adio–Homeland Security–Computers & Radio–Family & Hobby Comms

45635

POPULAR COMMUNICATIONS

SEPTEMBER 2007

College Radio

It's Original, Unconventional, And Just Plain Fun

- Post 9/11 Emergency Comms In New York City, pg. 15
- Tech Showcase: Maha's PowerEx AA Charger Conditioner, pg. 18
- Shortwave Spy Stuff—Tuning The Numbers Stations, pg. 70

PLUS: Ham Radio Without A Shack (Or Radio) • A Shortwave Filter For Your Scanner • DX Hunting Season Is Open!

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- 2000 MEMORY CHANNELS / 100 MEMORY GROUPS
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COMMUNICATIONS RECEIVER

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*Cellular blocked

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VR-500

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- Multiple Power Source Capability
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eton E1 XM

OPTION

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Receive a FREE Grundig YB-550PE with your Eton E1 purchase!

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. Additionally there is a switchable antenna jack [KOK] for an external antenna. Universal also sells a PL259 to KOK antenna jack adapter (*#1052* $14.95) as well as a sturdy angled Lucite radio stand (*#3873* $16.95).

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

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

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

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

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

AUDIOVOX CNP2000

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

CNP2000DUO *Order #0072* **$58.95**

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

eton E5

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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.

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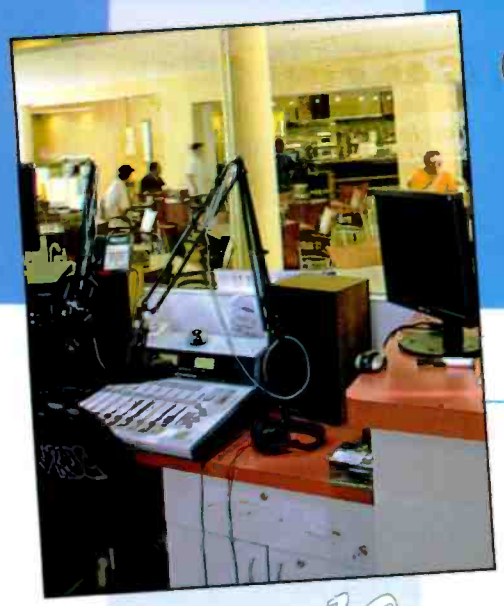

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POPULAR COMMUNICATIONS

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On The Cover

Since students at Union College, Schenectady, New York, made what was likely the nation's first scheduled radio broadcast in 1920, college radio has been making waves of one sort or another. Eighty-seven years after that event, the voices emanating from campuses remain among the freshest you'll hear anywhere on the dial. One of those voices belongs to Brooke Cross, DJ and underwriting sales director of WUTK, University of Tennessee, Knoxville. See "The Spirit Of Radio Thrives On Campus," beginning on page 10 for some higher learning. (Photo by Larry Mulvehill, WB2ZPI)

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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.

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

Easy to use, tune and read

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

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

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

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

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

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

MFJ-1800
$29.95

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

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

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

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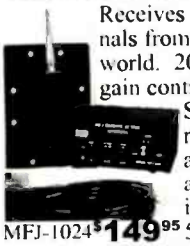

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and auxilary or active antenna. 6x3x5 in. Remote has 54" whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, $15.95.

MFJ-1024 **$149.95**

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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."*

MFJ-1020C
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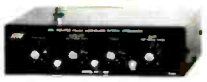
Eliminate power line noise!



MFJ-1026
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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
$109.95

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.

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MFJ-1045C
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MFJ-752C
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MFJ-956
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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.

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MFJ-1777
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MFJ-1704 heavy duty antenna switch lets you select 4 antennas or ground them for static and lightning protection. Unused antennas automatically grounded. Replaceable lightning surge protection. Good to 500 MHz. 60 dB isolation at 30 MHz. **MFJ-1702C** for 2 antennas.

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MFJ-461
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by Edith Lennon, N2ZRW, Editor

Fresh Air From Freshmen, Plus Some Updates

New York's renowned Fordham University sends more out into the world than well-prepared young lawyers. It also emits the programming of WFUV, the non-commercial, listener-supported public radio station nestled near the bottom of the FM dial at 90.7. That little piece of MHz real estate provides an oasis for many a jaded metro-area radio listener—myself included—tired of being pummeled by the deadly sameness of the commercial radio fare offered as smorgasbord.

On the air since 1947, WFUV has enticed countless numbers of the weary *back* to one of modern life's simplest, and purest, pleasures: listening to the radio. It was listening to this station's eclectic mix in my car that prompted the series of phone calls that culminated in this month's cover story.

WFUV is a powerhouse. Pumping out 50,000 watts, it boasts an audience of nearly 300,000 listeners and ranks within the top Internet broadcasters according to Arbitron. As a National Public Radio affiliate, it's also immune to some of the funding angst that plagues so many other college stations (although the 2008 federal budget proposes $147 million dollars in overall funding cuts to public broadcasting). It's lucky; some of its sister stations are struggling.

This month *Pop'Comm* takes an admiring look at several stations from across the country. Large or small, well funded or scratching out each dollar, they are determined to make a mark within broadcasting and a difference in their communities.

So as you gratefully (I mean, regretfully) pack the kids up, electronics and all, and ship them back to school, take a listen to what they're listening to—and creating. These young voices are the future of broadcasting.

Odd And Ends

Our avid aviation fans are no doubt feeling the pain of "Plane Sense's" absence these past couple of months. We feel it, too. Unfortunately, columnist Bill Hoefer is juggling several competing commitments at the moment and was unable to pull the needed material together. He's working on his next submission, however, so you'll soon have lots of high-altitude comms info in your hands again.

Updates From August

Boy, news happens fast in these parts. Since our August interview ("Hurricane Hunter Tour") with National Hurricane Center Director Bill Proenza went to print controversy erupted around Proenza, mainly involving his very public attacks on superiors. His short and turbulent tenure has now screeched to a halt with his being reassigned and the appointment of Ed Rappaport as acting director. Lesson learned: don't create your own storms.

And in August's "Tuning In" we warned of a measure being presented to the New Jersey State legislature to prohibit the use of any "electronic communication device" while driving. Well, by way of an update, the bill was passed—with an amendment exempting hams. The exemption is a testament both to the undeniable public service amateur radio provides in so many instances and to the power of organization and speaking out. Here's to the hams of New Jersey, whose hard work and persistence prevented, at least part of, an ill-conceived proposal from becoming law.

More still needs to be done, however. Scannists, CBers, and others are still subject to the ban, so let's not grow silent yet. Thankfully, WFUV's is not the only loud voice in the area.

Edith Lennon

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

POPULAR COMMUNICATIONS

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- Batteries: 6 x 'C'

by D. Prabakaran

News, Trends, And Short Takes

XM Radio To Launch Channel Dedicated To The 2008 Presidential Election

U.S. broadcaster XM Satellite Radio announced it would launch a new radio channel dedicated to the 2008 presidential election, marking the first time that a U.S. national radio channel has been devoted to a presidential campaign. The 24-hour, commercial-free channel, created in association with C-SPAN and other media outlets, will be called "POTUS '08." The channel's name comes from the Secret Service code name for the President of the United States.

The channel will be "free to air" on XM, meaning that it will be broadcast free to all XM radio receivers. If a consumer has an XM radio but opts not to subscribe to XM, the consumer can still listen to the presidential election channel.

The presidential election channel will feature news updates, candidate interviews, complete speeches, debate coverage, latest polling results, fundraising status, and live call-in shows. The channel will provide free airtime for presidential candidates to speak to voters. Non-traditional media outlets, such as bloggers and podcasters, will provide content for the channel. It will also air archival audio of historic moments from past campaigns. Additional content will be announced prior to launch.

XM will preview the channel in June 2007 with live XM original coverage and a re-broadcast of candidate debates hosted by CNN. The channel will formally launch in September 2007 and air through November 2008. It will be located at XM Channel 130.

DirecTV Considers Internet Via Power Lines

DirecTV is considering offering broadband Internet service via power lines next year, with the company mulling a wide-scale test in a major U.S. city. The satellite provider is one of several talking to power line Internet equipment manufacturers about offering high-speed Internet services. A test to see if such a service is feasible would occur in a "top 50" city and would have a coverage area of at least half the city.

Ethiopian Rebel Group Launches New Radio Station

The Ethiopian People's Patriotic Front (EPPF) launched a weekly radio program on June 7, 2007. The program, The Voice of Patriots," broadcasts to Ethiopia and the Horn of Africa every Thursday from 16 to 17 UTC local time. It can be heard on 15260 kHz.

Cuban Government Prevents Distribution Of Radios By RNW

The Cuban government has prevented the distribution of shortwave radios that had been intended for Cuban listeners of Radio Netherlands Worldwide (RNW). RNW has a large audience in Cuba, and the radios were to be offered as prizes for winners of a January 2007 story competition, in partnership with Radio Canada International, in which listeners were asked to write about their country. The poor economic circumstances mean that many Cubans do not have radios, and sets that can receive foreign stations are difficult to get. A total of 945 entries were received, and 500 radios were to be distributed among the most talented authors.

According to José Zepeda, Head of the Latin American Department at RNW, the Cuban authorities fear that the distribution of the radios will directly benefit the Americans. They believe that President Bush is carrying out a campaign of disinformation to destabilize the country, and that the United States would welcome the distribution of world receivers for that purpose. But RNW stresses that there is no connection between this writing competition and U.S. government policy.

HCJB Changes DRM Test Frequency To Europe/NA

HCJB in Ecuador has changed the frequency of its DRM tests beamed to Europe at 0400 to 0630 UTC. Due to interference, 9815 kHz has replaced 9870 kHz. The same frequency, 9815 kHz, is now also being used for the DRM transmission to North America at 0100 to 0400 UTC instead of 9915 kHz.

Zimbabwe Radio Station Begins Test Transmissions

The new radio station Voice of Zimbabwe has started a test run, which will continue for a few weeks before the station's programming is launched. Speaking to Zimbabwe Broadcasting Corporation News the station's general manager, Happison Muchechetere, said the Voice of Zimbabwe would be heard on 5975 kHz from 0530 to 1630 UTC. It would also be available on 4828 kHz. He also said the station's programming would include news, music, sports, Zimbabwe's cultural heritage, political and economic debates. Muchechetere said the station would cater to all Zimbabweans, within the country and abroad.

Swedish Radio Station Silenced By Fly Invasion

A radio station in Ystad, southern Sweden, was forced off the air for three hours following an unexpected fly invasion. The problem arose after thousands of freshly hatched insects caused Radio Active's broadcasting equipment to malfunction, according to a report in *The Local*, an English-language Swedish newspaper.

Staff at the small rock music station discovered too late that a swarm of flies had laid eggs inside the equipment stored in a separate shed beside the studio. When station manager Andreas Narsell opened the door he found the shed full of flies, both living and dead. "Thousands, maybe even tens of thousands of black flies came flying out. The whole thing felt like a Hitchcock film," he told the newspaper. The station had to remain off the air for three hours while new equipment was installed. "We have a new slogan now: '50,000 flies can't be wrong—choose Radio Active,'" said Narsell.

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Frequency Coverage:

25.0000-512.0000 MHz., 764.0000-775.9875 MHz., 794.0000-823.9875 MHz., 849.0125-868.8765 MHz., 894.0125-956.000 MHz., 1240.0000 MHz.-1300.0000 MHz.

The handheld BCD396T scanner was designed for National Security/Emergency Preparedness (NS/EP) and homeland security use with new features such as **Fire Tone Out Decoder**. This feature lets you set the BCD396T to alert if your selected two-tone sequential paging tones are received. Ideal for on-call firefighters, emergency response staff and for activating individual scanners used for incident management and population attack warning. **Close Call Radio Frequency Capture** – Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. Useful for intelligence agencies for use at events where you don't have advance notice or knowledge of the radio communications systems and assets you need to intercept. The BCD396T scanner is designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS, LTR and EDACS® analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. **Dynamically Allocated Channel Memory** - The BCD396T scanner's memory is organized so that it more closely matches how radio systems actually work. Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 3,000 channels are typical but **over 6,000 channels are possible** depending on the scanner features used. You can also easily determine how much memory you have used and how much memory you have left. **Preprogrammed Systems** - The BCD396T is preprogrammed with over 400 channels covering police, fire and ambulance operations in the 25 most populated counties in the United States, plus the most popular digital systems. **3 AA NiMH or Alkaline battery operation and Charger** – 3 AA battery operation - The BCD396T includes 3 premium 2,300 mAH Nickel Metal Hydride AA batteries to give you the most economical power option available. You may also operate the BCD396D using 3 AA alkaline batteries. Unique Data Skip - Allows your scanner to skip unwanted data transmissions and reduces unwanted birdies. 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 scanner has so many features, we recommend you visit our web site at www.usascan.com and download the free owner's manual. Popular features include **Close Call Radio Frequency Capture** – Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. **Dynamically Allocated Channel Memory** - Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 1,600 channels are typical but **over 2,500 channels are possible** depending on the scanner features used. You can also easily determine how much memory is used. **Preprogrammed Service Search (10)** - Makes it easy to find interesting frequencies used by public safety, news media TV broadcast audio, Amateur (ham) radio, CB radio, Family Radio Service, special low power, railroad, aircraft, marine, racing and weather frequencies. **Quick Keys** - allow you to select systems and groups by pressing a single key. **Text Tagging** - Name each system, group, channel, talk group ID, custom search range, and S.A.M.E. 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 birdies. **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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by Richard Fisher, KI6SN

Capitol Hill And FCC Actions Affecting Communications

Commission Counsel Implores Radio Amateurs To "Lighten Up"

In a message to thousands of radio amateurs at the 2007 Dayton Hamvention, FCC Special Counsel in the Spectrum Enforcement Division Riley Hollingsworth called upon operators to "lighten up" on the bands and decide "what's most important—the best interests of ham radio or their ego, pride or perceived 'rights,'" an item in the *ARRL Letter* reported.

"All of you can learn from each other," he said, "and you need to work together more and show a little more respect for your diverse interests and for the Amateur Service as a whole. It isn't about you. It isn't about enforcement. It's about amateur radio," he said.

"I realize I may be preaching to the choir here, but on the air you need to be more cooperative and less argumentative—and I need you to take this message with you when you go home," he continued.

According to the *ARRL Letter*, Hollingsworth offered both good and bad news. "The good news: Nothing is wrong with amateur radio," he said. "It is a good service that is showing its value to the public on a daily basis." The bad news, however, is "that there is an element of Amateur Radio that too often reflects present society generally," he said, making a comparison to highway "road rage."

Radio amateurs need to cooperate more and depend less on the FCC to solve their operating issues, Hollingsworth said. "We live in a rude, discourteous, profane, hotheaded society," he said, "that loves its rights, prefers not to hear about its responsibilities, and that spills over into the ham bands."

According to the *ARRL Letter*, Hollingsworth advised radio amateurs to be flexible in selecting their frequency and to use the "big knob" on the front of their transceiver to move to any of the "thousands of frequencies and hundreds usable at any given time of day or year" as necessary to avoid problems. "The world is ugly enough—don't add to it."

"We can enforce our rules, but we can't enforce kindness and courtesy or common sense," Hollingsworth said. "And a very wise person...once told me, 'You can't regulate stupid.'"

APCO Lauds FCC's Action On Wireless Accuracy

The Association of Public-Safety Communications Officials (APCO) International praised the FCC for its action to improve wireless accuracy, an outcome of a late-May 2007 Open Commission Meeting.

"We applaud the FCC for today's action which should lead to improved location accuracy for wireless 9-1-1 calls, allowing for more efficient and rapid responses to emergencies," said APCO International President Wanda McCarley in an item posted on the organization's website.

In the session, the FCC considered a Notice of Proposed Rulemaking (NPRM) concerning wireless Enhanced 911 (E911) location accuracy and automatic location identification for interconnected Voice over Internet Protocol (VoIP) services.

FCC Formally Opens XM-Sirius Merger Review

The FCC has formally opened for public comment its review of the proposed merger deal between the two satellite broadcasters in the United States, a move that starts a 180-day review clock. The FCC has a 180-day target for completing merger reviews, although the target is not binding and the agency sometimes takes longer to evaluate major transactions.

Sirius plans to buy XM in a deal that would combine the only two providers of satellite radio service in the United States and has sparked concerns among some U.S. lawmakers and consumer groups. The deal is currently being reviewed by both the Justice Department and the FCC, which issued both satellite radio licenses in 1997 on the condition that the two companies would never merge.

Providers Face Deadline To Install "FBI-friendly" Surveillance Gear

Cable modem companies, DSL, and broadband over power line (BPL) providers, satellite Internet companies, and some universities faced a deadline in May to complete wiring their networks with FBI-friendly surveillance gear "to comply with the FCC's expanded interpretation of the Communications Assistance for Law Enforcement Act," according to an item from *Wired* magazine.

"Congress passed CALEA in 1994 to help FBI eavesdroppers deal with digital telecom technology," *Wired* reported. "The law required phone companies to make their networks easier to wiretap. The results: on mobile phone networks, where CALEA tech has 100 percent penetration, it's credited with boosting the number of court-approved wiretaps a carrier can handle simultaneously, and greatly shortening the time it takes to get a wiretap going. Cops can now start listening in less than a day.

"Now that speed and efficiency is coming to Internet surveillance. While CALEA is all about phones, the Justice Department began lobbying the FCC in 2002 to reinterpret the law as applying to the Internet as well," the *Wired* item said. "The Commission obliged, and [in June 2005] a divided federal appeals court upheld the expansion 2-1." A dissenting judged deemed the FCC's position "gobbledygook."

"It's worth noting that the new requirements don't alter the legal standards for law enforcement to win court orders for Internet wiretaps," *Wired* said. "Fans of CALEA expansion argue that it therefore won't increase the number of Americans under surveillance. That's wrong, of course. Making surveillance easier and faster gives law enforcement agencies of all stripes more reason to eschew old-fashioned police work in favor of spying."

The telephone CALEA compliance deadline was in 2002. According to *Wired*, since then, the amount of court-ordered

(Continued onpage 58)

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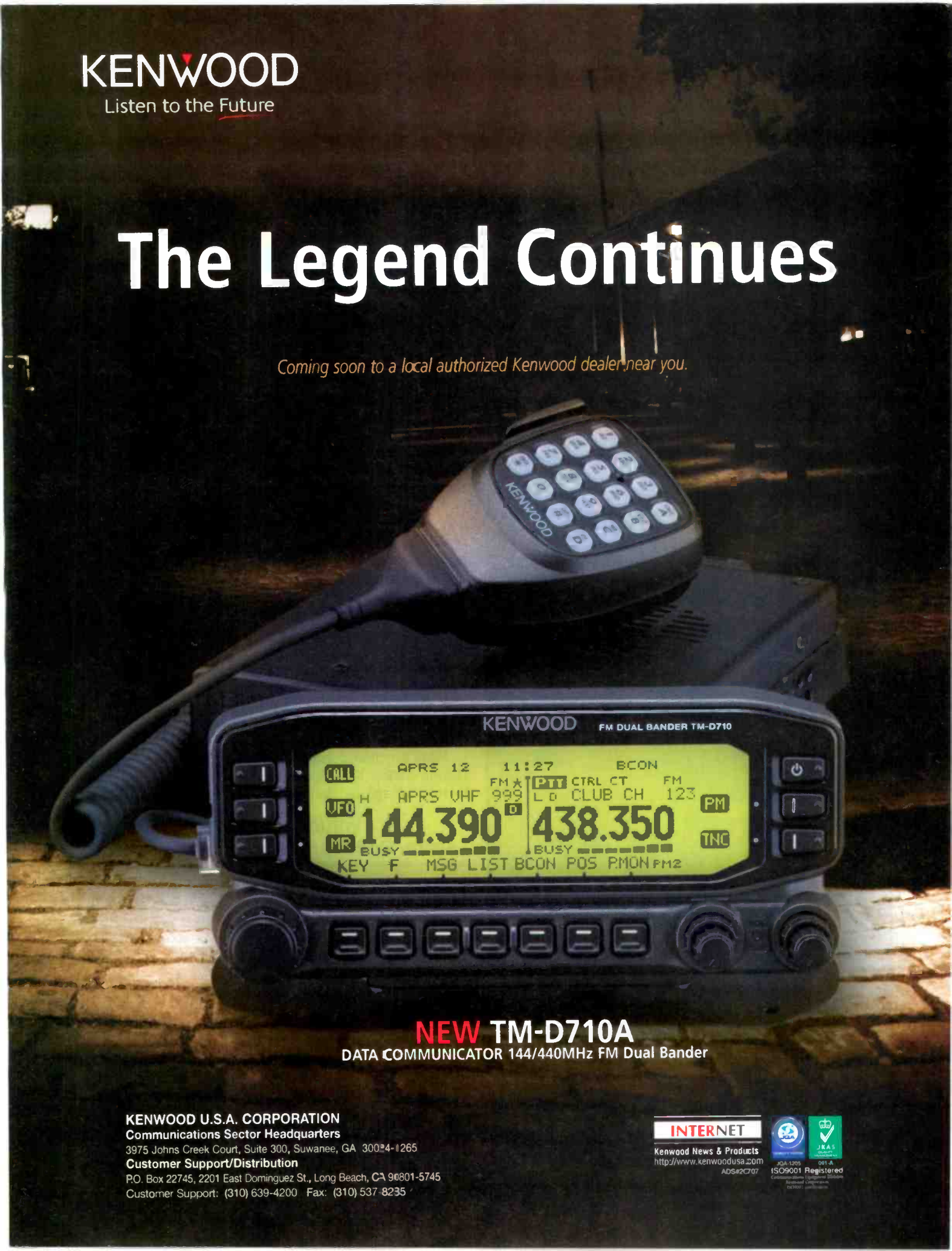

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The Spirit Of Radio Thrives On Campus

Across The Country College Stations Infuse Life Into The Airwaves

by Dan Moseson, KC2OOM

"Invisible airwaves crackle with life / Bright antenna bristle with the energy / Emotional feedback, on timeless wavelength / Bearing a gift beyond price, almost free" — Rush, "The Spirit of Radio"

As a college radio DJ, a ham, and a general fan of any little box of wires that pulls words and music out of the electromagnetic spectrum, I know from experience that the "emotional feedback" described in this song flows in both directions. Unfortunately, much of the radio in my area (New York metro) seems to have lost its spirit. In my car, I've come to prefer the sound of silence to "the sound of salesmen," as Rush aptly paraphrased Simon & Garfunkel. Between the numbing, repetitive commercials and the generally homogenous nature of corporate broadcasting, it's easy to become discouraged, but the spirit of radio crackles defiantly on in a few places.

Dan Moseson, KC2OOM, is a college DJ at 90.3 WMSC and a student at Montclair State University in New Jersey where he majors in political science and religion.

One of the best places to find it is college radio. Not all college stations are "underground" bastions of anti-establishment revolt, but they all share a commitment to radio for its own sake. Their importance for the future of radio lies in a combination of creative freedom and practical training. Some aim to bring new music and perspectives to their communities, and others focus on training students for careers in broadcasting.

"It's the practical experience that sets them apart from others," said Benny Smith, general manager and program director of WUTK at the University of Tennessee in Knoxville. "In the bigger picture," he continued, "it's frankly allowing new artists and new musicians to be heard." He says he's disappointed with where corporate radio has gone musically. "Now it's just totally whack," he said, "and college radio is it" for new music.

"We are much more willing to take risks with our music, which commercial stations are not," said Jack Casey, general manager of Emerson College's WERS radio station out of Boston, which focuses on education but also works to introduce new artists. "When people are doing something because they absolutely love it, it makes a big difference and people really respond to that."

Mark Borchert, chief engineer and station manager of North Dakota State's KNDS, concurred. He described his station, located in Fargo, as "the only outlet for local music in our area."

The WRUC studio looks into the campus center's fast food dining area. Students like the interactive environment the open design creates for the DJs and the student body.

WRUC-FM, 89.7 MHz
Union College, Schenectady, New York

It's widely agreed that the history of college radio (not to mention major advances in radio at large) began with WRUC at Union College in Schenectady, New York, in the early 20th Century. Information on Union College's admissions website describes the celebration of the station's 85th anniversary and explains how Union students made what was probably the nation's first scheduled radio broadcast—27 minutes of music—in 1920.

A history of the station by Rowan Wakefield (written in 1959, available at w2uc.union.edu) explained that the early broadcast was an outgrowth of experimental amateur work. Wakefield wrote that Union College was initially involved in wireless experiments with General Electric as early as 1910. In October of 1915, Union purchased a complete Marconi wireless system and founded the Union College Amateur Radio Club. Like modern college stations, it served educational and recreational functions.

Looking into the WERS live-mix studio at 180 Tremont Street, Boston.

Wakefield described several historic firsts carried out by members of the Amateur Radio Club. On October 14, 1920, for instance, they broadcast a musical performance that "appears to have been the first previously scheduled program ever broadcast for the purpose of public entertainment in the United States," and preceded Pittsburgh's KDKA's coverage of the 1920 presidential election, the other claimant to the title of "first." They also paraded through Schenectady with what may have been the world's first portable broadcast receiver—built into a baby carriage, complete with a live baby.

Wakefield went on to paint a picture of WRUC as he knew it 1959, a large and vibrant college station with many listeners and a wide variety of programming.

Catherine Davis, a Union student who is WRUC's current general manager, described the station much the same way Wakefield did nearly 50 years earlier. It is a non-profit station with no paid staff, and all the DJs are Union College students, faculty, or staff. The station averages 80 DJs per term, 75 of them students. It transmits 100 watts on FM 89.7 and streams on the Web at wruc.union.edu, but it broadcasts only when Union College is in session (it was off for the summer as of this writing).

Davis said that she was the programming director before becoming GM and was surprised to see the wide variety of shows broadcast on WRUC. Some of these included classical reading, French music, Chinese chants, and what Davis described as a "phenomenal" classic rock show hosted by Union staff member Alan Kratzke. Davis participates in two shows. One, called "Roots," focuses on the origins of rock 'n' roll in the music of the 1940s, '50s, and '60s. She co-hosts a second show, known as "The Blender," which plays a mix of classic and alternative rock.

Davis said that the most rewarding aspect of her college radio experience has been WRUC's free-form format. The DJs' creative freedom to experiment with new and different types of music is, she said, the reason college radio is important. "It's really the only opportunity in your life to go and do a radio show and do whatever you want," she said, "and it's completely free-form."

WERS student DJ Chris Brey is on the air at the WERS master control.

WERS-FM 88.9 MHz
Emerson College, Boston, Massachusetts

Another pioneering college radio station is WERS. According to general manager Jack Casey, it was founded in 1947 by an Emerson professor and became the first non-commercial radio station in New England. The station, which is licensed to the school's board of trustees, is student-run and professionally managed. Paid positions include Casey's job, an operations manager, membership coordinator, chief engineer, and underwriting director. Emerson students hold all on-air positions, and there are student directors for such areas as promotions, music, programming, and public relations. It's funded by the college and by member contributions, as well as by "underwriting announcements" from local businesses, which are tightly regulated and are not permitted to sound like commercials.

WERS broadcasts on FM 88.9 and puts out 4000 watts from the top of One Financial Place in Boston. It has just launched a new transmitter in New Bedford, Massachusetts, to expand its coverage in New Bedford, North Dartmouth, and Fall River. The station's 60- to 70-mile coverage area extends from Providence, Rhode Island, to the south to southern New Hampshire to the north. WERS is also streamed on the Web through Live365.com. "I think that's the future," Casey said. "I think radio, in order to retain any kind of success, has to be live and local, but at the same time has to understand that we live in a global village now." He said that he thinks college students do most of their radio listening on the Internet.

Casey stated that WERS's mission is to "train future leaders of the media industry" and "to provide a viable on-air product for the Boston market, to reflect the quality of the institution." In order to make the students employable in the future, Casey continued, the station has to train them in what's customary in the industry, both in corporate and in non-profit broadcasting.

The station's format from 2 a.m. to 7 p.m. on weekdays is "music for the independent mind," a mix of adult album alternative, singer/songwriter, and classic rock music. It then hosts the "Rockers" reggae program from 7 to 10 p.m. and "88.9@ Night," which is Boston's main hip-hop program. It also features programs specializing in Broadway show songs, children's music, and R&B slow jams. A full schedule, as well as a wealth of other information, is available at www.wers.org.

Casey emphasized the station's efforts to introduce the public to new artists and described how now-successful artists like singer-songwriter and pianist Regina Spektor (ask your kids) come back and play at the station that helped launch their careers. He said that listeners will hear more enthusiasm on WERS than on corporate stations, and hopes its DJs will "go out and bring some new life into the world of commercial radio."

WERS has been voted the best college station by *The Princeton Review* several years running and is Boston's highest-rated student station.

University of San Francisco graduate and Tuesday afternoon DJ Toby Suckow in studio A, KUSF's on-air studio. (Photo by "Office Mike")

KUSF-FM 90.3 MHz
University Of San Francisco, California

Another station with a long history of helping new artists rise to fame is the University of San Francisco's KUSF, which broadcasts on FM 90.3. It was launched April 25, 1977, by an alumnus named Steve Runyon, who is still its general manager. It features a mix of students and community volunteers on the air and employs three full-time staffers. The station is funded in part by the university and in part by underwriting from local businesses, and has also started to receive grants. KUSF runs 3000 watts from the University of San Francisco campus. It is a Class A station with a directional license and directional antenna and is also streamed over the Web at Live365.com.

KUSF's record of promoting new artists is impressive. "Metallica got their name from one of our DJs [Ron Quintana, a metal DJ for more than 25 years]," program director Trista Bernasconi told *Popular Communications*. "We were one of the first stations to play U2." Bernasconi also said that the station had received a demo tape from the rock band Primus, gold records from Soup Dragon, Midnight Oil, Lemon Rockets, R.E.M., The Red Hot Chili Peppers, Cowboy Junkies, the B-52s, and the Bengals, and a platinum album from De La Sol. The station's August 3rd 30th anniversary party will feature an already sold-out performance by the rock band Yo La Tengo. "We're all very excited," Bernasconi said. "It's the only show they're doing in San Francisco."

KUSF is a free-form station, meaning it follows no particular format. Bernasconi said the station's mission is to "serve and represent San Francisco," and it has many programs for communities that have no other outlet. It broadcasts in nine different languages and has a wide variety of shows, from Turkish and Italian programs to hip hop, heavy metal, new music, free-form alternative music, and even opera and classical. Its DJs include Jet, who has been on the air for more than 20 years, Terrorbull Ted, J Boogie, Stereo Steve, and Metal Martha, host of "Rampage Radio." A visit to its online schedule shows an even greater variety of programming, including "Chinese Star Radio," "Words on Theatre," "Hamazkayin Armenian Hour," "The Pastor Tom Show," "Epicurean Corner," and "Radio Finland." It broadcasts 24 hours a day, seven days a week.

The station also runs a program called KUSF Community Crusade, a long-standing effort to support local service organizations through daily on-air public service announcements. According to the website, the latest campaign is in support of two local groups. One is Project Open Hand, which provides food and nutrition services to HIV and AIDS patients, group lunch and nutritional education for people over 60, and meal delivery to those under 60 who are seriously ill or otherwise homebound. The other is Quan Yin Healing Arts Center, described as "a tra-

Student DJ A.J. Haynes in front of WUTK's Pacific Research & Engineering Digital Broadcast Console Impulse-12 audio board.

Student John D. Peterson, aka JT Bison, hosts the "Live Jack'd Radio Show," which features all live recordings focusing on single artists.

ditional Chinese medicine clinic and community center located in the heart of San Francisco's Mission District."

