine weather broadcasts from the Australian government.
(Thanks D'Angelo, Pennsylvania)*

poor in SS monitored at 2116. (Ronda, OK)
2329 in SS (Parker, PA)

Radio El Buen Pastor, Saraguro, 4815 at
0217 in SS with upbeat music. (Parker, PA)
1045 troubled by a nearby UTE. (Wilkner, FL)

La Voz del Napo, Tena, 3279v 0233 in SS.
(Parker, PA) 1020. (Wilkner, FL)

HD2IOA, Guayaquil, 3810 with time annn-
ts at 0621. (Wood, TN)

EGYPT—Egyptian Radio/Radio Cairo,
6290-Abis, at 0120 with Koran. (Ronda, OK)
0143 with Koran. Also 7270 at 0247 with dra-
matic story. (Parker, PA) 7270 at 0225.
(Maxant, WV) 9250 at 2135 with Wadi el Nile
service in AA at 2135 to 2200 close.
(Alexander, PA)

ENGLAND—BBC, 6095 via South
Africa in CC at 1327 and 6110 Thailand Relay
at 1328. Also 9540 Singapore Relay in CC at
1311. (Brossell, WI) 7120 via South Africa at
0400. (Ronda, OK) 9750 at 0345 and 11665
at 0340. (Maxant, WV) 11955 Thailand Relay
at 1710. (MacKenzie, CA) 11840 heard at
0057. (Parker, PA)

Far East Broadcasting Assn., 9550 via
Rwanda in AA at 2021. (Charlton, ON)

Bible Voice Broadcasting, 13590 via
Julich at 1545 with EE religious pgms to 1600
close. (Alexander, PA) 1634. (Ronda, OK)

EQUATORIAL GUINEA—Radio
Nacional, Bata, 5005 at 2240 after several
weeks of silence. Off with NA at 2253.
(Alexander, PA)

ETHIOPIA—Radio Ethiopia, 7110 at
0258 open carrier, brief IS and M with open-
ing comments in presumed Amharic at 0300,
HOA vocals. Also 9704.2 at 0307 with local
tribal music. (Alexander, PA)

Radio Fana, 7209.9 at 0255 sign on.
Covered by BBC sign on at 0300, //6110 covered
by WHRI but audible underneath.
(Alexander, PA)

ERITREA—Voice of the Broad Masses
of Eritrea, Asmara, 7100 at 0413 with M in
listed Tigrinya, marimba-like music with
whistles. Also 7175 with Program 2, heard at

0357 open, weak under Radio Liberty.
(Alexander, PA)

FRANCE—Radio France Intl, 7135 in FF
at 0424, 9790 in FF at 0520, 15160 in EE at
0505 and 17620 in FF at 2042. (MacKenzie,
CA) 7160 via South Africa in FF at 2153.
(Brossell, WI) 15605 in EE heard at 1635.
(Fraser, ME)

GABON—Africa Number One, 9580 in
FF at 1747. (MacKenzie, CA) 1952.
(Charlton, ON) 15475 at 1716. (Wood, TN)
17630 in FF at 1553. (Ronda, OK)

RTV Gabonaise, 4777 at 0459 sign on with
bits and pieces of NA, low modulation talk at
0500, distorted audio, French and Afro pops.
(Alexander, PA) 0516. (Parker, PA) 0522.
(Ronda, OK) 0530. (Wilkner, FL)

GERMANY—Deutsche Welle, 7225 at
0415, 9545 in GG at 2030 and 9700 at 0515.
(Maxant, WV) 7245 Rwanda Relay at 0409.
(Wood, TN) 0405. (Newhouser, TN) 7245 via
Rwanda at 0440, 11865 via Portugal in GG at
2337. (MacKenzie, CA) 7380 Madagascar
Relay in GG at 2205, 11725 via Rwanda in
GG at 1934 and 12090 Sri Lanka Relay in CC
at 2347. (Brossell, WI) 15275 via Rwanda in
GG at 1947. (Charlton, ON) 17820 via Sri
Lanka at 1030. (Ng, Malaysia)

Radio Reveil-Paroles de Vie, 15675 via
Julich at 1841 with religious pmng in FF.
(Ronda, OK)

GREECE—Voice of Greece, 7475 in GG
at 2210. (Brossell, WI) 0320. (Ronda, OK)
9420 in GG at 0030. (Maxant, WV)

GUAM—KSDA/Adventist World Radio,
9720 at 2140 in FF. (Maxant, WV) 9980 at
1835, 12130 in CC at 2245 and 15320 in
Indonesian at 2220. (MacKenzie, CA)

GUATEMALA—Radio Verdad,
Chiquimula, 4052.5 at 0306 in SS. (Parker,
PA) 0430. (Wilkner, FL)

Radio Buenas Nuevas, San Sebastian,
4799v in SS heard at 0030. (Wilkner, FL)
0226. (Parker, PA) 0248. (Brossell, WI)
0415 to 0433 close. (Alexander, PA) 1041.
(Ronda, OK)

HAWAII—KWHR, 9930 with a sermon
at 1422. (Brossell, WI)

HONDURAS—Radio Luz y Vida, Sao
Luis, 3250 in SS at 0240. (Strawman, IA)
0256. (Wood, TN) 0350-0355* (Parker, PA)
1105 with EE to SS translations of the Gospel.
(Wilkner, FL)

Radio Misiones, Comayagueta, 3340 at
0433 with Christian gospel and EE/SS IDs.
(Ronda, OK) 0435. (Parker, PA) 1105.
(Wilkner, FL)

HUNGARY—Radio Budapest, 3975
heard at 0457-0500* with multi-lingual ID.
(Parker, PA)

INDIA—All India Radio, 4810-Bhopal in
Hindi at 1350 and 15770 at 0905. (Ng,
Malaysia) 4835-Gangtok in vernacular at
0210. (Parker, PA) 9445 at 2045. (Paradis,
ME) 9705-Panaji (Goa) at 2243 open with EE
ID and Hindi vocals. (D'Angelo, PA) 9820-
Panaji in presumed Hindi at 1336, 9910-Delhi
at 1340 and 11620-Bangaluru in RR at 1710.
(Brossell, WI) 9705 at 2245 and 9950 at 2145.
(Maxant, WV) 11620-Bangaluru at 1702 and
11985-Delhi in Sinhala at 0110. (Ronda, OK)
11620 at 1930. (Fraser, ME)

INDONESIA—Radio Republik Indo-
nesia, 4788-FakFak at 2130. (Ng, Malaysia)
4925-Jambi in listed II at 2345. (Parker, PA)

Voice of Indonesia, 9525 in listed JJ at
1215. (Alexander, PA) 1350 in KK and II.
(Ronda, OK)

IRAN—VOIRI, 7320 at 2015 and 9800 in
AA at 2042. (Maxant, WV) 15085 in GG at
1513. (Parker, PA) 1859 in FF. (Charlton, ON)

ISRAEL—Galei Zahal, 6973 in HH at
0212. (Parker, PA) 0343. (Wood, TN) 15785
in HH at 2130. (Alexander, PA)

JAPAN—Radio Japan/NHK, 5960 via
Canada in JJ at 0425, 9835 in JJ at 1730, 13640
in JJ at 2253, 13650 in CC at 2257, 15265 via
Bonaire in JJ at 2243 and 15325 in EE at 0516
(MacKenzie, CA) 6145 at 0015. (Maxant, WV)
11705 via Canada at 1404. (Charlton, ON)

KUWAIT—Radio Kuwait, 9855 in AA at
2009 and 11990 in EE at 2015. (Charlton, ON)
9855 in AA at 2252. (Ronda, OK) 2305 in AA.
Also 11990 at 2105. (Maxant, WV) 11990 in
EE at 1911. (Wood, TN)

LIBERIA—Star Radio, 9525 via
Ascension at 0710 with "Liberia Today" pgm
and personal messages. At 0730 into Cotton
Tree News for Sierra Leone to 0900.
(Alexander, PA)

LIBYA—Radio Jamahiriya/Voice of
Africa, 11995 at 1940 with long talk by M.
(Ronda, OK) 17725-Sabratha in AA at 1350.
(Brossell, WI) In EE at 1413. (Charlton, ON)

LITHUANIA—Radio Vilnius, 9875
heard at 2332 with EE news and features. Also
11690 at 0000 sign on with local mx and
pgmng in LL. EE from 0029. (Alexander, PA)

MADAGASCAR—Radio Malagasy,
5010 heard at *0258 open with whistle, ID and
opening annms in Malagasy, then more
whistling, /by M hosting pgm of mostly trib-
al music. (D'Angelo, PA) 0308 in presumed
Malagasy. (Brossell, WI) 0314 witch chorals
and DJ chatter. (Ronda, OK)

This Month's Winner

To show our appreciation for your loggings and support of this column, each month we select one "GIG" contributor to receive a free book. Readers are also invited to send in loggings, photos, copies of QSL cards, and monitoring room photos to me at *Popular Communications*, "Global Information Guide," 25 Newbridge Rd., Hicksville, NY 11801, or by email to gdex@genevaonline.com. The email's subject line should indicate that it's for the "GIG" column. So, come on, send your contribution in today!

This month's prizewinner is **Mark Taylor of Madison, Wisconsin**, who receives a 2009 edition of *Passport to World Band Radio* from our friends at Universal Radio, which is HQ for all your radio hobby needs. Drop them a line at 6830 Americana Parkway, Reynoldsburg, OH 43068 or call them at 614-866-4267 for their current free catalog, or you can view it online at Universal-Radio.com. The catalog also includes a lot of helpful radio-related information.



A rare OA, Radio Manantial, 4985 in Huancayo, Peru. (Thanks D'Angelo)

MALAYSIA—Voice of Malaysia, 9750 with EE news monitored at 0601. (Ng, Malaysia)

MALI—RTV Malienne, 5995 at 0800 open with FF ID anmts. tune on a local instrument, FF and vern talks and more indigenous music. (Alexander, PA) 2348 to 0000 close. African music. Manner periodically shouting in FF over the music. Orchestral anthem at close. (D'Angelo, PA)

MAURITANIA—Radio Mauritanie, 4845 at 0043 with two men in AA, breaks in studio feed, music snippets. (D'Angelo, PA) 2232 in AA with W vocal. (Parker, PA)

MEXICO—Radio UNAM, 9600 in SS at 0500 with instrumental music. (Maxant, WV) Radio Educacion with SS vocals monitored at 0435. (MacKenzie, CA) 0715. (Maxant, WV)

XERTA/Radio Transcontinental de America, 0150 with modern gospel-type songs. (Schiefelbein, MO) 0500-0600. (Wilkner, FL) 0754-0815 with live vocals. (D'Angelo, PA)

MONACO—Trans World Radio, 9800 at 0732 to 0750* with religious program until ID and close. (D'Angelo, PA)

NEW ZEALAND—Radio New Zealand Intl, 7145 with indigenous vocals heard at 0815, 11725 at 2020, 13840 at 0010 and 15720 with National Radio at 0230. (Maxant, WV) 11725 at 0512. (MacKenzie, CA) 13640 at 2100. (Ronda, OK) 17675 heard at 2000. (Brossell, WI)

NETHERLANDS—Radio Nederland, 11655 via Madagascar Relay at 1717 in DD. Also 11805 via South Africa at 1940. (Brossell, WI) 15640 via Madagascar in Indonesian at 1200. (Ng, Malaysia)

NIGERIA—Voice of Nigeria, 9690 at *0802 open and into listed Hausa. (Alexander, PA) 15120 to Europe and North Africa at 1524 with W anncr, telephone interviews, letters, requests for letters. (Parker, PA) 1708. (Charlton, ON) 1755 on banking in Nigeria. (Brossell, WI) 2020. (Maxant, WV)

NORTH KOREA—Voice of Korea, 11710 at 1300 open and into EE news and commentary. (Alexander, PA) 1305. (Maxant, WV)

OPPOSITION—Voice of Mesopotamia (to Kurdistan), 11530 via Moldova at 1358 with ME music and ID at 1400. (Brossell, WI) Radio Solh (to Afghanistan), 15265 via England in presumed Pashto/Dari at 1403. (Brossell, WI) 17770 via Rampisham at 1336. (Ronda, OK) 1729 Charlton. ON)

Radio RASD (to Morocco), 6300, Rabouni, Algeria, at 0112 with SS talk by woman. (Ronda, OK)

Radio Farda (to Iran), 5860 via Kuwait heard at 0055 in listed Farsi, ME pops. (Alexander, PA)

Voice of the Tigray Revolution (to Eritrea), 6170-Ethiopia heard at 0255 open with IS, into Amharic, //5950 poor. (Alexander, PA)

Radio Free Asia, 7460 via Mongolia in KK at 2115. (Ng, Malaysia) 9355 in CC at 1700 and 13740 via Saipan in Khmer heard at 2316. Also 13775 via Northern Marianas in CC at 2225. (MacKenzie, CA)

Radio Liberty, 7155 via Jaszbereny, Hungary in RR at 0310, //7175-Biblis. (Ronda, OK)

Radio Voice of the People (to Zimbabwe), 11610 via Madagascar at 0405-0456* in EE and vernacular, short music segments. (Alexander, PA)

Radio Marti, 13725 in SS heard at 0046. (Parker, PA)

Radio Free Afghanistan, 17685 in Dari at 0805. (Ng, Malaysia)

Radio Republica (to Cuba), 5910 via Germany in SS heard at 0110 and 6155 monitored at 0145 with American blues singers. (Parker, PA)

Radio Xoriyo Ogadenia (to Somalia) 17875 via Samara, Russia, at 1405 with long talk in presumed Somali. Drumming at 1427 to 1430 close. (Ronda, OK)

Democratic Voice of Burma, 15480 via Armenia at 1312 with W anncr, telephone calls, music bridges, upbeat tunes, many mentions of Myanmar. (Parker, PA)

PAPUA NEW GUINEA—Radio Milne Bay, Alotau (New Guinea), 3365 heard at 1141 in presumed Tok Pisin, W anncr and usual mix of island and western pops. (Schiefelbein, MO)

Radio Central, Boroko (Papua), 3290 at 0949 with male vocals. (Wilkner, FL)

Radio Madang, Madang (New Guinea), 3260 at 0940 in Pidgin with chorals and M talk over brief music bridges. (Wilkner, FL)

Radio Manus, Lorengau (Admialty Is.), 3315 with M/W talk, indigenous music. (Wilkner, FL)

Radio East Sepik, Wewak (New Guinea), 3335 at 0959 with mentions of frequency at 1015, faded at 1105. (Wilkner, FL)

PERU—(All in SS—gld) Radio Bolivar, Ciudad Bolivar, 5460.1 at 0110 with OA music. (Wilkner, FL)

Radio San Nicolas, Rodriguez Mendoza, 5470.4 at 0120 with music and anncr. (Wilkner, FL)

Radio Reina de la Selva, Chachapoyas, 5486.7 at 1100, one clear ID. (Wilkner, FL)

Radio Sicuani, Sicuani, 4826.3 at 0245 with OA music. SS anmts. (Alexander, PA) On early at 0950. (Wilkner, FL)

Radio Victoria, Lima, 6020v, 0435 talk about Lima. (Wilkner, FL) 0435 with SS sermon, government-mandated NA at 0502-05 and local music, another sermon. (Alexander, PA) 0750 with nice ID over classical music. (Schiefelbein, MO)

Ondas del Huallaga, Huanuco, 3329.54 heard at 1000 with ID by M as "O del H." (Wilkner, FL)

Radio Ancash, Ancash, 4989.9 at 0537 with W anncr and Motown hits. (Parker, PA)

Radio Vision, Chiclayo, 4790 heard at 0430 with no sign of Atlantida. (Wilkner, FL) 0535 with usual pgm of SS preaching to a tumultuous crowd over a distorted loudspeaker. (Parker, PA)



Much coveted some 50 years ago, this beautiful and beautifully restored Collins 51S-1 receiver is the pride and joy of Rich Parker, Pennsburg, Pennsylvania.

Radio Tarma, Tarma, (t) 4775 monitored at 0245 with traces of SS talk and music. (Parker, PA)

Radio Nueva Atlantida, 4789v is SS at 1030. Seems irregular operation. (Wilkner, FL)

PHILIPPINES—Radio Pilipinas, 11720 at 1758 W with comments, ID at 1801. (MacKenzie, CA)

FEBC, 9435 in II at 2244. Also 9920 in CC at 1735. (MacKenzie, CA)

PIRATES—The Crystal Ship, 5326//6700 at 0119 with rock. Obama commercial, political parodies. Also 5385v at 0148 with The Poet and pgm of rock. some politics. (Zeller, OH) 0228-0319* aneng Belfast address. (D'Angelo, PA) 5386 at 0137 rock, excerpts of JFK speeches. Power annced as 100-150 watts. (Wood, TN) 6854.2 at 0057, //5385.5. (Alexander, PA)

Moonshine Radio, 6925u at 2340. probably a pun on Sunshine Radio format of classic rock, fade out at 2350. (Zeller, OH) 2347 W anncr "Moonshine" and M named "Lawnmower." (Wood, TN)

Wolverine Radio, 6925u at 0021-0046, 0109-0304 and 2146-2149 with rock and folk and a crying baby. IDs sounded like Long Range Radio. (Zeller, OH) 0250-0327* with Motown and beach things, IDs at 0309 and 0327. (Wood, TN)

Captain Morgan, 5925v at 0243 with rock and "Outer Limits" theme. Transmitter drift. (Zeller, OH) 0203-0210 with repeated IDs "Six point nine two five, Voice of Captain Morgan." Various rock and pop cuts but the audio was sullied by the use of SSB which now seems ubiquitous among pirates. (Parker, PA)

Channel Z, 6925u at 0227-0233* with various rock things. ID and uncopied email address. (Zeller, OH)

WMPR, 6925 at 0144 with techno stuff generally associated with WMPR but no ID heard. (Wood, TN)

Derby Shortwave, 6925u at 0014-0031 annual Derby Day broadcast with renditions

of "My Old Kentucky Home," replay of TV call of the race. derbyshortwave@yahoo.com for reports. (Zeller, OH)

WAIR, 6925u at 2258-2329 with various rock/folk things "You're listening to WAIR—All Indie (or India) Radio." Gave defunct P.O. Box 69, Elkhorn address. (Wood, TN)

Maple Leaf Radio, 6925u, 2030 with rock, folk and/or novelty things, some discussion of Banava, whatever that is, three clear IDs but no address. Also 2337 with "O Canada" sign on, rock/folk. Also 2319-2352. (Zeller, OH)

WBNY—6925u monitored at 0221-0322* annced as the "WBNY Sex Show," novelty tunes and a bit of rock along with "Ghost Riders," Porky Pig close. (Zeller, OH)

Radio Jamba Intl, 6925u at *2249-2334 with rock/folk, ad for NORMAL, multi-lingual IDs. No address heard. (Zeller, OH)

KBLU, 6925 monitored at 0305-0311* with Electric Blues, computerized W voice, several pirate DXers giving IDs. (Wood, TN)

Radio Free Whatever, 6925u heard at 0045-0101* with obscure rock/rap. One clear ID. (Zeller, OH)

PRIDNESTROVIE (Moldova)—Radio PMR, 6040 at 2342 with M ending GG pgm, several addresses and closing music to 2345. (D'Angelo, PA)

ROMANIA—Radio Romana Intl, 11715 at 1726, ID at 1729 and into folk. (D'Angelo, PA) 11735 at *1658 open with ID, schedules. (Wood, TN) 11810 at 2043 (Charlton, ON) 11940 at 2030 with "Radio Newsreel." (Paradis, ME) 15255 to Western Europe in FF at 0035. (Parker, PA) 17745 with classical music at 1350. (Brossell, WI)

RUSSIA—Voice of Russia, 6155 with classical music at 0445 and 9480 with news at 0200. (Maxant, WV) 6185-Samara in RR at 1332 and 7110-Samara in RR at 1400. (Brossell, WI)

7175-Petropavlovsk in JJ at 1220 and 15605-Moscow in Hindi at 1345. (Ronda, OK) 7250 sign on at 0100 then news. Also

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 Box 4559, Johannesburg 2000, South Africa

Radio RSA—now Channel Africa—circa 1985. (Thanks Mike Adams, Florida)

12070 with classical music at 1930. (Fraser, ME) 9480 with classical music at 0240. (Branco, NY)

Russian International Radio, 7125 via Moldova in RR at 0426 and 7250 via Armenia in RR at 0445. (MacKenzie, CA) 7125-Petropavlovsk in RR at 0222. (Brossell, WI)

Magadan Radio, 7320 in RR at 2200. (Brossell, WI)

SAO TOME—VOA Relay, 4960 in Hausa at 0530. IS monitored at 0530 and into FF. (MacKenzie, CA) 0531 in FF. (Parker, PA)