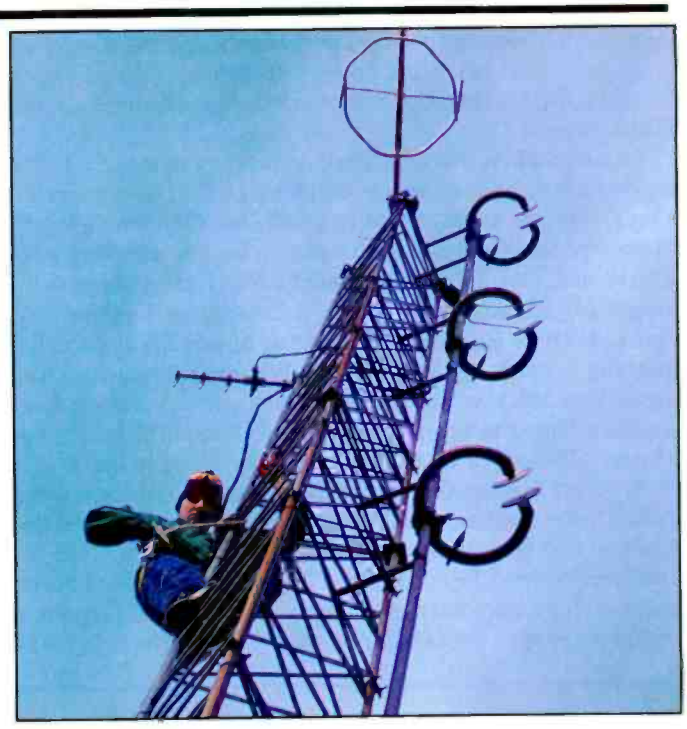
WUTK-FM 90.3 MHz
University Of Tennessee, Knoxville

Cutting-edge college radio is not confined to the East and West coasts. WUTK, which broadcasts on FM 90.3 from the University of Tennessee in Knoxville, was recently voted "best local radio station" by the readers of the local *Metro Pulse* newspaper. According to general manager and program director Benny Smith, the station, which just celebrated its 25th anniversary, is run by the university's School of Journalism and Electronic Media, which is under the College of Communications, and is licensed to its board of trustees. Smith is the only full-time staffer and is in charge of running the station and bringing in funding through sponsorships, donations, and underwriting. He said the station is intended to be a "learning laboratory" which prepares students for careers in broadcasting.

The station runs just under 1000 watts. It covers an area of 25 to 30 miles in and around Knoxville and is also streamed via the Web. Smith said that many alumni still tune in, including one group that emailed the station from a boat off Buenos Aires, Argentina. He joked about soliciting a check for the cash-strapped station from alums emailing from boats floating off South America.

Alumni include Mike Keith, the radio voice of the Tennessee Titans, many who work in radio regionally and have won awards, and several students now working for the FCC and for record companies. Keith stays in touch with the station. "He realized what this station did for him years ago, and he hopes other students do the same," Smith said. "It's a real brotherhood," he continued, referring not only to his station but also to college radio as a whole.

WUTK's format varies by day and time. Eighty percent of the time, Smith said, the station plays modern rock, and it plays specialty shows, including some hip-hop and reggae, at night and on the weekends. The specialty shows are free-form and the regular ones are programmed. Smith said that the university has a very conservative student base who would like to be able to hear "things other than Tim Mcgraw and Faith Hill," and many of them are introduced to many new artists once they get on the



It's not all studio work. Josh Jones, North Dakota State University student and KNDS chief engineer, goes tower climbing for the installation of the station's single bay ERI antenna.

radio. The *Metro-Pulse* poll also showed a strong and loyal base of non-student listeners.

In the same poll, DJs Derek Senter and Rob Leavering, who do an 8 to 10 p.m. Friday weekend kickoff show called "The Funhouse," were rated second in popularity only to the afternoon drivetime show on the biggest country music station in the United States. Another DJ was runner up for best radio personality, and Smith, who was hired in 2004 to get the station back on its feet, was runner up for "unsung hero of Knoxville."

Smith believes being exposed to new music is an important part of students' college experience. Many of them come in from rural areas and encounter many new artists and styles. "You can still find a lot of that on the 'left side of the dial,' if you will," he said, "and especially on college radio."

KNDS-FM 105.9 MHz
North Dakota State University, Fargo, North Dakota

Another college station doing great things in a smaller market is KNDS at North Dakota State University, which broadcasts on FM 105.9. Chief engineer and station manager Mark Borchert told *Popular Communications* that KNDS was founded in 2004 when students joined together with community volunteers to apply for a low-power FM license. The airtime is split between students and the local community, but the two groups share one station identity. About 50 percent of the station's funding comes from the university's student government, and the other half comes from community events and fundraising. There are three colleges in KNDS's area, and the station has expanded the scope of its programming, becoming as much a community station as a college station.

KNDS runs 100 watts from an ERI single-bay antenna and reaches an estimated 100,000 people in the Fargo metro area and elsewhere in North Dakota and Minnesota. The format

includes programmed and specialty shows, and the computer-programmed shows draw heavily from the College Music Journal (CMJ) charts. Anything also heard on commercial radio is discouraged.

I have to admit that as a life-long resident of the one of the biggest media markets in the world, I wouldn't have expected a local low-power FM station in North Dakota to have a legion of devoted fans from all over the planet, but that's exactly what KNDS has. One show, "Psychedelic Velveeta" (which is no longer on KNDS), had a huge following in England and Holland, where fans routinely woke up at 4 or 5 o'clock in the morning to catch the live webcast. Whenever the stream was down, Borchert says, the station was flooded with emails from listeners. One student who broadcasts on Sunday mornings has a large following of friends and family listening in India.

Borchert is passionate about the importance of the college station to the local community. He said that a Clear Channel station that had been in the area made the airwaves "a clone for everything else in the country." KNDS brought a style of music to the college, and more importantly, to the city of Fargo that would never have been on the air otherwise. It's the only outlet for local bands and a source of publicity for the venues where they play. Borchert described a drive to Wisconsin, by way of Minneapolis, which has college format public radio but a limited selection outside of that. "It's good to hear the stations," he said, "but boy, you have to work hard to hear them."

Worth The Effort To Hear

Borchert's statement basically sums up college radio. You have to work hard to hear much of it, but when you finally get it, you can be sure there are lots of people working hard to keep you hearing it. It's certainly worth the effort to track it down, because the people who do it love it enough to put that effort into it for its own sake. If you want to hear the future innovators of the broadcasting world, or if you're just sick of over-played, over-produced music and endless commercials, look up the college stations in your area (or any other area, as many of them webcast). If you're in college or heading there soon, I know from my own experience the number of opportunities college radio will open. Whether you're a listener or a DJ, it has something for everyone. ■

Music And More In Montclair

It's a great irony that ham radio operators are officially designated as "amateurs." Many of these operators are highly skilled technicians, emergency responders, and essentially freelance diplomats, usually of the highest quality.

If there was ever a true radio amateur, it was me, running my first solo shift as a college radio DJ at New Jersey's Montclair State University's 90.3 WMSC station. I had little to go on besides informal weekly training and a binder full of CDs. I'm surprised I survived my show, a 4 to 7 a.m. Saturday shift, the latter half of which was spent working with scraped hands and knees and ripped pants after I tripped rushing back from a bathroom break. But what was even more surprising was that someone who had literally no experience could come to WMSC, apprentice for one semester, and then be set loose in the amazingly free and opportunity-rich world of college radio.

Our station is under Montclair State's Broadcasting Department, but is almost entirely student run and operated (we do have a paid engineer). We operate a 10-watt transmitter (with an effective radiated power of 0.86 watt) from a large shared tower at the New Jersey Public Broadcasting Facility in the adjacent town of Little Falls. We also stream our broadcast on the Web using Live365.com (I had a fan in the Canary Islands during my first semester as a solo DJ). Our funding comes from the student government. We're not strictly free-form, but we're not programmed, either. We play four rotation songs per hour, drawing on regularly updated collections of modern music (pop charts excluded).

College radio is important to me for the creative freedom it gives me in my weekly radio show (above and beyond the fact that *I have a radio show*, something which most people never get to say). Each hour, I play my four required rotation songs, and then I play whatever I want. Guitar music is my main area of interest, so with six-string skill as the central focus, I've expanded my show's palette to include genres as disparate as bluegrass and heavy metal, flamenco and blues, classic rock, jazz, classical music, and everything I can get my ears on in between. College radio has given me the opportunity to have the radio show I would most want to listen to.

The author on the air at his college station, WMSC, at Montclair State University in New Jersey. Looking through the studio window, you can also see the computer on which the music log is kept and automatically posted on the station's streaming-audio website.

The educational and community importance of our station becomes clear when one watches our DJs and directors in action. They build great skill as DJs, engineers, and producers and gain broadcasting and music industry savvy. Local bands regularly visit our studio, and our music directors constantly introduce new and innovative music to the rotation. The station is a great resource for local bands, provides a way to gain contacts and experience in the worlds of music and broadcasting, and is a social network unto itself—a great way to meet like (and different!) minded people and make the most of one's college experience.

All this sits in the Student Center basement, waiting for absolutely anyone who wants to be part of it. —DJM

Emergency Comms In New York City

What—If Anything—Has Changed Since 9/11?

by John Kasupski, KC2HMZ

It's been well documented that the terrorist attacks of September 11, 2001, exposed several problems with the communications systems used by emergency responders in New York City. This month, six years will have passed since those horrible events, and that's plenty of time elapsed to enable us to take stock of the situation.

So what if another major disaster struck New York today? What, if anything, has changed since 2001? Would the vital police, fire, and EMS personnel responding to such an incident be any better off in their communications capabilities today than they were six years ago?

As this is being written, in June 2007), the evidence, unfortunately, suggests that they would not. One recent indication was the Consolidated Edison (the city's electricity provider) blackout in the summer of 2006. In the aftermath of that incident, a report by N.J. Burkett of WABC-TV *Eyewitness News* noted that, at one point during the blackout, the 911 system in the city had a backlog of 1,000 calls, with top priority calls being delayed for up to 20 minutes, while non-urgent calls were delayed an hour. The city EMS personnel lost their computers and radios during the blackout, making it impossible to dispatch ambulances—and they did not have a backup system.

Apparently, neither did the fire department. The same report also noted that, according to FDNY officials, a backup system was in the works before the blackout, but FDNY Commissioner Nicholas Scopetta admitted that he was surprised to discover that the department's firehouses didn't have generators. Scopetta said that FDNY does have battery backup systems for its voice alarm system, but went on to say that there was "absolutely no reason why we shouldn't have that kind of support in every single fire house."

As for the world's largest police department, NYPD Commissioner Ray Kelly told WABC that there had been issues with the batteries providing backup power to NYPD's radio repeaters, which were supposed to last 24 hours, but didn't.

Furthermore, WCBSTV.com produced a story in November 2005 in which it concluded that, in the event of another catastrophe, New York might have trouble communicating with surrounding counties. That report quoted Edmund Horace of the Nassau County Police Department, who cited New York City, in particular, as having radio systems that are disparate with those in adjacent counties.

WCBS also reported that, although there is an 800-MHz radio system which New York City and adjoining counties share as part of an alert system, the current approach for providing communications between the city and its neighboring counties' emergency services and emergency management agencies relies heavily on the telephone. The station asked Westchester County's Department of Emergency Services to test the system, but when Westchester County tried to reach New York's Office of Emergency Management, there was no response on the radio. They then tried calling by telephone but reached the wrong number. The report showed that Nassau County experienced the same problem as Westchester. Westchester officials had the wrong number in their Rolodex, and Nassau officials said that their operator misunderstood the request and called a different number.

John Kasupski, KC2HMZ, is *Pop'Comm*'s "Utility Communications Digest" columnist.

A look inside FDNY's new $17.5 million radio communications center, which opened in September 2006. (Courtesy City of New York)

The Good News, Sort Of

There have been some positive developments, however. FDNY's portable digital Motorola XTS 3500 radios, criticized by firefighters not only in New York City but also in other cities as being unsuitable for firefighting use, have now been reconfigured to analog mode and have access to a channel shared with NYPD for interoperable communications.

The XTS 3500s, however, are only 2-watt radios and have problems inside high-rise buildings, so FDNY has been deploying 45-watt portable repeaters for field use. These repeaters can be placed at command posts to boost signals and also allow command posts to be set up farther from danger. Nevertheless, these radios still have reception problems in high-rises, as well as in tunnels and at some high-profile sites, such as JFK Airport and Yankee Stadium.

Moreover, an article by James Careless, "New York City's Public Safety Communications Three Years After," found on EMSResponder.com, quoted Bill Bowen, who along with FDNY Captain John Joyce, wrote a book called *Radio Silence*

New York City Office of Emergency Management's new headquarters building in Brooklyn. The old HQ was destroyed on September 11, 2001. (Courtesy City of New York)

F.D.N.Y.—The Betrayal of New York's Bravest. In *Radio Silence* the authors investigated what happened to the FDNY's communications on 9/11 and concluded that the XTS 3500s still do not work.

Another agency deeply involved in the response to 9/11 was the Port Authority of New York and New Jersey, which lost its main 800-MHz Enhanced Digital Access Communications System (EDACS) repeater and antenna, both located in Tower Two of the World Trade Center. The New York State Police also lost an 800-MHz EDACS transmitter site, which had been part of its "Metro-21" system, when the towers collapsed. Both of those systems have been rebuilt at the Chrysler Building in midtown Manhattan. The NYPD lost a 470-MHz repeater when the Towers fell; the department has added boosters to some of its other repeaters and added repeaters at additional locations to compensate, according to the TV report.

The report concluded that public safety radio has more or less returned to where it was before 9/11, except that the replacement sites for the World Trade Center obviously don't provide the same coverage. It also found that FDNY's problems with the XTS 3500s are a real cause for concern.

Luckily, other upgrades to radio communications systems are in the works. For example, a year ago, Northrop Grumman Corporation was awarded a five-year, $500-million contract to provide the city with a broadband public-safety wireless network, with high-speed data and video capabilities. New York State, meanwhile, has begun constructing its own new statewide wireless network, which is expected to be completed by the middle of 2010. However, a similar system in Pennsylvania (an M/A-Com "Open Sky" system) has been the subject of considerable criticism and controversy, having run several years past its scheduled completion date and millions of taxpayer dollars over budget.

Still Vulnerable

In the meantime, life in New York City goes on, apparently with little improvement with respect to public safety communications beyond the establishment of a few individual mutual aid channels that would almost certainly become hopelessly overloaded in the event of a major disaster like 9/11—just as the existing emergency radio system did six years ago.

On the one hand, this is unsurprising. It's no secret that, as a nation, we failed to learn from the lessons of six years ago. The hauntingly similar communications difficulties that occurred in New Orleans in the aftermath of Hurricane Katrina can perhaps be understood (though not excused), since officials there had no recent first-hand experience with a major disaster and its effects on public safety communications systems.

In New York, however, one would expect that the lessons of 9/11 would have been driven home and *applied* by now. Instead, this is a city in which the jails on Riker's Island have backup generator power, but the city's firehouses do not. It was fitting, therefore, that the television station that reported on the city's continuing inability to communicate with neighboring counties concluded its report by noting, "One can only hope that the remaining shortcomings in the department's radio service aren't made obvious by another event as horrific as 9/11." ■

MFJ Enterprises, Inc.
300 Industrial Park Road
Starkville, MS 39759 USA

THANK YOU!

August 1, 2007

Dear Fellow Hams,

MFJ modestly began in a small downtown Starkville, Mississippi hotel room in October of 1972. The original product, a CW Filter Kit CWF-2, sold for $9.95.

Today, MFJ remains an *all American* company and manufactures well over 2500 different products, more than any other ham radio company in the world!

This October, 2007 is the 35th Anniversary of our ham radio adventure and I am deeply thankful for the overwhelming support our fellow hams have given us.

I would like to humbly thank all my fellow hams who have helped MFJ reach this monumental milestone.

Without *your* support, the hard work and dedication of our employees and the tremendous support of so many MFJ friends, this 35th Anniversary milestone could not have been achieved.

Thank you again for your tremendous support!

73s,

Martin F. Jue, K5FLU

Martin F. Jue, K5FLU
President and Founder
MFJ Enterprises, Inc.

P.S. Come and help us celebrate our 35th Anniversary, September 7 & 8, 2007. Factory tours, Free lunch, Major Prizes, VE Exams, K5MFJ Special Event Station.
For more info, http://www.mfjenterprises.com

by Gordon West, WB6NOA

Maha PowerEx AA Charger Conditioner

I recently tested the new Maha PowerEx MH-C 9000 charger, which is also a conditioner for AA and AAA batteries, plus a battery cell analyzer! Hurricane Katrina taught emergency responders the value of a handheld radio that could run on a dry cell or AA rechargeable cell tray. Most handheld ham radios and scanners offer individual-cell battery trays as an accessory. When you exhaust your regular nickel metal hydride (NiMH) or lithium ion sealed battery pack, just slip it off and snap on the individual-cell battery tray. You can load it with inexpensive AA alkaline batteries, or rechargeable NiMH AA batteries.

We see battery capacity in rechargeable NiMH AA individual cells up to 2900 mAh. This is close to the equivalent of your best disposable alkaline AA battery.

Maha engineers have developed a new 4-AA cell charger that gave some terrific results when restoring a handful of worn out AA rechargeables, only a year old. They just wouldn't hold a charge. This new Maha charger offers five different charging options:

Brand new batteries—break-in
Weekly use NiMH batteries—charge
Idle rechargeable batteries—refresh and analyze
Old batteries—break-in
Poorly performing batteries—refresh and analyze repeatedly

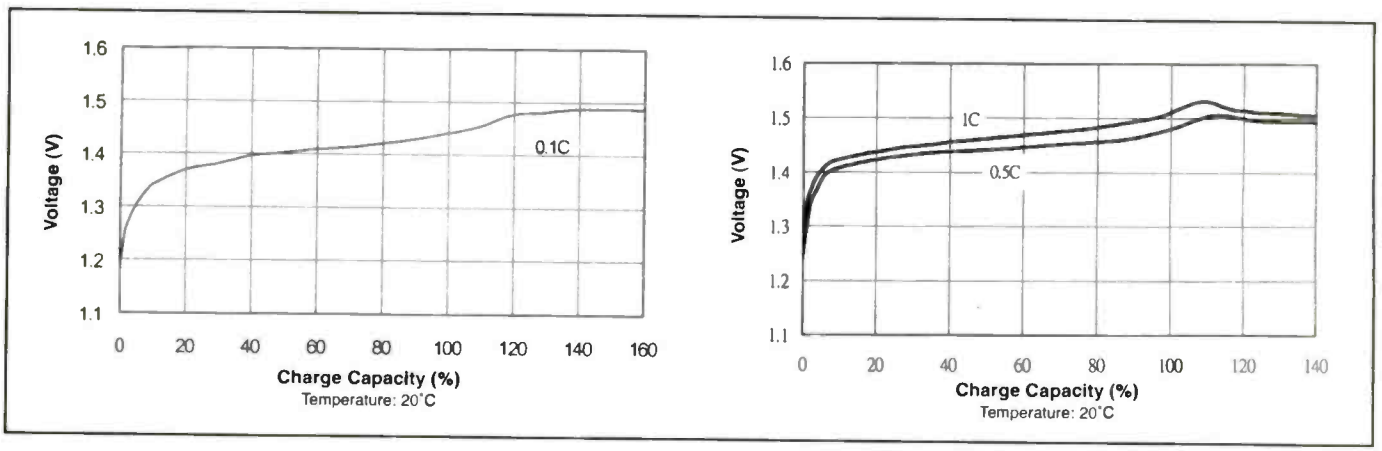
When you put any type of battery in the slot, the mode indicator over the battery slot number will flash. Use the up and down arrows to choose the desired charge mode, and then press enter.

If you're in a hurry with your regular rechargeables, slip all four into the charger and do nothing. The charger will do *everything* to bring them up to a full head of steam in less than a half hour. It will also tell you, on the screen, battery conditions.

The backlit LCD display will show capacity, voltage, time on charge, and charging current. It will do this for each of the four occupied slots.

You can pre-select charging currents from 0.2 A to 2.0 A. You can select 10 discharging currents from 0.1 A to 1.0 A. You never want to charge a battery to the point where it becomes too hot to handle; a temperature sensor may ultimately cut off charging if it detects the cell is overheating. There are other self-checks of

Here the PowerEx MH-C 9000's display shows battery #4 half full, with 979 MA of charge.



Graphs showing how battery temperature may rise at full charge.

terminal voltage so you don't accidentally toast any single AA or AAA battery.

Most useful is the battery analyzer circuit. You can automatically discharge the battery at a selected rate, and then analyze the amount of charge stored in the battery. In this mode, the battery does not automatically recharge at the end of the cycle, so you can study the results.

In a cycle mode, it will automatically charge, then discharge, and then recharge for as many times as you program the sequence. This means you won't need to continuously go back to restart the charge and discharge cycle again—its automatic!

If you just plunk in four AA batteries and see what happens, you can monitor each battery individually as the charger/conditioner begins pumping in the current. If any one cell comes up HI 6H, this means you accidentally inserted a high impedance alkaline cell, or the rechargeable battery inserted is too toasted for a recharge.

The current reads out in milliamperes. It may vary up and down due to pulse charging to help rejuvenate old cells. Capacity is rated in milliamp hours, and this is the accumulated charging, or discharging, capacity in progress.

Volt represents voltage, which indicates the terminal voltage between battery pulses. This lets you know that the battery is indeed getting a full charge. On older chargers, you might think that 1.4 volts shows a good cell, but as soon as you take off the charging current, it drops down to 0.9 volts. This Maha system will actually show a poor performing cell at 0.9 volts between charging voltage at 14.0 volts.

When the battery analyzer detects that each individual AA cell has accepted a full charge, the word DONE appears on the display, and then each cell only gets a now-and-then "kick" as a top off charge.

Fast And Versatile

All in all, this is a pretty handy charger for the field emergency communicator. Because it runs on 12 volts or the supplied 110-VAC converter, you could use it in a variety of situations. And with a whopping 2 A of potential quick-charge, you can get depleted AA or AAA cells back on the air in a hurry. Remember, with the Maha PowerEx MH-C9000 charger/conditioner, which lists for $69.95, charge and discharge current *may be selected* where other chargers may not give you that option.

For more info, visit Maha Energy Corporation at www.mahaenergy.com. ■

by Ken Reiss, radioken@earthlink.net

Back To Basics: Choosing That First Scanner

Getting started in scanning can be a bit daunting. I suspect that many of us had a friend who got us started and showed us the fundamentals of scanning. Others get started out of some desire to listen to a particular service, for fun or for work. But if you come at it from some angle that doesn't involve a background in radio, and you don't have a friend to smooth the path, it can be a rough ride, particularly with today's complicated choices for radios.

I get a lot of questions related to some beginners' topics, so I like to pause and take us all back to the basics every once in a while. So this month *we'll look* at what *you need to look at* when choosing your first scanner. It'll do you good to jog your memory if you're an old pro, and if you're just getting started, hopefully I can get you on the right track. I doubt I'll answer all your questions, but here's a start.

Why Should I Scan?

I won't spend a lot of time on this one because if you're reading this magazine you're already hooked to some extent. Most scanner fans are born out of a desire to hear what's going on around them, or out of a professional need to keep up with something that uses radio. Volunteer firefighters and off-duty police officers are very often scanner hobbyists by necessity.

Of course, there's a lot of other stuff to listen to besides police and firefighters. Airplanes, airports, ships on all waterways, corporate communications of all sorts, fast food restaurants, mall security, and a host of other users will show up on your scanner if you have the interest to find out where to tune in. Some are boring as all heck, but others can be good entertainment. Of course, one person's good entertainment is another person's boring, so if you're just getting started, look around a bit and find out what you like.

What Kind Of Scanner Do I Need?

One question that never seems to get answered completely is "which radio should I buy?" We've all been through this problem at least once, unless you're really just getting started, which of course, is when it can be especially overwhelming.

Scanners basically come in three flavors (well, sort of). Portable scanners are easy to carry around, are generally small, and don't need much space. Base and mobile scanners used to be considered two distinct categories, although these days they're pretty much the same thing: the only question is do you mount it in the car or plug it in at home? The third type is the communications receiver generally reserved (and recommended) only for those people who need peak performance from the receiver itself. If you're just getting started, I don't recommend these at all. Having said that, it's worth noting that some of today's portables approach "communications receiver" price and performance.

There's a wealth of things to listen to no matter where you are. Dozens, maybe hundreds, of users can share a large tower like this one in every band available. Note the antennas on stand-offs mounted about halfway up the legs.

Probably the first question you should ask before you ever go shopping is, "What am I going to do with this radio?" You need to decide if you want a portable that's convenient to carry around, or if a base or mobile unit would serve your needs better. All factors being equal, you should get slightly better performance from a base or mobile. Of course, the key word there is "should."

In theory, because of the additional power available, and a steadier source of power, as well as the possibility of better performance from the antenna system, it "should" work that way. The reality is, however, that there are many handhelds that can perform just as well as, or even better than, their base/mobile counterparts. Today, it probably shouldn't be much of a factor in your decision-making process. Instead con-

centrate on how you want to use the radio, and then make your selection accordingly.

Do I Need A Trunking Scanner?

The next question you need to ask yourself is, "Do I need trunking capability?" If you live in an area where the things you want to listen to use a trunking system, you'll want a trunking scanner. While that may seem obvious, it can be difficult to get a straight answer on this. In many areas of the country, trunking will play a major role in scanning, if it isn't already.

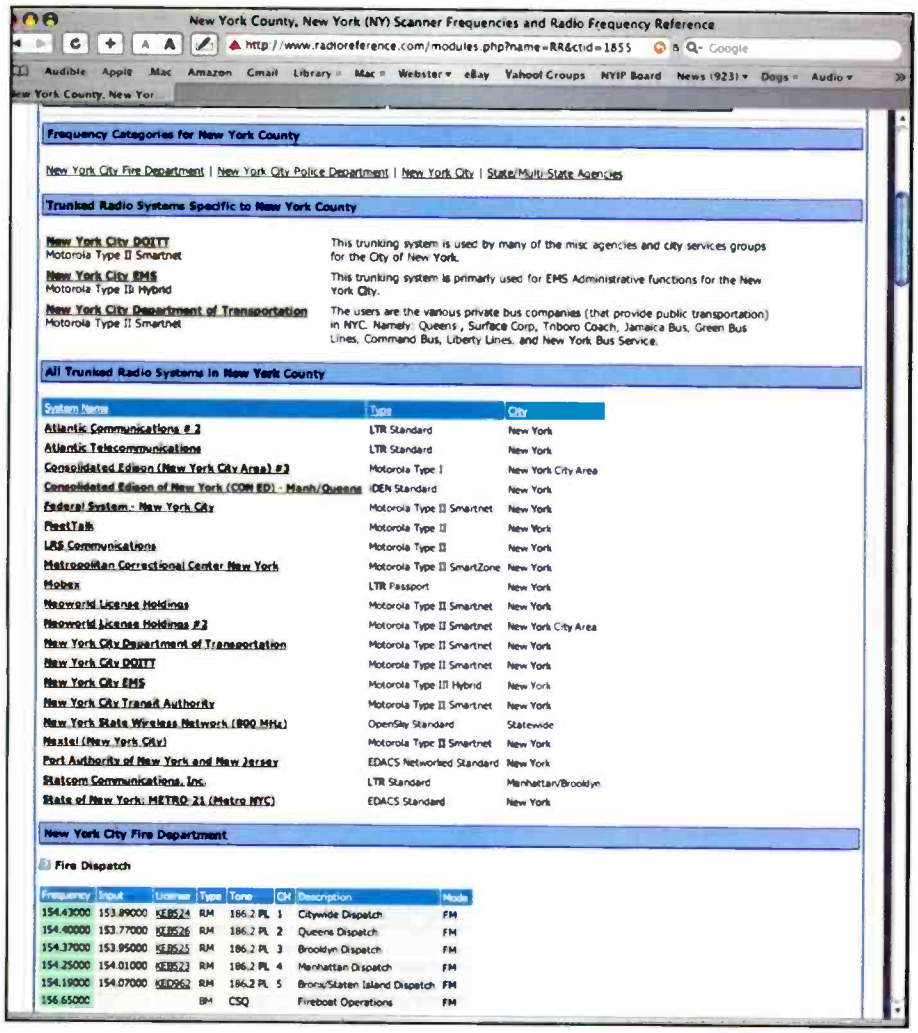
"So just what is this trunking thing?" I hear you cry. Trunking is a way of managing frequencies with a computer system to give an agency the appearance of having many more channels than it actually has. It's important to understand that this is done on the transmitter end; it's not under your control. Trunking systems are very difficult to listen to unless your scanner is configured for that particular system (and you have the right type of scanner).

How can you tell if you need trunking? The best way is to ask another listener who's been at it for a while. If you can't find anyone to ask, there are a couple of ways to get indications at least of whether or not you should be worried about needing a trunked scanner. The first thing to do is get a list of frequencies. Try Radio Reference (www.radioreference.com), a free online database, if you can't find a local source. Here you can look up the city you're interested in listening to and check out the information available. Radio Reference has some excellent listings and can sometimes tell you which frequencies are used for police/fire/ambulance activity, particularly for major metropolitan areas. It may also identify trunking systems and give you valuable information about the type of system and the frequencies it uses.

If not, all is not lost. Radio Reference should still provide a list of frequencies in use for your area. If the frequencies are in the 861- to 869-MHz range (designated as output frequencies for trunked systems), there's a strong possibility trunking is being used. If the frequencies are in other ranges, however, you're probably safe...for now anyway. If they're elsewhere in the 800- to 900-MHz range, and if there's a group of them (5-60 will be listed), there's a very good chance that the system is trunked.

The local TV station displayed this exhibit at a county fair. You can bet they were there with radios, and not just broadcasting the news, but talking about all the everyday things needed to make a news broadcast happen.

Radio Reference is an invaluable resource if you're just getting started. It covers many areas of the country, allowing you to look up your state and city and get detailed frequency information. Detailed trunking information is often available as well. Thanks to www.radioreference.com for the info and screen shots!



Here's the Radio Reference listing for New York County. Note the large number of trunked systems listed. Detailed info on each system, including the type and frequencies where known, is provided—all free of charge.

There are trunking systems just beginning to show up on other bands as well, but they're pretty rare right now. In five years, though, all bets will be off. Trunking is almost certainly in the future for any major agency, and a lot of smaller ones may get put onto statewide trunked systems as well. There's a lot of politics and expense involved in this process, so the conversion will be slow, but it will happen over time.

What Types Of Trunking Are In My Area?

The other thing to realize is that not all trunking systems are the same. The most common systems in use are Motorola (type I and II), Astro, Ericson's EDACS system, and Johnson LTR. Johnson LTR is very rarely used for public safety, although that may change with an upgrade to the LTR system. Motorola type I and II can be followed with a number of radios (in fact, most trunking scanners concentrate on the Motorola systems first as they are by far the most common).

One of the newest developments in scanners is the ability to follow the APCO 25 protocol. APCO 25 is a digital standard employed to improve communications and interoperability. In the long run it, too, will probably become the standard way of doing business, but for now there's a lot of things that can't communicate with APCO 25.

APCO 25 systems can be trunked or stand-alone channels (most are trunked, however). In the meantime, having the option to go digital will give you a more versatile radio with a longer useful lifespan, but it will add to the cost up front.

If you don't have a trunking system to contend with, your choices are much more extensive. Don't rule out the trunk-tracker scanners, though, just because you don't have a trunking system in your area yet. They're all above average conventional scanners as well, and *when*—not *if*—a trunking system arrives, you'll be all set.

What Other Features Are Important?

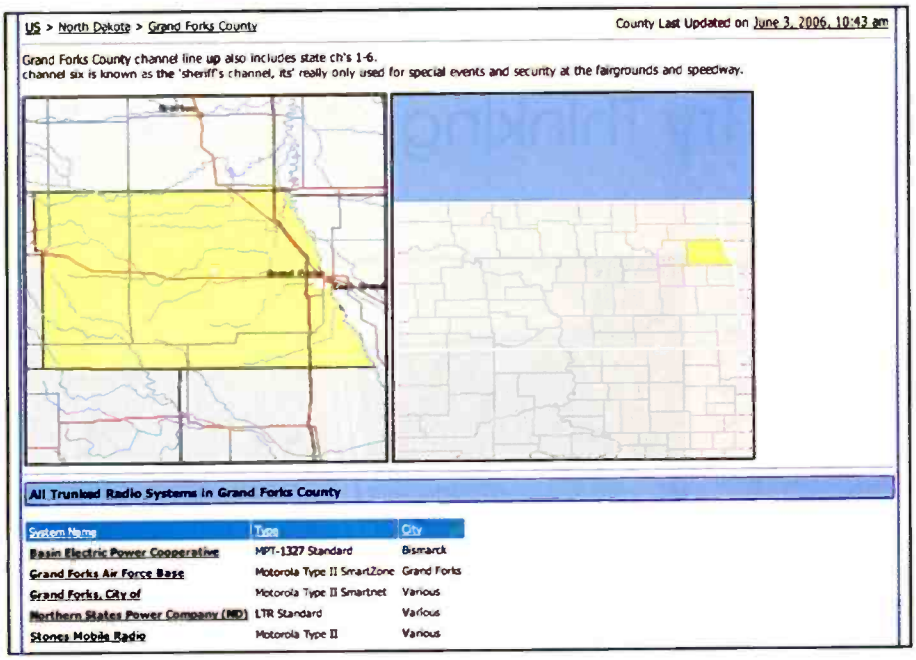
If you live in an "RF-rich environment," meaning an area with a lot of radio users around you, then the selectivity and dynamic range of the radio will be important considerations. With the proliferation of pagers and cell phones, there aren't many places left in any size city that aren't RF rich. Out in the country, it's better, but still not RF free! (Of course, if it was *really* RF free, there wouldn't be anything to listen to!)