SAUDI ARABIA—BSKSA, 15435 in AA to Western Europe at 1328. (Parker, PA) 15435 in AA at 1739 and 17560 in AA at 1723. (Charlton, ON)

SEYCHELLES—BBC Indian Ocean Relay, 6035 at 0230, ID 0232. (Ronda, OK) 9750 on Sudan at 0340. (Maxant, WV)

SOUTH AFRICA—Channel Africa, 7230 at 0515, 9625 at 0850, 15235 at 1715, all in EE. (Maxant, WV) 7390 in FF at 0448. (MacKenzie, CA) 15230 at 1705. (Charlton, ON)

Radio Sondergrense, 3320 in Afrikaans at 0239. (Parker, PA)

SOUTH KOREA—KBS World Radio, 9650 at 1255. (Maxant, WV)

SPAIN—Radio Exterior de Espana, 3350 Costa Rica Relay in SS at 0250. (Parker, PA) 0548. Also 6055 in SS at 0417, 6125-Costa Rica in SS at 0413 and 11815-Costa Rica in

SS at 2255 (MacKenzie, CA) 6055 with "Historical Footnotes" at 0000. (Paradis, ME) 11635 in EE at 2114, 15110 in SS at 1901 and 17850-Costa Rica in SS at 1945. (Charlton, ON) 12035 in FF at 1944. (Brossell, WI)

SUDAN—Sudan Radio, 7200 at 0236 with Koran. (Parker, PA) 0243 in AA, poor but improving. (Ronda, OK)

SRI LANKA—SLBC, 11905 in Hindi at 0232 with W anncr, local selections. (Parker, PA) 1339 with sub-continental music. (Brossell, WI)

SURINAME—Radio Apinte, (p) 4990 at 0609. Faint with pops and heavy QRN. (Wood, TN)

SWAZILAND—Trans World Radio, 3240 in presumed Hausa at 0312. (Brossell, WI) 0335 in presumed Ndaui, with ID and IS at 0344-0445. (Ronda, OK) 4775 in Lomwe language or similar, familiar IS at 0358 close. Later at 0412 in GG, alternating with choir and into EE at 0430. (D'Angelo, PA) 0425 in GG and into EE at 0430. (Parker, PA) 0515. (Maxant, WV)

SWEDEN—Radio Sweden, 6010 via Sackville heard at 0131. (Parker, PA) 7120 via Madagascar at 2145. (Brossell, WI) 2140 on fireworks dangers, 7395 at 2055 on indigent immigrants and 15240 at 1250 on future Swedish astronauts. (Maxant, WV)

TAJIKISTAN—Tajik Radio One, Yanguil, 4635 in presumed RR at 0020 with W anncr. Weak but in the clear. (Parker, PA)

TAIWAN—Radio Taiwan Intl, 9735 in JJ at 1307. (Strawman, IA) 9780 in CC at 1334. (Brossell, WI) 11635 in CC at 2350. (MacKenzie, CA) 15600 via Okeechoobee in EE at 2230. (Fraser, ME) 15690 via France at 1710. (Charlton, ON)

TANZANIA—Voice of Tranzania, 11735-Zanzibar at 1800 with EE news from Spice FM, back to Swahili at 1810. Closes at 2100. (Alexander, PA) 1955 in listed Swahili. (Brossell, WI) 2035 in Swahili. (Charlton, ON)

THAILAND—Radio Thailand, 11625 in JJ at 1300. (Taylor, WI) 12095 at 0035. (Maxant, WV)

TUNISIA—RT Tunisienne, 7275 at 0312 with AA and short music drop-ins between items. (Ronda, OK) 0412. (MacKenzie, CA) 12005 in AA at 1955. (Brossell, WI)

TURKEY—Voice of Turkey, 6195 with press review at 2210. (Fraser, ME) 9460 at 1742 M/W with comments, some vocals. (MacKenzie, CA)

UGANDA—Radio Uganda/UBC, 4976 in vernacular at 0332. (Parker, PA) 0337. (D'Angelo, PA) 5026 in vernacular at 0545. (Maxant, WV)

UKRAINE—Radio Ukraine Intl, 7440 at 0150. (Maxant, WV) 0350 to 0400 close with an excellent jazz program. (Parker, PA)

UNITED STATES—Voice of America, 7235 Northern Marianas Relay at 1336 and 9760 Philippines Relay at 1330. (Brossell, WI) 9760 at 1200. Also 9855 Sri Lanka Relay in Tibetan at 0049, 9890 Thailand Relay in Indonesian at 1212 and 15730 Sri Lanka Relay

in EE/FF at 2040. (Ronda, OK) 11805 Philippines relay in II at 2343, 13755 Thailand Relay at 2308, 15340 in VV at 2312, 15410 at 1747 and 17550 via Bonaire in FF at 1917. (MacKenzie, CA) 11725 Philippines at 2330. (Paradis, ME)

WHRI, 11785 at 1445. (Alexander, PA) 11885 at 2258. (MacKenzie, CA)

WYFR/Family Radio, 9615 at 1350. (Ng, Malaysia)

Sudan Radio Service, 7280 in AA at 0410. (MacKenzie, CA) 17690 via Portugal at 1500-1600, EE anmt at open f/by a program about various problems there and short African music breaks. (Alexander, PA)

WEWN 11870 heard at 0150 in SS. (Branco, NY)

KJES, 15185 at 1917 in SS. (Charlton, ON) CVC-Christian Voice, 9430 via Germany at 0540. (Maxant, WV)

AFRTS/AFN, 5446.5 heard at 0445. (Maxant, WV)

WBCQ, 7415 at 2214. (Wood, TN)

WWRB, 3185 at 0336. (MacKenzie, CA)

WWCR, 3215 at 0400. (MacKenzie, CA)

Trans World Radio, 11750 via South Africa at 1937. (Brossell, WI) 12085 via Novosibirsk beginning Nepali at 0100. (Ronda, OK)

University Network, 9725 via Costa Rica at 1420. (Charlton, ON)

VATICAN—Vatican Radio, 7250 in AA at 2040, 9600 with IS and off at 0000, 11625 at 2045 in FF. (Maxant, WV) 9755 at 2000. (Charlton, ON)

VENEZUELA—Radio Nacional, 17705 via Cuba at 2338. (Parker, PA)

VIETNAM—Voice of Vietnam, 6175 via Canada at 0110 on speculative rice sales. (Maxant, WV) 0406 in SS. Also 12020 in CC at 2234. (MacKenzie, CA)

ZAMBIA—The Voice-Africa, 4967 at 2215 with hymns. (Brossell, WI)

ZIMBABWE—SBC, 3396 in vernacular at 0256. (Parker, PA) 4828 with Afro-pops at 0306. (Brossell, WI) 2320. (Wilkner, FL)

And, once again, order is restored! A barrel of thanks to the following folks who helped out this time: Jim Ronda, Tulsa, OK; Brian Alexander, Mechanicsburg, PA; Stewart McKenzie, Huntington Beach, CA; Bob Wilkner, Pompano Beach, FL; Charles Maxant, Hinton, WV; Joe Wood, Greenback, TN; George Zeller, Cleveland, OH; Robert Brossell, Pewaukee, WI; Mike Blanco, Islip, NY; Mark Schiefelbein, Springfield, MO; Jerry Strawman, Des Moines, IA; Richard Parker, Pennsburg, PA; Bob Fraser, Belfast, ME; Rich D'Angelo, Wyomissing, PA; Robert Charlton, Windsor, ON; Peter Ng, Malaysia; and Ray Paradis, Pittsfield, ME. Thanks to each one of you.

Until next month—good listening! ■

Learning From Disasters, Plus Some Services That Help You Prepare Before Disaster Strikes

I vividly remember the day. It was February 28, 2001, and my 10-year-old son, Tyler, and I and were discussing his history paper when at 10:54 a.m. we heard what sounded like bulldozers in our yard. The leaves on the shrubs and trees shook violently, and the house began to roll. We were in our first, and I hope last, large earthquake.

After the rolling stopped I immediately grabbed the telephone (you thought I'd grab a radio, didn't you?) to make sure my wife and mother-in-law were okay. The phone was dead. I tried the cell phone and it was, you guessed it, dead. I knew they were down in the nearby valley and in a multi-story building, but reports on our battery-operated AM radio were coming in piecemeal. While Tyler kept checking the phones I monitored and checked into the emergency net on 2 meters. For two hours my son and I worried until finally she was able to get a signal and call us.

Relieved, I checked out our own damage, then began to assess the impact in the area. Several buildings were damaged, but the biggest problem was that a river nearby had changed course and was threatening a major road to our area. Tyler and I hopped in the car and managed to get down to the river. We talked with one of the emergency workers who advised us that a crew of construction workers had managed to keep the river back. Luckily, I was able to relay that information to other amateur radio operators who were helping people get back to their homes.

The Point?

So what does this have to do with Homeland Security? The answer is simple: the earthquake began to prepare me for the next big event—9/11. That's not to say that anyone really could have been prepared for that day seven years ago, but our earthquake experience made me aware that we can't rely solely on our phones or cell phones. They can be out for hours, days, or even weeks for repair or be overloaded with people trying to get help. I've never been without a radio, and I insist that my son keep one in his car now that he's driving (don't get me start-



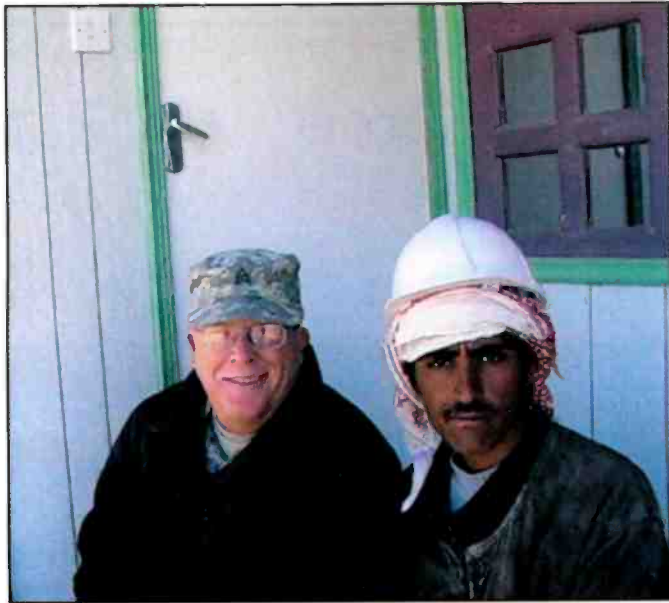
The violent shaking of the earth in February 2001 was one of the largest recorded in Washington State. It ripped this road in Turnwater, Washington, to shreds, but inspired me to rededicate myself to both radio and emergency preparedness. (Photo by Jim Brown/FEMA News)

ed on that!). As for my lovely wife, she's promised that this year she'll get her license, even though she finds radio a little intimidating. We also keep a 2-meter rig in her car and she knows the basics of what to do in an emergency.

I was a volunteer home school teacher at that time and offered to teach a group of 23 kids for the Technician amateur radio license. I gave these 8- to 13-year-olds incentive by telling them that not only would they have fun, but even at their age they could help in the event of a disaster. I'm proud to say all 23 passed and are now licensed. (By the way, I'm also a member of Army MARS—the Military Affiliate Radio System—whose role has changed from providing morale welfare calls and relaying messages to being a vital part of Homeland Security. And, yes, you need to have at least the Technician amateur radio license to operate on MARS, but you are able to operate on the military HF frequencies as well as VHF.)

Communication Services

Organization	Services Provided	Website
Amateur Radio Relay League (ARRL)	Find a club and ARES group near you	www.arrl.org
Military Affiliate Radio System (MARS)	Find your state MARS director and local MARS	operatorwww.ares.org/groups/mars/index.htm
Radio Emergency Associated Communications Teams (REACT)	Emergency communications support	www.reactintl.org



Here's a photo of me and Diya, taken just days before the rocket attack (see text). My weapon is in my lap, and the photographer was another armed soldier working with me.

Anyway, these were some of the ways I began to prepare myself for any disaster and to help others do the same.

Lessons Learned

September 11, 2001, impacted all of us. We soon heard the words, "Be vigilant," and for awhile we were all more cautious and watchful of the actions of others around us. But it did not last. Many of us became complacent over time as there hadn't been a major terrorist act on our soil since that fateful day.

It's natural for us to let our guard down, but it's also very dangerous, especially in today's world. This lesson was brought home to me in Iraq early in 2007 while stationed at Camp Adder, about 120 miles south of Baghdad. One of the several tasks I had was to guard Iraqi nationals who worked on the base. I carried a full magazine in my M16 and was trained not to hesitate to use it if needed. Our job was to protect the workers from an attack or to protect ourselves from the workers if we were attacked. It's a very uncomfortable, but necessary, position to be in. On my first day, I trusted no one, but as days passed and I got to know the Iraqis I began to let my guard down. Though

very poor, they insisted we eat and have tea with them. I knew their names and we could communicate to some extent using hand signals and a lot of laughter.

One of the younger men there was named Diya. He was always smiling and always friendly. One day he didn't come to work and the foreman told us he'd called in sick. That night I was thrown off my cot as rockets slammed into the ground around our living area, hurting several people and one severely.

The next day Diya returned to work. As we were gathering all the workers together, two other soldiers came up and promptly arrested him. I learned later that he was one of five workers who always called in sick the day the rockets came in. They'd been watched for several weeks.

And that wasn't my only brush. In Mosul I met an interpreter who'd been working with the U.S. military since 2004. He was arrested a week after our meeting when a swabbing of his hands revealed explosive residue.

This taught me a valuable lesson that I follow to this day. I trust my family and my friends, but everyone else is suspect. It doesn't mean I am paranoid, but I am more careful. I observe more, I monitor frequencies more, and have a plan for my family. I refuse to be apathetic to the reality of the world today and all of us should do the same.

Lessons Put To Use and Some Practical Applications

But enough history. We know we need to be vigilant and prepared so let's get down to business and look at what we can do.

As I mentioned earlier, monitoring frequencies is one of the most important tasks that we have. Terrorists will use radios as they are keenly aware of how easy it is to find their location on cell phones. Amateur radio equipment is the most flexible and they can easily modify it to operate outside the amateur radio bands. It's illegal to modify the radios to transmit outside of the bands unless you have a MARS license, but there is a plethora of websites that give full details on how to do it. I have no doubt that terrorists will use any type of communications at their disposal, but we can be vigilant in attempting to disrupt their plans by monitoring.

We need to also *prepare* for a natural disaster and/or a terrorist attack. There are many organizations with websites that can assist you in that preparation (see boxes). While they can give you information, they can't keep you able to communicate—you need to do that for yourself. If your phone lines and cell phones are not working you'll have no way to send mes-

Disaster Preparedness At A Glance

Organization	Provides Info On	Website
Global Crisis Solutions Center <i>(The Global Crisis Solution Center is a website that provides links to many organizations and related subject matter in order to inform citizens and help them prepare and act appropriately in response to a terrorist attack or natural disaster.)</i>	Terrorism and Natural Disasters	http://globalcrisis.info/disasterplanning.html
Henry L Stimson Center <i>(The Henry L Stimson center website provides information on several related topics including what to do in a biological attack.)</i>	Terrorism	www.stimson.org/cbw/?SN=CB20011220140#attack
American Red Cross	Terrorism or Natural Disaster	www.redcross.org/services/disaster/0,1082,0_601_,00.html

“You may not be interested in getting a ham license (though I recommend that you do), but hams are the people who have the ability to get messages out nationwide.”

sages to loved ones to let them know you're alright, nor will you have the capability of calling for help. As a minimum you should at least have a CB radio that can be operated from a vehicle or battery for emergencies. Channel 9 is specifically set aside for emergencies and is monitored by REACT 24 hours a day, seven days a week.

But don't stop there. You may not be interested in getting a ham license (though I recommend that you do), but hams are the people who have the ability to get messages out nationwide. You can search on the Internet (or ask someone else to do it for you if you're not online) for a club in your area. Ask them if they have or know of the local Amateur Radio Emergency Services (ARES) group. Contact the ARES group and ask if there are members who live near your location and if they'd be willing to discuss what they can do in an emergency. Gather your neighbors and set up a meeting. If there is no ARES group near you, ask the amateur radio club where the closest member is and see if they would be willing to meet with you and your neighbors to discuss how they can help. Most important, find out if there is a rally point where you and your neighbors can go to in order to send messages out.

The Military Affiliate Radio System (MARS) is another organization designed to assist during any type of emergency. This organization of over 5,000 trained amateur radio operators falls under the Department of Defense. They train almost daily in emergency communications and when there is a disaster, they are involved. A search of the Internet for your state will get you started in finding a local MARS operator.

Thankfully, we have not seen a terrorist attack within our borders in these past seven years, even though our security is not yet where it needs to be. I attribute that to the combined efforts of our military weakening the terrorists overseas, the U.S. Coast Guard patrolling our waters, our

police, FBI, CIA, DEA, Homeland Security and other government personnel—to name just a few—who are constantly on the alert.

But it's also due to people like you who monitor the frequencies, the ARRL, REACT, the citizen volunteers on the border, and all others who no longer see or hear something suspicious and do nothing.

Recently I was asked to give a speech on disaster communications and terrorism to a group of people involved in emergency communications. At the conclusion of my talk I was asked a question that may also be on your mind: “We can't listen to every frequency all of the time—what are we to do?” I thought for a moment and then told the questioner that there is a lot he could do. True, you can't monitor all the frequencies, but there are thousands of people monitoring certain frequencies. Why not join or start a club of people interested in monitoring frequencies? What about an email group? Post a series of frequencies and have people choose where to monitor. Record what you monitor and if you hear something that you believe is important send it to the Department of Homeland Security.

That's the kind of action that can really make a difference. ■

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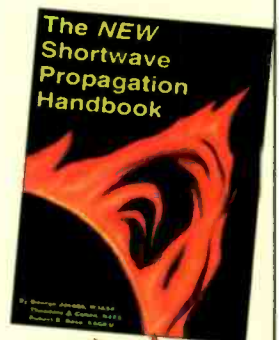
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Safety: It's All About Good Habits

For most people, hams and otherwise, safety is a boring topic. In Drivers Ed, when the teacher was droning on and on about safety issues—merging, braking on ice, looking both directions before pulling out, etc.—most of us were barely listening. Our eyes were open and our faces were pointed toward the front of the room, but our thoughts were elsewhere, focused on how much fun we'd have behind the wheel doing most or all of the things we were being admonished *not* to do.

Even as a professional driver (I have a part-time job with a specialty transport company), I can barely stay awake during the several hours of safety training required each year to maintain my DOT certification. Part of the problem is that I have the attention span of a gnat. The other is that I'm very safety conscious as is. Covering that material *ad nauseam* is pure torture, because I've integrated the safety behaviors into my "standard approach to driving."

And that's a blessing and a curse, for drivers and hams.

In this era of round-the-clock media stimulation and a constant hunger for "fun, fun, fun," it's easy to gloss over the boring stuff that might save your life one day (or the lives of your loved ones) and focus on fun stuff.

Working DX is fun. Worrying about the rats' nest of wires that run behind your radio gear isn't. Making contacts via a new digital mode is fun. Setting your shack up in a way that maximizes electrical and RF safety for you and your family isn't. Putting up a new tower and antenna is fun (relatively). Installing sufficient lightning protection isn't. You get the idea.

At the risk of boring you in the fine tradition of my Drivers Ed instructor, take a brief vacation from the song that's playing in your head and realize that ham radio, interesting and friendly though it is, can kill you in a jiffy if you don't play it safe. As in kill you—dead!

Hams don't talk about safety as much as we should, but it all comes down to common sense, good habits, and observing "good amateur practice." Instill good habits up front and you won't have to be sorry later on.

Bad Examples

A non-ham friend who lives in rural Minnesota was asked to help a fellow employee install a point-to-point wireless Internet node (complete with antennas) atop a 30-foot tower that was itself bolted to the top of a 90-foot-tall grain silo. (In that neck of the woods, big silos provide a handy and inexpensive way to zip signals back and forth, avoiding the much higher costs associated with commercial tower sites.)

The guy (a technician by profession) who wanted my friend's help was working alone, without anyone even glancing in his direction. He'd climb the silo's access ladder, pull up a tower section, bolt it onto the top of the silo, climb down, climb up to the top of the recently installed tower section, pull up another tower section, bolt it on, etc., etc. No tower guys—no nothin'. This was standard operating procedure for the company in question, and this tech said he'd installed more than 30 such sites.

I told my friend that I thought the process was "death waiting to happen," and explained why. He didn't get involved. I'm glad. He's still around to be my friend to this day!