What all this means in English is that if you don't want to listen to a bunch of interference from pagers, commercial users, and cell phones, you'll want a radio that's fairly high end. In the extreme, you'll need something called CTCSS (continuous tone-coded squelch system) or DCS (digital coded squelch) to cope with the interference.

How high end? Well, that's a very difficult question to answer. In fact, while the high-end scanners tend to be built a little better and be more resistant to interference, it might be that in your particular situation, some other radio works better for some reason. If you're unsure, it's best to buy from someone who'll let you return it in a few days. That way you can take it home, do some actual scanning, and find out how interference-prone your area really is. If that radio doesn't work quite right, try another model. Design differences often allow one model to perform in one place while another model might be much better only a few blocks away.

Of course, the more expensive the radio, the less likely you are to have the problem in the first place. It's also worth noting that there is no "perfect receiver" that won't get interference at any time on any frequency. Don't waste your time looking; just find something that's acceptable to you on the frequencies you want to listen to and go with it.

Another extremely useful feature is selectable delay. Almost all scanners today have a delay function that will cause the radio to pause for a few seconds before continuing the scan to see if a reply is received on that channel. On many radios, this feature is either on for all channels or



This is about the strongest argument I can make for getting a trunked radio system, even if you don't need one right away: Grand Forks, North Dakota, has its police and fire services on a trunked system. I'm quite sure this wasn't because of interference from nearby agencies.

off. Again, on the high-end units, you can turn this feature on and off per channel, so you can customize your scanning to your preferred agencies.

How Many Memories Do I Need?

Generally speaking, having more memory channels is a good thing, but there's also a point of too much. Really, it's not memories you need as much as banks. Banks help to organize groups of things that belong together. All the police, all the fire channels, or perhaps all the south side and all the north side can be grouped together for easy switching in and out of the scan list.

Most scanners on the market today (except for the very few that have fewer than 100 channels) will be divided into at least 10 banks. A 200-channel scanner will likely have 10 banks of 20 channels each. A 1,000-channel radio will probably have 10 banks of 100 channels, which is not as convenient as 50 banks of 20 each. That's probably enough for most applications. Twenty banks of 10 channels would be more versatile than the 10-bank system we were discussing, but you can't always have everything at a price you're willing to pay for a scanner.

Some of the newer radios include the ability to store alphanumeric labels (or alpha tags, as they're called) with some or all of the memories. This feature tends to appear mostly on the higher-end models, and can be well worthwhile in a scanner with a lot of memory channels. Remembering what frequency goes with what for over 500 or 1,000 channels is downright difficult, even if you have a good memory. It's also available on computer systems for any of the computer-controlled scanners, which makes data entry much easier.

What Frequencies Do I Need Covered?

Frequency coverage is another thing to consider, particularly on the introductory models. Most of the high-end radios will include the standard VHF-Lo, High, UHF and 800-MHz ranges. Some offer continuous coverage from the shortwave bands through 1 or 2 GHz. However, some of the introductory models leave out an area or two, usually at the high or low end to cut costs.

It's also worth noting that we will begin to see some public safety frequencies being assigned in the 764- to 806-MHz range in the not too distant future. The FCC has approved the allocation and a few stations have been licensed. In many areas of the country, it's simply a matter of waiting for an existing service to relocate. Currently, only the continuous coverage scanners include this range. It's also likely that trunking will be the normal mode of operation in this range, although conventional operation is permitted also. No doubt, new models will appear as soon as the band becomes common, but if a service you're interested in moves, that won't be much help.

Share Your Experiences

I'd be interested in hearing your experiences choosing that first scanner. Why not drop me a line at the address at the top of the column? As always, until next time, good listening! ■

Frequency Of The Month

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

Our frequency this month is **146.520**. Let me know what you hear, or don't hear, and we'll enter your name for our drawing.

Speaking of which, our winner this time is **RL Creager** from Piqua, Ohio. RL sent in a whole list of frequencies from the Piqua area and had a question about programming the PRO-94. Unfortunately, I have not worked much with the PRO-94 so I'm not sure I can help, but if anyone can let me know and I'll put you in touch!

Let me also take a minute to thank those of you who send in your entries on a regular basis. I don't always have the time to respond to all of them, but I do read every one. As space permits, we'll run a few here in the column, but your input is valuable! Please keep it coming...and your questions too!

Send any communications to me via e-mail at radioken@earthlink.net, or via more traditional methods to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126-2220.

by Rich Arland, W3OSS, richard.arland@verizon.net

For EmComm Gear, Try Thinking "Inside The Box"

I have so many irons in the fire lately I don't know where to begin. Matter of fact, I don't even think there *is* a beginning. Things just kinda mounted up and I turned around one day and found that I did not have a "full plate"; I had a bad case of "my plate runneth over"! Okay, this month we'll tackle a couple of items that have been back-burnered for a while and see if I can't clear a bit of space on my plate.

Over the years of writing "Homeland Security" I have touted the virtues of having a "Go-Bag," "Bug-Out Bag," "Jump-Kit," etc., for Emergency Communications (EmComm) volunteers. During that same period of time I have also revised my personal Go-Bag more than once! As a matter of fact my wife, The Beautiful and Talented Patricia, KB3MCT, is now threatening divorce court should I attempt to enter the house with yet another ballistic nylon bag or hard case for the "Go-Bag."

When she didn't have a ham license and we were newly married, it was no big deal to smuggle in a new piece of gear or accessory without her being any the wiser. Not anymore. Not only does she know each and every piece of gear on my shack table and workbench, in the storage area in the basement, and in each vehicle along with our Scamp camper, she knows *when* I got them and *how much* they cost! It's like trying to put something over on the KGB! Alas, life is no longer simple at W3OSS.

This latest "upgrade" to the W3OSS Go-Bag started when I was referred to an Internet link by one of my loyal readers. There I found the ultimate solution (?) to the Go-Bag situation, *and* it's not a "bag" at all. How about a "Go-Box"?

Now so you all don't think I'm a *complete* idiot (Patricia says that is *NOT* true....there are parts missing!), I had thought of this Go-Box idea on several occasions, but never found what I considered an adequate "box" to convert. However, some really clever folks came up with some very clever solutions that didn't cost an arm and a leg, and that's the focus of this month's column.

The first thing you must do is decide exactly what type of radio gear you need to do the job you're tasked with. Since I live in northeastern Pennsylvania (NEPA), and our local served agencies for our ARES/RACES/REACT operations are the Luzerne County Emergency Management Agency and the Pennsylvania Power and Light Company (which owns and operates the Susquehanna Steam Electric Station, more commonly called the Berwick Nuclear Power Plant), it's a relatively simple matter to focus on just one main mode of amateur radio communications: 2-meter FM voice.

The idea of having a single 2-meter handheld transceiver (HT) and a couple of spare battery packs and expecting to provide EmComm from an outlying municipality is ludicrous. The average HT's RF output is roughly between 2 and 5 watts. Since this is an FM transmission, the transmitter is running full bore 100 percent of the time, so it tends to eat batteries very, very quickly.

Additionally, your "rubber-duckie" antenna on most of today's HTs is not up to the task of hitting a repeater from more than a couple of miles under the best of conditions. Sure, you can add an after-market gain antenna in the form of a 5/8-wavelength whip or even a 1/4-wavelength and get some gain over the stock rubber-duckie, but that's only a stop-gap measure, at best.

Here's a nice little 5-watt solar panel recharging system built into a briefcase. These typically can be found on eBay for around $70, plus shipping and handling. Check out Harbor Freight (www.harborfreight.com), which offers several photovoltaic (PV) solar panels in the 5- and 45-watt range that will definitely charge your batteries.

Therefore, unless the situation warrants, or if you just don't have access to anything but a 2-meter (or possibly a dual-band VHF/UHF) HT, you need to rethink the type of equipment you'll want to deploy "when the balloon goes up."

The Early Days

In the early 1970s 2-meter FM was new to most ham radio operators. If you wished to get on 2 meters and participate in local simplex operations or the occasional repeater station, you were pretty well limited to taking an old piece of commercial (fire/police/EMS/railroad) VHF gear and converting it to work on the 144 to 148 portion of the ham bands. Believe it or not, that was not such a bad thing.

Many of us 2-meter old timers (OTs) cut our teeth on VHF FM by buying (or begging) an old RCA, GE, or Motorola two-way commercial transceiver (using, of all things...tubes!) and buying the proper crystals to place the radio on the 2-meter frequencies in use in our locales. There was always someone who worked in a commercial two-way shop who was also a ham and who would be glad to help get the gear running and align it for proper operation on 2 meters. Life was good. The frugal ham operator learned how to convert, align, and modify a piece of commercial gear, and in short, became a more well-rounded amateur radio operator thanks to the experience.

For those times when you don't need a heavy-duty radio with lots of RF output, this is a nifty idea: both HTs and all the associated support supplies fit nicely into a small ballistic nylon carry bag. This type of small Go-Kit would be great for short outings, such as providing communications for walk-a-thons, bicycle races, etc. (Photos by Steve Merrill, KB1DIG)

Just to set the record straight, most of these converted commercial rigs were single-channel radios. Therefore, you had a choice: Channel 1 or Channel 1! My old RCA Car-Fone had two channels on the receiver and transmitter decks, and I was able to rock this rig up on the Mt. Spokane (Washington) repeater and 146.94 MHz simplex (this was before the days of a standardized band plan and a national simplex frequency of 146.52 MHz).

My old Motorola "portable" was an ex-Northern Pacific railway single-channel luggable rig, with no squelch, and it ate 45-volt batteries like kids eat candy! On my meager salary as a on-air personality at KTWD-FM in Spokane, it didn't take long for me to offload that Motorola portable.

During the mid- to late-1970s, the Big Three offshore ham radio manufacturers (ICOM, Yaesu, and Kenwood) saw a need for inexpensive 2-meter FM equipment and did their best to flood the market with small, crystal-controlled rigs in the 1- to 10-watt class that would allow most radio amateurs to participate in VHF activities without having to convert commercial equipment.

The prices were high compared to the full-featured VHF/UHF radios of today, but this was a new market for ICOM, Yaesu, and Kenwood (Trio) at the time. As more hams swung to 2-meter FM for local rag chews and directed and undirected nets, and as repeaters became prevalent, the prices came down accordingly.

In the next generation of 2-meter gear, crystal control gave way to synthesizers, and soon many of the older rigs were put out to pasture or relegated for use on DX voice nets and packet radio clusters. There was a tremendous explosion of 2-meter and 70-centimeter repeaters starting in the early 1980s, and virtually every small town whose population was over 10,000 was serviced by at least one (if not more) VHF/UHF repeater.

Basically, 2-meter FM (and, to a lesser degree, 70-centimeter FM) has become the most popular amateur radio band/mode in the world. Therefore, it is natural that Amateur Radio Emergency Services (ARES), Radio Amateur Civil Emergency Service (RACES), and Radio Emergency Associated Communications Teams (REACT) have gravitated to VHF/UHF for their volunteer emergency communications. The gear is small, easily transportable, and works from a standard 13.8-VDC source, antennas are compact, and all this equipment is readily available to the radio amateur at a reasonable cost.

EmComm Today

Okay, so much for the walk down memory lane. What about today's EmComm needs? Here in NEPA 2-meter FM voice is still the preferred mode, with 70 centimeters coming in a close second. There's not much packet activity, although various county EOCs have tried using it in the past. However, there is a push on in Pennsylvania, along with other sections of the nation, to implement and utilize HF SSB and data modes for intermediate-haul (out to about 400 miles) EmComms using near vertical incident skywave (NVIS) propagation modes.

Looking at this realistically, the individual EmComm volunteer need not be overly concerned about adding HF SSB/data modes to his or her Go-Bag at this time, as this is primarily an Emergency Operations Center (EOC)-to-EOC mode for passing high volumes of data from within the affected area to well outside the disaster zone. Of course, if you already have multi-mode HF/VHF/UHF capability (as in a Yaesu FT-857 or 897 radio set) then you're well ahead of the game. However, I would not advise anyone to go out and buy a new radio or upgrade a current system just to get HF SSB/data capability for EmComm use. This emphasis on HF NVIS is relatively new to the EmComm arena and has seen only limited use in our section of the United States.

With the historical data in mind, selecting radio equipment for EmComm use in NEPA is relatively easy: a good 50- to 65-watt 2-meter mobile radio configured for portable/base-station operation will do nicely, thank you. With the plethora of inexpensive, entry-level 2-meter FM radios now available, you won't need to spend a fortune to procure an EmComm rig to satisfy your RACES/ARES/REACT needs. All three offshore ham radio manufacturers offer entry-level, mid-power 2-meter FM radio sets for under $150, which, when you look at all the features these radios offer, is a ridiculously low price.

What? Don't want to buy new? There is always eBay. That's where I procured my Yaesu FT-2800 2-meter radio for about $100, including shipping and handling. This rig was brand new, still in the original factory box, with the warranty cards and manual, 13.8-VDC power cable (with in-line fuses), and a CAT cable for digital control. For $100, I got a steal of a deal. The previous owner had used this radio a grand total of one time, just to be sure it worked, and repackaged it, since he had already obtained another radio for his EmComm needs. After it went on auction on eBay, it mysteriously found its way to my house! (I really haveto get one of those transporters they use on *Star Trek*!!!)

The FT-2800 is a great radio set and features several hundred memory channels, dual VFOs, PL tone (CTCSS) encode/decode, a variable power output ranging from 5 to 10 to 25, and 65 watts output. This is really nice, since the addi-

tional RF output can be of great use when conditions are bad or antennas are less than optimal. Normally, 5 to 10 watts of RF is all that's needed in our area to hit any one of several repeaters used for ARES/RACES/REACT by the various county EOCs in and around Luzerne County. Using these lower power levels has the additional advantage of reducing any co-channel interference to other VHF EmComm/EOC radio systems in your immediate area.

I have had firsthand experience with this co-channel interference because of the county EOC's 158.850-MHz system that sits about 20 feet away from my operating position in the Conyingham Borough EOC. Using only 5 watts of RF power to a four-element 2-meter portable beam on a 15-foot mast anchored in the adjacent yard, I was able to easily hit the ARES repeater that Luzerne County EOC was using, while minimizing any RFI to the county's other system.

Back To The Box

We have the radio set, the accessories to make it work, and now we need a container. Before you go out and start spending huge sums of money on O-ring-sealed, ultra-airtight, floating, indestructible poly-carbonite cases, take a look at your local Wal-Mart, K-Mart, Office Max, Office Warehouse, or Staples and find a simple portable plastic filing cabinet. These are inexpensive (about $8 to $9) compared to Pelican and Halliburton cases and work just as well. Lay out your gear, look over the container, and plan the installation. Remember to keep any connectors near the top lip of the plastic filing cabinet, so they won't leak water should you set down your Go-Box in some standing water.

This is the picture that started it all! This Go-Box was fabricated by Steve (KB1DIG) and Kim (KB1GTR) Merrill of Dover, New Hampshire. I stumbled across it on one of my late-night romps across the Internet. Steve and Kim used a file box as the basic container for their portable EmComm radio station. Notice that they've incorporated an SWR meter and power distribution in addition to the basic radio gear. (Photo by Steve Merrill, KB1DIG)

Don't try to pack a DXpedition-style station in that container, either. Just include the bare essentials to get you on the air and keep you there during the recovery stages of a disaster. Personally, I would include—get ready, it's a mouthful—the 2-meter rig (duh!) and associated mic, power cables, etc., a battery-powered clock (digital or analog, your choice), a Signal-Link SL-1+ data controller for packet operations (since I already have one on hand), PDA (Palm 105 already on hand), LED accessory lighting, VHF SWR meter (non-essential but nice to have), logs, forms, copies of your license and ARES/RACES/REACT IDs, writing paper and pen/pencils, instruction manual for your radio (or one of the Nifty-type booklets on the essentials of your rig), two 12-VDC sealed lead-acid (SLA) batteries for back-up power, SLA charger (yes, they *are* different from NiCd/NiMH chargers, so use the proper charger), two 25-foot lengths of RG-58 or RG-8X coaxial feedline, coaxial cable adaptors, portable 2-meter antenna (a mag-mount 1/4-wave or 5/8-wave vertical for mobile use works well, as does a roll-up J-pole antenna), steel pizza pan or cookie sheet (ground plane for the mag-mount antenna), one roll of mason's twine (available in fluorescent colors at Lowes and Home Depot), two hanks of parachute cord or Kevlar rope, earphones/earbuds, external speaker for rig, handheld scanner, FRS/GMRS hand-

held radio, maybe an 11-meter (CB) handheld if you have one on hand, spare batteries for the handheld radios (I like the lithium-ion "AA" cells, available at Wal-Mart but not cheap!).

You can mix and match to your heart's content, adding and subtracting items as needed. For instance, regarding the two 25-foot lengths of coaxial cable, I have several 2-meter antennas that have 15 to 18 feet of coax installed as part of the antenna package, so I could delete that if I wanted to lighten the load. Ditto with the handheld scanner and 11-meter rig.

The FRS/GMRS should be packed in all instances, though, because of the proliferation of these little units within the civilian community. FRS Channel 1 is the *de facto* frequency for emergency traffic, so it's always good to have one of these just for that reason. Besides, they're dirt cheap, very small, and won't add a lot of weight or bulk to your EmComm Go-Box.

Now obviously this is what I would pack. Your mission/tasking most likely will not be exactly like mine, so your requirements will probably be different, maybe *very* different! The above list is *only* a guideline; alter it to suit your needs and tasking requirements.

More Stuff

My "personal kit" (as in non-radio stuff) includes vehicle keys, key-ring LED flashlight, key-ring nail clippers, key-ring multi-tool (Leatherman Micra), large Leatherman multi-tool on my belt, lock-blade knife, cell phone (with DC charger), prepaid phone card, several dollars in loose change, one credit card, driver's license, second form of ID, copies of my ham license and ARES/ RACES/REACT IDs, wristwatch, chemical light sticks (various colors), windproof lighter, rain suit/poncho, spare glasses, sunglasses, daily medications, aspirin, decongestant/antihistamine, bottled water (I normally keep a case of bottled water in my truck), along with a sleeping bag, small tent, ground cloths, spare clothes, rain gear, shelter half, blankets, a dozen "power bars" for expedient food, battery-powered flood light, 750-watt DC/AC inverter, jumper cables, telescoping mast sections (total of 24 feet), guy stakes, extra coaxial cable, and a tool kit, including a 100-watt soldering iron.

Again, this list is changing all the time due to taskings and EmComm assignments. The truck also has a dual-band VHF/UHF FM voice/data radio (Kenwood 700D), laptop computer, conventional/trunking 250-channel scanner, 11-meter AM transceiver, two FRS/GMRS HTs, LED flashlights, pillow (I need LOTS of naps!), and the capability to add HF SSB/CW/data capabilities via a Yaesu FT-897 and Elecraft K2 transceiver. There are two hard-points on the truck that facilitate mounting VHF/UHF and HF antennas, with the scanner and CB antennas permanently mounted on through-glass antenna mounts on the rear window of the cab.

Go Get A Go-Box

Well, gang, that's it for this month. Do your homework and come up with your own Go-Box for your EmComm deployments. If you should feel so inclined, shoot me an e-mail or snail-mail with a picture and *short* description of your Go-Box and your photo might be in an upcoming column—you can never tell.

Until next time, remember our mantra (and repeat after me): "Preparedness is not optional!" ■

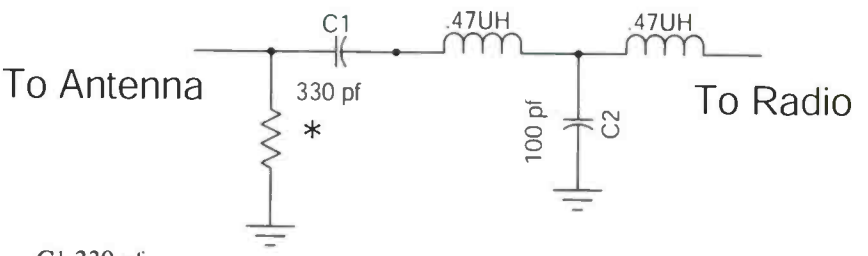
by Kent Britain, WA5VJB

A Shortwave Listening Filter For Your Wideband Scanner

This month we take a slightly different tack in improving your listening experience (hey, even antennas can use a little help now and then), specifically your shortwave listening experience. There has always been a soft spot in my heart for shortwave receivers. I enjoy listening to many of the foreign broadcasts—they certainly have a different view of news events.

As you can see in **Photo A**, my SWL tools include the ICOM R1, R2, Q7, R3, my old favorite the R10, and my new favorite the R-20. Okay, before I start getting emails, the Q7 has the software patch and now hears .495 to 30 MHz. Also I purchased the R2 and the R10 in Hong Kong, so there are no holes in their coverage.

These wideband receivers are extremely versatile. They pick up just about everything, but performance on the shortwave bands is usually pretty poor. That 6-inch rubber antenna doesn't hack



C1 330 pf
C2 100 pf

Inductors .47 µH
*Optional input resistor

Notes:
C1 is a DC blocking cap that also helps attenuate strong AM stations; 330 pf is the optimum value, but values from 100 pf to 470 pf can be used.

C2 here is rated 100 pf. For a more aggressive filter you can use values between 100 and 200 pf.

Figure 1. Schematic for a simple passband filter for the SWL bands.

Photo A. My personal arsenal of SWL and broadband scanners.

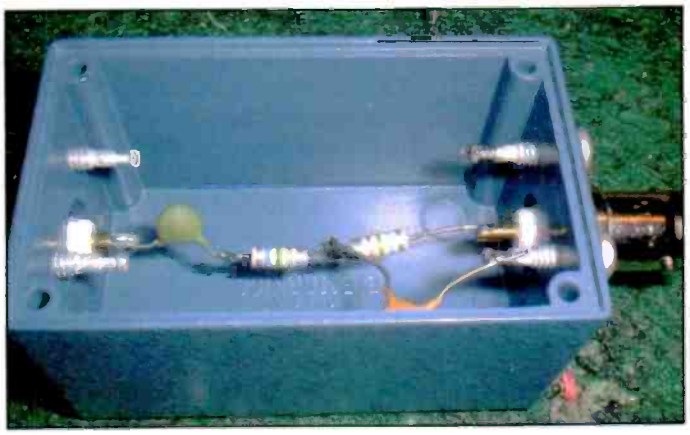


Photo B. An SWL band filter in a die-cast box.

Photo D. Winding your own .47-µH inductors.

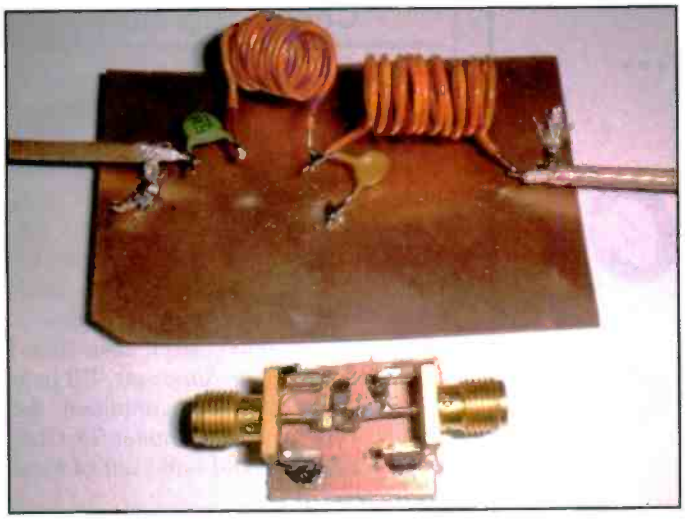


Photo C. "Dead Bug" and surface-mount technology constructions of the SWL filters.

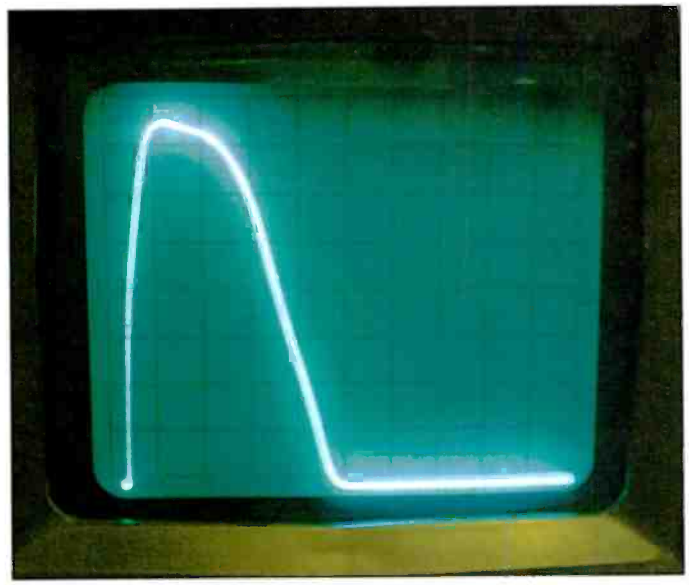


Photo E. A 0 to 100 MHz sweep of the SWL filter

it when you're trying to pull in the Voice of America or Radio Havana. So instead you try a long-wire antenna or perhaps an HF dipole. Now you're greeted with dozens of overlapping signals. The very wide receiver front ends in these broadband radios often suffer from overload. And this overload is often composed of local AM stations, FM transmitters, and TV signals.

Well, here's a solution for you. In **Figure 1** we show the schematic for a pretty simple passband filter for the shortwave bands. This simple filter drops down the AM broadcast band an S-unit or so. Not much, so you'll still pick up your talk radio stations just fine, but the lower signal levels help the shortwave signals a lot. At the same time it drops FM and TV signals about 30 dB, giving that first amplifier in the receiver a fighting chance.

If you live in a very strong signal area, you can build a more aggressive filter. Just increase the inductors from 10 turns to 20 turns and use 100 pf for C1 and 200 to 220 pf for C2. These changes will attenuate the AM broadcast band much more and start the high frequency roll off at 20 MHz.

Construction

There are many ways to build this filter, and here we show three. In **Photo B** you'll see one that I've built in a nice die-cast box with connectors. In **Photo C** we show two "dead bug" filters: one with coax going in and out and using homebrew inductors (top); the other with SMT components (bottom). Electrically and functionally all three filters are identical. As you can see comparing the photos, the nice neat box with connectors makes a pretty project, but just the slab of circuit board with the coax soldered directly to the copper works just as well.

The inductors can be commercial .47-µH inductors or, as shown in **Photo D**, you can make some inductors yourself. Ten turns of about 20-gauge wire, close spaced on a pencil, will do just fine. (And no, that joke has already been used—your coil doesn't care if it's a #2 or a #3 pencil.)

Use

Just place the filter between your scanner and the antenna. In most cases, you'll find a lot less intermod and noise while tuning across the shortwave bands. I show the resistor on the input connector as optional. Just about any resistor value between 1K Ohm and 100K Ohm will work. The idea is to just

bleed off any static charge your outdoor antenna might pick up.

Photo E shows a DC to 100 MHz frequency sweep of the filter, the scale is 10 MHz per division. On the left side of the screen you can see how very low frequencies are blocked and how the filter rolls off above 30 MHz to block FM broadcast and TV stations.

And speaking of holes in our scanner's coverage...in just a few years the remaining U.S. analog cell phone systems will be shut down. Does anyone know if the federal law requiring our scanners to be "cell blocked" also expires when analog cell service shuts down?

Cheap Yagi Story

I got a cryptic email from a chap in Cuba who wanted a UHF Cheap Yagi with at least 20 elements. That's kind of big for a Yagi, and it took about three emails for him to loosen up to the point where he would even tell me the frequency he wanted. It turned out his desired frequency was that of a popular UHF TV station in southern Florida.

Well, if my oppressed Cuban friend wants to watch *The Simpsons*, I'll help him! My next email contained the dimensions for a 20-element 75-Ohm Cheap Yagi he could build out of local materials.

Letters, Letters, We Get Letters

From Ian I recently got this question: "Can I use a TV antenna as a scanner antenna?"

We've covered the use of common "Rabbit Ear" antennas with scanners and they will give pretty good service, but larger outdoor TV antennas are not recommended. The elements are cut for TV channels, not the public service frequencies. Also the TV antenna elements are horizontal and most public services use vertical polarization. But, while they may not work well, that doesn't mean there aren't a lot of good parts you can salvage to build your own antennas.

As always, letters from our readers provide good ideas for future articles. Just drop me a line at WA5VJB@cq-vhf.com. For ham versions of many of my antenna articles, you can visit www.WA5VJB.com and have a look in the "Reference" section there.

That's it for now. See you next time.

by Gordon West, WB6NOA, WB6NOA@arrl.net

The ICOM SSB Cut-Out Cure For Boaters

Summer may be almost over, but there's still plenty of great weather ahead. And for boaters, autumn can offer some terrific sea conditions. With that in mind, let's look at a marine radio that also operates on the ham bands. The ICOM IC-M802 marine single-sideband transceiver is now in its fourth year of production, and it holds a whopping market share lead over competitors Furuno, JRC, SGC, Raymarine, and SEA Marine. It's the first marine SSB transceiver for under $1,995 to include full digital selective calling (DSC) emergency, red button capability, and a simple tie-in to an onboard GPS data stream.

Add to the M802's DSC capability its built-in separate DSC scanning receiver with digital signal processor chip (designed for internal filter settings for narrow bandwidth signals when operating email) and you've really got something to talk about. The head is fully remote and waterproof, with a big bold amber display for frequency, channel, or alpha-numeric channel names, and full computer control with its included DIN and RS-232 C connectors.

The computer download makes programming the ICOM IC-M802 a breeze aboard a boat.

First Impressions

When the M802 first hit the shelves, sailors were all set to take advantage of the "one touch email button" for quick access to the pre-programmed email frequency list. First surprise: email providers, like marine SailMail and ham radio AirMail, required an additional external $999 modem, allowing the equipment to run lightning fast Pactor III signaling to send and receive emails all over the world.

We ham radio buffs were delighted to see a straightforward, three-button maneuver to engage ham radio transmit capability. There was no longer the ICOM-required computer clone unlock for frequencies not already stored in the radio's memory. And, in more good news for hams, you could move up and down the ham band in micro or major tuning steps, with transmit always following receive, so there was no additional need to program transmit channels.

From the beginning, I found the M802 feeble on average voice transmit output. While you could whistle for 150 watts on an oscilloscope, you would only see 100 watts peak on a professional Bird wattmeter. And as you talked and gave your local weather conditions, the thruline wattmeter would amble in the 20- to 40-watt region. Close talking the noise-canceling mic and raising your voice would help. An early-on control head, SMT (surface-mount technology) chip removal squeaked out a few more watts, but power output compared to an original ICOM IC-M700 was noticeably less.

Also, a peculiar cut-out problem was associated with running the radio on certain bands, first documented by SSB experts Don Melcher, Shea Weston, and Gary Jensen on the East Coast. This clipping problem was attributed to a likely intermittent antenna connection to the backstay, or a ground fault somewhere in the bilge ground foil run.

Responses to repeated letters and phone calls to ICOM America suggested that the high-modulation power peaks were clipping because an element in the antenna system or ground system was breaking down with the increased high-frequency currents in the conductors.