Here's a handy device that can save your expensive transceiver from a lightning smackdown. It's a coaxial lightning arrester from PolyPhaser (www.polyphaser.com). Based in Nevada and founded by hams, PolyPhaser is now a global leader in lightning protection devices for military, commercial and, yes, amateur radio customers!

Most hams, beginner or otherwise, aren't up to date on what it really takes to protect their stations and their shacks from the effects of lightning-induced electrical spikes, and addressing it here isn't practical—there's too much info. Perhaps the best introduction to the subject is a

three-part article series written

by PolyPhaser consultant Ron Block, KB2UYT. It's

called "Lightning Protection for the Amateur Station,"

and you can download all three parts

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

This important information is just as

valuable for SWLs. I urge everyone to

check it out.—NTØZ



In 31 years as a ham—many of those as a younger, less risk-averse version of my present self—I've had a few close calls. Allow me to share some of my hard-learned lessons...

Lightning Strike

As a teenager, my unassuming dipole was hit by lightning, as was an adjacent oak tree in the yard. The steel support mast was anchored to the side of the deck. The bottom section was a 20-foot-long piece of three-inch iron pipe. The top section was a 15-foot-long piece of two-inch steel conduit. A welded coupler/reducer held them sturdily together. This was the first victim of the lightning strike!

The welded junction of the two mast pieces melted during the strike, and the top section fell to the ground. It made for a hell of a boom, followed by a secondary crash. I guess the increased electrical resistance of the welded joint caused a lot of heat when transferring all of that current.

RG-8 coax ran from the antenna feed point, through a basement plexiglass window, to a homebrew antenna tuner in my basement shack. The tuner had exploded into small fragments and was scattered around the room. The coax was "melty" in several spots along its length and had to be replaced. A beefy, bare copper ground wire that ran along the basement block wall from the tuner to the nearby electrical safety ground at the breaker box was intact, but a searing black arc traced its path along the cement blocks.

My radio, which was not connected to the feed line at the time, but was plugged into the AC mains, was undamaged (per-

haps because it had vacuum tubes in the front end?). The oak tree split in half and was smoldering in a few spots, even as the rain fell. Damage and excitement aside, this was *not* a direct hit. That would have been *much* worse.

At the time, my station had the same rudimentary—and minimal—lightning-protection features used by most hams: a heavy wire running from my gear to an existing electrical safety ground. It's better than nothing, but it's not very good. Proper lightning-protection techniques can be expensive and tedious to install, but are worth it in the long run if you value life and property.

High Voltage

When I was 14 years old, members of the local Civil Air Patrol gave me a WWII-era transmitter and receiver for use on 80 meters. As I was adjusting the transmitter, my foot edged off the rubber safety mat I had dutifully placed on the floor. And although my screwdriver's shaft was covered in black 3M electrical tape, somehow the unprotected tip of the blade made contact with a high-voltage source, and some of that energy found its way into my hand and out the bottom of my foot, which was now on the bare concrete of the basement floor. ZAP! I was slammed against the wall, my heart beating erratically. I have never forgotten the feeling.

Later, in college, I was excruciatingly careful as I homebrewed linear amplifiers and tube-type transmitters. My caution paid off and I had no further "accidents."

Other Hams Haven't Been As Lucky...

Periodically, beginner and experienced hams alike are killed when the vertical antennas they're installing accidentally touch overhead power lines. A life-long ham with thousands of hours behind the key and test bench was fatally shocked when he touched a high-voltage line inside his linear amplifier. The powerful jolt had charred his hands completely off his body. While operating from remote locations, hams have electrocuted themselves by running power cords (plugged into gas-operated generators) through standing water. More than a few hams have been killed by lightning strikes. And not too many years ago, a prominent contester from the Southeast was killed in an accident atop one of his many world-class towers.

Recalling these events—and there are others—is a chilling reminder that anyone who works with or around electrical and ham radio equipment needs to be alert and careful.

Voltages *do not* have to be high to cause death or injury. Lower voltages can be just as deadly, and strong RF fields can cause severe burns and can damage tissues and organs. Working on rooftops and towers also calls for caution and common sense.

Ham radio isn't an inherently dangerous hobby, especially if you use your head. But by learning—and practicing—the right safety habits at the start of your ham career you'll hopefully avoid having to learn them the hard way.

Learn To Be Safe

A comprehensive treatment of safe amateur radio practices can be found in every *ARRL Handbook* and *ARRL Antenna Book*. If you don't have a copy, your nearest library probably does. For targeted, helpful information about ham safety, especially RF safety, point your Web browser to www.arrl.org/rfsafety. Among the many PDFs and linked resource pages you'll find *RF Exposure and You*, a terrific book written by my old friend Ed Hare, W1RFI.

Another treasure trove of safety information can be found at www.arrl.org/tis/tismenu.html.

Even if they sound rote—here's the boring stuff you should pay attention to!—try to keep the following tips in mind while building, repairing, installing, adjusting, and operating amateur radio and electrical equipment: The life you save could be your own!

Electrical Safety

- *Personally* disconnect equipment from power sources before beginning your work.
- Drain (ground) electrolytic capacitors before touching them.
- Don't work alone.
- Make sure a fire extinguisher is available nearby.
- Use tools with insulated handles.
- Install a master "power cut-off switch" near your test bench and make sure everyone in your household knows how to use it.
- Work in a well-lighted area.
- Keep detailed notes about your equipment and how to safely connect and power all station items in your "shack notebook."

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Shared Memories

In my admittedly short tenure as editor no other article has inspired nearly as much feedback as Bill Price's April "Loose Connection." His fond reminiscences in "Gimme That Old-Time Radio" obviously struck a sentimental chord with many readers as letter after letter poured in. Here's a small sampling.—Editor

Dear Bill:

I really enjoyed your April column on nostalgic stations in Philadelphia and New York. I lived, for a time, in the late '50s near Philadelphia and listened to WIBG "WIB-Bidge radio" (my father called it garbage radio) and later in North Jersey where I listened to WABC all the time except from 10:15 to 11 p.m. when "the Shep" was on WOR. Jean Shepherd was probably the main reason I became interested in amateur radio in the first place. I actually got to talk to him for a very short QSO on 40 meters just before his death. Lots of great memories. Thanks.

Tom, WA4ILH
Via email

Dear Bill:

I enjoyed reading your old time radio article in the April 2008 issue. I agree with your article. Living in New York I miss the good old days of Top 40 radio featuring Dan Ingram and Cousin Bruce Morrow. Dan Ingram is retired and Cousin Brucie is on Sirius satellite radio.

What I miss most about radio from the '60s and '70s is the old WNEW 1130 AM in New York City. It had the best DJs and great radio jingles. I listen to talk radio all the time and FM radio in New York City has become way too homogenized.

Anyway, I enjoyed reading your contribution to *Pop'Comm*.

Mark R., N2NIG
Brooklyn, NY

Dear Bill:

I just read your April article in *Pop'Comm*. Remember that not everyone in New York City listened to WABC for Top 40. There was also WMCA at 570 and WINS at 1010 until 1965, before they

become all news. Granted WABC then and now still has the best signal and that's why all over the New York metro area we were able to hear them. (No matter where we were located!)

By the way I, too, was a Jean Shepherd listener back then on WOR and even to another "off the wall" character—Long John Nebel. The first "talk" station that I remember here in New York was WNBC at 660. They did not always do a good job with their format, but at times you did get some pretty big names doing telephone talk, like Henry Morgan.

Greg, N2HLN
Via email

Dear Bill:

I just finished your April article in *Pop'Comm*. In it you said you enjoyed New York radio from the 1960s, and you mentioned WABC 770 as the big Rock 'n' roll station of the time. There was also another AM rock station in New York City that was very popular in the '60s, which of course was WMCA 570AM, the very same station where I'm sure you heard Bob Grant and Barry Farber.

On Wednesday, August 6, 1969, I recorded an hour of WMCA. The show was "Instant Play" and the host was Frankie Crocker. Except for a few splices to repair breaks in the tape, it's in pretty good shape and the quality is good. It was made on an Aiwa AM/FM cassette recorder. I uploaded it to <http://www.box.net> so you can download it. I hope you enjoy it as much as I've enjoyed your column all these years. Here is the link: www.box.net/shared/p5as3uoooc.

Gary
Via email

Dear Bill:

I enjoyed your article about old-time radio. I, too, remember the time before TV, when I was fascinated with those huge console radios. Back then, I especially liked "The Green Hornet" and "The Shadow." And listening to baseball games on radio! How great was that, when you could use your imagination?!

Bob
Via email

"Make safety a habit and you'll be set for the duration."

• Keep your station's wiring and interconnects orderly and identifiable. Avoid exposed wiring and other sloppy—and potentially dangerous—installations.

• If you must service equipment while the power is on, follow the electrician's rule of thumb: Keep one hand in your pocket while you work. That way, electrical energy won't have an easy path across your chest should your working hand contact a live source.

RF Safety

• Use good-quality feed lines and connectors.

• Never touch an antenna when RF power is applied.

• Never operate a transmitter or amplifier with its safety shielding removed.

• Make sure antennas cannot be powered up while you're working on them. If you're out in the back yard or on top of a tower, put a warning sign in your ham shack, pull out fuses or switch off circuit breakers, and disconnect all feed lines at the transmitter.

• Never look into the open end of a power waveguide, and never aim a beam antenna (dish, Yagi, etc.) toward yourself or others. Keep VHF/UHF antennas up in the air and away from people.

Climbing Safety

• Never work on towers or rooftops unless you know what you're doing and are mentally and physically prepared for the work at hand. There's no shame in getting help from experienced hams or antenna professionals.

• Never climb alone. *Always* use a helper/spotter.

• When working on a tower, always wear and use an approved, secure safety belt.

• Plan your work before you start. Have the proper tools and materials on hand.

• Take a break every now and then.

• Stay away from—and be alert for—power lines or other overhead wires.

• Don't climb when you're tired or distracted.

Okay. Now that the scary stuff is out of the way you can get back to enjoying amateur radio! Make safety a habit and you'll be set for the duration. ■

Where Is Aviation Radio Heading?

Aviation radio...where are we? Where are we going? What are we going to do when we get there? These questions and many more may be dancing through your hot little heads, and it all probably has to do with the myriad frequency steps and transmission modes floating around out there in radio land.

As we all know, the radio frequency spectrum is a finite resource. So, for many years there have been suggestions and proposals on how to increase the available number of channels for aviation traffic in the United States and around the world.

Dealing With A Crowded Spectrum

Channel capacity has always been an important issue, and aviation radio continues to improve. In the early days, however, there wasn't that much channel capacity. Radios did not offer the selectivity we enjoy in radios used today; with very broad receivers, selectivity was simply not good enough to allow close spacing of adjacent frequencies. Of course, in those days there was not nearly as much traffic, so the wide spacing and consequent limited number of channels was not an issue. As time went on and air traffic increased, the number of available channels became insufficient to handle the traffic. At the same time,



The Garmin GNS430 is an aviation radio that combines ILS, GPS, and VHF voice communications in one handy package.

radio technology was improving and spacing could be decreased. Over the years, it has gone through 50 kHz steps on the way down to the 25 kHz steps used today.

However, even the 25 kHz spacing in use today is insufficient to handle the load in many metropolitan areas, so suggestions for new options began to appear. Europe chose a relatively simple expedient, that of cutting the frequency separation again, this time to 8.33 kHz. This has the effect of tripling the number of available channels, and the switch has already begun



A B-2 bomber landing at Whiteman AFB. The localizer antenna array is visible below the aircraft, at the end of the runway.

in Europe. Effective in 1999, the new frequency steps went in service above Flight Level 245 (24,500 feet); as of March 2007, the new steps are in service above Flight Level 195.

The switch for European airspace below FL195 will occur in stages. As of January 1, all new aircraft must be equipped with 8.33 kHz-capable gear; aircraft using IFR, Controlled VFR and Night VFR must be capable as of 2010; and full implementation is expected by 2013.

New aviation radios in the United States now cover the 8.33 kHz steps, and it would seem logical for the U.S. to follow the Europeans in the implementation. Predictably, the FAA and FCC have proposed their own utterly incompatible plan for all aviation traffic in the U.S. to switch to digital modulation. Frequency spacing would remain 25 kHz, but the new modulation would fit four transmissions into one channel. While this would certainly increase the capacity of the VHF band, it has several major drawbacks. Not only would it make the American aviation radio network incompatible with foreign-registered aircraft unless they purchase a separate radio, the extremely high cost to U.S.-registered airlines and general aviation users would make it difficult to implement at best.

The route that will be taken by the United States as far as aviation voice radio goes is still up in the air; while digital would certainly improve spectrum capacity, it would also be a nightmare to implement. Will the U.S. go digital, or will the lower-cost (and more logical) 8.33 kHz frequency spacing become the standard? Time will tell.

In the meantime, you can visit www.eurocontrol.int/vhf833/public/subsite_homepage/homepage.html for more information on 8.33 kHz in Europe.

And by the way, aviation radio uses Amplitude Modulation, but why would it use such an antique modulation method? In the early days of radio AM and CW (Continuous Wave, or Morse code) were the only options available. As time went on, newer modes were developed, including FM (Frequency Modulation), which is a more efficient mode than AM. However, FM has what is known as the "Capture Effect," which causes a receiver to lock onto any signal that is 3 dB or more stronger than other transmissions on the same frequency and block out the weaker signals. This



Pennsylvania's Harrisburg International Airport is served by most major airlines or their regional partners and also hosts units of the 193rd Special Operations Wing of the state's Air National Guard.

Common Aviation Abbreviations

- APPR**—Approach
- ARTCC**—Air Route Traffic Control Center
- ATC**—Air Traffic Control
- ATIS**—Automatic Terminal Information System
- AWOS**—Automatic Weather Observation System
- CLNC DEL**—Clearance Delivery; channel used by ATC to issue flight instructions to pilots
- DEP**—Departure
- DME**—Distance Measuring Equipment
- EMER**—Emergency (refers to 121.5 MHz, the international emergency frequency)
- FBO**—Fixed Base Operator; companies at an airport selling aviation fuel and pilot supplies
- GND**—Ground; the Ground Control frequency
- GUARD**—Refers to 243.0 MHz, the military emergency frequency; some will call this "UHF Guard" and 121.5 "VHF Guard"
- IFR**—Instrument Flight Rules
- LFR**—Low-frequency Radio ranging
- LOC**—Localizer
- SVFR**—Special Visual Flight Rules
- TACAN**—Tactical Air Navigation; military navigational aid
- TRACON**—Terminal Radar Approach CONTROL; the ATC facility at a controlled airport with terminal airspace
- TWR**—Tower; the Tower frequency (also known as "Local Control")
- UNICOM**—A common channel used to contact services located at an airport
- VFR**—Visual Flight Rules
- VOR**—VHF Omni-Range navigation system
- VORTAC**—A combination of VOR and TACAN in a single facility

would obviously be a disadvantage in an emergency situation. So, AM continues to be used to this day.

Localizing The Slope...

If you listen to aviation traffic on a regular basis, you've probably heard references to the localizer and the glide slope. But what are these?

The Localizer and Glide Slope are two parts of the Instrument Landing System at an airport. You've probably seen the Localizer antenna, which looks like a red-and-white fence-like structure at the end of the runway; this is a system that allows a pilot to line his aircraft up with the centerline of the runway. It works by sending signals causing a display in the cockpit to vary to left or right. As long as the display is centered, the plane is lined correctly with the centerline of the runway. The Glide Slope antenna is located to one side of the runway; this antenna sends a signal that causes the cockpit display to indicate the proper angle of descent to touch down at the right spot on the runway.

There are other important parts of an Instrument Landing System, known as the Outer, Middle, and Inner markers, and the DME, or Distance Measuring Equipment. The markers indicate to the pilot where and at what altitude the aircraft should be at each point, while the DME provides a more accurate range indication to the threshold of the runway.

These systems all use radio frequencies. Localizers operate between 108.1 and 111.95 MHz; Glide Slope indicators operate between 329.15 and 335 MHz; and the markers use 75 MHz. If you wish you can monitor these devices, as they use modulated tones to cause the cockpit indicators to vary their readings.

Featurette Of The Month

We've flung a dart in the general direction of the map, and this time, the dart landed on Harrisburg International Airport (HIA) in Harrisburg, Pennsylvania, so here's a little bit about that facility.

Founded in 1898 as a U.S. Army Signal Corps installation, the airport became known in 1918 as Olmstead Field, part of the U.S. Army Air Service. When the U.S. Air Force was created in 1947, the field became known as Olmstead Air Force Base, and served as a logistics and overhaul facility. It was

decommissioned in 1969 and turned over to the Commonwealth of Pennsylvania to serve as Harrisburg International Airport.

Operated today by the Susquehanna Area Regional Airport Authority, the airport still hosts units of the 193rd Special Operations Wing of the Pennsylvania Air National Guard. The airport is served by most major airlines and/or their regional partners, including Air Canada, Continental, Delta, Northwest, United, American, and US Airways.

Here are the frequencies for HIA:

FAA ID Code: MDT
Tower: 124.8/269.35

Ground: 121.7/348.6
Approach/Departure: 118.25 (north)
124.1 (west) 126.45 (east)
ATIS: 118.8
Air Guard Ops: 395.1

Till Next Time

Well, that's it for this leg of "Plane Sense." Feel free to drop me a line at the address located at the top of the column about any questions you have or suggestions for things you'd like to see covered in an upcoming issue. I look forward to hearing from you. ■

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Space Weather: Interfering With The Global Positioning System

If you're like me and occasionally turn to a GPS (Global Positioning System) instrument to help you find your way, then you may relate with the frustration I have when my GPS receiver gets "confused" and either doesn't know which way is which—or gets me lost altogether.

Once, while hauling a 27-foot trailer over the Lookout Pass between Idaho and Montana, I pulled off the highway and drove up onto the overpass observation point. This overpass serves as a convenient place to take photos right on the state line. Since the overpass is at the very top of the mountain pass, the highway in either direction, into Montana and into Idaho, follows a steep downward grade. When coming from the Idaho side, there's a 14-mile climb, with no exits.

When I got back into my truck and started on my way, I was not exactly sure which way to go to get back onto the Montana-bound lane. I depended on my (tongue in cheek) faithful, dependable GPS. Since I programmed it for a destination in Montana, I was sure it knew which way I should go.

It told me, in a soft European accent, to turn left, and then follow the ramp. I did as I was told. It dawned on me as I found myself heading back into Idaho that the GPS was confused. Now, I had to go about 14 miles back down the sharp grade before I could find an exit that would turn me back toward Montana! Imagine my frustration while retracing my drive back over the pass for the second time, burning up all that gas over all those steep 14 miles. Thanks to GPS, I had a great experience entering into Montana twice.

You can't always trust your GPS gadget. To get its position, the GPS receiver locks onto at least four satellites and then calculates the positional data based on the signals from these satellites. When space weather causes a disturbance in the ionosphere, a GPS receiver may lose the lock on one or more of the satellites. This results in inaccurate positioning data. Scientists have long known that the complex electrical activity in the upper atmospheric zone called the ionosphere affects GPS signals.

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 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 Index (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 long 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>.

Scientists are putting great amounts of research effort into clarifying what happens to disruptive clouds of electrons and other electrically charged particles, known as ions, in the ionosphere. The work may lead to regional predictions of reduced GPS reliability and accuracy.

One team of researchers has recently observed Earth's aurora, which is a prominent manifestation of ionospheric electrical activity, in the act of disrupting GPS equipment. They found that the highly dense patches in the auroral zone during these auroral events cause fading of the satellite signals, in the span of seconds. This means that a GPS receiver will lose the signal in a sudden fading event triggered by the movement and formation of *E*-region ionospheric patches during auroral events.

Other scientists have successfully tested a way to forecast GPS disturbances for marine users, with likely extension to users on land. Under normal operating conditions, marine DGPS (Differential GPS) horizontal positioning is accurate on the order of to within several meters in North America. These scientists observed that during enhanced ionospheric activity, the accuracy of the positioning is significantly degraded. An ionospheric phenomenon known as "storm enhanced density" (SED) has been found to develop in the middle to high latitudes during ionospheric storm events. Very large changes in total electron content have been observed in the vicinity of this phenomenon, with DGPS positioning errors increased by a factor of 10 to 30 versus quiet (normal) conditions. The researchers are working on a way to monitor SED activity and map ionospheric conditions in real time. The end result would be a way to forecast and to spot conditions where DGPS is affected.

Some research groups are turning the tables and employing GPS receivers as tools with which to conduct basic research on the electrical-current structures of the ionosphere. Such research will help improve the reliability of the GPS utility. And this research will also help our understanding of the ionosphere, geomagnetic activity, and radio signal propagation.

September Transitions

At the end of September the sun will be directly over the equator. On the Autumnal Equinox (September 22 at 1540 UTC), everywhere in the world, the



The Aurora Australis as seen from the Space Shuttle Discovery on STS-39. The payload bay and tail of Discovery can be seen on the left of the picture. Auroras are caused when high-energy electrons pour down from the Earth's magnetosphere and collide with atoms. (Image courtesy of NASA; crew of STS-39)

hours of daylight are equal to the hours of darkness. This results in an ionosphere of almost similar characteristics over large areas of the world, making it the best time of year for long DX openings between the temperate regions of the northern and southern hemispheres on all shortwave bands.

Expect a vast improvement on the higher frequencies (22 meters up through 11 meters) with more frequent short-path openings from mid-September through mid-October between North America and South America, the South Pacific, South Asia, and southern Africa. The strongest openings will occur for a few hours after sunrise and during the sunset hours. Many international shortwave broadcast stations will soon change from their summer schedule to a winter schedule, taking advantage of this change in propagation.

Long-path openings also improve during the equinoctial periods. A variety of paths are opening up on 31 and 22 meters. Expect a path from southern Asia around sunset, daily morning openings from southern Asia and the Middle East, expanding to Africa. Also look for signals from the Indian Ocean region long-path over the North Pole. Afternoons will fill with South Pacific long-path, and then extend to Russia and Europe. Look for possible long-path openings on 31, 41, 49, 60, and 75 meters for an hour or so before sunrise and just before sunset.

The winter DX season is slowly approaching, making for exciting DX conditions. While the weather is still warm and fair, tighten hardware on your antenna system, check coax cables, and fine tune your radio station. Get ready to reap the DX.

HF Propagation

With the 10.7 cm flux levels around 70 during September, propagation on 11 through 22 meters will not sport much in the way of *F*-region propagation on most paths. However, some short-range *E*-region propagation may occur.

Sixteen meters, used by a larger group of broadcasters, will be the most reliable higher band, especially when the solar flux levels rise above 120. This band will usually supply day-path propagation even over the polar paths. A considerable improvement is expected, with the band opening shortly after sunrise and remaining open until after sundown. However, 16 meters will not stay open late into the night like it typically does during the spring. Openings should be possible from all areas of the world, with conditions best from Europe and the northeast before noon, and from the rest of the world during the afternoon hours. Openings from the South Pacific, Australia, New Zealand, and the Far East should be possible well into the early evening, particularly when propagation conditions are High Normal or better.

Optimum Working Frequencies (MHz) - For September 2008- Flux = 71, 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	21	20	19	17	15	14	13	12	12	11	10	10	9	13	16	18	19	20	21	21	22	22	22	22
NORTHERN SOUTH AMERICA	27	27	26	24	22	20	18	17	16	15	14	13	13	14	18	21	22	24	25	26	26	27	27	27
CENTRAL SOUTH AMERICA	27	24	22	20	19	17	16	15	14	14	13	13	13	16	21	24	25	26	27	27	28	28	28	27
SOUTHERN SOUTH AMERICA	28	26	24	22	20	18	17	16	15	14	14	13	14	13	17	21	23	25	27	28	29	29	29	29
WESTERN EUROPE	9	9	9	8	8	8	9	9	9	8	8	8	13	15	16	17	18	18	17	17	16	15	14	12
EASTERN EUROPE	9	8	8	10	12	12	10	9	9	8	8	8	12	14	15	16	16	16	15	15	14	13	11	9
EASTERN NORTH AMERICA	23	22	20	17	15	14	13	12	12	11	11	10	10	17	20	22	23	24	24	24	25	24	24	24
CENTRAL NORTH AMERICA	13	12	12	11	9	8	7	7	7	6	6	6	6	7	10	11	12	13	13	13	14	14	14	13
WESTERN NORTH AMERICA	7	7	6	6	5	4	4	4	3	3	3	3	3	3	4	5	6	6	7	7	7	7	7	7
SOUTHERN NORTH AMERICA	22	21	20	19	17	15	14	13	12	11	11	10	10	10	15	18	19	21	22	22	23	23	23	22
HAWAII	19	19	19	18	18	17	15	14	13	12	11	10	10	9	9	8	11	13	15	17	18	18	19	19
NORTHERN AFRICA	11	10	10	9	9	9	9	9	9	8	8	8	13	15	17	17	18	19	18	17	16	13	12	11
CENTRAL AFRICA	14	13	12	12	11	10	9	9	9	8	8	8	13	15	16	17	18	18	19	19	19	18	16	15
SOUTH AFRICA	18	17	16	14	13	12	11	11	10	10	10	10	15	18	20	21	22	23	23	23	23	23	21	19
MIDDLE EAST	9	9	8	8	13	11	9	9	9	8	8	8	12	15	16	17	17	17	15	12	11	10	10	9
JAPAN	19	19	19	18	17	16	14	10	10	9	9	9	8	8	8	9	9	8	11	15	17	18	19	19
CENTRAL ASIA	19	19	19	18	17	16	14	10	10	9	9	9	8	8	8	11	14	13	12	12	11	12	17	19
INDIA	14	14	14	14	14	14	12	9	9	9	8	8	8	8	8	8	8	8	8	10	11	12	13	13
THAILAND	17	19	18	18	17	16	14	10	10	9	9	9	8	8	8	12	15	15	14	13	12	12	11	14
AUSTRALIA	25	26	27	28	27	25	23	21	19	18	16	15	14	14	13	15	15	14	13	15	18	21	23	23
CHINA	18	19	18	18	17	16	14	10	10	9	9	9	8	8	8	9	9	9	8	8	8	12	15	17
SOUTH PACIFIC	29	29	29	28	27	26	24	22	20	18	17	16	15	14	13	13	14	13	15	20	23	25	27	28
TO/FROM US MIDWEST																								
CARIBBEAN	24	23	21	20	18	16	15	14	13	12	12	11	13	16	19	21	22	23	24	25	25	25	25	24
NORTHERN SOUTH AMERICA	25	25	23	21	20	18	17	15	14	13	13	12	12	15	17	19	21	22	23	24	25	25	25	25
CENTRAL SOUTH AMERICA	27	24	22	20	19	17	16	15	14	14	13	13	15	19	22	24	25	26	27	27	28	28	28	27
SOUTHERN SOUTH AMERICA	28	26	24	22	20	18	17	16	15	14	13	13	16	20	22	24	26	27	28	29	29	29	29	29
WESTERN EUROPE	9	9	9	8	8	8	8	8	8	8	8	14	16	17	18	18	18	18	17	17	16	14	11	9
EASTERN EUROPE	12	9	10	11	10	9	9	9	8	8	8	13	15	16	16	16	16	16	15	15	14	14	13	13
EASTERN NORTH AMERICA	16	15	14	12	11	10	10	9	9	8	8	8	10	13	15	16	17	17	18	18	18	18	18	17
CENTRAL NORTH AMERICA	8	7	7	6	5	4	4	4	4	3	3	3	5	6	7	7	8	8	8	8	8	8	8	8
WESTERN NORTH AMERICA	13	13	12	11	9	8	7	7	6	6	6	6	7	10	11	12	13	13	14	14	14	14	14	14
SOUTHERN NORTH AMERICA	15	15	14	13	12	11	10	9	9	8	8	7	7	9	12	13	14	15	15	16	16	16	16	16
HAWAII	23	22	21	20	19	17	15	14	13	12	12	11	10	10	11	10	13	16	18	19	21	22	22	23
NORTHERN AFRICA	14	13	11	10	10	9	9	9	8	8	8	14	16	17	18	19	20	20	20	20	19	18	16	15
CENTRAL AFRICA	15	14	11	10	10	9	9	8	8	8	8	14	16	17	18	19	20	20	20	20	19	19	17	16
SOUTH AFRICA	18	17	16	15	14	13	14	15	14	13	13	15	21	24	26	27	28	29	28	27	26	23	21	19
MIDDLE EAST	9	9	9	8	9	9	9	8	8	8	8	14	16	17	18	18	18	18	16	13	12	11	10	10
JAPAN	19	18	18	16	15	12	10	9	9	9	9	8	8	8	8	9	9	8	10	15	17	18	19	19
CENTRAL ASIA	19	18	17	16	15	11	10	9	9	9	8	8	8	11	14	14	14	13	12	11	11	11	17	19
INDIA	10	11	12	12	12	10	9	9	8	8	8	13	12	11	11	9	8	8	8	8	8	8	8	8
THAILAND	17	18	17	16	14	10	10	9	9	9	8	8	8	13	15	16	16	15	14	13	12	12	11	13
AUSTRALIA	25	26	27	26	24	22	20	18	17	16	15	14	13	13	14	16	15	14	14	13	16	19	21	23
CHINA	18	18	17	16	14	10	10	9	9	9	8	8	8	10	10	9	9	9	8	8	8	11	15	17
SOUTH PACIFIC	29	29	28	27	26	23	21	19	18	17	16	15	14	13	14	14	13	13	17	21	24	26	28	29
TO/FROM US EAST COAST																								
CARIBBEAN	19	18	17	15	14	13	12	11	10	10	9	9	12	14	16	17	18	19	19	20	20	20	20	20
NORTHERN SOUTH AMERICA	22	22	20	18	17	15	14	13	12	12	11	11	12	15	16	18	19	20	21	22	22	22	22	22
CENTRAL SOUTH AMERICA	26	23	21	20	18	17	16	15	14	13	13	14	18	20	22	23	25	26	26	27	27	27	27	27
SOUTHERN SOUTH AMERICA	27	25	23	21	19	18	17	16	15	14	13	13	16	19	22	23	25	26	27	28	28	29	29	28
WESTERN EUROPE	9	9	8	8	8	8	7	8	8	9	14	15	17	17	18	18	18	18	17	17	16	15	13	9
EASTERN EUROPE	9	9	8	8	8	9	8	8	8	8	14	16	17	18	18	18	18	17	17	16	15	14	13	9
EASTERN NORTH AMERICA	8	7	6	6	5	5	5	4	4	4	4	4	6	7	7	8	8	8	9	9	9	9	8	8
CENTRAL NORTH AMERICA	17	16	14	13	12	11	10	10	9	9	8	8	11	14	16	17	18	19	19	19	19	18	18	18
WESTERN NORTH AMERICA	23	22	20	17	15	14	13	13	12	11	11	11	10	17	20	22	23	24	24	25	25	25	24	24
SOUTHERN NORTH AMERICA	19	18	17	15	14	13	12	11	10	10	9	9	10	13	15	17	18	19	20	20	20	20	20	19
HAWAII	24	23	21	19	17	16	15	14	13	12	12	11	11	12	12	11	14	17	19	21	22	23	24	24
NORTHERN AFRICA	15	14	13	12	12	11	11	11	11	10	17	20	22	23	24	24	25	24	24	23	21	19	18	16
CENTRAL AFRICA	15	14	13	12	12	11	12	11	11	10	17	20	22	23	24	24	25	25	24	23	22	20	18	16
SOUTH AFRICA	18	17	16	15	14	13	14	15	14	13	15	19	22	24	26	27	28	29	28	27	26	23	21	19
MIDDLE EAST	12	12	11	10	10	9	9	9	8	9	14	17	18	19	20	20	20	20	18	16	15	14	13	13
JAPAN	18	16	15	10	10	9	9	9	8	8	8	9	10	10	9	9	8	8	9	14	16	18	18	18
CENTRAL ASIA	17	16	14	10	10	9	9	9	8	8	8	12	15	17	15	14	13	13	12	11	11	11	16	18
INDIA	8	8	8	9	9	9	9	8	8	8	12	15	15	15	15	14	14	14	13	12	10	9	8	8
THAILAND	15	15	11	10	9	9	9	8	8	8	10	14	16	17	18	18	17	16	14	13	12	11	11	11
AUSTRALIA	26	27	26	23	21	20	18	17	16	15	14	13	13	17	17	16	15	14	14	13	16	20	22	24
CHINA	17	15	13	10	9	9	9	8	8	8	8	14	15	13	10	9	9	9	8	8	8	8	14	16
SOUTH PACIFIC	29	28	27	25	23	21	19	18	16	15	15	14	13	14	14	13	13	12	19	23	26	27	28	29

Conditions may be marginal during the month, but these higher bands are certainly coming alive. There will be less polar propagation as we move toward winter, though, making some parts of the world difficult to hear over these paths. To catch the openings over high latitudes, get on these bands shortly after sunrise, or watch for polar signals as they close for the evening.

The 19- and 22-meter bands compete with 16 for the best daytime DX band this month. Look for 19 and 22 to open for DX at sunrise and remain open from all directions for a few hours. It should be possible to hear many areas of the world throughout the daylight hours, with a peak in the afternoon. Nighttime conditions will favor openings from the south and tropical areas, but some openings will also be possible from other areas. Look for polar gray-line propagation from Asia. Long-path is common on 19 from southern Asia, the Middle East, and northeastern Africa as well as the Indian Ocean region via the North Polar path.

The 25- and 31-meter bands are all-season bands. Expect an incredible amount of activity on these two hot bands. Many broadcasters choose these, target-

ing their audiences during prime times (morning and early evenings). The conditions prevalent on 19 and 22 are more pronounced, and last much longer, on these bands. Look for exotic stations a few hours before sunrise through early morning, then again in the early evening before sunset, until around midnight.

After the Autumnal Equinox, expect ever-improving nighttime DX conditions on 41, 49, 60, 75, 90, and 120 meters into October. This is due to the gradual increase in the hours of darkness and a seasonal decrease in the static level. Forty-one meters should be best for worldwide DX from sunset to sunrise. Forty-nine and 60 meters are used by a lot of the larger, stronger broadcasting stations, so you can always depend on hearing signals from early evening (from before sunset) to a few hours after sunrise. For exotic regional signals, check 75 through 120 meters during the hours of darkness, especially for an hour or so before local sunrise.

Mediumwave Propagation

With the typical seasonal increase in geomagnetic activity, with associated

aurora, MW DX over the northern latitudes is severely attenuated. This can be a blessing for those trying to DX tropical AM broadcast stations and mid-latitude medium and low power stations, since the interference from strong over-the-pole stations is reduced. Signals below 120 meters will improve with the longer hours of darkness and decline in noise-producing weather. Seasonal static, which makes it difficult to hear the weak DX signals, is decreasing little by little as we move away from the Autumnal Equinox. Stretch out those beverage antennas and start looking for signals along nighttime paths.

VHF Conditions

The sporadic-E (*Es*) season we experienced earlier in the year is pretty much over now. There will be a few openings late this year, but this is not the month typically associated with *Es*.

Troposcatter is a real possibility, however. Look for signals on paths crossing through stalled high-pressure zones in the Midwest, or along cool, wet air masses.



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Additionally, toward the end of September, transequatorial (TE) propagation will begin to occur between southern North America and northern South America. Openings will generally occur in the late afternoon to early evening. F-region propagation activity may occur during the day on the VHF TV bands, though the 10.7 cm flux levels are not going to sup-

port reliable propagation at these higher frequencies. Don't expect any east-west paths to be open. Tropospheric conditions are generally very good for many of the VHF bands during September with the appearance of different weather fronts. This will be the primary mode for working up to 300 miles. Continue to expect a high number of coronal mass ejections,

possibly triggering aurora during September and October. Look for days when the K_p index is above 5.

Current Solar Cycle 23 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for May 2008 is 2.9, the same as for April. The lowest daily sunspot value recorded was zero (0) on May 1-3, 6-12, 14, and 21-31. The highest daily sunspot count was 15 on May 18. The 12-month running smoothed sunspot number centered on November 2007 is 5.7. A smoothed sunspot count of 14, give or take 7 points lower to 6 points higher, is expected for September 2008.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7 cm observed monthly mean solar flux of 68.4 for May 2008, down from April's 70.3. The 12-month smoothed 10.7 cm flux centered on November 2007 is 71.1. The predicted smoothed 10.7 cm solar flux for September 2008 is 65, give or take about 4 points.

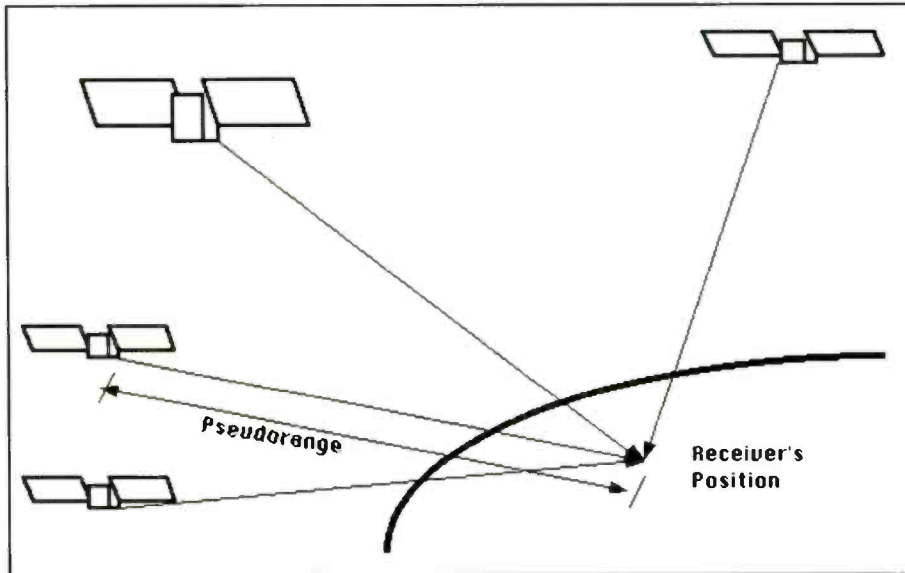
The observed monthly mean planetary A-Index (A_p) for May 2008 is 6, down from April's 9. The 12-month smoothed A_p index centered on November 2007 is 7.8. Expect the overall geomagnetic activity to vary between quiet to minor storm levels during September. Consult http://hfradio.org/lastminute_propagation.html for the most up-to-date forecast of which days such storms may occur. The days indicated as "Low Normal," "Below Normal," and "Disturbed" are those days when the geomagnetic conditions range between disturbed and stormy.

I'd Like To Hear From You

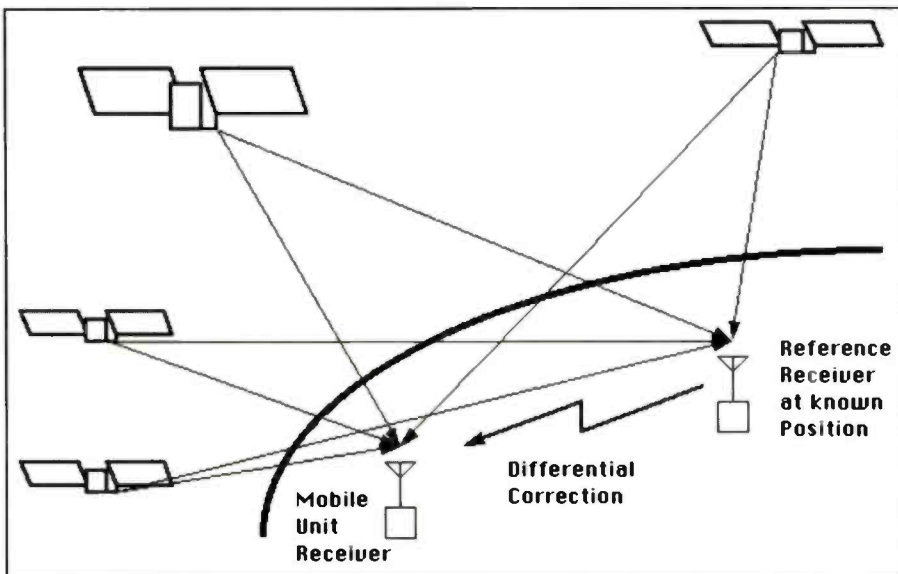
Please take a look at what's new at my propagation website, <http://propagation.hfradio.org/>. Included on the site is an up-to-the-day Last Minute Forecast that you may use to access the latest forecast for the month. In addition, if you have a cell phone with Internet capabilities, try <http://wap.hfradio.org/>.

Do you have a question that you'd like me to tackle in this column? Drop me an email or send me a letter, and I'll be sure to cover it. I'd love to hear any feedback you might have on what I have written.

Until next month, 73 - de NW7US, Tomas Hood.



The Global Positioning System (GPS) consists of a constellation of satellites that broadcast two pieces of data to radionavigation receivers. The first component is a collection of equations that describe the satellites' predicted orbits so that receivers can calculate satellite position at any moment in time. The second component is a timed data stream that a receiver uses to determine the distance (called pseudorange in GPS lingo) to the satellite. (Image courtesy Department of the Navy)



Differential GPS (DGPS) works by placing a slightly specialized GPS receiver at a known location. This reference receiver compares the satellite ranging data that it receives with its known position and calculates a correction, known as the differential. This differential is then communicated to the mobile units that in turn add it to their receiver calculations. (Image courtesy Department of the Navy)

Tiny Boats Look Like Supertankers With AIS Transponders

AIS stands for the Automatic Identification System, which uses data bursts on the duplex (UP .6 MHz) side of marine VHF Channels 87 and 88 to convey critical information. Until recently, the Class A AIS marine transponders were found only on large yachts and most commercial vessels. This was mainly due to the high costs associated, which were in the thousands of dollars.