Over a year ago, SailMail expert Shea Weston of Offshore Outfitters in San Diego and I conducted bench tests with our own ICOM high-frequency base station systems, and the fault would regularly occur on the equipment we tested when the standing wave ratio (reflected power from the tuner) exceeded 1.8:1—a modest "backwash" of RF energy, not resolved by the ICOM AT-140 antenna tuner input circuitry.

"As soon as I would resolve this slightly elevated SWR, the clipping problem was eliminated," said Weston (the go-to guy everyone in San Diego was turning to before the Baja HaHa Sailing Rally). I saw the same thing with SSBs heading for Puerto Vallarta in the Del Rey Yacht Club race, as well as clipping on some of the 802s going on during the Cabo race.

All the while, legendary radio weather prognosticator, Don Anderson, on his 8122-kHz Amigo Net, also heard a number of M802s breaking up on transmitted voice peaks. Some breakups occurred on 8 MHz, some on his ham nets, and, unfortunately, race communications Channels 4 Alpha (4146 kHz), 4 Bravo, and 4 Charlie made up a common "ICOM clipper" zone among regatta participants. Everyone agreed that this was a safety hazard, so Anderson began sending ICOM America computer audio clips to document that there was a big problem in ICOM 802 radio land.

Help Arrives

Ever responsive, to the rescue came ICOM Technical Service Manager

Rodney Grim, with 40 years experience in long-range marine radio, ranging from his time on an Antarctica research vessel to his Catalina 34. Grim recognized the obvious "ICOM clipper" outtakes. had heard of my unresolved correspondence about this same cut-out problem, and spent several weeks in Mexico working on sailing ships exhibiting this transmitting "FUBAR."

"Mariners with reported transmit clipping problems might easily develop an on-board cure by renewing the high-voltage GTO-15 wire run from the automatic tuner to an absolute positive connection to the insulated backstay or SSB whip," said Grim during a special trip to Southern California to meet with marine electronics experts to help find a cure.

"Equally important as the antenna elements is the copper foil ground run to an underwater grounding system," added Grim, pointing out that any fuzzy antenna or fuzzy ground conductor could break down on conductivity during voice peaks.

The automatic antenna tuner will snap in various amounts of coils and fixed capacitors in an L match network to present the radio with the lowest SWR possible. Most radio experts agree that modern relay switching automatic tuners are miraculous in what they do, but cannot necessarily achieve the absolute lowest SWR if the internal coils and capacitors don't add up to the right combination. Anything *below* 1.8:1 would be ideal, and readings of 2:1 resulting in a 12-percent return of reflected power are well within reason for a broadband radio.

The ICOM M802 has a built-in SWR protection circuit that will activate instantly at about 1.8:1, resulting in clipping out the transmitter for VSWR protection, then instantly coming back at the higher power level. This makes the cut-out extremely noticeable and aggravating to the receiving stations.

"On our other marine SSB transceivers, an elevated SWR will cause our equipment to gradually pull back power commensurate with the amount of SWR. This gradual reduction, to protect our final transistors, is hardly noticed because the entire transmission is slightly reduced in overall output," said Grim.

With the ICOM M802 the cut-out and cut-back in is so abrupt that there is no mistaking the deep transmitter power reduction and instant return to stronger power output. You would know that a strong signal is there, but is regularly chopping out on voice peaks.

In Japan, ICOM's engineers studied this problem for nearly a year, tracing the problem to the power-down SWR power control circuitry of fixed components in the automatic power control (APC) section on the main board. In ham radio equipment, it is usually a variable control labeled "SWR PRO," for PROtection. Unfortunately, this circuit has no easy capacitor or pot controls, and only an SMT chip where the Bellevue, Washington, factory fix will reduce the abrupt action to elevated SWR.

Because every vessel installation has unknown sea water grounding potentials and unknown backstay and lead-in lengths, the automatic tuner, with thousands of relay combinations of inductance (L) and capacitance (C), won't necessarily bring every single frequency on any one band down to a perfect 1.1:1. If it could, there would be no "ICOM clipper" problems!

Here's Your Cure

Step 1: Many mariners report NO problems with clipping. Run some radio tests with fellow sailors to see if you are loud and clear. If you are, and I mean on *all* of the ship-to-ship channels (and ham channels, if you're licensed), do nothing. Your system is probably fine.

Step 2: Oh, they say you're cutting out on a specific band? If your installation is older, start replacing antenna lead-in wires and upgrading your ground system. If the clipping stops, you obviously fixed an intermittent antenna or ground conductor.

Step 3: If your installation is prime and everybody screams at you that you're breaking up on 4 or 8 MHz, or ham 7 MHz or 14 MHz, resign yourself to getting a quick factory fix.

All they need is the black box. You won't need to rip out your nav station to get at the head, nor any associated wiring attached to the radio. Just the black box.

Label all the wires as you disconnect, especially if you

Pop'Comm September 2007 Reader Survey Questions

This month we'd like to ask about electronic equipment that you enjoy or are interested in but that isn't directly or traditionally radio related. Please use the Reader Survey Card and circle all appropriate numbers.

I have a wide-ranging interest in all things electronic and would enjoy reading about a variety of topics in *Pop'Comm* 1

I'd rather stick to subjects that relate directly to radio communications/monitoring 2

I would be interested in reading more about technology and use of the following products:

Cellular phones.....3
GPSs.....4
Internet phones & services.....5
Streaming-audio hardware 6
Personal digital assistants (PDAs).....7
Wireless networking.....8
"Smart House" wireless appliances 9
Radio-controlled toys.....10
Radio-tracking devices.....11
Robotics.....12
"Spy" devices 13
Other (please note on reader survey card)

The ICOM M802 Marine SSB (lower left) is the least expensive long-range radio with digital selective calling capabilities to the Coast Guard.

have an email modem plugged in. Pack *only* the black box, and ship it to:

ICOM America
Service Administrator, Lorie Phillips
2380 116th Ave NE
Bellevue, Washington 98004

There is no need to call for a return authorization, but be sure to include a note indicating "CUT OUT IMPROVEMENT and NEW USER CHANNEL FREQUENCY LOAD."

That last request, new user channel frequency load, is only for those newer radios that were shipped with an abbreviated user-programmable frequency load that omitted the required simplex ALPHA and BRAVO ship-to-ship channels for race communications, were missing the ham weather channels, and also missing the important WWV signals and high seas telephone service. There's now a new channel load, from 1 to 160, that will make operating your ICOM M802 more intuitive and easier.

When you get your radio back from this free modification, courtesy of ICOM America, you should be impressed with the terrific signal reports you'll be receiving over the SSB airwaves.

Thanks to ICOM America and ICOM's Rodney Grim for taking this proactive approach to remedy a final transistor output protection circuit problem that was simply too aggressive for common shipboard installations. ■

by Peter J. Bertini, radioconnection@juno.com

Bob Ryan's Radio Challenge!

Photo A. Here's Bob Ryan along with some of his one-tube radio projects in his Hemet, California, workshop/apartment. (Photo courtesy of Norm Leal)

Photo B. A front view of Bob's "Dumpster Diver Special" shows how he's used a protractor for a dial scale and other salvaged materials for the chassis and end plates.

Photo C. Bob included these metal Keystone battery holders on the back apron to supply the filament and B+ voltages. Jumpers allow selecting the detector voltage in 9-volt steps between 9 and 36 volts.

It's been a few years since we've touched on simple receiver projects, so perhaps it's time to consider a few for our upcoming columns early in 2008.

Reader Bob Ryan from Hemet, California, one of my most faithful readers, typically pens three or four nice letters to me each year and passes along many ideas, suggestions, and comments for the column. A mutual acquaintance, Norm Leal (no, this is not the famous Norm Bill Price writes about in his column!) snapped a photo of Bob during a recent visit (see **Photo A**). Judging from the array of goodies on the display shelves in the background, I suspect Bob keeps himself fairly busy in his apartment workshop!

Back to our story: A few years ago the mailman delivered a small box, the contents of which can be seen in **Photos B**, **C**, **D**, and **E**. It was a partially completed one-tube radio receiver made by Bob Ryan. While I may have shared similar photos in an earlier column, I've finally decided that it's high time to get busy and put the little receiver to work as an upcoming column project!

While most of the major components are present, none are wired or connected. Bob was leaving the finished project to our imagination. Here's where you folks, our readers, come into the picture! What would be a good project for Bob's unfinished receiver?

Possible Projects?

I have in mind two possible uses for Bob's receiver.

The first would be a version of the Doerle TwinPlex receiver, using either a 1G6 or a 19 vacuum tube, both of which are dual triodes. The Doerle is a basic regenerative receiver with a single audio stage and is very similar to the Alfred Morgan regenerative two-tube receiver we featured several years ago. The 6SN7 is also a very popular tube used for many Doerle knockoffs.

Another more interesting project would be a version of the Hiker's receiver, an early radio design that uses a tube in a "space-charge" circuit and needs only a few volts for the plate supply voltage. Let's talk a bit about space charge applications before discussing the Hiker radio in more depth.

Space Charge Technology

Space charge technology was used for a line of low-voltage plate voltage tubes developed for car radios. The tubes were used for a brief period just before transistors completely took over in the late '50s or very early '60s. But, for a few scant years, manufacturers used specially developed "space charge" tubes for the early RF, IF, detector, and first audio sections of car radios, along with a germanium power transistor supplying the Class A audio to drive the speaker.

As can be imagined, being able to run the vacuum tubes' "high voltage" direct-

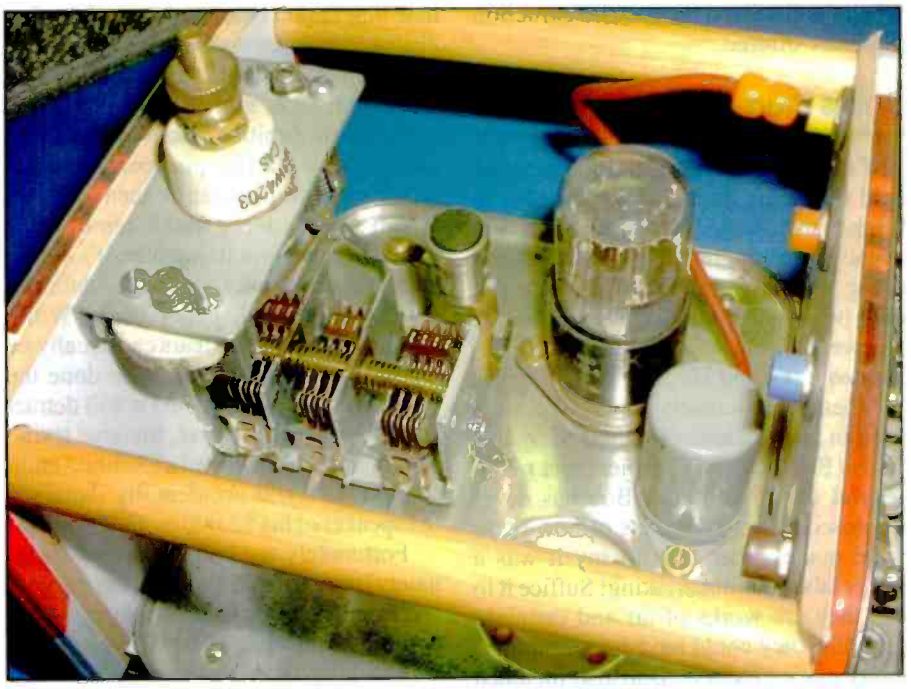


Photo D. Here's a peak down into the receiver. The tube is a 1G6 dual triode that is well suited for use with a 1-1/2-volt dry cell. The small audio transformer and three-section tuning capacitor (140 pF) are surplus parts from Fair Radio Sales.

ly from the 12-volt car battery saved the manufacturers a lot of money by eliminating the need for a high-voltage transformer, vibrator, rectifier, filter caps, and shielding! Examples of this fleeting tube technology include the 12AC6, 12AD6, 12AE6, and 12BL6 vacuum tubes, though this is a very incomplete list, as there are several others that were made for these applications. Alas, within a few short years, rapidly advancing semiconductor technology quickly closed the vacuum-tube era, except for a few specialized niche applications.

Old Technology Made New

Oddly enough, what appears to be new often has its roots in the old, and I was pleasantly surprised to learn that experimenters were building simple receivers using the space charge technology with existing high-voltage tubes (the type-49 vacuum tube, for an example) back during the 1930s! The earliest version, dubbed the Hiker's One, was a simple one-tube regenerative receiver that was kitted and sold in New Zealand back in the late 1930s.

The best thing about these circuits is that they eliminate the need for high voltages, making them "kid-friendly"; that is, they're completely safe for youngsters of all ages to build and use. So, if you have any suggestions for circuits to finish Bob's receiver challenge, please drop me an email or write in and share your thoughts!

I'm leaning toward the Hiker's radio, since it would be new ground for this column. But what would you want to see me do? Let me know. Norm was also gifted with a twin copy of my receiver (Bob apparently built several of them), but Norm plans on keeping his in its original state, just the way Bob presented it to him.

Getting back to Bob's receiver, notice how Bob has cleverly recycled many commonly available items to build his self-proclaimed "Dumpster Diver Special"! The end panels, and the chassis, are tin-metal container covers. I didn't peak to see what they were originally used for, however. The dial scale is a dime-store plastic protractor. Many of the electronic parts were salvaged from old military electronic assemblies that Bob had procured from Fair Radio, in Lima, Ohio. Other parts, such as the three-section tuning capacitor and the small audio transformer, are also surplus parts purchased from Fair Radio. These parts will be discussed in greater detail

Photo E. This bottom view shows a clean and uncluttered layout. Nothing is wired since Bob left the final design to our imagination.

Photo F. Bob included some of his crafted four-pin coils from his collection.

Photo G. This close-up shows the craftsmanship that went into making this shortwave coil.

Photo H. Here's another close-up of one of Bob's coils. It looks like it should cover the upper portion of the BCB.

when the finalized receiver construction plans are offered.

Bob's Plug-In Receiver Coils

I'm always amazed at the patience and skill that some homebrewers are able to bring to their projects. My humble efforts usually pale by comparison. Bob also sent along several examples of the four-pin coils he's made for use in his regenerative receivers. These examples can be seen in **Photos F**, **G**, and **H**.

These coils closely model the coils used in our versions of Alfred Morgan's "Boys First Receiver" project that ran in several earlier columns. Bob has never disclosed all of the secrets of how these were made, other than to say it was a rather laborious undertaking! Suffice it to say they are works of art and certainly look like they could have been commercially made products. Bob also included some homemade wood stands for the coils. These were much appreciated, as they allow me to neatly display and store the coils alongside Bob's radio in my collection. Keep in mind that Bob does all of these projects in a small, neat workshop inside his apartment.

A Zenith Speaker Extension Cord

Ever notice how a simple solution, that should be ever so obvious, remains elusive until somebody else mentions the idea to you? Here's a good example: a quick and simple to make extension cord to permit aligning and testing most early Zenith radios without the need to remove the speaker from the cabinet!

The Zenith speaker socket is a standard five-pin wafer-type tube socket. However, note that Zenith only used four of the five available pins for speaker wiring.

This handy workbench accessory will work with most mid- to late-1930s and early-1940s Zenith console and tabletop radios that use a five-pin speaker socket on the rear apron, as can be seen in **Photo I**. I'm always leery about removing a radio speaker from its cabinet; it's all too easy to inadvertently damage the delicate, and now exposed, paper cone! While speaker cone rips and tears can usually be repaired to work as new, once done the damage is always there and it will detract from the value of the set. Imagine trying to explain to the owner of a 12-tube Zenith Walton how you accidentally damaged the speaker of his $2,000 or $3,000 radio?

Fortunately (or perhaps not so fortunately!) most of the sets that cross my path are usually worth far less and are more common. But nevertheless, here's a great way to keep those speakers in the cabinets where they belong.

Getting Started

To get started, you'll need a male five-pin plug and female five-pin socket. A suitable plug could be removed from a defunct five-pin vacuum-type (type-27 or similar) device and the socket could be salvaged from an old chassis or the shop junk box. The neatest solution is to use S-type sockets and plugs. These were designed to be chassis-mounted using a saddle plate (a wavy snap ring holds the socket or plug on the saddle plate). **Photo J** shows typical examples of S-type five-pin sockets and plugs, and also the saddle plate and wavy spring that are used for chassismount applications. You'll need to remove the saddle and spring if they are present.

S-type sockets or plugs can be equipped with optional snap-on cover

Photo I. Zenith used five-pin wafer sockets for the speaker connection on many of its early console and tabletop radios.

Photo J. These two socket caps, along with an S-type five-pin socket, five-pin plug, and some wire, are the materials needed to construct a speaker extension cable that will let you leave the speaker in the cabinet when testing and aligning the chassis.

caps, which will prevent contact with the high voltages on the exposed solder connections. The covers are often called "kidney caps" by hams or old-time techs; they are otherwise known as CP-style covers. These caps simply snap over the tube socket or plug. Some styles have a cable clamp, while the less-expensive styles have a rubber grommet to prevent wire chaffing. All these parts are available from RadioDaze[1]. Refer to parts SKT-5-P1, PLG-5-P1, and COVER-1 online or in the newly printed Radio Daze catalog #306 for pricing and ordering information.

Make the cable as long as practical; there is nothing to be gained by skimping here. Six feet would be an absolute minimum, and 10 feet or more would be even better. Remember that the DC potential on these wires will be in the area of 350 to 500 volts, and that the wire insulation must be conservatively rated for those voltages.

I suggest using the 600-volt stranded, insulated cloth wire that is available from Radio Daze. A single 50-foot spool would have enough wire to make a four-wire 12-foot speaker extension cord. Either twist the wires to keep them neat or use one-inch lengths of heat-shrink tubing at regular intervals along the cable. If available, cable-lacing twine will also work fine. Remember to make sure that pin 1 of the socket goes to pin 1 of the plug, 2 to 2, etc., for each of the four wires. It's important not to cross the wires between different number pins!

This cable will work on Zenith radios that have either a single-ended output stage or a push-pull audio output stage; in both instances Zenith used four wires but changed the socket wiring to the center tapped audio transformer winding and the P-P plates. I think that after using it for the first time, you'll agree that it's the greatest thing since sliced bread and wonder, like I did, "Why didn't I think of this before!"

And wait, there's another bonus. This jumper cable will be used with a test speaker jig I'm presently designing and building for an upcoming column! I'll show you some photos of my cable at that point, since I'm already out of space this time around.

A Final Note

In closing, I'd like to note that we do try to keep to our promised eight-column quota. Sometimes other columns run too long, or there are time-value features that need to be run. If "Wireless" gets dropped due to lack of space, we'll try our best to get that column run in one of the non-scheduled issues, just as the July column was moved to the August issue.

Tune in again next time and, until then, keep those soldering irons warm and those old tubes glowing! ■

Reference

Radio Daze, LLC, 7620 Omnitech Place, Victor, NY 14564; Phone: 585-742-2020; Fax: 800-456-6494; www.radiodaze.com.

by Ron McCracken, KG4CVL / WPZX486

Are You Ready?

Disasters can happen anytime, anywhere. To help you, remember that September has been declared National Preparedness Month. Are you and your family prepared to cope? Could you survive for five days with exactly what you have on hand right this minute? Experts used to say three days. After Hurricane Katrina, however, they quickly realized that five days is more realistic. Today's population growth, and the demands that has created, means a huge burden on emergency services.

Imagine your power cutting out this instant. Your telephone, too. What supplies do you have on hand to provide for your family's needs for five days? Do you have water for each person? How about canned food? How will you safely provide light when night falls? Is your vehicle's fuel tank topped up?

Radio's Role

Do you have a NOAA Weather Radio? Remember, in a disaster authorities will broadcast emergency messages of various types via that radio. You need one. Your AM-FM portable radio is an additional source of news, but you need a Weather Radio. Make it your priority. Get one this month. Make gifts of them to family and friends who don't yet have one.

Being a radio enthusiast potentially puts you at a great advantage over much of the population. Your scanner can keep you informed about the situation as it unfolds. Your two-way radios will enable you to reach radio friends and gather further information about your situation. They can link you to your local REACT Team or other monitors to relay emergency calls for help.

Encourage your local homeowners' association to establish a Family Radio Service (FRS) radio network for residents. The network can serve residents well for routine purposes. Contact your REACT Team for assistance. Invite REACTers to conduct an "SOS Drill" for your community.

An SOS Drill will demonstrate how valuable those FRS radios can be in emergencies. They can link you to General Mobile Radio Service (GMRS) operators with their more powerful equipment, which can reach authorities. Consider joining or forming a local REACT Team to help others in your area with emergency communications.

Please Pass The Batteries

Fresh batteries in sufficient quantities will be vital to keeping you informed when power is out and telephones are down. A good suggestion is to try to standardize on one battery size as you make equipment purchases. AA alkalines are a good choice. One or two battery types will mean fewer to store. It

Air Capital REACT found little left after an F-5 tornado leveled Greensburg, Kansas. On short notice, the owners of RadioShack in Derby, Kansas, helped the Team supply 20 FRS/GMRS radios and a reserve supply of batteries for the Salvation Army and other Kansas Volunteer Organizations Active in Disasters (VOAD) members. (Photo by Ron Mayes)

will help with freshness, too. In a squeeze, you can even "pirate" batteries from one piece of equipment to power another.

"Shelter In Place"

Evacuation is now less popular among emergency officials and the public. Jammed interstates are no place to be in many emergencies, as we've seen on TV. "Shelter in place" is the new term, and it simply means stay put in your home. That will make radio communications all the more important.

Down To The Crunch

Whether you're on a highway or in your own shelter, if an emergency arises and you need help, be sure to make your radio work to the maximum for you. Broadcast repeatedly **WHERE** ***exactly*** you are. Give full details: state, town, road, mile marker, landmarks, etc. State **WHAT** is wrong: injuries, fire, collision, etc. Tell **WHO** you are: name, callsign, etc.

Keep each broadcast the same. REACT monitors or others may need to piece it together if radio conditions are poor. When you remember to do this, even monitors hundreds of miles away can notify authorities and get you the help you need.

Decide now what steps you'll need to take to be ready in an emergency. Make one or more of them a reality during National Preparedness Month.

REACT Team Helps Other Teams

Orange County REACT (California) prepared a new emergency pocket guide to be issued in time for National Preparedness Month. Originally, the guide was to be specifically for the local Team members, but then someone realized that formatting the guide just a little differently would enable REACT Teams anywhere to use it. Orange County REACT has now notified Teams worldwide that the new guide is available for download from the Team's website. You can take a look at their useful new tool by visiting www.ocREACT.org.

A Double First

During REACT Month this past May, two Teams conducted the initial series of REACT SOS Drills. The drills were conducted in Las Vegas, Nevada, and in the town of Georgina, Ontario, Canada.

REACT Lake Simcoe (Ontario) mounted the first Canadian SOS Drill. It proved also to be the first by any REACT Team. FRS radio is newer in Canada than it is in the United States, but the test results were encouraging. A number of FRS operators were able to contact the REACT monitoring station. In doing so, they assured themselves that their radios could provide valuable short-range communications in emergencies.

Las Vegas United REACT may repeat its SOS Drill as early as this month. REACT Lake Simcoe already plans to repeat the SOS Drill next year so new FRS operators can participate. Other REACT Teams will also be conducting SOS Drills in the next few weeks during National Preparedness Month. Check with your local REACT Team about plans in your area. Your interest will encourage them.

Tornado Response

Air Capital REACT (Kansas) headed to Greensburg following the F-5 tornado that recently devastated that town. The Salvation Army asked REACT for radio help. The request came through Kansas Volunteer Organizations Active in Disasters (VOAD). Both organizations are Kansas VOAD members.

With the help of the Derby, Kansas, RadioShack owners, the Team donated and delivered 20 FRS/GMRS radios, along with a good supply of spare batteries. The Salvation Army and other volunteer agencies benefited from the radios so they could communicate readily throughout the huge disaster site. Air Capital REACT traveled over 100 miles to make the emergency delivery and assist as required.

Ironically, Air Capital REACT was scheduled to mount a REACT Month SOS Drill. The Greensburg disaster put that drill on hold. It may now occur during National Preparedness Month instead.

Room For You, Too

REACT needs good radio operators like you. It needs more Teams like those you read about regularly right here aiding people in emergencies. Consider joining or helping to form a local REACT Team. Whatever type of radio you have, from FRS to amateur, REACT can put you and it to good use in service to your community. To locate your nearest REACT Team and get REACT membership details, visit www.REACTintl.org.

If a REACT Team has helped you or someone you know at some point, we'd like to hear about it. Drop an e-mail to us or send a note by snail mail.

Until November, thanks for spending some of your valuable time reading along with us. ■

NEW PSR-500

Shown Actual Size

(145mm H x 65mm W approx. excluding projections)

TAKE CO

Frustrated by your digital trunking scanner? Let GRE put you back in control with the all new PSR-500!

Public safety radio systems have become very sophisticated in recent years, and the digital trunking scanners you use to monitor them have become a lot more complicated. GRE puts you back in control with the PSR-500 Advanced Digital Scanner!

The PSR-500 features GRE's exclusive Object Oriented User Interface, which gives you unprecedented ease of use in the field. But don't let that fool you – behind the user friendly face of the PSR-500 you'll find the most powerful digital trunking scanner available.

The PSR-500 lets you scan the way YOU want to scan. You can scan trunking talkgroups, conventional channels, even search configurations and Spectrum Sweeper setups – all at the same time, and all with one-handed ease-of-use! And, you can group as many as 1,800 "scannable objects" any way you see fit using GRE's powerful Scan List grouping system. Your objects can be members of as few or as many Scan Lists as you want, and there's even a Favorites Scan List that allows you, within a press of one button, to quickly access and scan a subset of the objects programmed into the scanner. YOU get to decide!

The PSR-500 is a professional quality digital trunking scanning receiver. It is designed for use by media organizations and public safety users, yet it is so easy to use that even beginners will be up and running in no time at all!

Available mid-October, call your favorite amateur radio or scanner dealer now to get on their PSR-500 list - be the first to take control of your scanning!

GRE

COMING SOON FROM GRE! >>>

PSR-100
Handheld Scanner
200 CH
SAME(FIPS) / Weather alert
5 One Touch Service Searches
Skywarn
Spectrum Sweeper
PC Programmable
Backlit LCD Display

tel: (650) 591-1400 fax: (650) 591-2001 email: scanner-sales@greamerica.com web: www.greamerica.com

NTROL WITH GRE!

Features

ntuitive "Object Oriented" User Interface Design - Designed for ease of use, yet powerful enough to satisfy the most sophisticated experts. Common data entry, browsing and control methods are used for non-trunked conventional channels, trunking talkgroups, search configurations and Spectrum Sweeper setups. The radio grows with you - you can start out with a small, easy to manage configuration, then expand it whenever you need to.

Powerful and Flexible Scan List Functionality - Allows you to arrange, group and scan objects according to your preference, with no limit to the number or types of objects in a Scan List, and no limit to the number of Scan Lists an object can be a member of.

Menu Driven Programming with Context Sensitive Help - Each menu item provides a few lines of help text that provide assistance with programming and using the scanner.

Upgradeable CPU and DSP Firmware - You can easily keep your radio current with software enhancements as they become available with free upgrades from www.greamerica.com!

Flexible Free-Form Memory Organization - Memory is assigned as objects are created using a sophisticated internal file management system. You are not constrained to traditional bank/channel scanner memory layouts. No memory is wasted as a result of bank/channel programming constraints. The scanner has sufficient main memory capacity to store over ,800 conventional channels, trunking talkgroups, search configurations and Spectrum Sweeper objects in any combination, providing ample capacity for more sophisticated hobbyists and professionals while keeping the database size manageable for beginners.

GRE's Exclusive V-Scanner Technology - Allows you to save complete radio configurations within the radio, for recall into main memory as needed in the field. This is similar to having a laptop computer and programming software available anytime. You can use V-Scanners to store configurations for different geographical areas or usage styles. Twenty-one V-Scanner Folders are provided, each capable of storing over 1,800 objects. Total memory capacity of main memory combined with V-Scanners is over 39,600 (1,800+37,800) objects!

Multi-System Trunking - Scans most common trunked radio system signaling formats, including Motorola, EDACS Standard, EDACS Narrow, LTR and P25 trunked radio networks. Talkgroup call and individual call monitoring are supported. Supports trunking operation in virtually any land mobile radio band, including 700 MHz and the new Federal 380 MHz band!

P25 NAC Functionality - Much like CTCSS and DCS with analog signals, P25 Network Access Code (NAC) is used to provide selective squelch operation on conventional P25 digital channels. GRE's PSR-500 Advanced Digital Scanner will detect the NAC that is being used on a P25 conventional digital channel, and will allow you to program NAC codes to block transmissions that do not have a matching NAC, including analog traffic on the same frequency!

Remote Control Capability - Can be used with third party application software to remotely control the scanner from a personal computer.

Exclusive ALERT LED - Programmable tri-color LED can be configured to illuminate or flash when certain objects are active. Eight user-defined colors and brightness levels can be specified from thousands of possible combinations. Provides visual alerts when certain objects are active, e.g., blue can be used to signal activity on a primary police call, red for fire, etc.

Audible alarms - Programmable audible alarms can be configured to sound when certain objects are active. Can be used in conjunction with, or separately from, the ALERT LED described above.

GRE's Exclusive Automatic Adaptive Digital Tracking - When monitoring Motorola and P25 digital systems, instantly adapts the digital decoder to the digital modulation format of the transmitted signal, then analyzes the digital signal 50 times each second and adapts to any subtle changes caused by multipath or fading. No cumbersome manual adjustments are required.

GRE's Exclusive Digital AGC - Instantly compensates for low audio levels that are very common on digital systems. The radio is easier to listen to, and provides you with a more enjoyable scanning experience.

The Best Subaudible Squelch Decoder in the Scanning Industry - CTCSS and DCS subaudible squelch coding is processed by the same powerful DSP chip that is used for P25 digital decoding. Provides fast and reliable decoding of subaudible squelch signaling with squelch tail elimination.

High Speed PC Interface - Uses GRE's 30-3290 USB cable in full duplex mode at 6 times the speed of previous scanner models for PC transfer and 8 times the speed of previous models for radio-to-radio cloning.

Powerful Spectrum Sweeper - Quickly sweeps the scanner's frequency ranges for transmissions from nearby transmitters.

Real-time Signal Strength Indicator - Shows relative strength of received signals.

Trunking Control Data Output - Streams decoded trunking control data from your PSR-500 to a personal computer for use with popular third party trunking control channel monitoring software. No slicer needed! Also streams NOAA weather radio SAME alert data!

High Contrast LCD Display - Provides one row of dedicated icons, and four rows of 16 characters for programming and scanning operations.

SAME and All Hazards Weather Alerting - GRE's PSR-500 Advanced Digital Scanner can operate in dedicated SAME weather alerting mode, and alert you to severe weather and other hazards in the specific area(s) that you select, or, the scanner can check your local NOAA weather frequency periodically, even while scanning, and alert you when an All Hazards alert occurs.

SKYWARN Storm Spotter Functionality - Provides instant, one button access to frequencies used by storm spotter networks. You can monitor storm conditions as they occur, and become aware of dangerous conditions before the media or emergency management officials are able to announce them to the general public.

Sleek, Compact Case Design - Has a Large Speaker for adequate volume in most environments, and is designed for one-handed operation for ease of use.

PSR-600 Digital Trunking Desktop/Mobile Scanner
Same features as PSR-500 in desktop/mobile style!

PSR-200
Desktop Scanner
200 CH
SAME(FIPS) / Weather alert
5 One Touch Service Searches
Skywarn
PC Programmable
Backlit LCD Display
And MORE!

PSR-300
Triple Trunking Handheld Scanner
Motorola Analog, EDACS, LTR
1,000 CH / 1,500 TGID
CTCSS / DCS
20dB attenuator
SAME (FIPS) / Weather alert
Skywarn
Spectrum Sweeper, and MORE!

PSR-400
Triple Trunking Desktop/Mobile Scanner
Motorola Analog, EDACS, LTR
1,000 CH / 1,500 TGID
CTCSS / DCS
20dB attenuator
SAME (FIPS) / Weather alert
Skywarn
Spectrum Sweeper, and MORE!

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

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

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

UTC	Freq.	Station/Country	Notes
0000	7440	Radio Ukraine International	
0000	17615	BBC, England, via Thailand	
0000	4796	Radio Mallku, Bolivia	SS
0000	10330	All India Radio	
0000	9570	China Radio International, via Cuba	
0000	7555	Voice of America Relay, Kuwait	
0000	4655	Radio Centinela del Norte, Peru	SS
0000	7115	IBC Tamil, via Germany	
0030	6145	NHK World/Radio Japan, via Canada	
0030	9875	Radio Vilnius, Lithuania	
0030	11800	Radio Italia, Italy	II
0100	9440	Radio Slovakia International	
0100	9460	Voice of Turkey	
0100	6175	Voice of Vietnam, via Canada	
0100	4747	Radio Huanta 2000, Peru	SS
0100	9865	Radio Farda, USA	Farsi
0100	4919	Radio Quito, Ecuador	SS
0100	4909	Radio Chaskis, Ecuador	SS
0100	4717	Radio Yura, Bolivia	SS
0100	15180	Voice of Korea, North Korea	
0100	11710	RAE, Argentina	
0100	7415	WBCQ, Maine	
0100	7505	KTBN, Salt Lake City	
0100	9530	Radio Trams Mundial, Brazil	PP
0130	11925	Radio Bandeirantes, Brazil	PP
0130	3310	Radio Mosoj Chaski, Bolivia	SS
0130	9365	Radio Free Asia, USA, via Kuwait	unid
0200	9535	Radio Exterior de Espana, Spain	SS
0200	3396	Zimbabwe Broadcasting Corp.	
0200	5930	Radio Prague, Czech Republic	Czech
0200	11780	Radio Nacional Amazonia, Brazil	PP
0200	4052.5	Radio Verdad, Guatemala	SS
0200	9420	Voice of Greece	Greek
0200	9495	Voice of Justice, Iran	
0200	3340	Radio Missiones Int., Honduras	SS
0200	6000	Radio Havana Cuba	
0200	11970	CVC-La Voz, Chile	SS
0200	13750	Radio Tirana, Albania	
0200	15595	Deutsche Welle, via Sri Lanka	RR
0230	9590	Radio Nederland, via Bonaire	SS
0230	11815	Radio Brazil Central	PP
0230	9925	Voice of Croatia, via Germany	
0230	4910	Radio Zambia	
0300	9880	Voice of Russia	
0300	4750	Radio Peace, Sudan	Unid
0300	6220	Mystery Radio, Netherlands	pirate
0300	7405	Radio Marti, USA	SS
0300	4824	La Voz de la Selva, Peru	SS
0300	7210	Radio Fana, Ethiopia	Amharic
0300	7270	Radio Cairo, Egypt	
0300	4885	Radio Clube do Para, Brazil	PP
0300	9630	Radio Aparecida, Brazil	PP
0300	7335	CHU time station, Canada	FF
0300	4780	RTV Djibouti	AA
0300	4810	Radio Transamerica, Mexico	SS
0300	17655	KWHR, Hawaii	
0330	9720	RT Tunisienne, Tunisia	AA
0330	11640	Radio Taiwan International	CC
0330	9400	Radio Bulgaria	RR
0330	9665	China Radio International, via Brazil	SS
0400	4775	Trans World Radio, Swaziland	GG
0400	9765	R. Voice of the People, Zimbabwe via Madagascar	EE/vern.
0400	4770	Radio Nigeria	
0400	11920	RTV Marocaine, Morocco	AA
0400	9705	La Voix du Sahel, Niger	FF
0400	9704	Radio Ethiopia	Amharic
0400	9445	Radio Prague, Czech Republic	RR
0400	7260	Radio Algerienne, Algiers, via England	AA
0400	7090	Voice of the Broad Masses, Eritrea	unid
0430	9515	Radio Romania International	
0430	7305	Channel Africa, South Africa	
0430	7275	RT Tunisienne, Tunisia	AA
0430	6280	Kol Israel	
0430	6155	Radio Austria International	GG
0430	9860	Voice of Russia, via Vatican	
0430	9970	RTBF, Belgium	FF
0500	3350	Radio Exterior de Espana, Spain, Costa Rica Relay	SS
0500	7250	Vatican Radio	
0500	11690	Radio Okapi, Congo, via S. Africa	FF
0500	9575	Radio Medi Un, Morocco	FF
0500	5005	Radio Nacional, Equatorial Guinea	SS
0500	9915	BBC, England, via Cyprus	AA
0500	4777	Radio Gabon	FF
0500	9600	Radio UNAM, Mexico	SS
0500	9430	CVC International, via Germany	
0530	9500	Trans World Radio, Swaziland	

UTC	Freq.	Station/Country	Notes
0530	5030	Radio Burkina, Burkina-Faso	FF
0600	6080	Voice of America Relay, Sao Tome	
0600	4835	RTV Malienne, Mali	FF
0600	6185	Radio Educacion, Mexico	SS
0600	6020	Radio Victoria, Peru	SS
0600	9580	Africa Number One, Gabon	FF
0600	3291	Voice of Guyana	irregular
0600	5025	Radio Rebelde, Cuba	SS
0600	7125	Radio Conakry, Guinea	FF
0700	5446.5	AFRTS, Key West	
0800	9525	Star Radio, Liberia, via Ascension	
0800	6090	Radio Esperanza, Chile	SS
0830	12065	Radio Tikhy Okean, Russia	RR
0830	9545	Cotton Tree Radio, Sierra Leone via Ascension	
0830	6109	La Voz de tu Concencia, Colombia	SS
0900	5990	Radio Senado, Brazil	PP
0930	6134	Radio Santa Cruz, Bolivia	SS
1000	6095	Radio New Zealand	
1100	15190	Radio Africa, Equatorial Guinea	EE rel.
1100	13640	Radio France International, via French Guiana	FF
1100	4780	Radio Cultura Coatan, Guatemala	SS
1100	2325	ABC No. Territory Service, Tennant Creek, Australia	
1100	9580	Radio Australia	
1100	4754	Radio Republik Indonesia-Makassar	II
1130	9600	Radio Rebelde, Cuba	SS
1200	7200	Radio Rossii, Russia	RR
1200	9650	KBS World Radio, South Korea, via Canada	
1200	7235	Radio Singapore International	ii
1200	9890	Radio New Zealand International	
1200	9935	RS Makedonias, Greece	Greek
1200	13635	CVC Int., Australia	
1200	7220	Voice of Vietnam	RR
1200	7295	Traxx FM, Malaysia	
1230	15240	Radio Sweden	
1230	11895	BBC, England, via Singapore	
1230	7280	Voice of the Strait, China	CC
1230	11605	Radio Free Asia, via Northern Marianas	unid
1300	9430	FEBC, Philippines	EE/CC
1300	9590	Radio Australia	
1300	7330	BBC, England, via Russia	CC
1300	7310	Xinjiang PBS, China	CC
1300	9485	Shiokaze, Japan, via Taiwan	various
1300	11975	Adventist World Radio, Guam	JJ
1300	13745	Trans World Radio, Swaziland	unid
1330	11510	VOA/Radio Seewa	Pusto
1330	11685	Radio Thailand	TT
1330	11710	Voice of Korea, North Korea	
1330	9805	Radio Liberty, USA, via Northern Marianas	RR
1330	11570	Radio Pakistan	Urdu
1330	15700	Radio Bulgaria	BB
1330	9525	Voice of Indonesia	II
1330	9820	All India Radio, Panaji (Goa)	unid
1400	12035	Voice of Turkey	
1400	11690	Radio Jordan	
1400	13680	Radio Nacional, Venezuela, via Cuba	SS
1400	9465	KFBS, Northern Marianas	RR
1400	9335	Voice of Korea, North Korea	
1430	11960	HCJB, Ecuador	SS
1500	15235	Radio Romania International	AA
1500	17770	Channel Africa, South Africa	
1500	15575	Sudan Radio Service, England	
1500	11670	Adventist World Radio via UAE	
1500	15595	Radio Nederland, via Madagascar	
1500	15245	BBC, England	RR
1500	17630	Africa Number One, Gabon	FF
1500	15150	Voice of the Islamic Rep. of Iran	AA
1500	13775	Radio Austria International	
1530	17870	Voice of Africa, Libya	
1700	12035	SW Radio Africa, Zimbabwe, via Norway	
1730	15205	Broadcasting Service of the Kingdom, Saudi Arabia	AA
1730	9625	CBC Northern Service, Canada	vern
1730	17810	United Nations Radio, via Ascension	
1800	11735	Radio Tanzania-Zanzibar	Swahili
1800	12050	Radio Cairo, Egypt	AA
1800	15300	Radio France International	FF
1800	11620	All India Radio	
1800	15085	Voice the of Islamic Rep. of Iran	RR
1800	11775	University Network, Anguilla	
1900	15505	Radio Kuwait	AA
1900	15120	Voice of Nigeria	
1900	15345	RT Marocaine, Morocco	AA
1900	15400	BBC, England, via Ascension	
1900	15630	Voice of Greece	Greek
1900	15275	Deutsche Welle, Germany, Rwanda Relay	GG
1900	12080	Voice of America Botswana Relay	FF
1900	11590	Kol Israel	
2000	12015	Voice of Russia	
2000	9565	Radio Marti, USA	SS
2000	15476	Radio Nacional Arcangel, Antarctica	SS
2000	13720	Radio Tirana, Albania	
2000	12085	Radio Damascus, Syria	
2100	11855	NHK World/Radio Japan	SS
2100	11955	Adventist World Radio, via Austria	
2100	9855	Radio Kuwait	AA
2100	9990	Radio Cairo, Egypt	
2100	9900	Radio Varna, Bulgaria	BB; Sun-Mon
2100	7105	Radio Belarus	
2130	11625	Radio Exterior de Espana, Spain	SS
2200	15540	RDP International, Portugal	PP
2200	6165	HRT-Croatian Radio	Croatian
2200	11600	Radio Prague, Czech Republic	
2200	11940	Radio Romania International	
2200	15345	Radio Nacional, Argentina	SS
2300	15295	RDP International, Portugal	PP
2300	6300	Radio Nacional de la RASD, Algeria	SS
2300	9665	Radio Marumby, Brazil	PP
2300	6973	Galei Zahal, Israel	HH
2300	12115	INBS, Iceland	Icelandic
2300	6035	La Voz del Guaviare, Colombia	SS
2330	17605	NHK World/Radio Japan, via Bonaire	SS
2330	9490	Democratic Voice of Burma, via Germany	BB
2330	15410	CVC-La Voz, Chile	PP
2330	6195	Radio Canada International	

New, Interesting, And Useful Communications Products

Sony's XDR-S3HD AM/FM HD table radio.

Sony To Offer HD Radio Products

Sony announced it would begin offering HD Radio products (they were to have been available in July of this year). According to the HD Digital Radio Alliance, more than 1,200 radio stations in the United States have adopted the technology, which allows them to deliver extra music content on up to four side channels that piggyback on the frequency already in use.

The company's AM/FM/HD table radio offering, model XDR-S3HD, features a classic design with a large back-lit blue LCD display set in a mesh-covered front panel and cabinet with cherry wood finish. Stereo speakers with a simulated surround sound function, a built-in AM/FM/HD digital tuner, and separate bass and treble controls provide high-quality stereo sound in a small package.

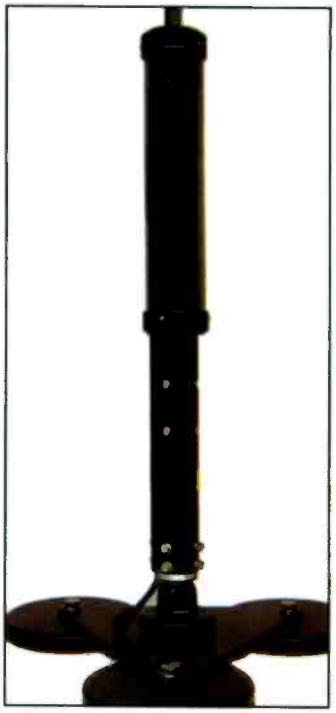
With an auxiliary input jack and supplied cable to connect an external music device, the XDR-S3HD radio lets the user play back MP3 files from a digital music player. It offers 20 AM and 20 FM presets that can be used to store favorite stations for quick access. Additional features include a wireless remote control and a built-in clock with sleep timer and alarm. Sony said the XDR-S3HD's price was expected to be about $200.

Sony's mobile HD Radio tuner, model XT-100HD, was designed to receive HD Radio broadcasts for most Sony car stereos and is a hideaway module that connects through the Sony head unit's bus interface. It feeds rich information, including artist names and song titles, to the car stereo's display. Additionally, it can display radio station names and genres, where available. The mobile HD Radio tuner works with most Sony head units to provide additional support for digital music habits. Many of Sony's car stereos come with front aux-in and USB inputs, play MP3 CDs, and are iPod- and satellite radio-ready (for a complete list of compatible Sony products, visit www.sony.com/xplod). The new tuner should sell for about $100.

The HD Radio-enabled table radio and car adapter will be available online at www.sonystyle.com and at participating retailers nationwide.

MFJ Mobile "Shorty" Screwdriver Antenna

The MFJ-1672 Automatic Screwdriver Antenna provides continuous coverage from 3.5 to 54 MHz with its supplied whip and can handle 200 watts PEP. With a 16-inch base and a 32-inch whip, it weighs only 1.9 pounds. Because the antenna is designed to be mounted higher on a vehicle, its ground losses are less for better HF performance, and its small size means that you can use common mount types, like the MFJ-336T Tri-Magnet mount (not included). It is durable and uses a commercial 12-volt gear motor. It comes in black only. Also included are 20 feet of plug-n-play control cable, manual control box, ferrite decoupling core, and a 3/8-24 threaded stud.



MFJ-1672 Automatic Screwdriver Antenna.

The MFJ-1672 Automatic Screwdriver Antenna retails for $399.95 and comes with MFJ's No Matter What one-year limited warranty. To order, receive a free catalog, or for your nearest dealer, contact MFJ Enterprises, 300 Industrial Park Road, Starkville, MS 39759; Phone: 800-647-1800; Web: www.mfjenterprises.com.

Ameritron Automatic Screwdriver Controller For ICOM Transceivers

While we're on the subject of screwdrivers, Ameritron has introduced the SDC-103, an automatic screwdriver controller designed for ICOM radios equipped with a CI-V interface. You simply connect the controller to an ICOM rig and the SDC-103 receives the frequency data and will automatically tune a screwdriver antenna. The SDC-103 lets you save 10 screwdriver antenna positions in memory so, with a push of a button, you can quickly return to any saved position.

Ameritron's SDC-103 automatic screwdriver controller for ICOM radios.

Up/Down buttons let you manually move the antenna to any desired position. A four-digit turns counter with bright, day-visible LEDs provides the precise antenna position. The antenna always moves to its desired position from the bottom, insuring that the motor is always loaded the same. Also an AutoPark feature automatically bottoms your antenna for parking in your garage and resets and calibrates your counter each time to eliminate antenna slippage and turns count errors. Additional features include Dead-OnSTOP, which eliminates overshoot for dead-on stops, and StallProtector, which shuts off stalled motors to prevent motor burnout. Motor current can be also monitored for signs of trouble and to determine stall current. Motor direction can be reversed so the UP button is always up.

The SDC-103 is compatible with single- or dual-magnetic sensors and measures 3 1/4 x 3 1/2 x 1 1/4 inches (HWD). Ameritron's SDC-103, which is also offered through MFJ as the MFJ-1926, sells for $139.95.

To order, get a free catalog, or for your nearest dealer, contact Ameritron, 116 Willow Road, Starkville, MS 39759; Phone: 800-713-3550; Web: www.ameritron.com.

New Service Offers Short-Term Scanner Rental

While this is a bit of a departure from our usual "Power Up" fare, this is certainly product-related and struck us as something our readers needed to know about. Trying a sophisticated scanner without putting out a lot of money is now easy through RentScanner.com, which offers affordable rentals of high-end scanners for professionals and hobbyists.

Recognizing that the current rebanding of public safety channels, the conversion from analog to digital trunking, and the opening of new 700-MHz public safety bands contribute to uncertainties about which systems can be scanned with which radio, RentScanner.com offers hobbyists the opportunity to fully explore the capabilities of a particular model before buying. Scanner rental also makes sense for professionals engaged in short-term monitoring projects and for scanner enthusiasts who just want to try a different radio.

RentScanner.com presently offers three high-end handheld scanners for rent: the AOR AR8200MKIII, the RadioShack PRO-96, and the Uniden Bearcat BCD396T. More models may be added in the future based on customer feedback. Rental periods range from one to four weeks, and start at $23 for a one-week rental. Presently, scanner rentals are available only within the U.S.

Uniden's Bearcat BCD396T is also available.

Run by scanner enthusiasts for scanner enthusiasts, RentScanner.com can be reached via the Web at www.rentscanner.com and by email at rentscanner@w4je.com.

Editor's Note: August's "Power Up" erroneously listed the AOR SR-2000 spectrum display monitor as new. It is not; however, AOR is getting ready to introduce an "A" version, which will include a built-in speaker and a video display in NTSC, PAL, and SECAM TV formats. We apologize for any confusion caused by the error.

AOR's AR8200MKIII is available for rent from RentScanner.com.

by Tomas Hood, NW7US, pc-prop-man@hfradio.org

DX Hunting Season Is Open!

Once again, it's time for some of the best long-range DX openings of the year. With autumn right around the corner, the season for radical improvement in radio propagation conditions is beginning. This is the time to make sure you finish any antenna project, double-check your coax, ladder line, and grounding system. The DX "hunting" season is opening this month! Let's get right to the exciting shortwave propagation conditions starting in September.

Because the sun will be directly over the equator on the Autumnal Equinox at the end of September, the hours of daylight are mostly equal to the hours of darkness in the low to middle latitudes of the world. This results in an ionosphere of almost similar characteristics over large areas of the world, making this one of the two best times of the year (the other being the Vernal Equinox) 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 on up) 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 seasonal change in propagation.

Long-path openings also improve during the equinoctial periods. A variety of paths open up on 31 and 22 meters. Expect a path from southern Asia around sunset, and 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 also approaching, making for additional 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 now to reap the DX in the comfort of home during those cold months ahead.

HF Propagation For September

With the 10.7-centimeter flux levels averaging in the 70s during September, propagation on 11 through 22 meters will be severely limited. On some days DX conditions will be much as

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 world-wide readings of Earth's geomagnetic field. High indices (Kp > 5 or Ap > 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 andat 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.

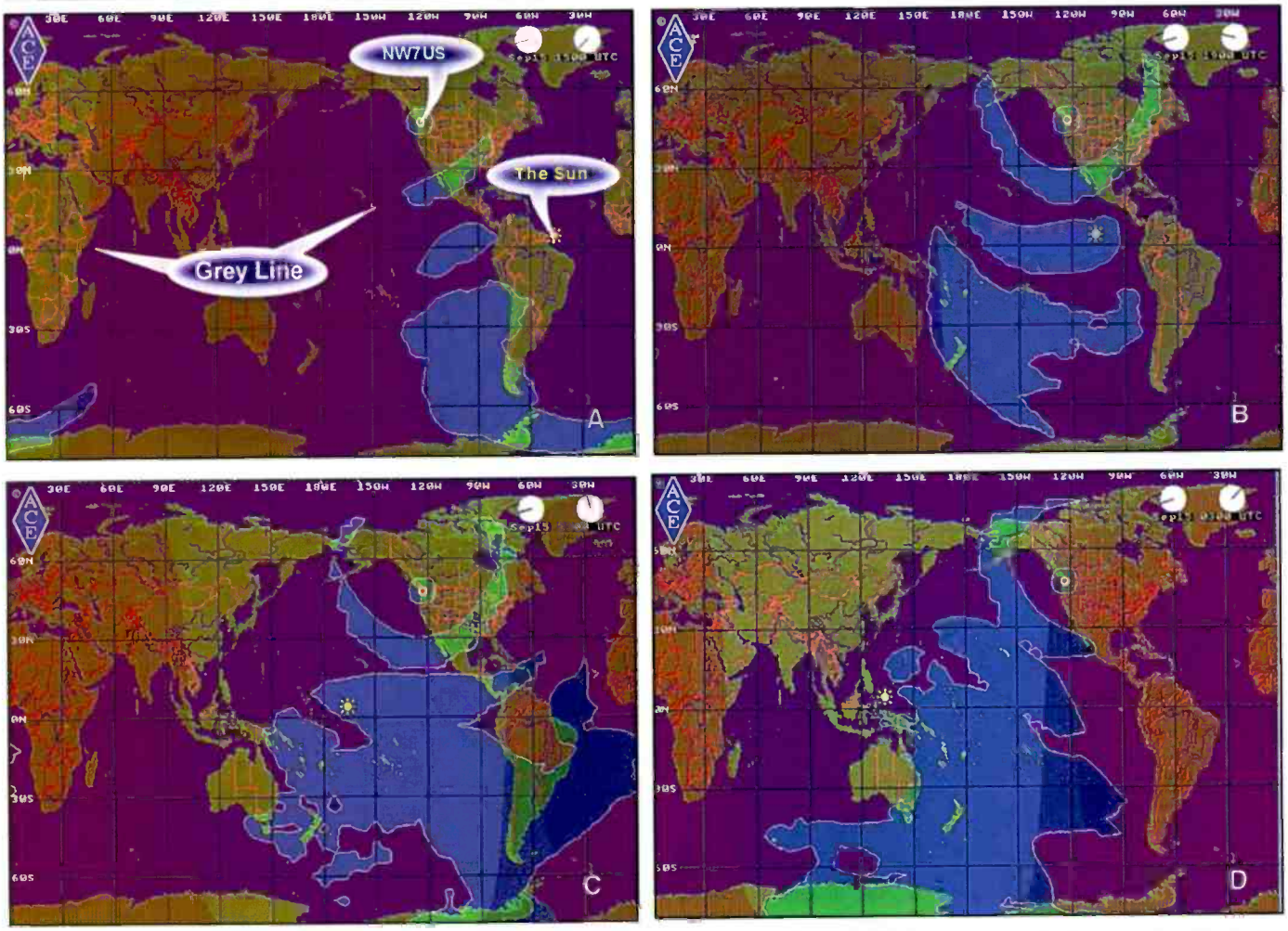


Figure 1 (a) through (d). In these slides, created from the animated movie provided by the ACE-HF Pro software, the 16-meter band footprint of a signal from NW7US in Washington State follows the sun. Note the dark area representing night and the slightly lighter shaded area between the day and night areas. This area between night and day is called the gray-line terminator. During September the hours of daylight are about the same as the hours of darkness over much of the world. (Source: NW7US, using ACE-HF Pro; see http://hfradio.org/ace-hf/)

they have been during the summer. On other days (and more often), conditions will be more like that of the winter season. Nevertheless, because we're at the solar cycle minimum, conditions on the higher frequencies (above 22 meters) will be marginal to non-existent this month.

Sixteen meters, used by a larger group of broadcasters, may support day-path propagation even over the polar paths. While a considerable improvement is expected over summertime conditions on the higher bands, we are at the end of Solar Cycle 23 (...or are we at the beginning of Cycle 24?) and there just isn't enough energy pumping into the ionosphere to keep these higher frequencies propagating worldwide. Additionally, 16 meters will not stay open late into the night like it typically does during the spring season.

Openings, weak and short, 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 in the early evening. For shorter signal paths, the band will support openings throughout the daylight hours, following the sun. **Figure 1 (a)** through **(d)** shows slides that I made using ACE-HF Pro (http://hfradio.org/ace-hf/), illustrating how the band "follows" the sun for a radio transmission on 16 meters that I made from my location in Washington State.

The 19- and 22-meter bands compete with each other for the best daytime DX band this month. See **Figure 2 (a)** through **(d)**. 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, especially during high normal or better days. Look for polar gray-line propagation from Asia. Long-path is common on 19 meters 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, but this month they're very hot, starting in the very late afternoon and lasting well into the night; then they wake up again in the morning. Expect an incredible amount of activity on these two bands. Many broadcasters choose these, targeting their audiences during prime times (morning and early evenings). The conditions prevalent on 19 and 22 are more pronounced and last much longer. Look for exotic stations a few hours before sunrise through early morning, then again in the early

Optimum Working Frequencies (MHz) - For September 2007 - Flux = 76, Created by NW7US

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

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

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

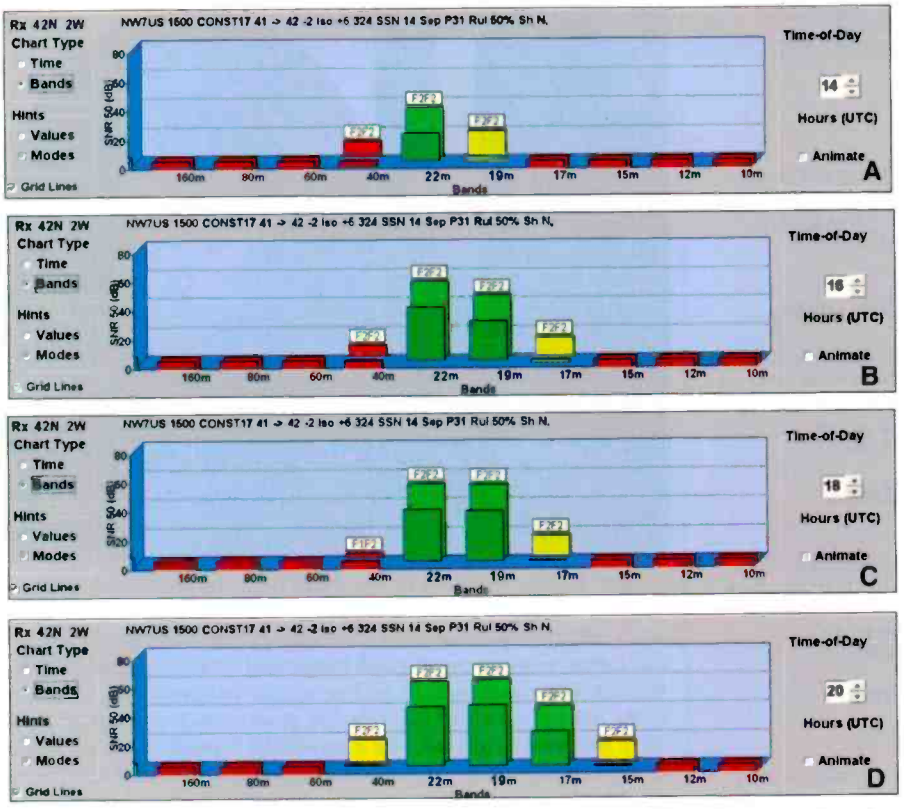


Figure 2 (a) through (d). The 19- and 22-meter bands compete with each other during daylight hours. These examples illustrate the openings between NW7US in western Washington State and Spain, at 14 UTC, 16 UTC, 18 UTC, and 20 UTC during September. (Source: NW7US, using ACE-HF Pro; see http://hfradio.org/ace-hf/)

evening before sunset, until around midnight.

Expect an improvement in nighttime DX conditions on 41, 49, 60, 75, 90, and 120 meters during September and October, because of the ever-increasing 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 (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 a possible increase in geomagnetic activity this month, there's a chance for occasional weak to moderate geomagnetic disturbances that can attenuate mediumwave DX over northern latitudes. 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 stations on signal paths crossing the higher latitudes is reduced. Signals below 120 meters will improve after this month because the hours of darkness increase and there is a 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 strong 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*.

Tropospheric ducting 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. 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. Tropospheric conditions are usually very good for many

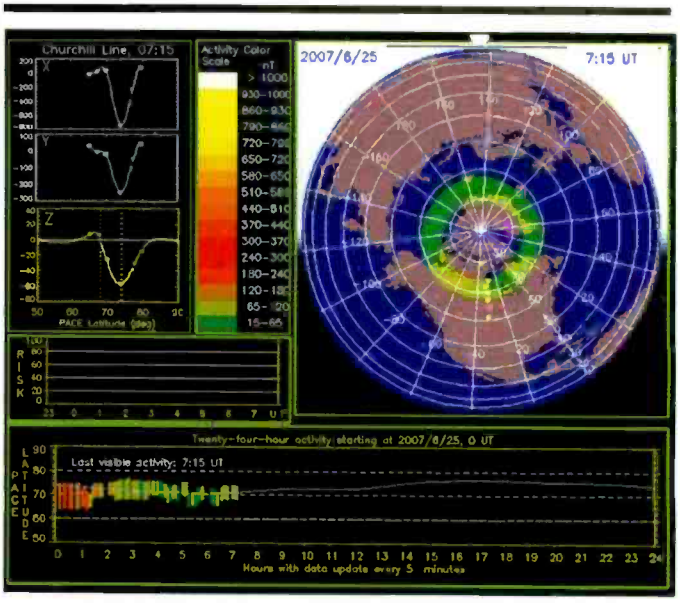


Figure 3. This snapshot of the Real Time Auroral Oval Monitor includes the prediction of auroral oval location and activity level, made using ground magnetometer data. The magnetometers are tri-axial, measuring the north-south component of the magnetic field (X), the east-west component (Y), and the vertical component (Z). The plots in the top left corner of the webpage show latitude profiles of those three components at each time a prediction is made. Risk is computed from an algorithm that involves how far equatorward the poleward edge of the oval has been pushed and how long it has been there. (Source: University of Alberta/Canadian Space Science Data Portal)

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.

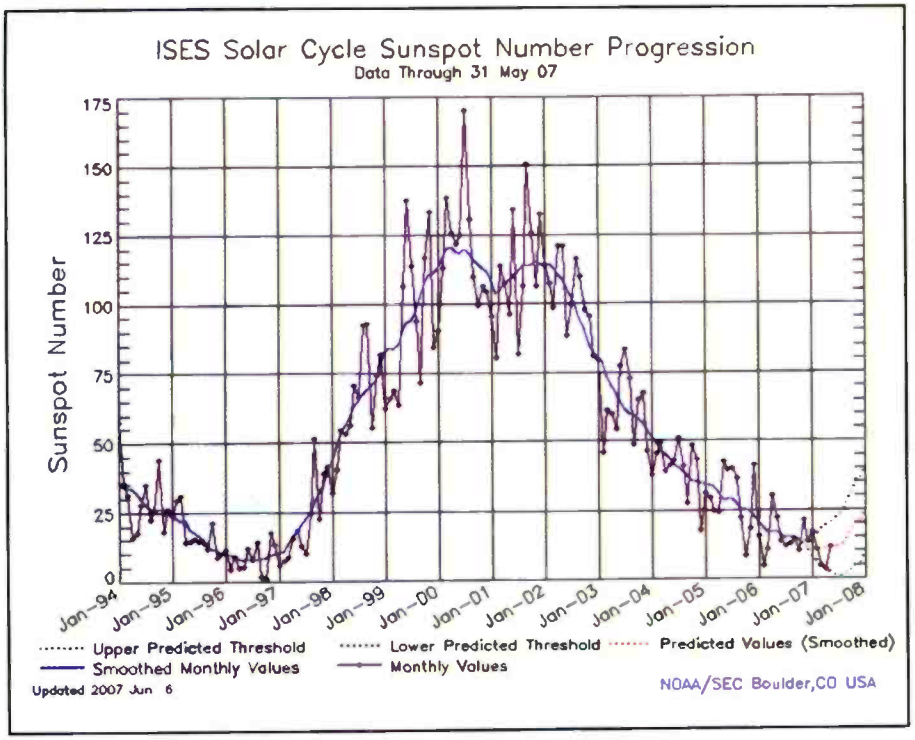
If strong geomagnetic storms develop, there will be a chance for weak to moderate auroral events. The ionization that occurs in the *E* region of the ionosphere during auroral events can refract frequencies above 14 MHz. If the aurora is strong enough, even VHF signals are "bounced" off the rapidly shifting and changing ionization regions in the auroral oval.

The auroral oval occurs in the auroral zones, the places on Earth where auroras occur. Swiss physicist Herman Fritz (1829–1902), in the 1881 book *Das Polarlicht*, first showed that the northern lights (the Aurora Borealis) have a maximum zone close to 67 degrees north. He called this belt the auroral zone. A more detailed location of the auroral zones is based on Norwegian geophysicist and mathematician Carl Størmer's (1874–1957) extensive auroral observations between 1910 and 1950.