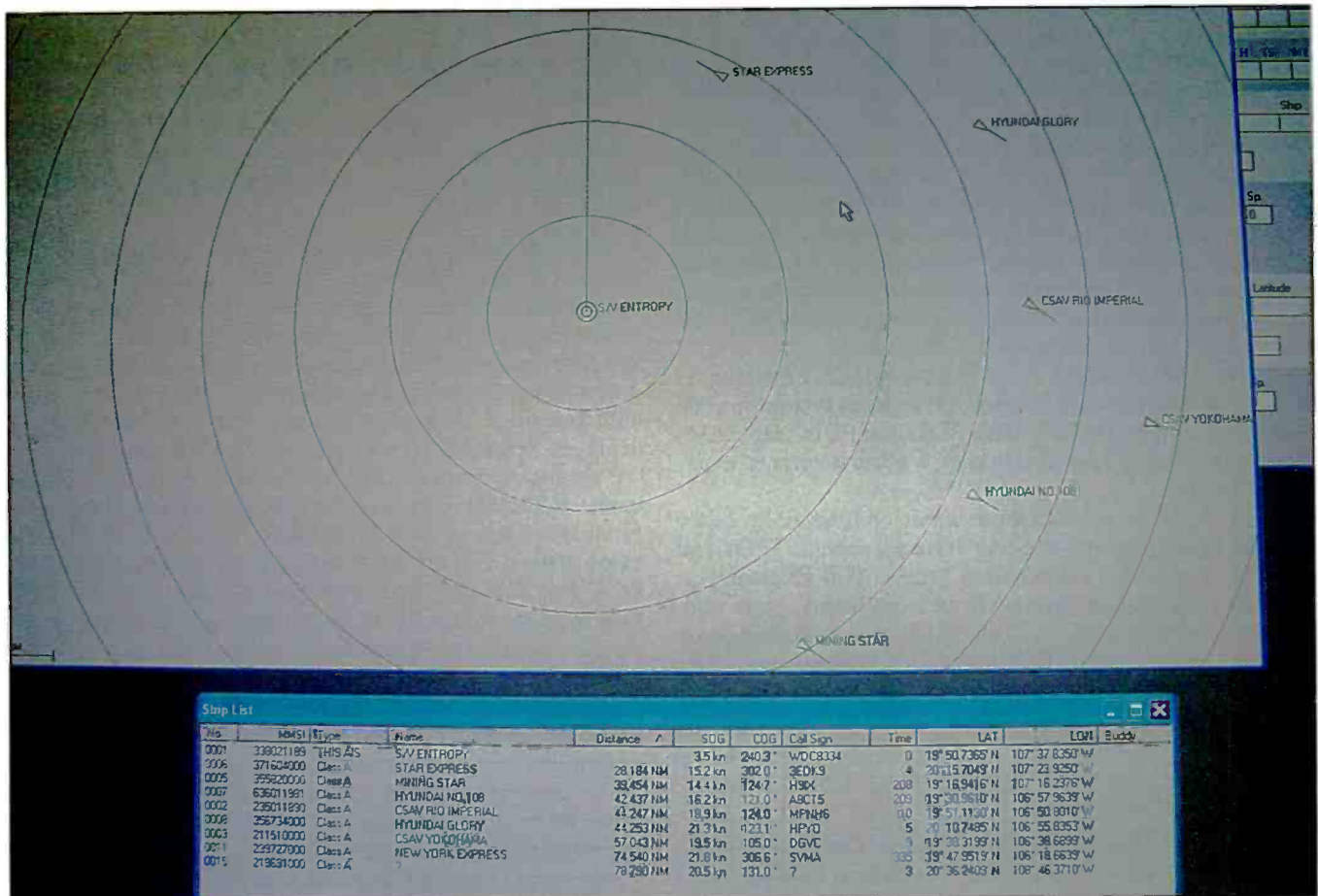
Think of the AIS marine system as similar to aeronautical tower traffic control, offering target identification, overlaid on radar and marine cartography, along with target navigation, including “red alert” of a collision course. The actual size of the target would have no bearing on the intensity of the AIS return—a kayak with an AIS transponder would give a similar presentation as a 200-foot passenger ship.

Class B AIS has been on hold for small ships and tiny rowboats for almost two years. Although equipment is available and low cost, the FCC wants to be absolutely sure recreational AIS equipment could not somehow “jam” the important AIS

collision avoidance data streams passing between huge commercial vessels.

Big-ship commercial AIS transmitters work with an exclusive algorithm tied into a GPS clock, self-assigning transmission slots detected “open” in a congested radio traffic area. This allows shore-based vessel traffic centers (VTC) to monitor two VHF channels simultaneously, detecting incoming AIS data packets sequentially, rather than one jamming another.

Big-ship AIS packets include vessel name and MMSI (Maritime Mobile Service Identity) number, speed over ground, course over ground, closest point of approach, turning rate, and a few other specific navigational details if the vessel is underway. A pleasure boat Class B AIS transponder may not have nearly as much navigation information, but it will present an equal size target to any AIS receiver on other vessels, as well as AIS-equipped shore stations and vessels traffic control centers.



The names and locations of nearby vessels appear on screen. AIS helped sailors Robert and Carol in this “close encounter” (see text).

It is reassuring to know you are “on the scope” of vessel traffic control when, for example, entering San Francisco Harbor and they call your vessel by name and MMSI number on VHF Channel 16. Even though your Class B transmitter is aboard your tiny jet ski, your target information appears just as bold as that supertanker, two miles away, no longer on a collision course thanks to an AIS advisory.

“Since we are only moving at six knots to avoid big-ship traffic, a potential collision course would require actions on both steering bridges. AIS ship position screen names gave us an opportunity to hail all ships in the local area and encourage them to slightly alter course to prevent us from getting run down,” comment mariners Robert and Carol aboard their sailing vessel *Entropy*.

“Our equipment is from ACR Electronics and it has become critical to the safety of our small vessel at sea. Our encounters quickly proved it to us,” adds Robert.

Finally, the U.S. Coast Guard will likely see AIS as an important tool for

homeland security. Specifically, any small vessel approaching a busy port *without* AIS identification will likely receive additional scrutiny from their patrol vessels. Just like air traffic control, AIS now gives everyone out on the water big image identification.

Inside AIS

AIS operates on the duplex-side of marine VHF public correspondence Channels 87 and 88, 161.975 MHz and 162.025 MHz, GMSK FM modulation mode at 9.6 kb data rate. Commercial Class A AIS systems duplicate “squawks” on both channels, ensuring complete interference-free reliability of the transmitted signal.

The AIS system also includes an internal 12-channel continuous reception GPS receiver, which not only provides position information, but most important, *time*.

Time is critical to the AIS transponder for self-assignment of a position-sending time slot into one of 2,250 slots for the

26.6-millisecond data burst. The modern AIS transponders will continuously synchronize themselves to each other to avoid overlap of time slots, and to automatically and continuously self-check that their time slot is not in use by another nearby vessel.

“In the event of system overload, targets further away may have less preference to nearer targets that are of primary concern to ship operators,” says Bill Alber, an AIS marine electronics installer.

“A common wideband FM marine VHF radio will likely *not* hear any narrowband data traffic on frequency, so it is extremely important that absolutely no mariner ever try to use marine VHF Channel 87 or 88 for any simplex or duplex communications that could cover up these narrowband signals,” adds Alber.

A Caveat

AIS transponders transmit the data bursts at a power level of 12.5 watts into a common 3 dB gain marine VHF anten-

A Clarification: Emergency Beacons Have Higher Response Priority Than SPOT Or FRS

In our July 2008 issue we covered a new signaling device called SPOT. In that article, we made note that an activated SPOT 911 alert is not the same thing as an emergency signal from an approved EPIRB (Emergency Position Indicating Radio Beacon) or similar. Unlike the more costly and well-proven emergency signaling of a marine EPIRB or an aeronautical ELT (Emergency Locator Transmitter) or a PLB (Personal Locator Beacon), a SPOT emergency activation goes to a private commercial emergency response center, rather than a worldwide network of Mission Control Centers. We’d just like to make sure users know the difference.

“...the United States Coast Guard (USCG) has clearly defined the differences in response procedures in handling 406 MHz distress alerts from EPIRBs, PLBs, and ELTs,” comments a representative of ACR Electronics, a manufacturer of emergency beacons.

“The response procedures to *other* commercially based satellite messaging and tracking systems, such as SPOT and TracMe, bears closer examination,” states ACR Electronics.

Search and Rescue managers and command center controllers consider a PLB, ELT, or EPIRB distress transmission an actual Distress Alert. This designation prompts immediate activation of a search mission. *Other* non-Cospas-Sarsat (the international satellite system that provides distress alert and location data), commercially based messaging products first require a careful factual evaluation and categorizing into the following three sections:

Uncertainty phase: a situation wherein doubt exists about the safety of an aircraft or a marine vessel and of the person(s) on board.

Alert phase: a situation wherein apprehension exists as to

the safety of an aircraft or marine vessel, and the person(s) on board.

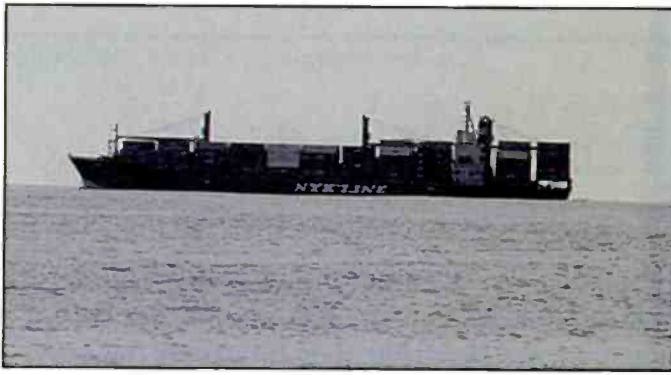
Distress phase: a situation where there is reasonable certainty that a vessel or other craft, including an aircraft or a person, is threatened by grave and imminent danger that requires immediate assistance.

“Each of these phases dictates a level of response from the Rescue Coordination Centers. Telephone notifications will be categorized to one of these phases, based on the amount of detail received. Reports that do not include GPS location or float plan-like detail from regional call centers will not necessarily prompt the immediate launch of a search mission. The US Coast Guard will continue to seek additional information before assets are deployed,” explains a representative of ACR Electronics.

“On the other hand, a 406 EPIRB or PLB will generate the quickest possible response from search and rescue,” says Paul Frank, president of ACR Electronics. As the July article indicated, there are many benefits to having 10 email recipients know that “I’M OK” from a SPOT transponder, but a 911 distress message from a SPOT transponder will likely not generate the same degree of search and rescue assets that a distress message from a 406 MHz PLB would.

A recent tour of the SPOT rescue agency, GEOS Emergency Response Services, will be detailed in a future “Radio Resources,” with an eye toward how their commercial response center compares with government mission control centers. Learn more about the commercial GEOS search and rescue agency at www.geosalliance.com/sar.

My recent trips to Christmas Island on the Equator, with thousands of miles between me and any big land, included the ACR PLB safely secured on my belt everywhere I went!



A photo of a containership encountered during the day. At night, these targets are incredibly intimidating, but AIS provides peace of mind.

na. Although some manufacturers may claim that only a specific AIS antenna may be employed for AIS transmission and reception, on-the-water testing that Alber and I have conducted reveals that most any good-quality marine VHF antenna near 162 MHz will work fine. However, some AIS receive-only systems may be shipped with their own antennas and ONLY this antenna can be used because voltage may be fed up the coax to drive a built-in AIS pre-amp within the receive-only antenna. I suspect there may have been damaged voltage driver systems when voltage going up the coax meets a never-recommended existing halfwave antenna, which to DC voltage looks like a direct short due to its shunt-fed coil! If the AIS system you're using has its own antenna system, stick with what you were sent as part of the package, rather than substituting an antenna already in place aboard the boat.

Info Conveyed

Vessels underway, at moderate speeds, may broadcast the following information every two to 10 seconds:

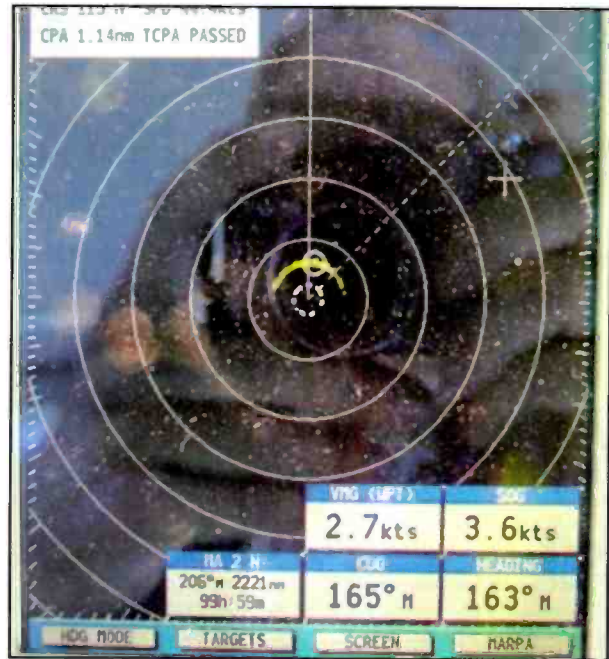
- MMSI Number
- Navigation Status
- Rate of Turn
- Speed over Ground
- Latitude and Longitude
- Position Accuracy
- Course over Ground
- True Heading
- Time Stamp

Additional information may also be broadcast every few minutes:

- Radio Callsign
- Vessel Name
- Type of Vessel
- Ship Dimensions
- Draft
- Destination
- Estimated Time of Arrival
- MMSI and IMO (International Maritime Organization) Ship Numbers

Safer Waters

Homeland Security shore stations and harbor patrols will likely keep a keen eye on all new AIS targets approaching their home ports. Radar Traffic Control shore stations will now see



Once the provenance of commercial ships and expensive yachts, AIS's wealth of information can now be available to anyone.

nearly positive identification of every radar target that shows up on their screens, much like Air Traffic Control does.

"VHF AIS range is unbelievable—we were picking up targets more than 100 miles away on our relatively small sailboat," say Carol and Robert, experienced sailors plying the South Seas.

"Although my less expensive ACR Electronics Class B AIS transponder system doesn't send out all of the information that a Class A system does, it nonetheless gives us a positive track on incoming big-boat traffic, which could ultimately end up on a collision course. When we spot a potential course conflict, we have the name of the other vessel to call them on marine VHF Channel 16 (156.8) or Channel 13 to get the skipper's attention," adds Robert.

But, unfortunately, his multiple encounters with incoming soon-collision-course foreign commercial vessels led to utter frustration when he could not raise their attention on marine VHF—even by calling their specific boat name. But Robert and Carol had an answer for this: Digital Selective Calling (DSC).

These large commercial vessels, of any country, are required by law to carry AIS and also required by law to carry marine VHF with DSC capability. This means their VHF radio is also continuously—and silently—guarding marine VHF Channel 70 (156.525 MHz). Even with the main volume control turned all the way down on Channel 16, DSC circuitry continuously guards Channel 70 for an electronic call.

Robert and Carol could either manually dial in the MMSI number of the approaching commercial vessel, automatically triggering that commercial vessel's DSC buzzer, or, for more prompt results, they simply push their DSC "all ship's call" to set off this big vessel's radio alarm circuit—pretty tough to overlook by the skipper on board. A last resort before an imminent collision could be the DCS urgency call, or as an absolute last resort, the DSC Distress call.

"Both AIS and DSC should dramatically reduce the number of at-sea collisions," concludes Bill Alber.

For more information on our country's AIS system, log on to www.NAVCEN.USCG.gov/enav/AIS/. ■

Emergency! But Is Your Family Ready...?



What emergency is most likely to affect your town? Wherever we live, each of us faces the possibility of at least one type of emergency occurring, perhaps several. September is “National Preparedness Month,” but well over 90 percent of Americans are not prepared, the Department of Homeland Security tells us.

When an emergency arises, you need to have basic tools and supplies already on hand to deal with it. You also need a plan to offset the tendency to panic. Unless you have both, you expose your family to needless danger.

Your interest in radio means you likely have some radio equipment available for an emergency. That means you’re already at an advantage over many others when telephones go down or the power grid fails. Make those radios work for the benefit of your family. Here are some of your choices to do just that.

Take Your Pick

Family Radio Service (FRS) radios are inexpensive and will keep you in contact with neighbors in your immediate area. That contact with others is a real boost to the morale of all in an emergency, and it can bring speedy help where it’s needed.

FRS radios are simple to operate and multi-purpose. You can easily teach others in your family to use FRS for camping, shopping, hiking, or a variety of other routine activities. You want them to be familiar with the radios long before an emergency occurs. You want them to learn respect for the radios so they conserve batteries and use the radios wisely. Channels 1 through 14 are FRS channels. No FCC license is required, but you must operate on LOW power. Check your owner’s manual for help to set the radio on low power. What you learn—and teach—now will pay huge dividends in an emergency.

Likewise, with a CB radio, either mobile or handheld, you’ll be ahead of the game if forced to evacuate. Professional truck drivers continue to rely on CB Channel 19 in most areas. You’ll be able to gather valuable tips on routes, weather, etc., just by listening to those pros. In fact, they prefer that you just listen and soak up the tips. It’s that easy, and that important, in an emergency. Buy new or at garage sales, etc.

General Mobile Radio Service (GMRS/FRS) combo radios will give you a little more range than FRS and enable you to listen to full-power GMRS stations for information on the situation farther afield. GMRS radios require an FCC license, so operation becomes a bit more costly. However, the license covers all members of your family so it’s really not that expensive, and it increases your radio options.

“September is “National Preparedness Month,” but well over 90 percent of Americans are not prepared, the Department of Homeland Security tells us.”

Make careful note of channel usage in these FRS/GMRS “combo” radios. Channels 15 through 22 are GMRS-only channels and you’ll need an FCC GMRS license to operate on those channels; Channels 8 through 14 are FRS-only channels that require no FCC license; and Channels 1 through 7 are shared FRS/GMRS channels. If you hold a GMRS license for GMRS Channels 15 through 22, it entitles you to use Channels 1 through 7 as well.

FRS operators may also use Channels 1 through 7, but must ensure that the radio is set to LOW power. Check your owner’s manual closely to ensure that you are operating legally. If you want to avoid the GMRS license issue, you may be able to pick up some older FRS radios with 14 or fewer channels that did not require a license. Watch for them at garage sales or on eBay.

Amateur radio is another option. Again, you need a license but ham clubs offer courses and help. The exam is much easier now and code is no longer required. Ham radios are now reasonably priced and extend your range even farther through access to club repeaters.

Plan For Success

National Preparedness Month is all about planning. Check and update your own “family plan.” Then talk to your homeowners’ association, church group, friends, and neighbors about establishing an FRS network for your subdivision or block. Arrange a meeting to discuss its benefits. Your local REACT Team can help you, so approach them.

Select an FRS channel to be your “work” channel. Remember, FRS-1 is the call/distress channel, so steer well clear of it for routine communications. FRS-only Channels 8 through 14 are the best for that. The work channel can be used to announce garage sales, community events, call kids home, check on seniors, etc. Again, such everyday uses will make people comfortable and familiar with their radios. In an emergency, you’ll be able to check on seniors and youngsters quickly and easily, as well as pass information to help all on the network.

You may not be able to complete your communications plans during this month. However, you can make a good start. Set yourself a deadline of Thanksgiving, for example, to have the network up and running. When you achieve that goal, again contact your local REACT Team and ask it about conducting an “SOS Drill” for your area at some point.

If you discover that you have no REACT Team in your town, you and some members of your new network can move



York County REACT volunteers relax as they respond to check-ins from FRS operators during their Team's second SOS Drill. They log calls by intersection to determine approximate range.

to form a REACT Team to serve the entire town. What you've learned from creating the FRS network for your community will help you in establishing a REACT Team to serve the larger area. A visit to www.REACTintl.org will give you help in that regard too.

Best wishes with your family plan, your FRS network, and your REACT Team. You can be part of making that all happen. By the next National Preparedness Month they can all be a reality. Begin now.

SOS Drills Grow

Three REACT Teams in three REACT Regions—1, 2, and 9—conducted SOS Drills during REACT Month this May. Two of the Teams were conducting their second SOS Drill. For the first time, two of the Drills involved Regional Directors of REACT International, Inc., so a lot of new ground was broken.