When seen from space, the auroras at either the North or South Pole appear as oval-shaped circles centered on the magnetic pole. In simple terms, the oval occurs because solar particles riding the solar wind enter into our atmosphere and are captured by the magnetic field lines that run from Earth's magnetic poles. Once captured, they "rain down" along these magnetic lines toward the poles. When these particles crash into gas molecules in the atmosphere, they cause photon excitement, which in turn causes the various colors of auroral light. To see the current auroral oval conditions graphically, visit http://hfradio.org/aurora_globe.html (see **Figure 3**).

Current Cycle 23 Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-centimeter observed



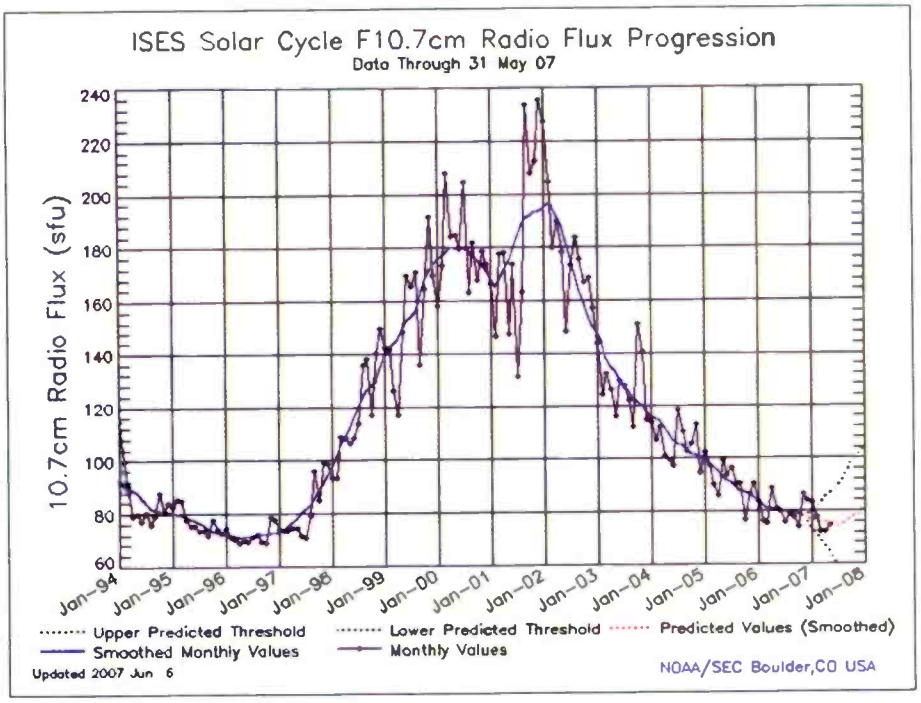


Figure 4 (a) and (b). The Solar Cycle Sunspot Number Progression graph (a) and the Solar Cycle F10.7cm Radio Flux Progression graph (b) for Solar Cycle 23. The graphs hint that Cycle 24 might have started, even though, at the time of publishing, the official forecast by NASA is for Cycle 24 to start late in 2008. (Source: NOAA/SEC)

monthly mean solar flux of 74.5 for May 2007. The 12-month smoothed 10.7-centimeter flux centered on November 2006 is 78.5. The predicted smoothed 10.7-centimeter solar flux for August 2007 is 76, give or take about 15 points.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for May 2007 is 11.7, a considerable jump up from April's 3.7 and from March's 4.8. The lowest daily sunspot value recorded was zero (0) on May 25 through May 28. The highest daily sunspot count was 25 on May 18. The 12-month running smoothed sunspot number centered on November 2006 is 12.7. A smoothed sunspot count of 14, give or take 12 points, is expected for August 2007.

The observed monthly mean planetary A-Index (Ap) for May 2007 is 8. The 12-month smoothed Ap index centered on November 2006 is 8.5. Expect the overall geomagnetic activity to vary greatly between quiet to disturbed during most days in August. See **Figure 4 (a)** and **(b)**.

I'd Like To Hear From You

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

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

Happy signal hunting! ■

by Bruce A. Conti, BAConti@aol.com

"Broadcast Technology" Salutes The National Radio Club!

Beginning this month, the National Radio Club (NRC) enters its 75th year of service to the AM broadcast DX community. Founded on Labor Day weekend in September 1933, it's the world's oldest and largest mediumwave DX club still around today, and its legacy remains strong.

The Early Years

In 1933, there were only 598 AM radio stations on the air in the United States and most signed off at night. Compared to today, with 4,754 stations crowding the AM broadcast band, a majority of which broadcast 24/7, reception of signals coast to coast and abroad was relatively easy during the early years of the NRC. Back then radio was still in its infancy, only a little more than a decade having passed since the 1920 pioneer broadcast of the Harding-Cox election results on KDKA Pittsburgh. DXing became a popular pastime, and an abundance of local and national clubs came into existence, but the NRC is the only one remaining from that period—quite an achievement for a mediumwave specialty DX club.

"DXing was popular in the 1930s and '40s when people with their first radios were just thrilled to get stations out of town," said legendary NRC member Ernie Cooper in a 1993 interview ("DX News," NRC, May 31, 1993).

"Looking back to the period before World War II...this was a time when every radio owner was a DXer for a while," recalled club member and Radex magazine veteran columnist "Count de Veries" Carlton Lord during the 1981 NRC Convention. "He was interested in the new gadget he had at home, and with it he could hear farther than just across the street. It was fairly common each morning on the way to school or work to hear someone say: Well! I picked up Schenectady, or Pittsburgh, or someplace last night." (*The National Radio Club 50th Anniversary*, William T. Farmerie, NRC, 1983)

Many old-timers refer to the 1930s as the golden years of mediumwave DXing. Highlights from 1933 inaugural editions of the NRC "DX News" bulletin provide a glimpse of what it was like back then: NRC co-founder Robert Weaver reported reception of several Australian signals commonly heard by east coast U.S. DXers; a DX program from CX26 Uruguay on 1050 kHz was widely heard; an Ohio DXer reported reception of LR4 Argentina under WBZ-WBZA; Carlton Lord was planning an open meeting for all clubs to be held in New Jersey; and on the weekend of December 17 there were 14 Canadian radio stations scheduled to broadcast special DX programs for the NRC, while some 31 additional DX programs coordinated by the Atlantic Radio Club, Canadian DX Relay, and Newark News Radio Club were to be aired by radio stations across the country. (ibid.)

Many radio clubs disbanded due to the war. The NRC was one of only a few survivors.

The Next Golden Age

Some think of the golden age of DXing from the late '60s into the '70s, thanks to technological advances of the period. NRC member John Clements referred specifically to 1969 to 1975 as the golden age. "During this time the sophistication of the hobby was advanced far beyond what it had been previously, and many new things that were obscure or esoteric became common for most DXers," wrote Clements ("DX News," August 29, 1983). He cited important NRC milestones, such as the upgrade of the "DX News" bulletin to offset printing and introduction of the NRC AM Log. With the advent of offset printing, the NRC went on a "publishing binge," producing a record number of technical papers covering propagation, DXing techniques, antenna design, and receiver modifications. The receivers of choice were the Hammarlund HQ-180, Hallicrafters SX-101, and the military surplus R-390A.

By the mid '70s, though, the golden age had passed its prime. "The world discovered FM," Clements continued,

Long an orphaned stepchild, rock 'n roll and beautiful music created FM as a viable and popular medium. People became enamored with wall-to-wall music with incredible fidelity. As a result, fewer and fewer people listened to AM. In the early '70s the quality of the AM band began to deteriorate. The trend to no silent-period stations peaked about 1973 such that virtually every powerhouse station was on all night seven days a week. As a result, many good DX frequencies were lost forever.

NRC Publishing Milestones

Since 1933 the primary function of the club has been to provide a means of sharing information with the membership through its "DX News." The bulletin is published 30 times a year, cranked out weekly during the peak winter DX months, entirely by volunteers. When volunteers aren't busy with the magazine and DX activities, there is no shortage of other projects to tackle.

In 1968 the first NRC *AM Radio Log* was published, and it has since become the leading reference for U.S. and Canadian AM broadcast station information. Listings for every radio station include addresses, phone numbers, network affiliations, formats, slogans, day/night power, and antenna configurations. The NRC *AM Radio Log* is now updated annually, released in September coinciding with the annual convention. The NRC provides *AM Radio Log* info to the *World Radio TV Handbook* for its U.S. and Canada listings.

Thirty-seven club members attended the 1939 NRC Convention during the pre-war golden years of DXing. (Photo Andy Rugg collection, The National Radio Club 50th Anniversary, NRC, 1983)

The NRC *Nighttime Antenna Pattern Book* was introduced in 1972 to complement the *AM Radio Log*. A map for every AM frequency, except graveyard channels, provides DXers a visual representation of what stations might be received at any location. The *Nighttime Antenna Pattern Book* is now in its 6th edition.

In 1985 the DX Audio Service (DXAS) was born. This was the brainchild of broadcast engineer Fred Vobbe, who realized that the print edition of the club's "DX News" was of little use to blind radio enthusiasts. The DXAS was the first of its kind—a monthly audio magazine dedicated to serving the interests of radio broadcast DXers and enthusiasts. Each month the DXAS features sample air-checks, radio news, and interviews with industry leaders, presented by broadcast professionals and DXers.

"What is remarkable about our organization is that we're all volunteers. Nobody is paid for their services, and nobody gets anything other than a pat on the back for a job well done," said Vobbe of the professionals who contribute monthly to the DXAS. "It's a wonderful organization of dedicated people whose only desire is to inform, educate, and entertain radio listeners." ("DX News," NRC, September 19, 2005)

In 2005 the NRC finally entered the digital age with the introduction of "e-DXN," featuring the online publication of "DX News." Members with electronic capability are now able to download the latest bulletin as a PDF file and the latest edition of the DXAS as an MP3 file. The Internet site also provides access to databases of past domestic and international logs reported in "DX News," along with bulletin-board discussion groups through which members share information.

The NRC Convention

While news bulletins and publications remain at the core of the NRC, the annual convention has become a mainstay of the club. Early conventions were hosted at a member's home during the summer. In 1940 the first convention took place over Labor Day weekend in recognition of the NRC anniversary date, but it wasn't until 1955 that the convention started to take a more formal course, with club functions held at a hotel.

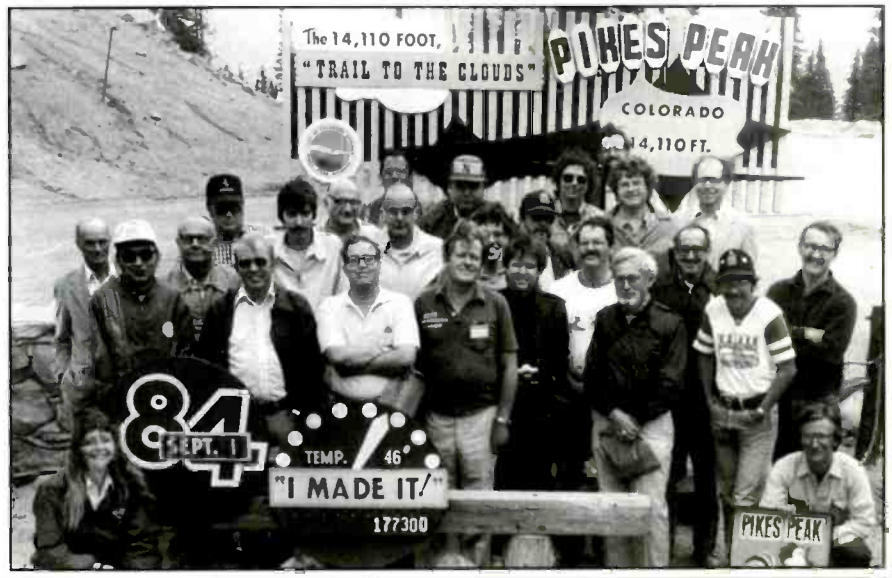
The 75th Anniversary 2007 NRC Convention will take place in Boise, Idaho, over Labor Day weekend. The Worldwide TV FM DX Association will be joining the celebration. The convention will feature radio station tours, various presentations about radio and DXing, and an auction of radio collectibles and equipment. Best of all, it's a rare opportunity to meet fellow broadcast DXers for some shop talk. Visit the NRC website at www.nrcdxas.org for info.

Challenges Of The Future

Mediumwave DXing reached another peak in popularity during the 1990s. Advancements in technology resulted in high-end receivers with performance that rivaled classic tube sets. The Drake R8 series became the new American standard, and compact communications receivers, such as the Kiwa-upgraded Sony ICF-2010, the AOR AR-7030, the Lowe HF-225E, and the Palstar R30, made DXpeditioning to remote locations more practical.

At the same time, all DX clubs were faced with the new reality of instant communication and endless sources of information through the Internet. Now the DX hobby itself faces obsolescence as more radio stations commence streaming audio feeds on the Internet, and competing digital platforms such as

The highly sought-after classic Hammarlund HQ-180 tube receiver.



These hardy DXers climbed Pikes Peak during the 1984 NRC Convention in Colorado.

surveillance has nearly doubled from 2,586 applications granted in 2002 to 4,015 orders in 2006.

BPL Pilot Project Blasted For Noncomplaince

A BPL company's initiative in Briarcliff Manor, New York, has been cited by the American Radio Relay League for allegedly failing to fully comply with interference parameters of its Part 5 Experimental license.

In a letter, the ARRL demanded that the FCC shut down Ambient Corporation's BPL project, contending that it is "long past time that the Commission enforce its own rules," the League said. The letter was signed by ARRL General Counsel Chris Imlay, W3KD, and sent to FCC Spectrum Enforcement Division Chief Kathryn S. Berthot. The League objected to "the FCC's 'inexplicable action' in the face of evidence the system is noncompliant."

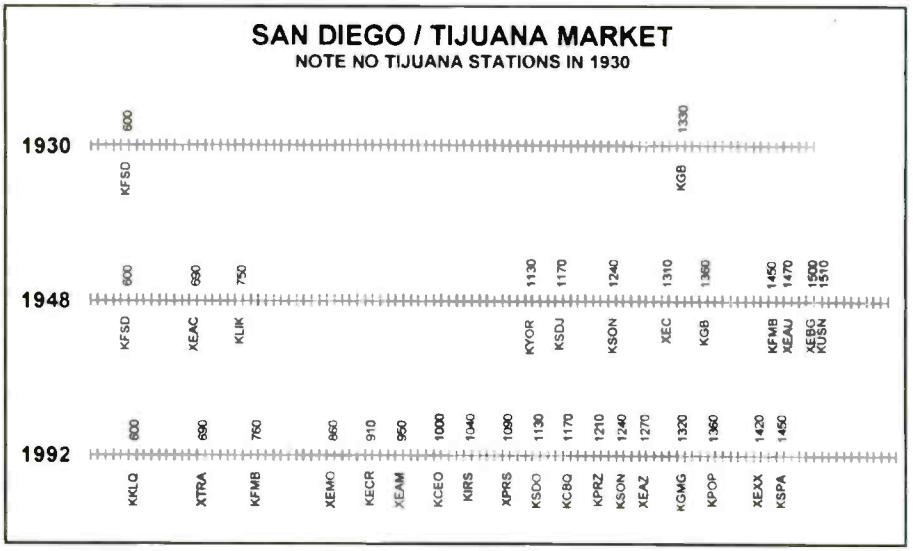
According to the ARRL, "Ambient operates the Briarcliff Manor BPL pilot program under Experimental license WD2XEQ. ARRL testing as recent as late May indicated the system is operating outside of the parameters of its FCC authorization."

The League called the FCC's most recent push to get the company to comply with the terms of its Experimental license "too little, too late and an abdication of the Commission's responsibility to protect its licensees from interference from unlicensed RF devices," according to a report in the *ARRL Letter*.

"The Commission's obsessive compulsion to avoid any bad news about BPL has clearly driven its multi-year inaction," the ARRL said. "Had this been any other experimental authorization dealing with any technology other than BPL, the experimental authorization would have been terminated long ago."

"Causing Ambient to operate in accordance with the BPL rules rather than allowing it to hide behind its experimental authorization would at least be consistent with the Commission's regulatory plan for BPL, however inadequate that plan is in terms of interference avoidance," Imlay's letter concluded.

The League's complaints regarding interference to amateur radio communication from the Briarcliff Manor system date back to October 2003 and included supportive technical reports and test results, the ARRL said.



This graphical representation of San Diego AM radio shows how congested the dial has become. ("DXAS 20th Anniversary," John Bowker, "DX News," November 15, 1993)

DRM and "high-definition" IBOC may someday replace old-fashioned analog.

What the future holds for the NRC and DXers as a whole remains to be seen, but you can be sure that as long as there are AM radio signals propagating over long distances at night, there will be DXers lurking in the dark.

Visit www.nrcdxas.org to learn more about the NRC as it celebrates 75 years of DXing.

Broadcast Loggings

Here's proof that there's still plenty of AM DX action just waiting to be heard; all times are UTC.

612 4QR Brisbane, Australia, at 1205 Australian and world news mentioned, "This is ABC news. It's six minutes past ten." Australian Football League scores. Fair to very poor; interference from 620 KIPA. (Park-HI)

680 WCTT Corbin, Kentucky, heard thanks to KNBR being off, a handwritten QSL letter from Terry Harris-PD received in 12 days for a tentative CD report. Listed as 830 watts at night. Address: 821 Adams Road, Corbin KY 40701. #8 from Kentucky and MW QSL #2953. This made my day! (Martin-OR)

680 WRKO Boston, Massachusetts, verie statement at the bottom of my reception report received in 100 days. Address: 20 Guest Street, 3rd Fl, Brighton MA 02135-2040. My first new Massachusetts QSL in years. With KNBR being off I nabbed two new catches and QSLs, too. (Martin-OR)

750 YVKS Caracas, Venezuela, heard at 0105 "Radio Caracas Radio" in sports coverage, "¡Falta de Caracas!" Later lost to CMHV Radio Progreso Cuba. (Conti-NH)

DXers visited 1590 WSMN Nashua, New Hampshire, during the 1994 NRC Convention.

870 LRA1 Radio Nacional, Capital Federal, Argentina, at 1010 news discussion by two men. ID, "Radio Nacional Argentina." Quite good over/under WWL. Last heard in 1980s. (Wood-HI)

870 CMDT Radio Reloj, Sancti Spíritus, Cuba, at 0225 a good signal over WWL; news, clock, "RR" Morse code IDs, etc. (Conti-NH)

930 KSEI Pocatello, Idaho, at 1200 with male giving weather for local area, back into ESPN sports. (Barton-AZ)

1008 1ZD Tauranga, New Zealand, at 0900 cricket commentary from Otago. At 1400, "Coming up to two o'clock on NewsTalk ZB," into news/talk. Good, new log. (Wood-HI)

1050 CKSB Winnipeg, Manitoba, a very nice friendly QSL letter and fridge magnet received in 45 days, signed Paul Barnabe. Address: 607 Langevin St., Winnipeg MB Canada R2H 2W2. MW QSL #2952. (Martin-OR)

1098 3ZB Christchurch, New Zealand, at 1353 promo, "The leading stories from New Zealand and around the world. Breaking news, breaking sports on NewsTalk ZB." Talk host gave time check, "Seven minutes before two," into talk on Maori claims. Good, new, parallel 1008 kHz. (Wood-HI)

1110 YVQT Radio Carúpano, Venezuela, at 0045 festive male vocal and tropical brass; strongest South American noted, well over WBT. (Connelly-MA)

1125 DXGM Davao City, Philippines, a nice QSL letter received in 146 days from retiring GM Jose M. Lansang. Also enclosed 3 nice postcards of Mindanao. Address: Republic BC System, Davao City 8000, Davao Del Sur, Philippines. QSL #24 from the Philippines. (Martin-OR)

1140 KNAB Burlington, Colorado, QSL letter received in 30 days for correct report, $1 to cover postage, and an Arizona scenic postcard. Signed by station owner Betty Bailly and included a KNAB bumper sticker. KNAB is a 1-kW station in NE Colorado, heard signing on with national anthem at 1330 UTC. This station is usually covered by KNWQ Palm Springs or KSFN Las Vegas. (Barton-AZ)

1160 KSL Salt Lake City, Utah, at 1330 local news, weather, traffic reports; IDing as "102.7 FM KSL," probably signaling a change. They are owned by the same company as KTAR in Phoenix, Arizona, which moved its news/talk format to FM and put all-sports on the old AM frequency. (Barton-AZ)

1260 3SR Shepparton, Australia, at 1327 ID, "You are listening to Sport Radio 3UZ here in Melbourne." Discussed cricket, weather. ID was for network key station on 927 kHz. Good, new. (Wood-HI)

1300 KAZN Pasadena, California, at 0400 heard a female announcer in Chinese language and an ID with male announcer giving two station callsigns. Could only get a good copy on the KAZN call, then back into Chinese. (Barton-AZ)

1450 XENA Querétaro, Mexico, at 0500 national anthem, all three verses, by choir, ID, "Capital 1450 (catorce-cincuenta)...XENA desde la capital, Radio 1450 Capital." 0504 into rancheras. Very good over another XE, probably XECU. New, estado #15 and my most distant XE graveyarder. (Wood-HI)

1458 3YW Westport, New Zealand, at 1406 time check by a woman, "Six minutes past two on Radio New Zealand," into light vocals. Good, new South Island. (Wood-HI)

1560 XEINFO Zaragoza, Mexico, at 1200 a male announcer with ID and talk show at this listening session. Very strong. (Barton-AZ)

1575 VOA Ayutthaya, Thailand, heard at 1430 a man in English, "Welcome to the Voice of America in Burmese," into Myanmar (Burmese) program. Very good, a good night for Thailand. (Wood-HI)

1584 RadiOlé, Ceuta, at 2328 Spanish talk, over SER, first strong transatlantic signal during pre-sunset fade-up; good accomplishment for only 5 kW. (Connelly-MA)

Thanks to Rick Barton, Mark Connelly, Patrick Martin, Dale Park, and Richard Wood.

For now, 73 and Good DX! ■

There is no FCC callsign change list again this month. The FCC has apparently gone to a quarterly release schedule.—bac

by Kirk Kleinschmidt, NTØZ, kirk@cloudnet.com

Enjoying Ham Radio Without A Shack... Or Maybe Even Without A Radio!

Hams have it tough these days. Towers—if you're lucky enough to be able to put one up—cost about 10 times what they used to cost...and at least three times what they should cost. And antenna rotators, well, forget 'em! A wimpy-looking, pot-metal rotator that could be sheared off by a scanner antenna in a light breeze costs more than a hundred bucks. And the beefy unit you really want goes for half a kilobuck or more! (And I was thinking $200 tops!)

So what's a good deal nowadays? Radios, of course. Although you can still spend a buck or two, radios themselves are an incredible deal, especially when compared to the good old days when towers, rotators, and everything else didn't cost an arm and a leg.

Back in those glory days, hams operated from ham shacks. If you met a ham, he had a shack, plain and simple. But that's not true today. If you meet a ham, he may not have a shack anymore! Heck, he might not even own a radio (gasp!).

The reasons are many. Deed restrictions. Covenants. Can't put up an antenna. Your spousal equivalent won't let you have a shack. You're never home. Can't afford a radio. Whatever.

Maybe you're a "shackless ham," but you can still enjoy ham radio. And while you're figuring things out (and perhaps building or arranging for a shack of your own), keep an open mind. Although the workarounds discussed here may be unconventional, any one of them could turn out to be a your new favorite!

Club Stations

Unless you live in the outback there's probably at least one club station in your area. Amazingly, it's probably lightly attended—just waiting for you to twist the knobs. Although popular in Europe, where some countries still require a period of club station operation as a licensing requirement, club stations in the United States are often used primarily for license instruction and contesting.

Search for club stations at colleges, universities, tech schools, and even high schools. You might have to join a club to gain access, but that's probably a step in the right direction anyway. Club stations are great for contesting and a great way to get on the air with other hams.

Contests, Field Day, And Special Events

When I lived on the East Coast I met a longtime ham who didn't own a station—not even a handheld transceiver for 2 meters—yet he operated almost every weekend. During the following workweek I'd hear about his *contest* exploits. This veteran op worked the world from his friend's contest superstation, which was lavishly equipped and advantageously located outside the city limits. When I asked him why he didn't have a station of his own, *he* thought *I* was crazy. Weekend contesting was *exactly* his kind of ham radio. He wasn't missing out on anything by not having his own shack.

This weekend warrior wasn't alone, either. I met others who took similar approaches. Some operated from friends' stations, some from university club stations, and one guy who got on the air only when he was vacationing in the Caribbean (which was pretty often)!

If this style of ham radio appeals to you—and you have generous friends or an available club station—you'll have plenty of operating opportunities, including Field Day and Special Events stations.

Going Mobile

With the teeny tiny size of modern mobile radios, most of which have similarly small price tags, chances are good that you can set up a shack in your car or camper if you can't set up a shack at home. Unlike the bad old days, when mobile rigs were the size of beer coolers and required power supplies that

You can't buy this transceiver in any store, but you can download it from QSONet and use it to "work" hams worldwide on a "virtualized" ionosphere, thanks to Doug McCormack, VE3EFC, of Thunder Bay, Ontario (the driving force behind CorMac Technologies, QSONet's parent). The feature-rich virtual radio requires Windows 2000 or XP, a sound card, a microphone, and speakers (or headset). A reliable Internet connection is required (33.6 kbit/s minimum). It's free for 90 days. After that a subscription costs $32/year. This looks fun!

were even bigger, today's mobile radios are small, small, small! They're also full-featured, perform well and are amazingly affordable. Because they run on 12 VDC, you can also take them camping, use them for Field Day, or fly them to an exotic island.

Modern mobile rigs handle AM, FM, SSB, CW and data modes from 160 through 6 meters (or more), receive from DC to daylight, and can be remotely mounted (the radio lives in the trunk or under the seat while the "control head" and the mic mount to the dashboard). These little rigs are as flexible as their whip antennas.

Foxhunting

Foxhunting—finding hidden transmitters as part of a friendly competition—is a popular weekend activity in many parts of the country, especially on both coasts and in larger metropolitan areas. Hams, usually radio club members and often grouped in age- or experience-related teams, gather to search for one or more hidden transmitters (foxes). The search area may be as small as a schoolyard or as big as a state!

On a typical foxhunt, competitors try to find all the foxes in the least amount of time. Common frequencies are on 2 and 80 meters. Competitors use handheld radios and compact directional antennas. Larger competitions may cover several square miles of forest or parkland and may require maps and orienteering skills.

In the "motorsport" variant, the hunters drive cars or off-road vehicles, the foxes are typically hidden on mountaintops or wayside rest areas, and the field of competition may cover several hundred square miles. Mobile foxhunters often use GPS navigation systems and sophisticated receiving gear, including multi-antenna Doppler arrays with computerized graphical displays.

Whether the atmosphere is casual or highly competitive, foxhunting has something for everyone—no shack required!

Foxhunting guru Joe Moell, KØOV, has a website that provides an excellent introduction to the sport. Check it out at http://members.aol.com/homingin.

Public Service Communications

Providing comms at public events, such as parades, celebrations, and races, is a long-standing amateur radio tradition. Although FCC rules prohibit amateurs from relaying certain specific information about race leaders and other information on the progress of an event, hams may assist safety officials at aid stations, operations centers, checkpoints, and emergency vehicles.

To get involved, all you need is a handheld transceiver. Most public service communications are handled on VHF and UHF frequencies, because few activities spread out beyond repeater range. Two meters is most popular, but other bands are also used.

If you're a member of a ham radio club, you've probably already been asked to help out at public events. If you aren't in a club yet, or if your club hasn't engaged in such activities, ask around on the air and check the local nets to hook up with service-minded hams in your area.

In addition to local club-provided communications, hams must be prepared to handle larger regional or national emergencies, such as floods, fires, and earthquakes. Most of these emergencies are handled by members of the Amateur Radio Emergency Service (ARES), the Radio Amateur Civil Emergency Service (RACES), and the Radio Emergency Associated Communications Teams (REACT). Another popular public service outlet is SKYWARN. Its local chapters spot and track tornadoes and often work very closely with the National Weather Service.

If you want to serve your fellow citizens, public-service comms will provide the opportunity—again, no home station required! For information on how to get started, point your Web browser to www.arrl.org/FandES/field/pubservice.html.

Radio Expeditions

You can't be the first explorer to reach either of the Poles, but you can take your radio gear to an infinite number of enjoyable "expedition destinations" that will definitely be greatly appreciated by your fellow hams.

Where might you go? Just about anywhere, really. How about camping, canoeing, or motorcycling? Or maybe fishing, hunting, or hiking. Don't forget Field Day! With a compact mobile rig or an even-smaller QRP transceiver, you can be on the air from just about anywhere. Stay in touch with friends and family, make new friends, or both!

During Field Day or the November Sweepstakes, for example, instead of

operating from your home state (which probably has scads of hams), why not drive to a secluded resort or nondescript roadside motel—with your radio gear—in a neighboring state or province where hams are scarce and sought-after? By working the contest from a rare state you'll be "the DX station," and others will be appreciative! Every year at least a few Alaska hams trek across the border to work Sweepstakes from Canada's Yukon or Northwest Territories. Why? To *be* the DX, of course!

Your expedition activities don't have to be limited to contests, either. For instance, you can set up at a scenic overlook at an out-of-the-way mountain pass to help other ops collect a new grid square, or you can operate from a nearby island (inland or coastal) to work ops looking for Islands on the Air (IOTA) QSOs. There are so many possibilities.

"Internet Radio"

Shackless hams with decent Internet connections can take advantage of a new and somewhat controversial approach to ham radio fun. By using a PC equipped with a sound card, the right software, and a headset, a radioless, shackless ham can activate a repeater in a remote location (across town, across the country, or in many foreign countries) and have a PC-to-radio QSO that is indistinguishable from the "real thing." Some systems also allow ham-only PC-to-PC voice chats. All of this is made possible by the clever use of technology developed to facilitate digital telephone calls: Voice over Internet Protocol, or VoIP for short.

Using the Internet this way is still somewhat controversial in some circles, but ham radio VoIP contacts are being made on a daily basis. The most popular VoIP system nowadays seems to be Echolink (www.echolink.org). Using the Internet-linked system, licensed hams can talk with other hams via more than 2,000 repeaters worldwide (plus the scads of hams who can link up over VoIP alone—with no radios at either end of the QSO).

Perhaps the niftiest ham radio VoIP system since sliced bread is called QSONet, found at www.qsonet.com. Unlike Echolink, there's not a radio or repeater in sight, save for the downloadable software transceiver hams use to access QSONet's "virtual ionosphere." Yep. QSONet "virtualizes" the entire ham radio experience—radio, ionosphere, and all!

Users—licensed hams with dialup, DSL, or cable Internet—work each other via the company's Model CQ100 virtual transceivers using voice, digital, and even Morse code! Forget about repeater protocols, etc., because QSONet uses conventional HF operating practices and even keeps CW signals in the proper parts of the bands! QSONet simulates global ham radio activity via VoIP. It's the next best thing to AEA's Doctor DX for the Commodore 64! (If you understand that reference, you're not a newbie!)

VoIP solutions aren't ideal, but everyone on these systems is a licensed ham, talking about hammy stuff, using hammy protocols and procedures. So, if your deed restrictions are killing your mood—and your air time—you should at least give them a try. You never know...

No Radio? No Problem

Whatever your methods, if you put on your thinking cap you can find one or more ways to enjoy amateur radio without a shack—or even without a radio! ■

by Shannon Huniwell, melodyfm@yahoo.com

Imagination Stations

Most of radio's power comes from imagination, not kilowatts. At least that's what *Pop'Comm* reader feedback seems to verify. A letter I received from Carole Wilkins serves as an example.

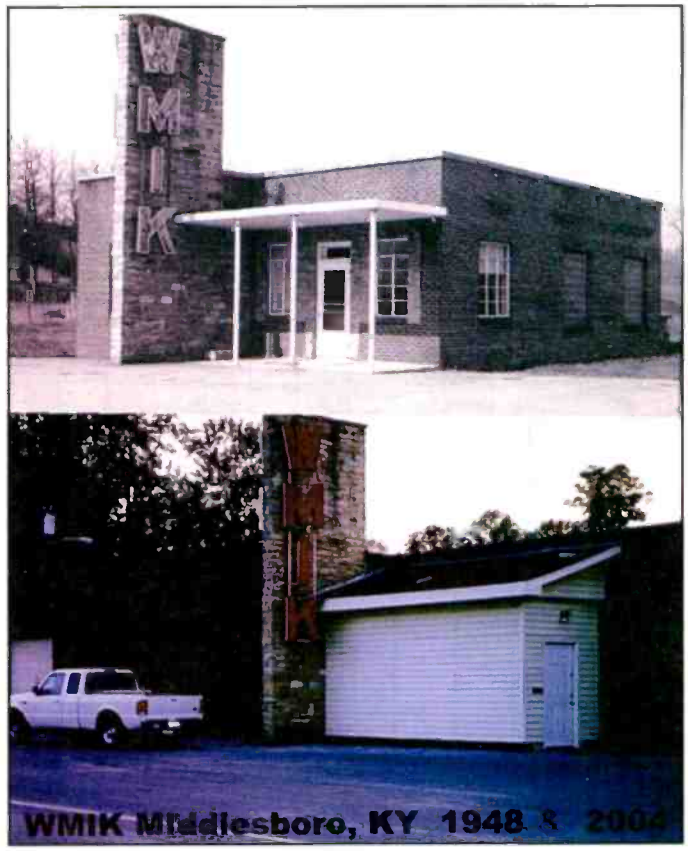
Since earning a science scholarship in the mid-1950s—at that time incredibly rare for a young woman from rural Kentucky—and then heading off to college on the West Coast, Wilkins has lived within the respective coverage areas of major market signals in Oregon and Washington, as well as near both ends of California. But whenever she reminisces about her down-home roots, it's small town radio that flashes through her imagination.

It was local broadcasting, she noted, that sparked her interest in electronics, science class, a statewide school science fair, and seeking out that university scholarship. It all resulted in a fulfilling technology career that, only several years ago, ended with satisfying retirement from Hewlett-Packard. While still in college and a pioneer Hewlett-Packard intern, her first assignment was working on upgrades for HP's hefty, tube-type model 335-B analog FM modulation monitor—quite a contrast to the miniscule digital microprocessors she and her team were designing during the latter part of her tenure.

Wilkins' seven and a quarter-page letter is too long and personal to include here, though I'm sure some *Pop'Comm* readers could easily identify with her theme that radio is one thing that God has used to soothe loneliness in the world. She wrote about being a grade school kid often left alone in a modest home several miles northeast of Pineville, Kentucky, while her mother—practically still a girl herself—cleaned other people's houses in and around the bigger, neighboring community of Middlesboro.

"To be more accurate," Wilkins said, "I should tell you that our place was just a rented room over an eccentric elderly couple's garage. A semi-retired handyman we knew from church took it upon himself to give us a semblance of normal space by nailing up some old doors as room dividers. He spent a week or so sanding and varnishing them to look real nice. The nearest running water was in a sort of back porch privy at the landlord's house. Thankfully, though, we did have a *few* amenities upstairs: several electrical outlets, a couple of lights on cords dangling from the rafters, and a frustrating little radio."

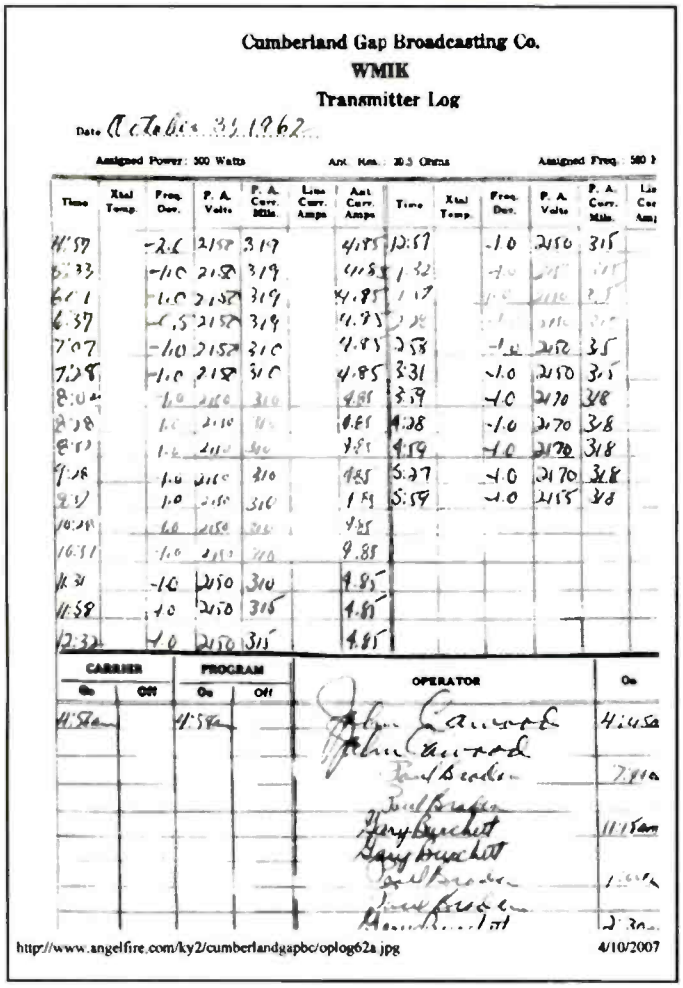
She wasn't completely sure, but recalled the radio being a sort of golden-bronze colored plastic with four or five tiny levers that, when pushed down, were supposed to change the stations. Wilkins pictured the tabletop radio sporting a vertically positioned slide-rule dial, certainly a rather distinguishing feature. What really set this AM receiver apart from its contemporaries, though, and the likely reason the compact radio had been donated to Wilkins' mom, was a hopelessly misaligned internal tuning pulley that allowed aggravating slippage of the string rigged to the twist-tune knob.



Affixed with neon signage capable of boasting bright electric call letters, the stone-covered pylon on WMIK's original studio/transmitter building transformed the basic box into an eye-catching broadcast center. This shot was taken in 1948, just before WMIK debuted at 1490 kilocycles. Very close inspection of the photo seems to show a mound of construction sand in the backyard, perhaps to mix with concrete for the then-yet-to-be-built tower base. Jan Lowry snapped the bottom picture in 2004. Happily, the station's famed call-letter pylon remains despite a large 1971 expansion project.

"In fact," Wilkins said, "we either had to be satisfied listening to a single station—something uncommon in network radio's heydays—or try our luck moving the gang capacitor's elements with the eraser end of a pencil. We had a pair of them that were never sharpened, thus sufficiently long for the touchy tuning job. Perhaps as a tribute to one of our favorite comedy shows, these were what Mama called our *Fibber McGees*. Because she had gotten a pretty nasty shock, my mother forbade me from sticking my fingers into the back of the radio cabinet in order to maneuver the variable capacitor towards some other frequency and a better program.

"More than once," Wilkins continued, "we suffered through a popular radio show that itself was struggling to be heard over a station about a kilocycle or two away from where the capacitor was last coaxed. For fine-tuning, my mother would gently push those two *Fibber McGees*, aka *pencils*, on either end of the capacitor until reception was deemed *good enough*. And



Cumberland Gap Broadcasting Co.

WMIK

Transmitter Log

Date October 31, 1962

Assigned Power: 500 Watts Ant. Res.: 30.3 Ohms Assigned Freq.: 560 kc

Time	Xtal Temp.	Freq. Dev.	P. A. Volts	P. A. Curr. Mils.	Line Curr. Amps	Ant. Curr. Amps	Time	Xtal Temp.	Freq. Dev.	P. A. Volts	P. A. Curr. Mils.	Line Curr. Amps
11:57	-2.6	2150	319		4.85	12:57		-1.0	2150	315		
6:33	-1.0	2150	319		4.85	1:32						
6:01	-1.0	2150	319		4.85	1:17						
6:37	-1.5	2150	319		4.85	2:37						
7:07	-1.0	2150	310		4.85	3:58		-1.2	2150	315		
7:28	-1.0	2150	310		4.85	3:31		-1.0	2150	315		
8:02	-1.0	2150	310		4.85	3:59		-1.0	2170	318		
8:28	-1.0	2150	310		4.85	4:28		-1.0	2170	318		
8:59	-1.0	2150	310		4.85	4:59		-1.0	2170	318		
9:28	-1.0	2150	310		4.85	5:27		-1.0	2170	318		
9:57	-1.0	2150	310		4.85	5:59		-1.0	2155	318		
10:28	-1.0	2150	310		4.85							
10:57	-1.0	2150	310		4.85							
11:31	-1.0	2150	310		4.85							
11:58	-1.0	2150	310		4.85							
12:32	-1.0	2150	315		4.85							

CARRIER On	CARRIER Off	PROGRAM On	PROGRAM Off	OPERATOR	On
11:58a		11:58a		John Cannard	4:44Sa
				John Cannard	
				Paul Bradley	7:44a
				Paul Bradley	
				Gary Brackett	11:11am
				Gary Brackett	
				Paul Bradley	1:00p
				Jane Bradley	
				[illegible]	2:30p

http://www.angelfire.com/ky2/cumberlandgapbc/oplog62a.jpg 4/10/2007

Chronicling Halloween 1962 engineering activities, a snippet of WMIK's operating log shows good technical practices via judicious adherence to monitoring the station's newly installed Collins transmitter each half hour. This bit of Americana was found at an excellent on-line WMIK historical resource. Google WMIK or go directly to www.angelfire.com/ky2/cumberlandgapbc/indexmain2.html for access to one of the best vintage radio station sites you'll ever find for any station. Pop'Comm *kudos go to Chuck Owens, who is behind this fantastic WMIK web-based encyclopedia.*

because the back had long disappeared to provide easy access to the innards, the set's original flat oval antenna winding, affixed to the rear cover, wasn't there either.

"In the stock antenna's place was about a dozen feet of copper wire draped over a rafter. Mama was convinced that electricity to the light-bulb socket that ran through the cloth-covered cord hanging from the same rafter attracted the antenna (or *aerial*, as she identified it) via magnetic waves. In any event, she often marveled at how the antenna wire managed to wiggle towards the light cord. My diagnosis for the mysterious get-togethers was more on the order of vibration caused by footsteps on the flimsy floor that even prompted picture frames to jiggle."

Bad News After Good

Sometime in mid-April 1946, the subject of radio popped up in Wilkins' grade-school classroom. During current events, a know-it-all kid, who apparently had influential relatives in Middlesboro, announced that the close-by community would soon be home to a 250-watt radio station transmitting at 1450 on the AM dial. "My uncle is good friends with a big shot over in Middlesboro," the student bragged, "and that fellow is one of the new station's owners! I even know the call letters...W-M-I-K," he enunciated, "and that stands for *MIKE* as in mic-ro-phone." With equal smugness, the kiddo predicted he'd undoubtedly be invited to talk over the 1450-kilocycle airwaves when the facility got fired up in July or August. It never happened.

The school year was deep into summer vacation when word came to local radio buffs that Middlesboro Broadcasting Company's WMIK construction permit was being "rescinded." That's an FCC euphemism for, "Sorry, but we changed our mind." Apparently, an outfit in not too distant Morristown, Tennessee, had applied for the same 1450 spot that the WMIK's Middlesboro Broadcasting Company was originally given. Then somehow, the rival Morristown-based Cherokee Broadcasting Company convinced the Commission it was more deserving of the frequency—a rarely won argument when it's posed *after* another party has been granted a mutually exclusive CP.

In early December 1946, however, government officials bestowed a bit of Christmas spirit on Middlesboro Broadcast Company in the form of a new construction permit for a 500-watt daytime operation at 560 kilocycles. Ideally, somebody in the group—maybe even the nerdy kid's uncle's old chum—should have understood that an attractive low-end (560) 500-watt assignment would pump out a far superior signal than would their earlier 250-watt graveyard channel grant.

Alas, a majority of the Middlesboro Broadcasting Company stockholders decided they'd rather be running a fulltime station, not one that had to sign off at sunset. They never built this daytime incarnation of WMIK. Instead, they sat on the CP until early 1948 and then sold the permit to Cumberland Gap Broadcasting Company, the radio arm of the *Middlesboro Daily News*.

1490 For The Last Time, Again

Wilkins mentioned being bewildered about local reports surrounding the anticipated station's home on the dial. "Not even my big-mouth classmate had much definitive detail regarding where or when our local AM might debut." She recalls laboriously spinning the tuning knob on her mom's stubborn table radio without any success. "Another mystery," Wilkins writes, "is something I heard about yet another Middlesboro station slated to arise at about this time, but didn't. Our landlord alluded to *criminal activity* as the reason why. I imagined a disc jockey playing 78s while choking down bread and water and wearing a striped State Prison suit," Wilkins said, expressing hope that Jan Lowry's *Broadcast Pro-File* data might clarify the rumor.

Jan quickly locked up the details on nearly forgotten WWPN, call letters for a short-lived 250-watt fulltime CP scheduled to be built in Middlesboro on...guess what Class IV frequency...Right! One-Four-Niner-Zero. The P-N in WWPN stood for "Pinnacle," as in Pinnacle Broadcasting Company, an outfit co-owned by E. P. Nicholson and John Wallbrecht. Shortly after securing their CP in January 1947, by beating competing applicant Cumberland Gap Broadcasting Company (remember them? the folks who owned the newspaper?), Pinnacle peaked and then quickly dropped down about as low as it could go.

According to *Broadcast Pro-File*,

> In June 1947, prior to ever starting construction on their new AM facility, WWPN's co-owner, John Wallbrecht, was indicted on fraud and embezzlement charges. [Though it's not noted what Wallbrecht

Figuring it to be the proverbial needle in a haystack or shot in the dark, I scoured a stack of vintage radio catalogs in search of a golden table model like the one described by Carole Wilkins. The TRUETONE Compact with "beautiful molded plastic cabinet" pictured in Western Auto's 1938 brochure seemed a possible candidate so I emailed her a scan. "That's the radio!" she replied, almost incredulous, and has since been cruising eBay in the hopes of locating a surviving example for the kitchen of her northern California home.

allegedly stole, nor whether or not he ever went to trial or was found guilty, his legal problems were just enough to spark] a petition, filed with the FCC by Cumberland Gap Broadcasting Company, the losing applicant for 1490 kilocycles. In response, on October 16, 1947, the Commission revoked the permit for WWPN over "alleged misrepresentations." WWPN, which was never built nor operated, was deleted in an FCC action coming on February 27, 1948. Concurrently, Cumberland Gap Broadcasting's previously dead application for a new Middlesboro broadcast station on 1490 kilocycles was granted.

That, of course, was the Middlesboro newspaper-owned organization that a little more than a year earlier had been denied its bid for a 1490 CP.

Remember we reported that Cumberland had just bought Middlesboro Broadcasting Company's 560 permit? Strict anti-monopoly rules in those days dictated that Cumberland must abandon the daytime CP if it chose to start the 1490 fulltime facility instead. Remember, too, that Cumberland had also seen its 1946 CP for a fulltime 1450-kc Middlesboro AM get plucked away and awarded to a hopeful somewhere else.

No doubt, having suffered those FCC reversals, Cumberland lost little time in enlivening its latest, and serendipitous, full-time authorization by beginning "broadcasting at 1490 on November 15, 1948 from its studio/transmitter location in the 30 by 50 foot 'Radio Building' on the northwest corner of Binghamtown Road and 19th Street Extension in Middlesboro." *Broadcast Pro-File* also indicates that "a Gates transmitter was installed with a 155-foot guyed Wincharger antenna tower in a field behind the new single story building." Fledgling WMIK's local programming was augmented by feeds from its affiliated network, Mutual.

Another Late 1940s Middlesboro Signal?

Wilkins said she does have memories of WMIK's 1490 version playing on the golden kitchen radio. "They're rather sketchy products of my imagination, though," she admitted. "It didn't come in clearly after sunset, especially where we lived, about 15 miles away as the crow flies. I'm recalling lots of non-descript skywave hash from WMIK's numerous co-channel and adjacent-channel neighbors. I think I remember one of the night announcers saying something about moving to a new home on the dial.

"'That's as much as I can tell you all now,' the DJ would whisper into the mic. 'Here's hoping we'll meet again down the dial.'

"This made me imagine him taking a microphone and his records to another little pushbutton on our old radio. Seems to me that's when my mother clarified this youthful notion by explaining that she'd heard Middlesboro would be getting a second new radio station. 'Maybe he's fixing to work there,' mom reasoned. 'When that new station opens,' mom suggested, 'better pick which one you like best and then stick with that channel,' because she figured I'd be forever tuning from one to the other, and end up getting zapped with both of my wrists—and pencils—deep in the radio's hot chassis."

We're Not Alone Anymore

In fact, only four days after WMIK 1490 debuted, the FCC saw fit to grant a CP to Tri-State Broadcasting Company so it could build an even newer AM in Middlesboro. The Commission OKed Tri-State's request for the 560-kilocycles venue discarded by Cumberland Gap Broadcasting Company in early 1948 without being used. Tri-State must have witnessed this action with delight, knowing Cumberland had paved an easy path for it (Tri-State) to quickly revive the paperwork and request the still-warm 560-kilocycle allocation. To make its application even more of a sure-shot, Tri-State said it could be very happy with the exact same non-directional 500 watts of daytime-only power that the Commission had previously seen fit to OK for Cumberland Gap Broadcasting. What could the FCC logically say except, "Yeah, fine."

May 8, 1949, marked Tri-State's Middlesboro 560 kilocycles on-air introduction. Listeners heard the outlet identified as WCPM with studios at 2821 Cumberland Avenue. The transmitter and big tower needed for low-band AM transmission was separately housed. Wilkins couldn't recall much of anything concrete about the non-network-affiliated daytimer, except that

it came in a lot stronger on her radio than WMIK 1490 did, and that it didn't last long. One year and two days into its operation, "WCPM was purchased for $50,175."

And, guess who bought it? Would you believe the little 560 AM went to the same group that two years earlier dumped the frequency in favor of a 1490 locale? It's true. The folks at Cumberland Gap Broadcasting shelled out 50 grand to silence a competitor and get a second chance on the low dial position.

E-Pluribus Unum At 560 On The Dial

The same day in May 1950 that FCC records show WCPM 560 getting absorbed by Cumberland Gap Broadcasting's WMIK, Commission documents also indicate that the WCPM callsign was deleted. So was WMIK's ticket to operate on 1490. Instead, a new license was created to show the WMIK calls now positioned on the 560 venue. Some studio equipment from the short-lived WCPM facility was relocated to the well-endowed WMIK building on the North 19th Street Extension. WCPM's transmitter site just off US Highway 25-E was immediately adopted in the amalgamation, with the WCPM transmitter operating as WMIK 560's main unit until "a new Collins 500 watt was installed in 1962." The site itself served listeners into the early 1980s, and then became real estate for a shopping center.

In her letter, Wilkins imagined WMIK 560, as it was one of the last times she heard it. This was in the summer of 1954, shortly before she left its coverage area and headed west to college. "Its localized format was filled with everything that seems so wholesome to me today," she said. "From live and recorded music (including lots of country tunes) serving as a generation's soundtrack, to the homegrown commercials and remotes for mom & pop-owned shops along Middlesboro's main street, and public service news about typically benign events that defined the rural area's social culture, WMIK spoke my world's language.

"The station also brought something I loved from the outside world, too," Wilkins noted. "Talk about imagination! WMIK carried major league baseball games that were concocted by sportscasters who got details of a game over the Western Union telegraph and then used their imaginations and sound effects to make the action sound even better than if they'd really been broadcast from the ballpark."

Jan Lowry figures Wilkins is referring to "recreated" sports play-by-play done by the Liberty Broadcasting System of Dallas, Texas. He found that WMIK became affiliated with Liberty in 1951 and ran the fascinating network's fare until legal battling from major league officials prompted Liberty to pull the plug a year later.

To satisfy Wilkins' curiosity about later milestones at WMIK, Jan dug up the following: Records from 1964 (no doubt from summertime) show the station's operating schedule as 5:00 a.m. until local sunset. A 1970 programming snippet delineates musical fare as 24 hours per week of country, Top-40 tunes from afternoon to sign-off, and some Black-oriented music. By 1974, WMIK was listed in the *Broadcasting Yearbook* as having adopted a country format with farm programming squeezed into 6 percent of the schedule.

An FM sister was activated in June 1971 at 92.7 MHz. It appears that the antenna array for this Class "A" (3-kW) WMIK-FM was originally attached to the AM stick, but was moved in the 1980s to a site some 1,500 feet higher than the AM location. Wisely, Cumberland doubled its offerings by running mostly separate (from WMIK-AM) programming on its FM property. Listings indicate it began as "MOR," or middle of the road, easy listening and later increased in tempo to Top-40 programming.

Broadcast Pro-File reports that a couple who owned 4 percent of WMIK AM-FM paid the majority stockholders $240,000 for the other 96 percent of the ownership pie in the fall of 1976. The new operators modified the format to what they described as a combination of "Top Country, Southern Gospel, and Old Gold." Melody and reliable local news are the typical common denominators of such homegrown radio formats, designed to be as mass appeal as possible.

Jan quips that WMIK must have had some appealing quality to the FCC computer program that coldly cranked out the then-new and long-awaited post-sunset operating powers for daytime AM facilities. While it wasn't uncommon for a daytimer to be assigned as little as 5 watts to use at night, WMIK rated a respectable 88 watts for an after-sundown operation, an especially potent power level at WMIK 560's "good end" of the AM spectrum.

The year 1992 needs to be mentioned with a WMIK footnote. That's when Cumberland Gap Broadcasting sold WMIK-AM/FM to Gateway Broadcasting, Inc. for $240,000, the same amount the sellers paid for 96 percent of the property in the mid-1970s. Wholly owned by the Binghamtown Baptist Church, Gateway has taken good care of WMIK's legacy ever since.

An example of its nurturing stewardship is the successful five-fold daytime power increase application it filed with the FCC, resulting in "a new transmitter site farther north on the east side of North 19th Street [or SR 441. This setup includes] a single guyed vertical radiator situated in the middle of a flood plain with its metal transmitter building erected on stilts." WMIK fired-up its 2500-watt system in winter 1998, not long after dropping country music from its schedule in order to clear the way for the fulltime (counting those 88 nighttime watts) Southern Gospel format, dubbed "Family Christian Radio," that it still offers today.

Perhaps it's trivial, but it's also a neat fact that circa-1948 pictures of the vacant land proposed for WMIK's building show a few houses and a church in the background—an incarnation of Binghamtown Baptist.

1-4-9-0...It's Baaack!

"You're kidding!" Carole Wilkins exclaimed when I mentioned that little Pineville (near where she grew up) has been home to not one but two radio stations. WANO 1230-AM started serving Bell County from Pineville in 1957, while a separately owned FM (originally WTJM) at 106.3 MHz took to the air there in 1973. Wilkins was equally surprised that Middlesboro had picked up an additional station.

Unlike WMIK's earlier competition, however, this one made it from CP to actual operation and wasn't bought out by WMIK or zonked by the FCC. A firm called Tri-State Broadcasters debuted its WAFI in Middlesboro on March 1, 1969. This Middlesboro station began life at 1560 kHz, which as its ownership reminded potential advertisers, was categorized by the Commission as a "clear channel," as opposed to WMIK's "regional" classification.

In heralding WAFI as "the clear channel voice of the industrial tri-states of Kentucky, Tennessee, and Virginia, Tri-State Broadcasters' promotional blurb in

the 1973 *Broadcasting Yearbook* didn't mention running 1 kW for only part of the day and 500 watts in the *critical hours*, which the FCC designated as a few hours after sunrise and before local sunset. In essence, a critical-hours daytimer has to reduce its day power at least twice daily. WAFI officials must have understood the inconvenience to listeners of such cutbacks. Likely, too, they realized that even half the power of an upper-end AM—whether on a clear channel or not—has considerably more zing at the standard broadcast band's lower end (such as WMIK's nice parking spot on 560 kHz).

Whatever the motivation, WAFI owners started looking for another frequency. WAFI, which was noted as running "C&W and Rock" through the early 1970s, morphed into Top-40 outlet WFXY by the latter part of the decade. By 1983, the new station, WFXI, secured a CP to leave 1560 and occupy 1490 kHz with 1 kW fulltime. That's the same 1490 in Middleboro almost activated by the ill-fated WWPN and once used by WMIK. It's interesting to note that, during the late 1980s anyway, WFXY 1490 was quoting a higher rate for a one-minute commercial than was WMIK: six bucks compared to $5.20.

Remembering Long-Ago Radio

Understandably, none of the Pineville or 1960s Middlesboro radio details conjured up memories for Wilkins. She'd only been back once, in early April 1955. Her mother had died suddenly at age 33 during Wilkins' freshman year in California. A compassionate college dean approved some emergency leave from classes and then loaned Wilkins the bus fare to return to Kentucky to arrange a simple funeral service and settle her mom's estate. "Not that my mother had much in our garage apartment," Wilkins said, "but we had no other family and the task of trying to figure out what to respectfully do with the contents was overwhelming to say the least.

"As a 19-year-old student at a school some 3,000 miles away, my storage options now consisted of part of a closet and under the bed in my university dorm room," she remembered. "I had no car and there was no money to hire a mover, so my shipping options were limited to 10 fingers. Anything I couldn't squeeze into my two bedraggled suitcases I could not take.

"With the exception of the few pieces of jewelry Mom owned, a box of pictures and letters, the cherished yellow sundress she'd once taken in a bit so I could wear it to a high school dance, and her nearly worn-through Bible, I had to sell Mama's things to a lady with a baby blue station wagon who bought household goods for resale in a secondhand shop just over the Tennessee line. Seems to me she offered $35 for the lot, and we settled on a few dollars more when I explained how I had borrowed fare money from my college.

"By the way," Wilkins added, "that woman didn't want the old plastic radio. While examining Mom's possessions in the apartment, she'd given it the once-over and commented that the tuner was busted and it had no back panel. 'Somebody could get electrocuted fooling with an old hazardous thing like that!' she warned in a dramatic tone, shaking her head in disgust. Later, I put it in a brown paper bag and attempted to stow my old tube-powered friend in one of the suitcases. But, it just wouldn't fit tight enough for the lid to shut.

"Feeling the need to be practical, I set it on top of a big cardboard box full of other stuff that the junk lady didn't take and that I couldn't even give away to the few curious neighbors who happened by the garage's dirt driveway. And then, I couldn't help but make a second attempt to rescue the radio," Wilkins told me. "Seeing the poor old thing resting kind of lopsided on that beaten-up carton at the side of the road, I went out and retrieved it, perhaps in the spirit of one who can't resist bringing home a stray puppy.

"There was time to dust it off while I slowly walked back to the garage and up the squeaky stairs leading to the empty apartment. Although the electricity had been turned-off, making it impossible to play it, I think I pushed the little molded plastic radio's tuning buttons several times. This prompted memories of Mama and me sharing some time together listening to WMIK and, before that, hearing radio shows from the other stations capable of reaching its restless wire antenna.

"I smiled at the thought of the supposed romance between it and our light cord. The progressing sunset clinging to the window gave my old bedroom some needed color. Laying there on a piece of cardboard, my rolled up sweater for a pillow, I noticed how nicely golden the radio looked and imagined how much it and WMIK—neither asking for much in return—had enriched Mama's life and mine.

Our Railfans Speak Out

Dear Editor:

I just read the story in the July '07 issue on Railfanning and sat down at the computer in my local public library to find the website mentioned in the article, www.railfanswelcome.com/, and the search engine couldn't find it. I used MSN and a meta engine and got the same result each time. I did see a listing for it saying it had been last updated in '05. Must be it's been taken down for some reason.

I'll add a Railfanning site on Pan Am RR here in Pittsfield, Maine—the Depot House Museum, near the Main St. crossing (Central St.) or across the tracks on Library St. (use 160.6200 and 161.2500). In Waterville, Maine, a good railfanning spot would at the yard office on College Ave., over by Steam 470, a retired steam locomotive on long-term static display.

A search on Yahoo! Groups for either Guilford Transportation or Pan Am Railroad should get you to a railfan site covering New York and New England.

Don Hallenbeck
Pittsfield, Maine

Don:

Thanks for the additional information on your area. I plugged the website given in the article into Safari and had no trouble getting to Dave Marshall's Railfans Welcome page. Also a Google search for "Dave Marshall"+Railfan brought me there, so maybe it was a temporary glitch that you encountered. My search for Guilford Transportation led me to the Northern New England Railfan Site at http://home.comcast.net/~petlick/grs. htm. Hopefully our other railfan readers will benefit from your suggestions.

Editor

Dear Editor

I was interested in the article on the Tehachapi Loop ["The Hotspots Of Railfanning..." July '07]. I live in Ridgecrest, which is about 60 miles from Tehachapi and have visited the Tehachapi Loop several times a month for the past 10 years, and regularly over the previous 30 years. Actually, my Father was assigned duty there while in the army, guarding the tunnels back in WWI, circa 1915 through about 1919...

There are several pullout spots to view the "big Picture" of the Loop, but the best place to go is right in the middle of it. You can drive your family sedan to this spot, and regular walking shoes are okay. You can see the whole Loop from there, and you're only 10 feet from the track and can wave to the engineers. From Mojave to Keen, you go west on Hwy 58 for 30 miles to the Keene off-ramp, just west of Tehachapi (there's a sign for Keene). Then go east on the old road passed the restaurant and store, until you go under the cement abutments for the freeway, to Walong. If you have a GPS, the turnoff from the paved road is at 35.13.394N 118.33.645W. There are no signs, but if you look closely you'll see a dirt road on the left (north) that goes east then north down to the tracks, and then a dirt crossing over the tracks, to a large parking area. Park anywhere there and you can see the memorial with a concrete bench facing the railway cut. Just remember, this is private property, owned by the Tejon Ranch, but nobody will hassle you if you stay in the area near the tracks.

The best book to buy is the *California Region Timetable*, which will give you a map of the Loop area from Mojave to Bakersfield, along with the radio frequencies to put in your scanner...the trains come by on weekdays just fine, but especially on Tuesdays. The best author, and expert, is Vincent Reh, who has several books about railroading and the Tehachapi Loop [*one place to start your search is www.railsearch.com/—ed.*]. Another good book is *Southern Pacific-Santa Fe-Tehachapi*, by John Signor, published by Golden West Books. This is a coffee table book, rich in pictures and history and a real value.

Ron Cheshire, aka DrPepper
Via email

"Seemingly in an instant, it was morning. As best I could, I smoothed the wrinkles out of my dress, nibbled a cookie I'd wrapped in a napkin after Mama's funeral service, and used the privy. Back upstairs, I gathered my two suitcases, looked around the old apartment for the last time and heard myself softly sobbing goodbye to Mama. I imagined her smiling and, as she always did with radio music in the background, saying that she loved me and would surely see me long before WMIK signed-off for the night. Without thinking, I gently waved to the vacant kitchen, though I instantly realized it was merely a gesture to the memory of a thousand otherwise forgotten mutual promises to "see you later.

"After stepping onto the stair landing, I suddenly remembered the plastic radio sitting on my old bedroom floor. In a panic, I tried opening the apartment door. I wrenched it with all of my might, though knowing I had locked it securely behind me and, as instructed by the landlord who was away for the week, had left the key inside on the sink.

"A car horn sounded. It was coming from a green sedan owned by an elderly couple from my mother's church. They had kindly promised to drive me to catch a bus in Middlesboro. Regaining my composure, I waved to them and descended the weathered wooden stairs.

"'Is that it, Honey?' the gentleman wondered while stowing my two ragged suitcases in his car's ample trunk.

"'Well...I was hoping to bring...but I accidentally locked it...' I started a painfully incomplete explanation. Short of breaking the door or window and then having to arrange for repairs, there was no way to be reunited with the gold plastic radio, as my time there was fast elapsing like the final few grains of hourglass sand.

"'Anything else, Carole?' he asked again. I shook my head and got into the back seat. His wife saved me from talking by recalling me in detail as a little girl in some church Christmas pageant, and she then recounted all of the nice things my mother had done for folks in Bell County. About five miles outside of Middlesboro, her husband politely suggested that I was probably all worn out from old people chattering away about old times, and that I could use a little peace and quiet before boarding a noisy bus.