A Prince William REACTer gets a visit from police as they alter, on the fly, the March of Dimes Walk. Severe weather potential forced the route change. (Photo by Don Manlove)

York County REACT (Pennsylvania), and REACT Lake Simcoe (Ontario) each conducted its second SOS Drill. Richmond Metro REACT, Virginia, joined in for the first time. All the Drills were successes. The Drills are simplicity itself. Teams establish a field station in a public area. Advance publicity invites FRS operators to check in with the Team between 1 and 3 p.m. on a specific Saturday. Callers check in with their nearest intersection. That allows REACT to plot the locations and learn what range the FRS radios are giving. Results have been surprisingly good in that regard. Other SOS Drills were scheduled for over the summer so we'll report to you on those in future issues of *Pop'Comm*.

On The Go

REACT International's new president, Don Manlove, has hit the ground running. In recent weeks he has met with some Ohio REACT Teams and with the Indiana REACT Council. Manlove plans to visit other Teams and Councils as time (and gas prices, no doubt) permit. The visits serve an important dual purpose since they build morale among REACT volunteers in the field and allow him to get fresh ideas or feedback directly from front-line REACT members.

When Radio Matters

Prince William REACT (Virginia) suddenly had to shorten the March of Dimes Walk it was supporting with safety communications recently. Threatening weather posed a threatened the safety of walkers. March of Dimes officials asked Prince William REACT to alter the course to bring walkers in early. Instant REACT radio links made the surprise assignment a fairly easy task. All were soon safe and accounted for back at the finish line.

You, Too?

Challenging radio activities like you've read about here can involve you. Again, check out the REACT website to see if there's a REACT Team nearby that you can join. If none exists, with a couple of pals you can easily form a Team to serve your community. More details are available on the REACT International website, or call REACT HQ (toll free) at 1-866-REACT-9-9. ■

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A Survival Guide For Shipping Old Radios

In good times I am blessed with material to pen columns for months in advance. As of late it's more likely inspiration striking in the nick of time. And so it is for our September missive. But, I'm getting ahead of myself...

My recent ramblings about my first communications receiver, the Lafayette model HE-10, spurred a long-suppressed desire to add the HE-30 to my stable as well. While the HE-30 is housed in basically the same receiver chassis as the HE-10, it sports enhanced band-spread dial scales, with good frequency resolution, for ham band coverage. This was quite an improvement over the uncalibrated 0 to 100 logging scale offered on the earlier HE-10. The HE-10 BFO circuit was reworked into a Q-multiplier—the Q-multiplier provides enhanced selectivity for the CW and SSB modes. I also think it's a handsomer receiver. Unfortunately, as a young teen, I purchased the HE-10 just before the HE-30 made its debut in the Lafayette catalog.

So you can imagine how pleased I was to snag a decent HE-30 last June for the paltry sum of \$16.50 on an Internet auction site. I implored the seller to take steps to secure the loose cabinet top, and I instructed him on how I wanted the receiver to be boxed for shipment. "Not to worry, I've been doing this for years, and you won't be disappointed!" the seller assured me.

Alas, so much for empty assurances. The radio was poorly packed, and the sinking feeling I had when I saw the box was unfortunately on the mark. What I received is shown in **Photo A**. Note the crumpled steel front panel. This happened when the unsecured clamshell cabinet sections compressed together as heavy objects crushed the flimsy cardboard shipping box. Every knob is broken to some degree (one large tuning knob is destroyed); and on the rear apron the accessory plug cover is smashed and the antenna jacks are broken. The covers are bent, and at least one spot weld was popped. My long awaited treasure was a total loss!

No shipper will pay for damage caused by improper packing—and, quite frankly, I don't blame them! Besides, most carriers will not insure fragile antiques. The seller might offer a refund if I pay for the return shipping. Then I'd be out nearly \$60 dollars for a \$16.50 refund. Do you see a problem? The best shipping insurance you can purchase is to spend the money on proper packing materials and do the packing job the right way! Oh, well, my loss is your gain. This mishap will likely give me enough inspiration (perspiration?) for two columns: this one *and* one for when I am able show how I restored the HE-30 to as good as new. If any of my readers have a "junkie" HE-10 or HE-30 parts set, let me know.

The Problems We Face Today

Before the Internet matured into an International marketplace old radios were bartered and traded between fellow collectors. Collectors went to radio meets to buy, sell, and swap, or they scoured the pages of the latest *Antique Radio Classified* magazine to find deals. Generally, you knew whom you were dealing with. Good radios were still found locally, at tag sales or by word of mouth through friends and neighbors.



Photo A. This HE-30 communications receiver is something I've wanted since seeing it in the Lafayette catalog as a teenage radio amateur. You can't imagine how deeply disappointed I felt when I opened the shipping box!

Unfortunately, the Internet has created a whole new generation of sellers who have no knowledge of the goods they buy and sell. They scour estate sales and yard sales, and then hawk their wares on eBay and other Internet sites. While eBay has made available many rare radio treasures (and a few are in my collection), as a venue it is also responsible for the destruction and loss of far too many rare and expensive radios—the result of careless packaging by clueless sellers. Insurance restitution notwithstanding, many of these sets are rare and irreplaceable. There's a growing legion of collectors who've been burnt by Internet transactions and who are instead attending radio meets, or limiting their buying and selling to folks who share similar interests. *Antique Radio Classified* magazine is still going strong, and there is good reason for its continued survival! But enough of my preaching and rambling, let's get down to business!

Packing And Boxing Radios

Let's look at the steps involved in properly shipping a large cathedral or tombstone radio. First, you need to determine if it is even feasible to safely ship the radio. If not, are there steps that can be taken in order to make it so? Following are some of the things you need to look at.

For starters, are the chassis mounting screws attached and holding the chassis firmly to the mounting board? A few years back a seller in Rhode Island shipped me a Philco 16B tombstone with missing chassis mounting screws. How it arrived in



Photo B. I'm using this handsome Philco 44 tombstone to show two points made in the column. First, notice the narrow fretwork and decorative screw head the pen is pointing out, one of four screws used to mount the heavy speaker assembly to the cabinet. Also, the Bakelite escutcheon on this radio is very similar to the 16B tombstone escutcheon that was smashed during shipment.

one piece is a mystery, but as the chassis shifted during transit, the escutcheon was hit by the dial scale and broken. A reproduction replacement was made, but I had to pay for it and my radio is no longer truly original.

Before packing and shipping, the radio's wood cabinet should be carefully examined for weakened glue joints or delaminating veneers or substrates. Often large and heavy electrodynamic speakers are supported by very narrow sections of the fretwork in the speaker grill, as is shown in **Photo B**. It's not uncommon for the glued wood layers that build up the substrate (like a thin plywood) to weaken and delaminate; this means that any undue rough handling will cause the speaker to break away, damaging the case and most likely destroying parts on the chassis. It is always wise to remove, box, and ship a large speaker separately from the cabinet and chassis.

The best way to ship the speaker is to attach it to a large, strong section of cardboard that completely covers the paper speaker cone. This should be laid face down in the bottom of the shipping box, with a layer of plastic foam sheet between the cardboard and box bottom. To keep



Photo C. Here are two gorgeous radios from my collection. The radio to the left is an AK-84 cathedral from the early 1930s. In my opinion, Atwater Kent cathedral cabinets are the nicest looking examples of that genre. The Philco to the right is a full view of the model 44 tombstone in Photo B. Let's assume this is the radio we're going to be shipping in Photos D, E, and F.

the speaker in place, fill the space between the top of the speaker and the box flaps with plastic shipping peanuts, or also use Styrofoam blocks or sheets to position the speaker and keep it from shifting about in the box during shipment. The shipping peanuts should be poured into a plastic bag to fill voids, not directly over the speaker!

It's a good idea to remove the knobs and dial bezel. Chassis are often cushioned on rubber grommets; these usually dry rot and shrink with age, and they may allow enough chassis play for the knobs to rub against and damage the front panel lacquer finish, or in the case of some Philco tombstone radios, for the dial to smash into the recess portions of the bezel. The tuning capacitor should be fully closed. Again, a plastic bag can be filled with shipping peanuts and placed inside the cabinet to help keep the tubes in their sockets and minimize movement. If there's any doubt, remove the tubes and ship them separately.

Wrapping It Up— The Radio, That Is

This is the *single most important* step you can do to protect the radio! Wrap the radio with several layers of large-cell bubble wrap packing material. This provides cushioning—much as is provided by an airbag in a vehicle during a collision—

when the radio is dropped onto conveyor belts or tossed into trucks while being routed during shipment. The bubble wrap allows the kinetic energy to be gently dispersed, before damage occurs to the radio. If the radio will not survive a seven-foot drop to a concrete floor, it is not packed well enough!

Be generous, at least several inches of tightly wrapped bubble wrap are needed on all surfaces: top, bottom, front, back, and sides! I've seen several very persuasive videos that show several techniques used to protect a computer monitor that was tossed from a moving vehicle. Wrapping the monitor in larger cell bubble wrap was shown to be the only method that protected the monitor from major damage.

The bubble-wrapped radio should be placed in a *heavy-duty* cardboard box, preferably a new one, and not one that has been beaten into flimsy pulp by prior use. Next, this box should be placed in a second heavy-duty cardboard box, one that has enough room for a thick layer of Styrofoam sheet on all sides. You can also use packing peanuts. Once again, the peanuts should be poured into small plastic bags to prevent them from shifting and settling during shipment, preserving the additional cushion zone between boxes. Do not use crumpled newspapers! It makes very poor excelsior! Crumpled newspaper works once of twice, but it will eventually soften, compress, and lose its

ability to cushion and protect heavy objects. Include copies of the shipping label inside the radio and also attached to the inner box. To repeat, use generous layers of large cell bubble wrap packing material, and double box the set in heavy-duty cardboard boxes.

For example, to ship a nice cathedral, like the Atwater Kent model 84 shown in **Photo C**, follow the illustration provided in **Photos D, E, and F**. (To make things easier for me, a small Hallmark Christmas

tree ornament cathedral radio was pressed into service to illustrate the packing techniques outlined above.)

Again, regardless of the shipper, remember that you need to pack the radio so it can survive being dropped several feet to a concrete floor, being tossed into a truck or onto a conveyance system, or the force of heavy packages falling on it as the boxes are sorted and routed in the shipping centers. If not, please don't ship it.

Shipping Large Consoles

Wrap the console in bubble wrap and a layer of heavy cardboard. I've been told that the best way to ship consoles is via Greyhound Bus Lines. The price is fair, but you must deliver and pick up the set at the local Greyhound bus terminal. It will travel with the luggage beneath the vehicle.

Shipping Heavy Communications Receivers And Ham Gear

This is a tough subject to cover in the remaining space, but let me share some shipping problems I've encountered over the past 30 years! Several years ago an

SX-28 Hallicrafters receiver was shipped to me across country from California. The seller provided a gorgeous custom-made shipping crate for the receiver—the crate cost me dearly, but it was well made and I still have it. Unfortunately, it was only 99 percent effective.

The problem was that there was no cushioning to absorb kinetic energy. When the box and receiver were dropped and hit the floor, the receiver stopped moving at the same instant the crate stopped. Alas, the two heavy metal flywheels on the tuning shafts "wanted" to keep moving. Damage: two bent tuning shafts. Again, a layer of soft plastic foam and extensive layers of bubble wrapping might have made the difference by providing a controlled, cushioned landing when the box was dropped. Fortunately, this was an easy repair.

A second example was an SX-42 receiver that was shipped to me from the mid-Atlantic states. The seller had the receiver packed professionally, and the receiver was "foamed in place" by the shipper. The receiver arrived with a twisted front panel. The problem here was that the receiver was not centered in the foam; it was resting on the bottom of the box. There was no cushioning to protect the receiver on that plane when the box was dropped.

The most serious omission was the seller's fault, however. While the front panel screws were in place, the screws that mount the chassis apron to the rear of the cabinet (or to the cabinet bottom in some cases) were missing. Since the heavy power transformer was in the back of the chassis, rough handling resulted in the transformer's inertia leveraging against the front panel and damaging it. Fortunately, this was also something I was able to straighten out and correct on my own, but it could have just as easily been a total loss.

Wrapping It Up— The Column, This Time

In short, bubble wrap, double box, and add copious amounts of protective shock absorbing material. Ensure that all the mounting screws are present: front, rear, and bottom! Again, Greyhound bus freight might be a good way to go provided terminals are convenient to both shipper and recipient.

That's it for this month! We'll be back, but until then, keep those old tubes glowing and those soldering irons warm! ■



Photo D. This little Hallmark Christmas ornament is standing in for the AK-84 to illustrate how to properly ship a large tombstone or cathedral radio.



Photo E. The radio is wrapped in several layers of heavy bubble shipping wrap to provide a thick cushion on all sides. The wrapped radio should be securely packaged in a heavy-duty cardboard box.



Photo F. The final step is to place the first box into a larger, strong cardboard box or wooden crate. The space between the two boxes should be filled with Styrofoam sheets. Alternately, plastic peanuts can be used to fill the gaps, but they must be poured into several plastic bags to prevent them from shifting and settling in the shipping container! In this example I'm using additional layers of bubble wrap to fill between the boxes, which also works well. Shipping information should be copied and placed in with the radio, and on the outside of the inner box.

Log Lesson: Make The Best Of A Bad Situation

This month's column was about halfway written when I turned to the other computer, which was logged on to the #monitor channel on IRC-Global, and typed a command that causes an IRC "bot" in the channel to display the latest geomagnetic information from the National Institute of Standards and Technology (it's pretty much the same information you get from WWV and WWVH, except you don't have to wait for the appropriate portion of the WWV/WWVH hourly broadcast cycle):

```
<@KC2HMZ> nsa- condx
<@NSA> Solar-terrestrial indices for 11 June follow.
<@NSA> Solar flux 66 and mid-latitude A-index 5.
<@NSA> The mid-latitude K-index at 1200 UTC on 12 June
was 1 (5 nT).
<@NSA> No space weather storms were observed for the past
24 hours.
<@NSA> No space weather storms are expected for the next
24 hours.
```

At least there were no geomagnetic storms to further confound listening efforts, but the solar flux had sunken to a new low. When I first started going after utility stations in earnest, in the late 1990s, solar flux readings of 120 to 130 were the order of the day since we were at the top of a sunspot cycle, rather than buried at the bottom of one as we are as this column is being written. And yet there I was sitting in my Northeastern shack here in Tonawanda, New York, listening to a transmission of maritime weather from the U.S. Coast Guard's Pt. Reyes, California facility—on 13089.0 kHz—at a few minutes before 1 a.m. local time!

Lately, by that time of the morning, I'm trolling 6 MHz and below. After getting over the surprise of hearing much of anything on 13 MHz at 1 in the local morning, I got to thinking about how, despite the solar minimum and the unfavorable conditions it often presents to us, there's still no telling when (and maybe even not where!) you're going to come up with a good catch.

Now, granted, this was a 10 kW transmitter (NMC, the USCG Communications Area Master Station Pacific, or CAMSPAC). But at 1 a.m. locally, even during the sunspot peak, the lower frequencies (below 6 MHz or so) were where I made most of my catches from the Pacific, not on 13 MHz. And to be sure, it's not as easy as it was when the solar flux was at 128. Nonetheless, it's definitely still possible to have fun prowling the HF bands looking for UTEs.

Also this month, one of our readers logged a couple of broadcast relays in the 25 MHz band, and one of my associates on IRC noticed an opening on 10 meters a few days ago that lasted a good half hour or so, enabling him to get good copy of the ARRL's code practice transmissions from W1AW in Newington, Connecticut, from his Florida location. If you're sitting there thinking it's pointless to tune around up that high during the current solar minimum, perhaps you shouldn't be too sure!

As I write this it's June and I'm looking forward to ARRL Field Day 2008, but last year, during Field Day 2007, despite it being contrary to what I and the rest of the Amateur Radio Association of the Tonawandas (ARATS) Field Day Team would have expected, we spent most of the overnight hours (local midnight to 6 a.m.) making contacts on 20 meters. Normally considered a daytime band, it was the only band that stayed open for most of the wee hours. By comparison, 80 meters (3.5–4.0 MHz, a definite nighttime band), was dead, and conditions on 40 meters (7.0–7.3 MHz) were, to put it mildly, less than ideal.

Earlier that week, however, I'd heard hams making contacts on 20 meters at an hour one wouldn't usually expect to hear anything on twenty except maybe the next door neighbor's video game machine. I remember saying to someone, "This is going to sound insane at this hour, but check 20 meters." The guy operating the nearest HF rig shrugged his shoulders, but did just that and found the band relatively packed with stations running Qs. We spent a few hours on 14 MHz improving our "Q Rate," and by the time the sun came up we'd put many contacts into the log that we wouldn't have made if we'd adhered to conventional thinking and stayed on 40, 80, or 160, slugging it out against the tough conditions that prevailed on those bands.

New Approaches For New Logs

My point in all this is that, as utility listeners, we face the same conditions on the HF bands that everyone else on HF (hams, broadcasters, and utility stations) faces... and that putting things in your log book sometimes requires thinking outside the box a little bit. I've written before about using the ham-band NCDXF beacons, as well as stations like WWV and CHU that transmit regularly (or continuously) to gauge propagation at any given time. That's still a valid approach, of course, but sometimes the best procedure is to simply tune through a band and see if you hear anything.

Since I'm also a ham, I tend to spin through the ham bands once in a while just to see what bands are open, and to where. If, for example, I hear a lot of hams making DX contacts on 40 meters and 20 meters, and I don't hear anybody on 160, I'm going to tune through the utility bands just above and below 7 MHz and 14 MHz before I start battling the static down in the 2–3 MHz region. Later on when most U.S. hams go to bed (except during contests, when sleep can wait until Monday) and those bands pretty much quiet down, I'll check for other clues from other sources, such as beacons or VOLMET stations.

Of course, while most of the above was written with phone (USB or LSB) intercepts in mind, thinking outside the box might mean you increase the number of potential listening targets for yourself by branching out into chasing digital stations as well. There are a lot of high-powered stations out there using digital modes, from good old RTTY to newer modes like ALE and the MFSK modes (such as the MARS digital net using MFSK-16). If you're not equipped to receive these stations, they're simply

so much noise to you, but if you can interface your radio to a computer, you can decode the digital transmissions, identify the stations from which they originate, and put them in your log. I recently added an interface to my station (check it out in "TechShowcase" elsewhere in this issue), and now have the ability to chase the numerous military and government stations using ALE, which include Air Force, FEMA, the Coast Guard and other DHS assets, and the military forces of other nations, as well as the FBI, to name one non-DHS government agency in the United States that's using it.

So, this is what it takes sometimes to put catches in the log when the sun isn't cooperating. In recent weeks, I've been joking around on IRC about throwing empty bottles of various alcoholic beverages at the sun, starting with beer and gradually working my way up to 196-proof grain alcohol. While I suppose that staying drunk until conditions improve is one way to deal with the situation, it's certainly problematic for other reasons—and it fails to put anything in the log, which is the bottom line after all. So rather than going into radio hibernation until the forces of nature convince Ol' Sol to cook up some better band conditions for us, try using a different approach to searching out potential listening targets. Expand your horizons, try something new and different. If conventional approaches aren't working anyway, what have you got to lose?

September Space Missions

As part of "Utility Communications Digest's" continuing dedication to keeping you space buffs informed about upcoming events, there are two items on the NASA mission schedule this month, and they occur on back-to-back dates. The first of these is the planned launch of the IBEX mission, targeted for September 13. The launch vehicle will be a Pegasus XL rocket, and the launch site will be the Reagan Test Site at Kwajalein Atoll. The second event is the TacSat-3 launch, targeted for September 14 from the Wallops Flight Facility at the Goddard Space Flight Center aboard an Orbital Sciences Minotaur rocket.

The latter is an Air Force launch, supported by NASA; the mission will demonstrate the capability to furnish real-time data by satellite to combat commanders on the surface of the Earth. The USAF Research Laboratory's Space

Vehicles Directorate is managing the mission. NASA Ames will fly a microsat, while NASA Wallops will fly the CubeSats on this mission, in addition to providing the launch range.

Because some readers may not see the October issue in time, I'll also mention that the STS-125 space shuttle mission is targeted for an October 8 launch from the Kennedy Space Center. The shuttle *Atlantis* is slated to blast off from launch pad 39A with seven astronauts aboard for the fifth (and final) servicing mission to the Hubble Space Telescope, an 11-day flight that's aim is to repair and improve the telescope's capabilities.

Hurricane Season Is Upon Us

As I write this, the Atlantic/Caribbean region has already seen its first tropical storm of the season, and by the time this issue reaches your shack, the hurricane season will presumably be in full swing. Storm names for the Atlantic/Caribbean/Gulf of Mexico for this year are as follows: Arthur (already used as of this writing), Bertha, Cristobal, Dolly, Edouard (don't blame me, I don't pick the names, I merely report them), Fay, Gustav, Hanna, Ike, Josephine, Kyle, Laura, Marco, Nana, Omar, Paloma, Rene, Sally, Teddy, Vicky, and Wilfred. For those of you on the left coast, the storm names for the eastern Pacific for this season are: Alma, Boris, Cristina, Douglas, Elida, Fausto, Genevieve, Hernan, Iselle, Julio, Karina, Lowell, Marie, Norbert, Odile, Polo, Rachel, Simon, Trudy, Vance, Winnie, Xavier, Yolanda, and Zeke. The lists of storm names get recycled every six years, so remember these, because you'll see them again in 2014.

Every year around this time, the requests for hurricane frequencies start hitting the online email reflectors, blogs, and other places where purveyors of information reside and seekers of information come to find them. The authoritative source is Bill Snyder, AA6KC, who maintains the original Hurricane Frequencies list and has published the list during every hurricane season since 1991. There are unfortunately many copies of older versions of this list that have been reproduced elsewhere and then never updated, so get the list directly from the source:

<http://hurricanefrequencies.com>

Bill lists frequency information for everybody, from government and military to hams and non-governmental organizations (NGOs), such as the Red Cross and Salvation Army. The webpage also includes links to several other useful disaster health and welfare resources on the Internet, as well as the current reconnaissance messages from the Hurricane Hunter aircraft. Visit his page and bookmark it.

The Hurricane Watch Net also has a website with lots of useful information:

<http://hwn.org>

While I'm on a weather-related topic, and since so many of us who enjoy the radio arts find an additional interest in observing the weather, many of you may be interested in the computer program WXSpoTs, written by Scott Davis, N3FJP. The program is already running on computers at various local/regional emergency operations centers, at least one National Weather Service (NWS) office, and is being adopted for use by SKYWARN groups in some areas. The program runs on any Windows PC with Windows 95 or newer and allows observers to share weather observations using the Internet. You don't have to be a ham or a SKYWARN spotter to use the program, the WXSpoTs network welcomes all serious weather observers. I'm planning a full review of the program for a future issue. The program is freeware, and you can download it from:

www.wxspots.com

While you're there, you might also check out Scott's WXWarn program, which is also freeware, and which receives watch, warning, and advisory information by way of an experimental NWS Internet RSS feed and can be configured to sound an audible alarm when alerts are issued for the area(s) you're interested in. I keep both programs running on one of my computers here and have found that it helps keep me on top of things when threatening weather is developing.

Cracking Open The Reader Mailbag

It's been a while since we dipped into The Reader Mailbag, that virtual burlap sack loaded with various epistles penned by the loyal readers of *Pop'Comm*. In days gone by, it might have been a *real* burlap sack, but these days, mail of the



Photo A. Bob Muzzin, VE3MLM, in his Fraserville, Ontario, shack.

what a radio was. Joe's been an emergency services dispatcher for the last 16 years (which may be part of the reason for all those scanners!). He got his first ham ticket in March 2005 and upgraded to General a year later.

I'll just sit back now, while Joe offers this guided tour of his shack:

From left to right on the computer table are the following radios: 2 BC895s, a BC890, 2 BC780s, and a Yaesu FT-7800 2m/70cm transceiver. Also pictured on the computer table are a Sony Wavehawk handheld scanner and a Sporty's Pilot Shop JD-100 VHF-UHF air band handheld scanner. There are two power supplies, one from RadioShack and one from MFJ. On top of the Yaesu is a GRE antenna pre-amp, a necessity where I live, and an MFJ atomic clock set to UTC. The 895s and the 780s are all programmed identically using ScanControl software. I listen to northern NJ and southern NY for PD/FD/EMS, FDNY, Newark Intl. Airport, NY ARTCC, and the local railroads. The 890 is used for recording. I use the excellent Xcorder software to record the output of that scanner.

On the table next to the computer table is my ICOM IC-756 HF transceiver, another Yaesu FT-7800 transceiver, a Regency four-channel crystal scanner (my first scanner, received as a gift during my senior year of high school in 1982), a RadioShack DX-392, a Yaesu VR-500 receiver, and a Yaesu FT-60 2m/70cm handheld transceiver. Not shown is my newest toy, an ICOM IC-R5 receiver.

I'm running all five scanners through the GRE preamp to a discone antenna mounted on my old TV antenna mast. The IC-756 and 7800s are run through a Comet UHV-6

electronic variety has pretty much replaced the old way of doing things. Sadly, I don't reply to every email I get, but I do read them all, and from time to time, will pull out a few items from the sack, like those we'll share this month.

The first comes to us from Bob Muzzin, VE3MLM, in Fraserville, Ontario. Bob says he's been a ham since 1980, but only started listening around in April of this year, when he picked up his first issue of *Pop'Comm*. Bob's using a Kenwood TS-430 with a 650-foot closed horizontal loop at 30 feet of elevation. He had just finished enjoying our June issue when he sent along his logging of the WA3NAN space shuttle audio transmissions on 40 meters, along with a photo of himself in his shack (**Photo A**). Bob has a nice collection of older ham gear, much of which I'm not familiar with, but the TS-430 is the radio sitting on top of the older rig to which the familiar Astatic D-104 desk microphone is attached.

I happened to log WA3NAN on 20 meters during this past mission, and at the BreezeShooters Hamfest in Butler, Pennsylvania, which I attended on June 1, and where some vendors were entertaining themselves between sales by listening to WA3NAN as well. While normally hams aren't considered utility stations, there's a gray area involved when ham stations are used for public service work, such as emergency communications during disasters, or when the Hurricane Watch Net is activated during a storm. I feel that the shuttle mission audio retransmissions by WA3NAN (the Goddard Amateur Radio Club) and oth-

ers fits neatly into that category, so if you log these transmissions, by all means feel free to submit them, as Bob did. You'll find his logging and mine in the logs at the end of this column. Good work, Bob...and we always appreciate a nice shack photo as well!

Joe Pica, KC2PJJ, of Wanaque, New Jersey, also sent us a nice shack photo this month (see **Photo B**), in which we see a variety of ham gear and quite a collection of other goodies as well. Joe says he's 43 years young and lives about 40 miles northwest of New York City. He holds a General class ticket and has been a radio buff since he was old enough to know



Photo B. Joe Pica, KC2PJJ, monitors VHF/UHF as well as HF from his Wanaque, New Jersey, shack, shown here.

mobile 6m/2m/70cm mag-mount antenna with additional coils for 10m, 15m, 20m, and 40m. The antenna is mounted on the permanently installed a/c unit in one of the windows in my radio room. It's not the best antenna arrangement, but I've worked western Europe and most of the United States with it. I have a G5RV that I want to hang; I just need to talk to my neighbor about using a tree on the corner of his lot as an anchor. I also want to find a quality SWL antenna for the other antenna port on the IC-756 for better DX/UTE listening.

Joe obviously agrees wholeheartedly with one of my most basic and steadfast beliefs about the hobby of radio, which is that you can never have enough radios (there are 14 of them on my desk right now). Also, if you're a cliff-dweller, take note: Joe's use of a mobile antenna stuck to an air conditioning unit offers one possible avenue for overcoming the difficulties faced by many radio buffs who live in apartment buildings.

Many thanks go out to Bob and to Joe. And if you've got a nice photo of your own shack, you are hereby encouraged to do exactly what these two OMs did this month—send it in! The email address that appears at the beginning of this column is there for just such a reason.

Reader Logs

Your loggings are also welcome—again, use the email address that you'll find back at the beginning of the column. We appreciate it a lot if logs are submitted in the usual format (Frequency: Station/comments in *mode at time*). Many good examples follow since our readers have again given us a great collection of logs for this month. Let's get to those now without further delay, other than many thanks and a tip of the hat to this month's contributors, namely Al Stern, Satellite Beach, FL (ALS); Steven Jones, Lexington, KY (SJ/KY); Glenn Valenta, Lakewood, CO (GV/CO); Mark Cleary, Charleston, SC (MC/SC); Chris Gay, Lexington, KY; and Robert Muzzin, Ontario, Canada (RM/ON); there are also a few from your columnist (JK/NY).

2872.0: Shanwick Radio wkg AllItalia 607 for position report, Gander Radio also heard sharing freq., in USB at 0416Z. (ALS)

2962.0: Santa Maria Radio wkg airliners in USB at 0425Z. (ALS)

2971.0: USB 0435Z, Shanwick Radio wkg Speedbird 184; Gander Radio also heard sharing freq., in USB at 0435Z. (ALS)

3016.0: Santa Maria Radio wkg Speedbird 247 for position report; handed off to New

York Radio, primary 6628, secondary 2962, in USB at 0422Z. (ALS)

3137.0: ADW (Andrews HF-GCS) clg 450028 (KC-10A, 305 AMW) in ALE USB at 0020Z. (MC/SC)

3320.5: NNNOKLN and NNN0WBF in USN/USMC MARS South Carolina 4G1B Net in USB at 0012Z. (MC/SC)

3455.0: New York Radio wkg an airliner and handing off same to New York VHF 133.5 MHz, in USB at 0427Z. (ALS)

3485.0: WSY70, New York R. VOLMET w/OCEANIC SIGMET warning of "Volcanic Ash Cloud" for the San Juan, Puerto Rico region w/coordinates, in USB at 0415Z. (SJ/KY)

3810.0: HD2IOA, Guayaquil Ecuador vestigial sideband time signal, excellent levels here in LSB at 0549Z. (GV/CO)

4003.0: AAR4CY net control with AAA4TN, AAR4EM, AAR4EUT, AAR4FFT, AAR4DZ in Tennessee Army MARS Net in LSB at 0032Z. (MC/SC)

4040.0: Unid. station, male w/rather frantic-sounding traffic in Spanish, possibly dictating a message, frequent numbers and standard phonetics plus "coma" and "repito" as well as mentions of "las zonas" and Mexican cities of Colima, Sinaloa and Ensenada, PL tones on keying microphone each time, USB at 0250 to 0335Z. (SJ/KY)

4149.0: Tug *SENTINEL* WBN 6510 ops report to WPE JACKSONVILLE in USB at 0515Z. (MC/SC)

4173.0: PYYT, *MAERSK VEGA*, 4,500-ton Brazil-registered platform supply vessel w/name ID and coded traffic in format "P-20 NV01 2130 P-20 OM02 2245," apparent activity log for PETROBRAS offshore oil storage/processing platform supply activities, info in same format with later times for P-18 and P-19, probably arrival and departure times for different rigs matching the company's offshore rig designation scheme of P-##, in SITOR-A at 0553Z. More traffic 18 days later w/SELCAL VYXS (0719) for unlisted Brazilian station plus "CONFIRME" and "OM02 0015 AGAP 1532 AGAP 1646 PPG-9" in SITOR-A at 0646 to 0712Z. (SJ/KY)

4325.0: FUE, French Navy, Brest, France w/continuous encrypted RTTY, 50 baud/850 Hz at 0345Z. (SJ/KY)

4469.0: FLORIDA CAP 41, FLORIDA CAP 237, FLORIDA CAP 238 in Florida CAP Net in USB at 1149Z. (MC/SC)

4500.0: AFA2YR net control with AFA2BT in USAF MARS 2S1 Net in USB at 0043Z. (MC/SC)

4721.0: REACH 9167 (C-17A) wkg Andrews HF-GCS with request for WX at Pope AFB in USB at 0451Z. (MC/SC)

4772.0: Link-11 data transmission at 1207Z. (MC/SC)

4865.0: Link-11 data transmission at 1145Z. (MC/SC)

5116.0: M8a numbers station w/5-figure cut numbers in CW at 1307Z. (CG/KY)

5171.0: Link-11 data transmission at 0006Z. (MC/SC)

5381.0: TANGO WHISKEY with 0100Z Air Defense SITREP for players CHARLIE, GOLF, KILO, MIKE, ROMEO, SIERRA, LIMA, NOVEMBER in USB at 0102Z. (MC/SC)

5547.0: San Francisco Radio wkg various flights: Western 964 (cleared to FL380), American 297 (also cleared to FL380), another American flight: asks WestJet 964 when they can accept climb to FL400; cannot accept for next few hours; cleared to maintain FL360, asks WestJet 962 when they can accept climb to FL400; can accept in 20 minutes; in USB from 0554Z to 0617Z. (ALS)

5550.0: New York Radio wkg Speedbird 252 for posrep and SELCAL check in USB at 0431Z. (ALS)

5711.0: BRD (Booster Recovery Director) in comms with CAPE RADIO, informing CAPE RADIO they will remain on 5711 unless it becomes unusable, in USB at 1505Z; earlier heard CAPE RADIO and SRB Recovery Vessel *FREEDOM STAR* on 5711 as well as on 10780. (ALS)

5711.0: BRD wkg *FREEDOM STAR* and *LIBERTY STAR* (Space Shuttle Booster Recovery Vessels); vessels pass location coordinates, heading, weather conditions, temperature, sea state; BRD updates vessels on launch status, in USB at 1953Z. (ALS)

5732.0: CAMSLANT working unid in ALE-initiated QSO in USB at 0048Z. (JK/NY)

5732.0: JULIET 09 (MH-60J, CGAS Elizabeth City) airborne for SAR requests guard from CAMSLANT in USB at 0147Z. (MC/SC)

5732.0: NAS (USCGC *ESCANABA* WMEC 907) sounding in ALE USB at 0042Z. (MC/SC)

5696.0: CAMSLANT calling RESCUE-2128 with no joy, in USB at 0013Z. (GV/CO)

5696.0: USCG CAMSLANT wkg *SWORDFISH 14* (suspected HU-25, on 30-min. comm sked), received posrep referenced to benchmark, in USB at 0242Z. (JK/NY)

6131.0: Link-11 data transmission at 1146Z. (MC/SC)

6243.0: Link-11 data transmission at 1210Z. (MC/SC)

6265.5: 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 2313Z. (SJ/KY)

6586.0: New York Radio wkg airliner for routing to LFPG (Aéroport Charles De Gaulle, Paris) in USB at 0436Z. (ALS)

6586.0: New York wkg American 955 (cleared to FL330), American 1892 (at FL360), Air Mexico 001 (handed off to 3455.0), KLM 758 (for clearance/routing to Amsterdam), Martinair 905 (for clearance/routing to Brussels/EBBR), in USB from 0407Z to 0430Z. (ALS)

6604.0: New York VOLMET reciting aviation WX reports for Atlanta, Bermuda, Miami, Nassau, etc. in USB at 0418Z. (ALS)

6637.0: New York Radio wkg American 620 out of Merida, Mexico (MMMD) in USB at 0423Z. (ALS)

6703.0: TANGO FOXTROT, MIKE, SIERRA, NOVEMBER, KILO in Link-11/16 Coordination Net in USB at 0113Z. (MC/SC)

6721.0: CRO (Croughton HF-GCS) clg 280054 (C-17A, 437 AW) in ALE USB at 0604Z. (MC/SC)

6754.0: TRENTON VOLMET broadcast in USB at 0123Z. (MC/SC)

6754.0: Trenton Military VOLMET, good here, no copy on parallel freq 15034.0, in USB at 2342Z. (JK/NY)

6855.0: V2a numbers stn YL/SS w/5-fig grps in AM at 2115Z. (CG/KY)

7185.0: WA3NAN (Goddard ARC) with shuttle audio retransmission and CW ID, YL female commentator spoke of test lab, space walk, cameras, morning saliva sample procedure; spacecraft was over Australia, in LSB at 0138Z. (RM/ON)

7887.0: V2a numbers stn YL/SS w/5-fig grps in AM at 2034Z. (CG/KY)

8020.1: Unid. station w/transmission of a soccer game in Spanish including breathless announcers yelling "goal" interspersed w/brief musical ditties, stopped abruptly w/out ID at 0305Z, followed by male whistling and brief simplex QSO by male and female, in USB from 0247 to 0310Z. (SJ/KY)

8135.0: M8a numbers station in progress, in CW at 2305Z. (GV/CO)

8176.0: VMC, Charleville, S. Australia maritime weather broadcast, weak but readable in USB at 0540Z. (GV/CO)

8233.3: Two males in casual simplex QSO in Caribbean-accented English about having problems with Internet access since leaving the U.S., mentioned Jamaica several times, also "running directly to Cuba." in USB at 1405Z. (SJ/KY)

8340.0: Two males in extended casual simplex QSO in Russian, laughing but w/considerable QRM from the "Busy Signal" station nearby, in USB from 0220Z and onward. (SJ/KY)

8340.7: Unid. station in unid. mode, narrow-shift pulses with on/off periods of equal duration, 100 per minute, sounds much like a telephone "Busy Signal" when tuned with BFO, actual freq 8340.75, no variation in timing intervals or frequency, fairly strong signal not heard before, in unknown mode at 0210Z, started deep fades after 0240Z, still heard but fading more at 0340Z. Same type of transmission also heard the same night on 6258.75 kHz at 0500 and beyond. Both frequencies heard w/same transmissions over several subsequent evenings from around 2200Z on, then nothing heard on either frequency for several days. (SJ/KY)

8379.0: WGEH, OVERSEAS NEW YORK, 91,843-ton U.S.-registered crude oil tanker w/AMVER/SP for departure from Port Everglades, FL en route to SW Pass, LA, included 9 leg route list for sailing about 20 miles south of and around the Florida Keys, arrive in 2 days, in SITOR-A at 2200Z. (SJ/KY)

8381.0: VRYZ5, YONGXING, 22,309-ton Hong Kong-registered general cargo ship w/MMSI and abbreviated ID "YONG" in

SITOR-A at 2220Z. 9MEP3, ALAM AMAN II, 47,301-ton Malaysia-registered bulk carrier w/garbled AMVER/PR plus MMSI and abbreviated ID "AMII," en route to Falmouth, England, in SITOR-A at 0235Z. (SJ/KY)

8386.0: H9GC, AQUA BLUE, 13,324-ton Panama-registered Ro-Ro cargo ship w/MMSI and abbreviated ID "AQBL" in SITOR-A at 0744Z. (SJ/KY)

8416.5: Unid. station, probably NMF, USCG COMMSTA Boston, MA, idling for a long period, assume following scheduled Maritime Safety Information BC several hours earlier, parallel 12579.0kHz also idling. Now I know why their transmitters are worn out. In SITOR-B at 0420Z and much later. (SJ/KY)

8422.0: Presumed NRV, USCG COMMSTA Guam idling for an extended period in the wrong mode on this frequency, keyed remotely from USCG CAMSPAC, Pt. Reyes, CA, in SITOR-B at 0710 and beyond. (SJ/KY)

8426.0: NMC, USCG CAMSPAC, Pt. Reyes, CA idling for a long period in the wrong mode on this frequency, in SITOR-B at 0256 and far beyond. Transmission of SITOR-B idle signal continued for more than 20 hours overnight into the next evening past 2317Z, finally back to regular CW+SITOR-A idle marker sometime before 0141Z. (SJ/KY)

8431.0: TAH, Istanbul R., Turkey w/standard QUICK BROWN FOX test string and 0-9 count plus "USE OPR+," then back into idle marker, in CW+SITOR-A at 2335Z. (SJ/KY)

8708.925: Unmodulated carrier w/fair signal strength but deep fading, on for an extended period of time, 0415Z and beyond. (SJ/KY)

8764.0: USCG marine WX for Atlantic, manually read, in USB at 0524Z. (GV/CO)

8855.0: UAL842 w/Bogata radio coordinating QSY to 127.95 and having problems understanding each other over coordinates, in USB at 0513Z. (GV/CO)

8888.9: Unid Asian fishermen chit-chat and whistling in USB at 0548Z. (GV/CO)

8891.0: Gander Radio working JOHNSTON 1674 in USB at 0323Z. (GV/CO)

8912.0: 33C position report to PANTHER in USB at 2347Z. (MC/SC)

8983.0: USCG-1502 secures guard with CAMSLANT in USB at 1722Z. (JK/NY)

9007.0: CHR, Canadian AF, Trenton Military, ON concluding phone patch w/unid. aircraft, setting primary frequency as Z150, secondary as Z155, in USB at 1223Z. (SJ/KY)

9025.0: AED (Elmendorf HF-GCS) clg J21 (MH-60J, CGAS Kodiak) in ALE USB at 0346Z. (MC/SC)

9121.5: Link-11 data transmission at 1209Z. (MC/SC)

9255.2: Unid. station heard here previously and again this time w/brief traffic and ID "DE NPFRRM" in CW+PACTOR-2 at 2250Z. (SJ/KY)

10993.6: CG 1719, SHARK 19, and SICTOR KEY WEST in comms regarding 40-foot pleasure craft in USB at 2152Z. (MC/SC)

11002.0: Unid beacon, 5 short dashes and a long dash repeating at fair levels, in CW at 1933Z. (JK/NY)

11012.0: Unid. station w/broadband transmission of several digital channels much like FDM, not heard here before, in unidentified mode w/good signal strength from 0405Z onward. (SJ/KY)

11055.0: Unid. station w/casual chat in Spanish by male and female plus pop music and advertisements, sounds similar to Argentine BC feeders heard previously on 11133.0 and 13363.5 kHz, nothing on those frequencies tonight, in LSB at 0156Z but faded after 0240Z. (SJ/KY)

11067.0: Unid CW with extreme carrier shift +100 Hz, ending and replaced by USB in Asian-sounding language, in CW and USB at 0613Z. (GV/CO)

11090.0: KVM70, Honolulu Meteo, Hawaii w/oversized and rotated end-fed chart including map of southern half of the U.S. and Central America to the mid-Pacific, "THERE IS NO ACTIVE TROPICAL CYCLONE IN THE AREA," unusually good signal for time of day here, in FAX at 0537 to 0556Z. (SJ/KY)

11175.0: ANDREWS HF-GCS with SKYKING "foxtrot" (2FQ time 52 authentication AA) in USB at 1553Z; KING 4863 working ANDREWS for radio check in USB at 1608Z. (CG/KY)

11175.0: EVACS 50040 in QSO with Andrews, requested relay of msg to Arrow Medical Evacuation Desk at Andrews reporting ETA and other info, in USB at 1613Z; PEACH 24 with p/p to Peachtree via Puerto Rico in USB at 1640Z. (CG/KY)

11175.0: KING 74 with p/p to Rescue Ops via Puerto Rico, reported ETA and other info in USB at 1645Z; LL52 with p/p via Offutt in USB at 2008Z. ANDREWS with two 6-char EAMs in USB at 2142Z. (CG/KY)

11175.0: Minot Maintenance calling any station for radio check with no joy in USB at 2151Z; RANGER 519 calling MAINSAIL with no joy in USB at 2158Z; MEDALLION calling MAINSAIL with no joy in USB at 2159Z. (CG/KY)

11175.0: HF-GCS Station ANDREWS wkg REACH 346 for p/p to DSN number for HILDA METRO (Scott AFB); IDs tail as #0455; rqsts WX for LERT (Rota NS, Spain), LEMO (Moron AB, Spain), LPLA (Lajes, Azores); in USB at 1819Z. (ALS)

11175.0: ANDREWS wkg REACH Reach 7043 (YL voice) for radio check in USB at 1904Z; ANDREWS wkg "McDyer"; QSY to 13211, in USB at 1904Z, ANDREWS wkg "McDyer" again and QSY to 11220 in USB at 1905Z. (ALS)

11175.0: ANDREWS wkg "McDyer" again after failed attempt on 11220, QSY to 11460, in USB at 1912Z. (ALS)

11175.0: HF-GCS Station PUERTO RICO wkg HERC 68 (C-130, call sign spelled) for phone patch to DSN number for OH-ANG 179AW CP, Mansfield, OH; heading for Scott AFB; has problems w/acft, in USB at 1947Z; same stations up again 5 minutes later, HERC

68 reports VVI (vertical velocity indicator) out on pilot side: will RTB to swap and use the spare acft, in USB at 1952Z. (ALS)

11175.0: PUERTO RICO wkg RETAILER (callsign spelled) for p/p to DSN number for orderwire coordinator at Offutt AFB, but RETAILER cancels patch, in USB at 2013Z. (ALS)

11175.0: PUERTO RICO wkg "Navy BD 451" (C-130T, Willow Grove VR-64, over St Louis) for radio check in USB at 2032Z; PUERTO RICO wkg REACH 8044 for radio check in USB at 2104Z. (ALS)

11175.0: HF-GCS Station ANDREWS broadcasts test count and IDs as "SCOPE 51" in USB at 2100Z. (ALS)

11175.0: ANDREWS wkg REACH 8057 for phone patch to HILDA METRO (Scott AFB) for WX at ORBI (Baghdad IAP) currently and for 2300Z, also ORSH (Al Sahara AAF, Tikrit, Iraq at 0200Z; also OKBK (Kuwait IAP), in USB at 2122Z. (ALS)

11175.0: ANDREWS wkg C-130 HERC 84 (OH-ANG, Mansfield, OH) for p/p to OH-ANG, Mansfield Security, Mansfield OH; ETA Mansfield four hours; passes commercial phone number to inform Col. Snyder at 419/961-3581 of ETA and need for maintenance for pitot heat light on pilot side, in USB at 1909Z. (ALS)

11175.0: ANDREWS then PUERTO RICO wkg GOLDFINCH 713 (P-3C) for p/p to FIDDLE (NAS Jacksonville TSC); gets QSL 1959Z, Andrews (male voice) was providing the patch when suddenly Puerto Rico (female voice) took over without explanation; in USB at 1955Z. (ALS)

11175.0: PUERTO RICO wkg REACH 288 (C-5) for p/p to get WX for 0215Z ETA at Sigonella (LICZ), in USB at 0111Z; same stations up again a few minutes later for p/p to DSN number for Sigonella NS Command Post; IDs as inbound C-5; ETA in one hour; A-1 maintenance status, no pax, no cargo; asks about billeting for crew of 14; is told they will probably stay off-base, in USB at 0118Z. (ALS)

11175.0: HF-GCS Station "McClellan" wkg TREK 80 (C-17A, 15AW, Hickam AFB) for phone patch to Hickam AFB Command Post in USB at 1545Z. (ALS)

11175.0: HF-GCS Station wkg "LD 329" (P-3) in USB at 2027Z; PUERTO RICO wkg KING 76 (on the ground at Patrick AFB) for radio check (I was hearing KING 76 comms with Patrick Ops on 321.0 MHz UHF at the time) in USB at 1849Z. (ALS)

11175.0: HF-GCS Station OFFUTT wkg BLACKKEYE for p/p to Offutt AFB Orderwire Controller, reqsts RF-18, in USB at 2124Z; ANDREWS wkg "BD 636" (C-130T, Willow Grove VR-64 "Condors") for radio check in USB at 2203Z. (ALS)

11175.0: ANDREWS wkg SKULL 25 (B-52H bomber, Barksdale AFB) for M&W phone patch to Kansas area code, tells Dad they will be flying over the house, in USB at

1553Z; OFFUTT wkg HUNTER 21 for radio check, in USB at 1556Z. (ALS)

11175.0: ANDREWS wkg THUNDER (B-1 bomber, Ellsworth AFB's 28BW) for radio check, then phone patch to Oklahoma area code in USB at 1603Z. (ALS)

11220.0: HF-GCS Station ANDREWS attempting to work "McDyer" with no joy, in USB at 1907Z. (ALS)

11226.0: 523548 (KC-135R) clg MCC (McClellan HF-GCS) in ALE USB at 1220Z. (MC/SC)

11232.0: Trenton Military wkg WAVERIDER 331 (P-3C) but WAVERIDER 331 fails to hear Trenton Mil, in USB at 2249Z; Trenton Military wkg DARKSTAR (AWACS, Tinker AFB) for phone patch, in USB at 2005Z. (ALS)

11342.0: Gulfstream-551GA calling San Francisco Radio for SELCAL check but was unable to raise them. NY radio responds but unable to complete check, in USB at 2209Z. (GV/CO)

11460.0: HF-GCS Station ANDREWS wkg "McDyer" after QSY from 11175 and failed attempt on 11220, in USB at 1913Z. (ALS)

11687.0: Unid RTTY, sounds like 850 Hz split, possibly French Navy logged here in the past, in RTTY at 1904Z. (JK/NY)

12221.3: Unid. station w/brief machine-sent traffic in English, only caught "BACK TO BASE" and two IDs starting w/X9 and X4, in CW at 2250Z. (SJ/KY)

12345.0: Two unid. males in extended casual simplex QSO in Tagalog sprinkled w/occasional English words, good signals in USB at 0030Z. (SJ/KY)

12481.0: CCES, *ESMERALDA*, 3,463-ton Chile-registered four-masted barquentine with a somewhat controversial history serving as a Chilean Navy training ship w/abbreviated ID "ESME," 5-digit vessel SELCAL 19006 and encrypted traffic for CBV, Chilean Navy, Valparaiso R., Playa Ancha, Chile, in SITOR-A at 1233-1303Z. Vessel back a few hours later, began w/wrong SELCAL but corrected it after a few minutes, then similar traffic as earlier, stopped abruptly, in SITOR-A from 2030 to 2045Z (SJ/KY)

12486.5: VRWR7, SAGA CREST, 47,069-ton Hong Kong-registered general cargo ship w/AMVER/PR, MMSI and abbreviated ID "SCRT" to NMO, USCG COMMSTA Honolulu, Hawaii on paired 12589.0 kHz, in the central Gulf of Mexico 210 miles NW of the western tip of Cuba en route to New Orleans, LA to arrive at the Southwest Pilot Station near there next afternoon, not sure why vessel filed the report with Honolulu, in SITOR-A at 1815Z. Unid. vessel w/SELCAL XVSS (1099) for NMO but having transmitter problems. 100 Hz too low from standard frequency for several tries, then again a few minutes later but still 60 Hz too low, good signal here but no luck raising NMO, in SITOR-A from 0308 to 0320Z. (SJ/KY)

12490.0: Unid. vessel w/SELCAL XVSY

(1097) attempting to contact NMN, USCG CAMSLANT, Chesapeake, VA some 41 days after SITOR operations ended there, in SITOR-A at 1907Z. (SJ/KY)

12510.5: Unid. vessel w/SELCAL QVXY (2017) for XSQ, Guangzhou R., China, booming signal strength in SITOR-A at 0336Z. (SJ/KY)

12566.7: Two unid. stations w/weak traffic, one station 50 Hz lower, in SITOR-B at 2128; two more more stations heard here three nights later w/extended traffic counts, Foxes, other test strings, apparent station IDs of AN, GC and "CQ CQ CQ DE PWAN PWAN PWAN," mentioned a waste handling company in Salvador, Brazil, as well as that city by name and "RECOLHIMENTO DE LIXO" (collection of garbage), in SITOR-B from 2237Z to 2330Z. Similar traffic the next night, stations spaced 25, 50 and 75 Hz downward from my listed frequency, in SITOR-B from 2249Z to 0120Z. One station heard again 14 days later w/repeated CQs and test strings but no joy on any of the frequencies, in SITOR-B from 0119Z-0123Z. (SJ/KY)

12662.9: Unid. station w/FACTOR-2 idle marker, no ID, brief FACTOR-3 burst at faster baud rate on the hour, good signal in FACTOR at 0359Z. (SJ/KY)

12850.0: Unid CW sent one character at a time with an electronic keyer, short msgs, in CW at 0353Z. (GV/CO)

13362.0: AFRTS Barrigada, Guam in USB at 0353Z. (GV/CO)

13380.0: Cuban ENIGMA V2a, female w/5N groups in Spanish, reduced carrier DSB with rippled remnant carrier resulting in mushy audio, tunes clearest in USB, at 2015Z. (SJ/KY)

13426.7: Egyptian embassy or consulate w/brief weak traffic in ATU-80 Arabic in SITOR-A at 2023Z. (SJ/KY)

13927.0: USAF MARS Operator "AFA6PF" (Los Angeles CA) wkg DIXIE 28 (KC-135R, AL-ANG 117ARW, Birmingham AL) for phone patch to DSN number for Dixie Control; receiver has contacted tanker and requests change to AR-111 Eastbound; AAR at 1720Z, in USB at 1649Z. (ALS)

13927.0: USAF MARS Operator AFA3HS wkg TEAL 37 (WC-130J, Keesler AFB) for phone patch to DSN number for (Robins AFB "Gunrunner"); passes tail 65301; gets info on tomorrow's flight to TJSJ (Luis Munoz Marin IAP, San Juan PR), in USB at 2207Z. (ALS)

13927.0: USAF MARS Operator AFA6PF (Los Angeles) wkg SENTRY 60 (E-3 AWACS, Tinker AFB, OK) for phone patch to commercial number at Tinker in USB at 1829Z. (ALS)

13927.0: USAF MARS Operator wkg SHARK 16 (C-130 on Coronet Oak Mission, south of Barbados) for phone patches to Davis Monthan AFB and San Juan ANGB, PR; passes several arrival and departure times/locations (incl St Croix); ETA TJSJ (San Juan) 2110Z; has problems with #4 engine, in USB at 1849Z. (ALS)

13927.0: USAF MARS Operator AFN2AC (Miami) wkg BULL 402 (C-130, Little Rock over Nashville TN) for M&W phone patch; will call back when over NC, in USB at 1837Z. (ALS)

13927.0: USAF MARS Operator AFAIEN (Shelbyville IN) wkg SHARK 67 (Coronet Oak C-130, over Haiti) for p/p to Coronet Oak Ops, San Juan, PR; passes 2130Z ETA San Juan w/18 pax; customs on arrival, in USB at 2017Z. (ALS)

13927.0: USAF MARS Operator AFA6PF wkg REACH 295 for M&W phone patch to Delaware area code; acft is a few miles off the coast of Nicaragua, on way home via Charleston, in USB at 1848Z. (ALS)

13927.0: USAF MARS Operator AFA1QW (Greenwood, IN) working BOLT 04 (KC-135R, MacDill AFB 6AMW) for M&W phone patch in USB at 1744Z. (ALS)

13927.0: USAF MARS Operator AFA6PF wkg ANVIL 57 (WV-ANG 130AW C-130H, Yeager A/P, Charleston WV), aircraft is 50 miles from East Peoria IL, cannot copy AFA6PF; they QSY to 14389, with no joy, in USB at 1800Z, another unsuccessful attempt is made at 1810Z. (ALS)

14295.0: WA3NAN (Goddard ARC) w/shuttle audio retransmission in USB at 2318Z. (JK/NY)

15034.0: Trenton VOLMET broadcast at 1159Z. (MC/SC)

16687.5: CCES. *ESMERALDA*, 3,463-ton Chile-registered Chilean Navy training ship w/weak 5L groups traffic and abbreviated ID "ESME" to CBV, Chilean Navy, Valparaiso R., Playa Ancha, Chile on paired 16811.0kHz, similar traffic heard 2 days earlier on 12481.0 kHz, header this time was "S...2114 S...2114," in SITOR-A at 2030 to 2112Z, then back again briefly at 2116Z. (SJ/KY)

18003.0: 280051 (C-17A, 97 AMW) sounding in ALE USB at 0002Z. (MC/SC)

19685.5: WLO, Shipcom R., Mobile, AL w/idle marker, decent signal in CW+SITOR-A at 1400Z but faded out by 1800Z, back again same night w/fair signal at 0315Z. (SJ/KY)

18594.0: ALE-initiated QSO, Aircraft (I missed ID) securing guard w/CAMSLANT in USB at 1450Z. (JK/NY)

22380.5: CBV, Chilean Navy, Valparaiso R., Playa Ancha, Chile w/fair idle frequency marker, slightly better than // 16811.0 kHz, in CW+SITOR-B at 2250Z. (SJ/KY)

22383.5: WLO, Shipcom R., Mobile, AL w/idle marker, strong signal in CW+SITOR-A at 1400Z but faded out by 1800Z, back again same night w/weak signal at 0315Z. (SJ/KY)

22389.5: NMO. USCG COMMSTA Honolulu, Hawaii w/fair idle marker in CW+SITOR-A at 0225Z. (SJ/KY)

25870.0: Broadcast relay WQGN983, suspect this is an IFB backhaul for traffic reporter subcontractor for KLTD FM 101.7 Temple TX, in AM at 0339Z. (GV/CO)

25910.0: Broadcast relay for WBAB 820-AM STL from Dallas/FtWorth, in FM at 0250Z. (GV/CO)

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How To Become Like Bill (If You Really, Really Must)

I may never become rich and famous just because I spent a hitch in the Coast Guard in the '60s, but it was a lot of fun, enabled me to carry a .45 around the streets of New York now and then, and primed the pump that resulted in my tapping out this column each month. *That* has led to my developing a small and loyal following, which is worth something on the order of all the tea in china.

I get some one-time emails from readers who have enjoyed the same broadcast radio shows that I enjoyed in New York, and from fellow coasties with some history to share, and I've also developed some good email friends from this correspondence. Among my regular email contacts is that now-retired EMT, Joe Maurus (yes, the one from Pumpkin Center, Louisiana) a long-time regular reader who stays in touch and keeps me up on the happenings around his hometown and wherever he travels.

Along with Joe is another now-regular correspondent, Chief Bob (identity withheld) who was the Chief Radioman on the *USCGC Dallas* while I served there and who recently realized that the lunatic he'd been reading on this page was the same lunatic who had been working the 500Kc position for him on the *Dallas* so many years ago. Both Bob and Joe now use the term "HPJIE"* which I didn't exactly coin, but stole from an old electronics correspondence school ad.

And since I've encouraged readers to drop a line with their communication stories, I've gotten to know quite a few who have also served in the Coast Guard, or who have had crazy friends who run a close second to my own pal Norm, or who have just done some oddball things along their communication careers or hobbies that would fit nicely within the paragraphs of "The Loose Connection."

Since confession is said to be good for the soul, maybe it's time that Chief Bob learns the facts behind some of the things that went undiscovered back in the days when he was responsible for the goings-on in the *Dallas* radio shack. Like the time when that tiny little incense cone burning so innocently in the ash tray set off a shipwide search for the source of smoke, leaving us *this far* (hold thumb and index finger really close) from setting off the *fire-at-sea* alarm. I really had no idea that lovely scent would travel through the entire ventilation system the way it did. Honest.

And surely he'll remember Miller—the radioman who was head-over-heels in love with that girl of his from somewhere in New York—and how he mysteriously received a radio message from her while we were out at sea? A message supposedly relayed via a Canadian government station in Goose, Newfoundland, professing her undying love, and three pounds of various other mush? One that happened to arrive just when he was on watch? I guess it's okay now to admit that it was me and another radioman (initials JM) who set up an oscillator in the ET shop right next door to the radio shack and sent that message at just the convenient time.

It was on another ship (in New York harbor) that I plugged my electric guitar into the AN/FRT-23 HF transmitter microphone input and played a rousing chorus of "Semper Paratus," the Coast

Guard's service song, on 2670 Kc (that would be the district AM voice working frequency, before the CG went to single-sideband), so Chief Bob won't have to take a beating on that one.

Same goes for answering the ship's landline telephone with a lung full of helium while standing the gangway watch—that wasn't on the *Dallas* either.

Several of us did launch some helium-filled, balloon-like devices, ballasted so as to float just a few feet above ground across the East River with notes attached offering a good time to anyone calling the ship's telephone number and asking for the Officer of the Day.

Now—if for any reason you've stayed with me this far and might like to become either a writer or a lunatic—read on:

It's a strange phenomenon that my initial desire to write began while I was in the Coast Guard, right about the time I was serving on the *Dallas*. Of course, as any editor will tell you, it takes more than a desire to write.

From roughly 1966 through 1988 I wanted to write, but fortunately in about 1988 I began to study and write, and edit and write, and write and edit, and during the course of 20 months I wrote and re-wrote about 500,000 words and read everything I could find on writing, and by late 1990 I had figured out how to arrange the 26 letters and a handful of punctuation marks into something that others might enjoy reading. It was in 1990 that I had some newspaper op-ed pieces published and stumbled into a few assignments for some *Pop'Comm* annuals.

And believe me—there are never enough good writers submitting articles, so if you want to be like me, just start by overeating for about six months and buying a copy of *Strunk & White*. It also helps if you can go back in time, join the Coast Guard, annoy a lot of people, get a ham license, annoy a lot of people, work in the communication industry, and annoy a lot of people, but there are some writers who have done well without doing any of that.

You also have to study those writers you believe are the best. For me, that was James Thurber, Dave Barry, Robert Benchley, and Garrison Keillor. Then you have to learn not to copy them, but to understand what they do and why it works. Then find two books on writing by James Kilpatrick and read them until you understand them. My method is probably better (and certainly less costly) than most writing courses, but you won't get any critiquing from your books. For this you need people. I recommend a writers' group—and a thick skin to handle the criticism.

But seriously ("is he kidding?") if you've got a story to tell, sit down and see if you can tell it to me. I love to get good material from readers, and if you're the one in a zillion who can tell the story, or a "how-to," without my help, I'll be glad to introduce you to the powers that be, or recommend the right reading, or help you sharpen your pencil.

Now, if you'll excuse me, my work-release program from the Cowfield County Home for the Silly has expired. It's time for me to go back.

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