"With that mild admonition, he reached towards the dashboard. Thirty seconds later, the warm, tube-fired, bass-bathed sound of a mellow country ballad wafted from the dash's big speaker grill. We'd ridden about another mile when his wife spoke again. 'WMIK in Middlesboro,' she smiled, looked back at me and then lovingly at her mate. 'I didn't imagine he'd be able to go too long without listening.'

"For a second, I pictured the little gold plastic radio, alone in that empty old garage apartment. I imagined it in some happy home playing WMIK again, and hoped that whoever ended up with it might enjoy that notion, too."

And so ends another day of broadcast history at Pop'Comm.

by R.B. Sturtevant, AD7IL

Radio Fun And Going Back In Time

Q. Back in the 1980s when the British got involved in the Falklands War they were operating quite a long way from home. How good was their communications with HQ back in England?

A. Yes, from the first Argentine landing (April 2, 1982) to the surrender of all Argentine forces (June 14) was only 74 days. The British Task Force, which was actually just giving the diplomats time to wrangle a deal, spent much of the time in preparing and slowly approaching the Falklands. It was May 1 when the opening shots were fired in the military's retaking of the Islands. As soon as ground operations were begun a group of RAF Vulcans attacked the airport at Port Stanley, the capital of the Falkland Islands.

The 3rd Parachute Regiment seized Douglas Settlement and Teal Inlet on May 31. Its commander, Brigadier Thompson, was in direct communications with the Commander in Chief at Northwood in England via direct satellite link, established by 30th Signal Regiment at Ajax Bay, Falklands. This was the first time the Brits had used this means of communications in a major operation. "The radio telephone was as clear as if the call had been coming from next door. As clear and unequivocal as were the orders from Northwood," was Thompson's description. The link stayed open until the end of military operations.

Q. I've seen old photographs of World War I battleships sailing single file in a line. In that type of formation, it would be difficult to see the flagships' signal flags, semaphore flags, or flashing lights. How could, say, an admiral communicate with his ships before the days of wireless?

A. Well, by World War I wireless was starting to show up, but only in the larger ships. What the Navy did in the "line astern" formation was fairly simple. All the ships, except the last in line, would release a telephone line on a buoy. The buoy would be picked up by the next ship in line and hooked into the ship's telephone system. In the early days, a ship's telephone system went from the captain's cabin to the chart room and bridge with permanent attachment points at the bow and stern. The admiral could place a call to any or all of his captains through this system. It was not really practical by today's standards but it worked until they got the kinks worked out of wireless.

Q. I've heard about the new Air Force repeaters supported by captive balloons. Are there other instances of repeaters being used by the military?

A. In 1957 the Federation of Malaya was created out of 13 states on the island of Borneo. In the '60s there was talk about adding the three British states in Borneo to the Federation: North Borneo, Sarawak, and Brunei. This did not sit well with President Sukarno of Indonesia. Indonesia ruled the western half of Borneo, but had its eye on the rest of it as well.

In 1962 Indonesian-backed forces engaged in a short-lived revolt against the Sultan of Brunei. Put down quickly, the insurrection put the Brits on notice that there would be more trouble in the future. Britain sent in troops to reinforce its position. With them went the Queen's Gurkha Signals. Gurkhas, who tend to be small, light-framed men from the uplands of Nepal, have a reputation as some of the toughest fighters in the world. In order to give the British military unit's the VHF range they needed in the hilly jungles of Borneo, the Gurkha Signals established repeater stations on the mountaintops above the jungle cover. These kept the lines of communications open until Sarawak and North Borneo (now Sahab) joined the Federation of Malaya. Brunei elected to remain a British Protectorate. British troops remained in the area until 1966 when Malaya and Indonesia signed a peace accord.

Looking Back...

Five Years Ago In *Pop'Comm*

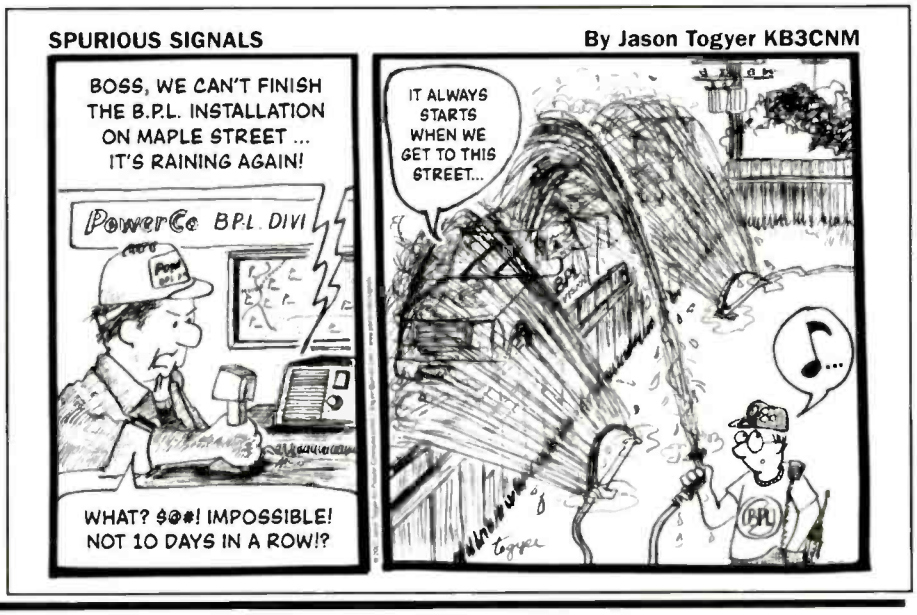
We looked at the important role amateur radio played in an emergency net after the events of 9/11. Public Service comms interoperability was already a big issue, and our "Homeland Security" column scrutinized digital radio systems effectiveness.

Ten Years Ago In *Pop'Comm*

DXing and QSLing FM stations were the main features, along with "TrunkTracker Talk," which answered readers' FAQs. A reader who took over the "mic" for a guest editorial had *no* patience for "freebanders."

Twenty Years Ago In *Pop'Comm*

The "war" was heating up over the FCC's RM 5836, a proposal to require that scanners carry a warning label about the Electronic Communications Privacy Act. And, ironically, we asked in that same issue, "Is Your Telephone Tapped?"



by John Kasupski, KC2HMZ, kc2hmz@wzrd.com

Espionage On The Shortwave Bands—Tuning In The Numbers Stations

Although it seems like only a few weeks have passed, a look at my logbooks confirms that it's been *seven years* since the day I heard the U.S. military and the Israeli intelligence service, Mossad, clashing on the shortwave utility bands. I was listening to the USAF's HF-GCS, High Frequency-Global Communications System (which was then known as the GHFS, for Global HF System), and got lucky in that on this particular day there was an SIOP (Single Integrated Operational Plan) Command and Control exercise in progress.

There were numerous stations on several frequencies, including the 8992.0, 13200.0, and 15016.0 GHFS frequencies, as well as some of the so-called "Zulu" frequencies commonly used by assets of the U.S. Strategic Command (USSTRATCOM), the Joint Chiefs of Staff (JCS), and the National Airborne Operations Center (NAOC). These stations, some of which were probably aircraft while others were most likely somewhere on terra firma, were using tactical callsigns, with lots of coded messages flying back and forth.

Then, with exercise activity in the middle of its peak, a station whose identity I did not know at the time came up on 15016.0 with an extremely strong signal (how strong?...strong enough for me to hear the hum of the power source on the audio), and a female voice began repeating "Charlie India Oscar Two" over and over again, and continued to do so for at least the next 30 minutes. The U.S. military stations basically were blown off the frequency by this CIO2 station, which I had encountered elsewhere in the shortwave spectrum on a few occasions prior to that day's events. The players in the SIOP exercise seemed to shift their activities from 15016.0 to 13200.0 once the CIO2 station made 15016.0 unusable.

It wasn't until much later that I discovered the nature of the CIO2 station: It was one of the many "numbers" stations commonly heard on HF, with this particular station attributed to the Mossad. It turned out that *Pop'Comm*'s own Tom Kneitel had written about it back in the mid-1970s, describing female operators (live, or automated recordings) identified with a tactical callsign consisting of three phonetic letters (with CIO already being listed among the known examples even then), sometimes followed by a suffixed digit. Tom indicated that the suffix "1" was indicative of a test transmission; a "2" meant "no message."

As I think back on it, if I'm capable of listening to an SIOP exercise, then undoubtedly, so are members of the Israeli intelligence services and armed forces. After all, their budget for purchasing the equipment necessary to eavesdrop on such communications undoubtedly exceeds my own, and you can bet that they have a lot more room at their disposal for putting up antennas than I do!

If anyone in the Mossad or in the Israeli military found themselves listening to U.S. military assets known to be associated with America's nuclear forces, they might well have wondered if World War III had broken out, and whether Israel, as an ally of the United States, was now at risk. Thus, the Mossad transmission of "CIO2" ("no message") was a message in itself. That is to say, if Israel were in any danger of being attacked, one would expect that there would be plenty of message traffic being passed by Mossad, and that instead, transmitting what amounts to "no message" falls under the category of No News = Good News.

Today, of course, the store of knowledge about these mysterious shortwave "numbers" stations has been expanded, thanks to the efforts of SWLs who have taken a particular interest in these stations and made it their business to learn as much as possible about them. This includes the ENIGMA group as well as the folks on the "Spooks" reflector on the Internet, and some of the folks on the UDXF reflector, including UDXF's founder, Ary Boender of the Netherlands, who's a noted numbers authority in his own right and produces a regular "Numbers & Oddities" newsletter that he makes available to the monitoring community.

These numbers enthusiasts have agreed upon a system of identifying such stations, and the Mossad activity referred to above is designated as E10. There has arisen some debate as to whether Israel is the source of these transmissions. Some have expressed the belief that not all of the transmitters involved are in Israel, with Greece and South America being mentioned as possible locations of other transmitters emitting E10 activity.

Most U.S. monitors seem to remain convinced that Israel is responsible, to the degree that most of their reports simply state "Mossad" in their loggings. My own take on this is that it's not unthinkable for other nations that are friendly to Israel to relay their numbers transmissions. Remember that Radio Free Europe once transmitted from the Czech Republic, and the U.S.-operated Radio Free Asia was sent over Russian transmitters in the Far East.

There's also some debate as to the meaning of the suffixed numbers transmitted by these E10 stations, but then again, if numbers stations are the tools of the national intelligence agencies of any particular nation, as current theory holds, their usefulness would certainly be diminished if we all were able to figure out the meaning of their transmissions.

Suffice to say, then, that there is much about shortwave numbers stations that remains unknown despite the intense scrutiny of some of the best in the hobby. That's undoubtedly supposed to be the case as far as the people involved with operating these stations are concerned. What is widely believed is that these stations operate as a method for government agencies to communicate with persons in those agencies' employ, perhaps as spies working under cover.

One would not expect any government to acknowledge these activities. Nevertheless, a 1998 article in the British newspaper *The Daily Telegraph* quoted a spokesperson for the Department of Trade and Industry (the government agency that, at the time, regulated radio broadcasting in the UK) as saying with respect to numbers stations, "These are what you suppose they are. People shouldn't be mystified by them. They are not for, shall we say, public consumption."

Furthermore, I'm aware of one case in which a numbers station was officially and publicly accused in a United States federal espionage trial. This occurred in 1998, after FBI agents secretly broke into at least one of the spies' apartments, allowing our agents to subsequently decipher shortwave broadcasts from the Cuban "Atencion" station, which they had been receiving up to the September 1998 arrest.

One point that this incident raises pertains to speculation that the messages transmitted by these stations are encrypted with a one-time pad to avoid any risk of decryption by the enemy. This would seem unlikely in this instance. The moderator of one of the hobby reflectors claimed that one of the subscribers had cracked the code for a repeated transmission from one of these stations, a claim that was later backed up by messages eventually declassified by the FBI for use as trial evidence. Among these were the following:

- "Congratulate all the female comrades for International Day of the Woman." (Probably just what it appears to be, a greeting for March 8, International Women's Day.)
- "Prioritize and continue to strengthen friendship with Joe and Dennis."
- "Under no circumstances should German nor Castro fly with BTTR or another organization on days 24, 25, 26, and 27."

This last message is a "smoking gun" directly implicating Cuba (BTTR is the anti-Castro airborne group Brothers to the Rescue).

At any rate, if the numbers being transmitted are, indeed, a form of one-time pad encryption, one would not expect to observe the same five-digit groups repeating again and again in the same message, let alone repeated from one week to the next, or from one month to the next. I personally believe that the numbers are not a one-time pad encryption (which would be known in cryptology as a *cipher*), but rather constitute some kind of a code (which differs significantly from a cipher).

I'm also inclined to believe that such transmissions—and I think the same of the EAM (Emergency Action Message) transmissions used by the U.S. military, by the way—are often dummy traffic being sent to confuse anyone trying to decipher the contents.

If you've ever heard the audio quality of the familiar five-digit Spanish numbers transmissions, you probably know why I'm inclined to believe this. Imagine someone listening on a small portable shortwave receiver trying to copy a cipher-encrypted message without error while listening to the horribly over-modulated transmissions that are producing spurious emissions in both directions from the actual frequency. Lots of luck with that, especially when you're trying to tell a six from a seven (a *seis* from a *siete*)!

Aside from the agreed-upon designations (such as E10) for numbers stations, there are also informal nicknames that hobbyists have hung on various stations, usually derived from the introduction of a transmission. In some cases these are numeric or phonetic, such as the CIO station mentioned in the beginning of this column; in other cases the nickname is the result of a characteristic phrase, such as the Atención station, or taken from musical or electronic sounds that are peculiar to the station in question.

The Lincolnshire Poacher is one example of such a station. Designated E3 by the ENIGMA group, the nickname is derived from the station's use of two bars from an English folk song by that name. The song tells the story of a poacher who avoids a game warden and delivers a hare to a woman in a local town. The opening line of the song, "When I was bound a 'prentice in famous Lincolnshire," is used by the station as an interval signal. The transmissions start on the hour, its upper-sideband mode signal starting off with the interval signal played 12 times. There follows a 5-figure header read 10 times, with a pause between the fifth and sixth readings. This process is repeated five times, after which three pairs of chimes are sent, followed by exactly 200 five-figure groups.

Believed to be operated by the British Secret Intelligence Service (SIS), The Lincolnshire Poacher's transmissions consist of an electronically synthesized English-accented female voice reading the numbers, with the final number in each group spoken with a lifted voice. This station also has a counterpart that uses an identical format, but that is believed to originate from Guam and is nicknamed "Cherry Ripe," since it uses part of an English folk song of the same name as its interval signal.

It's not unheard of for numbers stations to be subjected to jamming, perhaps on the part of nations that are enemies of the country operating the numbers station, or for the numbers transmissions to interfere with other stations in the shortwave spectrum. For example, the Lincolnshire Poacher was at one time in the early 1990s the target for "bubble" or "warble" jammers. The E5 CIA station, informally named "Cynthia" by numbers station hobbyists, has been the target of the same type of jamming in the past.

Here are some other instances of interference by or with numbers stations and other users of the shortwave spectrum: the North Korean propaganda station Voice of Korea began to broadcast on the Lincolnshire Poacher's 11545.0 frequency in 2006; ham radio transmissions in the 30-meter band were affected by the E7 "Russian Man" numbers station one day in September 2006; a station with the callsign HOTEL KILO, operated by the West German BND in the Cold War days, used to transmit on 9450.0 kHz and interfered with Radio Moscow (now the Voice of Russia); the religious station WYFR transmitting from Okeechobee, Florida, on 6855.0 kHz is regularly affected by the Cuban Spanish V2 numbers station; the aforementioned CIO2 station was heard interfering with Radio Djibouti on 4780.0 kHz this past January; and this past March a new one was noticed, with the numbers station "Oblique" (Designated E11) interfering with a SITOR station on 8544.0 kHz.

Not all numbers stations use voice transmissions. The Russian Air Defense stations, designated M21, operate a shortwave CW (Morse code) training facility that also serves as a backup to their satellite and landline systems. Although their frequencies change often, their transmissions are easily identifiable by their use of the letter T in place of the number zero for brevity's sake (only one "dash" need be sent instead of five) and the format of the transmissions when there is no actual traffic being sent (they're sent once per minute, always starting with BT99 and ending with five question marks). Cuba also has a Morse code numbers station, designated M08a.

Numbers stations also have at least one digital equivalent that uses phase-shift keying, which is a PSK version of the Cuban Morse code numbers, recently reported on 6826.0 kHz in PSK125, which is a faster version of the PSK31 mode commonly used by hams.

Frequencies

As you might expect given the nature

of this activity, the frequencies used by numbers stations change often, along with the scheduled times when they appear on the air.

The last accurate information that I had for the Cherry Ripe station showed it using 14730.0, 18864.0, 19884.0, 20474.0, 20707.0, 21866.0, and 23461.0 kHz depending on the time of day, and with two or three parallel frequencies being used at most times when the station was actively transmitting.

The scheduled frequencies and times for the Lincolnshire Poacher differ from one day to the next. However, this station also uses parallel frequencies when active, with three frequencies in use at any given time. While the frequencies vary from day to day, my most recent frequency list shows 5422.0, 5746.0, 6465.0, 6485.0, 6900.0, 6959.0, 7337.0, 7755.0, 8464.0, 8486.0, 9251.0, 10426.0, 10462.0, 11545.0, 12603.0, 13375.0, 14487.0, 15682.0, 16084.0, 16314.0, and 16475.0 kHz. The lower frequencies will be in use in the nighttime hours UTC, since this corresponds to the local hours in the UK, so don't expect to find 16084.0 in use at midnight UTC, for example. The lower frequencies such as 5422.0/6959.0/9251.0 would be a better place to start at that time.

Of course, with HF you never really know for sure exactly what you're going to hear when you tune to a particular frequency. Back in March, at about 0500Z in the wee hours of one local morning, I tuned to a frequency that had been reported a week earlier as having been used by a Mossad E10 station (4360.0) at around that time, only to discover that the U.S. Navy had set up shop there instead, and was running a tactical net (which turned out to be a carrier air defense net...see last month's column for more on those).

For those with access to the World Wide Web, you'll find a very comprehensive list of numbers station frequencies at the following URL:

www.simonmason.karoo.net/page53.html

Incidentally, that website also contains a treasure chest of information about numbers stations. If you're interested in the subject, spend some time exploring that site, which also has audio recordings of numbers stations to help you identify what you're listening to when you find one on the air.

Regarding the designations, such as E10, E3, V2, and so forth, that were referenced above, these are set forth in a document known as "The ENIGMA CONTROL LIST." This material is copyrighted by the ENIGMA 2000 group, so I can't reproduce it in the magazine. Unfortunately, ENIGMA 2000 is also a Yahoo group, which requires you to sign up for a Yahoo account to join it and access its file download area. Although there is no charge for this, jumping through the Yahoo hoops has proven problematic for many users. Fortunately, the document may also be obtained by pointing your Web browser at the following URL and clicking on the link for the ENIGMA Control List:

http://ds.dial.pipex.com/brogers/page27.html

What About That NAOC?

Earlier in this column, I managed to sneak through a reference to the National Airborne Operations Center, without further comment. Just so I don't get emails asking about it, I'm going to spend some time on the NAOC now.

The NAOC is part of a project intended to provide survivable command, control, and communications capabilities to direct U.S. forces, execute emergency war orders, and coordinate actions by civil authorities in the event of a national emergency or destruction of ground command control centers. The NAOC is an aircraft, specifically an E-4B (see **Photo A**), which is basically a militarized version of the Boeing 747-200.

It's a four-engine, swept-wing, long-range, high-altitude airplane capable of being refueled in flight. Its crew may include up to 114 people. Its main deck is divided into separate functional areas for a National Command Authority work area, conference room, briefing room, operations team work area, communications, and a rest area. These aircraft are assigned to the 55th Wing at Offutt Air Force Base in Nebraska, and at least one is always on alert.

In addition, beginning in 1994, the E-4B assumed an additional role of supporting FEMA's request for assistance when a natural disaster occurs. The E-4B is then tasked to fly the FEMA Emergency Response Team to the disaster site and serve as FEMA's command and control center until the FEMA team's

USAF E-4B "Nightwatch" is refueled in mid-air from a KC-135 tanker. (Photo courtesy of U.S. Air Force)

A Navy E-6B TACAMO aircraft. (Photo courtesy U.S. Navy)

own equipment and facilities can be set up, reducing the team's response time to a matter of hours as opposed to days.

The E-4B project name was "Nightwatch," so hobbyists dubbed the HF communications related to this mission the "Nightwatch Net," but not all of the aircraft involved in the Nightwatch Net are E-4Bs. Also involved are E-6B TACAMO (for Take Charge And Move Out) aircraft (see **Photo B**), which provide survivable communication links between the National Command Authority and strategic forces. A derivative of the Boeing 707, it's a long-range, air-refuelable aircraft that can carry a crew of 22. Based at Tinker AFB in Oklahoma, its primary purpose is to serve as a relay for fleet ballistic-missile submarines and as an airborne command post for U.S. strategic forces.

In days gone by, utility listeners maintained a list of frequencies that were used by the Nightwatch Net, which referred to these frequencies with the word Zulu followed by a number. For example, Zulu 205 or Z205 referred to the frequency 11494.0 kHz. There were frequent communications by Nightwatch Net assets interacting with one another and with then-GHFS ground stations regarding the primary and secondary Zulu frequencies at any given time. Players in the net would contact a USAF ground station to find out what the current frequencies were, and could then be heard establishing contact with other assets in the net using specific authentication procedures to check in to and out of the net.

However, this type of activity has not been noted for quite some time, although players can still be heard interacting with today's HF-GCS ground stations, sometimes obtaining a phone patch to another ground station for orderwire coordination purposes or sending data transmissions to the station. Players can also be heard broadcasting EAM traffic, identifying with non-static tactical callsigns that change every 24 hours at 0000Z. This type of activity can occur on any HF-GCS frequency, but the primary frequencies used are 4724.0, 6712.0, 6739.0, 8992.0, 11175.0, 13200.0, and 15016.0 kHz.

Utility Notes

I'd now like to relate a few developments in the utility monitoring scene that aren't involved enough to write an entire column on, but are nevertheless significant enough to deserve being passed along.

The first of these items comes to us from Al Stern of Satellite Beach, Florida, whose name will be familiar to many longtime *Pop'Comm* readers since he wrote a regular column for this magazine not that long ago. Al notes that during May, USAF MARS stations reverted to the original MARS frequencies ending in "0" and "5" and discontinued using a slight offset from those frequencies. For example, one of the primary MARS frequencies was 13927.1 until recently. USAF MARS has now gone back to 13927.0 instead. The same is true of other frequencies, such as 4557.0, 7633.5, 14606.0, 18617.0, 20992.5, and so on.

Usually the difference was only 0.1 kHz, but on many, and perhaps most, receivers that can be the difference between listening to a reasonably clear reproduction of the human voice and listening to Donald Duck. If you have a lot of MARS frequencies stored in memories on a receiver, you can now program them in as ending in "0" or "5" and eliminate the fine-tuning you may have noticed you were doing lately. Many thanks and a tip of the columnist's hat to Al for the update!

The next item concerns things that somehow were omitted from recent columns. For example, although August was our severe-weather issue, I neglected to report the names of tropical storms/hurricanes that will be used for the 2007 season: Andrea, Barry, Chantal, Dean, Erin, Felix, Gabrielle, Humberto, Ingrid, Jerry, Karen, Lorenzo, Melissa, Noel, Olga, Pablo, Rebekah, Sebastien, Tanya, Van, and Wendy.

Also, left out of the July issue due to space problems was a glossary I had done of interservice brevity codes to go along with the account of communications I had heard during a military tactical net I talked about in that month's column. Since the list of brevity codes got dropped from the magazine, I've decided to put the information online instead, and rather than simply offer the abbreviated list I did for the column, I've included the *entire* manual of multiservice air-to-air, air-to-surface, and surface-to-air brevity codes for you to download. You'll find it at:

www.kc2hmz.net/brevity_codes.pdf

That's a 152-kb file in portable document format (.PDF) so you can read it on almost any computer platform (PC, Mac, Amiga), and it's not so large a file as to be painful, even if you're a cheapskate like me and have a dialup connection to the Internet.

Item three: for those of you who enjoy monitoring aeronautical communications involving aircraft on overseas flights, Nav Canada has decided to make the Gander International Flight Service Station (IFSS) the master station for the Arctic Radio HF network. Iqualit and Cambridge Bay are no longer monitoring HF and can only be reached on VHF.

This change affects the four HF frequencies of 2971.0, 4675.0, 8891.0, and

11279.0 kHz, as well as the RCO (Remote Communications Outlet) VHF frequency of 126.9 MHz.

What *You've* Been Hearing

Last, but certainly not least, we have another great batch of logs this month. Therefore, many thanks for the efforts of those who submitted them, namely: Lupo Alberto, Venice, Italy (LA/IT); Mark Cleary, Charleston, SC (MC/SC); Steven Jones, Lexington, KY (SJ/KY); Allan Stern, Satellite Beach, FL (ALS); Glenn Valenta, Lakewood, CO (GV/CO); and your columnist, John Kasupski, Tonawanda, NY (JK/NY).

4143.0: Two ferryboats on Tirreno Sea near Italy with exchange of passengers and vehicles report in Italian, in USB at 2010Z. (LA/IT)

4149.0: WPE (Crowley Marine Svc, Jacksonville, FL) wkg "Seebreeze" for radio check; also tugboats reporting position, fuel status, arrival time, etc., in USB heard at 0520Z. (ALS)

4449.0: KILO WHISKEY, 0400 Air Defense SITREP for KILO and PAPA at 0400Z. (MC/SC)

4991.0: NF1 (FBI, Norfolk) clg NY1 (FBI, NY) in ALE USB at 0743Z. (MC/SC)

5058.5: WF1 (FBI, Washington, DC) clg BA1 (FBI, Baltimore, MD) in ALE USB at 0618Z. (MC/SC)

5399.5: ECHO WHISKEY, GOLF, JULIET, and HOTEL in USN air defense net, in USB at 0040Z. (MC/SC)

5446.5: AFN Key West, FL in USB at 0555Z. (JK/NY)

5690.0: RESCUE 1502 p/p via CAMSLANT to E-CITY AIR at 0047Z. (MC/SC)

5696.0: CAMSLANT wkg CG 1712 (HC-130, CGAS Clearwater) to advise cutter TAMPA is en route, in USB at 1343Z; RESCUE 2120 (HU-25) wkg CAMSLANT to report CG 6561 (HH-65C) has dropped swimmer and there are no POB on lifeboat. CG 6561 is RTB due to Bingo fuel. Lifeboat is off of TORBEN MAERSK out of London. In USB at 2320Z: AIR FORCE RESCUE 50974 (HC-130P, 102 RQS, NY ANG) wkg USCGC TAMPA reporting 90% search complete and en route to E-City for fuel then RTB, in USB at 2213Z. (MC/SC)

5696.0: CAMSLANT wkg CG 2127 (HU-25A, ATC Mobile) after QSY here from 8983; is told that CG District 8 wants them to divert to position 28-24.9N, 91-52.7W to cover for medevac case (that position is over the Gulf of Mexico, south of New Orleans) in USB at 1940Z. (ALS)

5717.0: N1C, R1B, B2R, C2N (US Navy vessels) passing coded NATO tactical ship handling and maneuvering signals for maneuvering board drills, in USB at 2217 (MC/SC)

5732.0: SHARK 02 (USCGC TAMPA) wkg PANTHER regarding flight schedule in USB at 2114Z. (MC/SC)

5778.5: R26602 (UH-60L) clg B1Z171 (1-171 AVN) in ALE USB at 2311Z. (MC/SC)

5787.5 RUH959 (UH-60L, 1-228 AVN) clg WAROPS (1-228 AVN, Soto Cano AB) in ALE USB followed by MIL-STD-188-110 transmission at 0344Z. (MC/SC)

5833.5: G23691 (UH-60A, 2-147 AVN) clg STPOPS (AASF, St. Paul, MN) in ALE USB at 0243Z. (MC/SC)

5875.0: R23725 (UH-60A) clg KMUING (Muir AAF) in ALE USB at 0250Z. (MC/SC)

5881.5: R00212 (CH-47D) clg T5B159 (B/5-159 AVN, Felker AAF, Fort Eustis, VA) in ALE USB at 1301ZZ. (MC/SC)

6265.5: ELVO2, *NEW ALLIANCE*, 106,118-ton Liberia-registered crude oil tanker w/MMSI and abbreviated ID "NALN" in SITOR-A at 0909Z; KKFW, *T/S EMPIRE STATE*, 14,620-ton U.S.-registered training ship operated by SUNY Maritime College in the Bronx, NY w/callsign in SITOR-A at 0958Z; V7ET3, CROWLEY UNIVERSE, 9,082-ton Marshall Islands-registered Ro-Ro cargo ship w/AMVER/FR for arrival at Port Everglades, FL, in SITOR-A at 1202Z; KAQK, *S/S ANASAZI*, 40,017-ton U.S.-registered chemical/oil products tanker w/callsign and TEST command in SITOR-A monitored at 1212Z. (SJ/KY)

6283.0: Unid. vessel w/SELCAL QVXY (2017) for XSQ, Guangzhou R., China, rather weak signal, and no contact, in SITOR-A at 0435Z. (SJ/KY)

6350.0: AFN w/Pentagon Report in USB at 0536Z. (GV/CO) (*This is AFN Pearl Harbor's nighttime frequency.—JK*)

6501.0: NMN (USCG, Chesapeake, VA) w/manually read maritime wx, in USB at 0529Z. (GV/CO)

6502.5: RUH958 (UH-60L) clg WAROPS (1-228 AVN, Soto Cano AB) in ALE USB at 0153Z. (MC/SC)

6718.0: Link-11 data transmission at 1424Z. (MC/SC)

6733.0: IDR, Italian Navy, wkg J5G re position report in Italian, in USB at 1150Z. (LA/IT)

6754.0: Trenton Military, Automated VOLMET with aviation wx, in USB heard at 0442Z. (JK/NY)

6806.0: 043SERCAP (Southeast Region CAP) sounding in ALE USB heard at 2059Z. (MC/SC)

6910.0: R23288 (UH-60A) clg T2Z147 (2-147 AVN) in ALE USB at 0226Z. (MC/SC)

6911.5: R23590 (UH-60A) clg KMUING (Muir AAF) in ALE USB at 0140Z. (MC/SC)

6942.0: Link-11 data transmission at 1419Z. (MC/SC)

7361.5: R23748 (UH-60A, 12th Aviation Bn) clg T12 (12th Aviation Bn, Davison AAF) in ALE USB at 2123Z. (MC/SC)

7527.0: SHARK 02 (USCGC Tampa WMEC 902) wkg PANTHER with request to be notified when DOLPHIN 53 gets airborne, in USB at 2212Z. (MC/SC)

7650.0: R23484 (UH-60A) clg KGEZNG (AASF, Shelbyville, IN) in ALE USB followed by MIL-STD-188-110 transmission at 2328Z. (MC/SC)

7895.0: Link-11 data transmission at 1425Z. (MC/SC)

7903.5: NF1 (FBI, Norfolk, VA) clg RH1 (FBI, Richmond, VA) in ALE USB heard at 2349Z. (MC/SC)

8030.0: Link-11 data transmission at 2141Z. (MC/SC)

8137.0: Informal maritime chat in French-accented English, ending in "33122 APOX standing by" in USB at 0549Z. (GV/CO)

8139.0: Y78T clg T86S in Spanish for radio check, then QSY to "reserve frequency," in USB at 2100Z. (LA/IT)

8188.0: Various yachters in maritime net, talking about repairs and trip to NZ, in USB at 0532Z. (GV/CO)

8184.5: G23691 (UH-60A, 2-147 AVN) clg STPOPS (AASF, St. Paul, MN) in ALE USB at 0247Z. (MC/SC)

8301.6: SECTOR SAN JUAN passes intel from ICE to CG 2139 (HU-25) of a yola in the vicinity of Aquadilla, PR at 0154Z. (MC/SC)

8379.0: Various vessels in SITOR-A QSOs with WLO, Shipcom R., Mobile, AL on paired freq 8419.0 kHz as follows: 3FPS9, *CARNIVAL GLORY*, 11,100-ton Panama-registered passenger cruise ship w/5-digit SELCAL 70403 and abbreviated ID "GLR" at 1530Z; C6SE4, *EXPLORER OF THE SEAS*, 10,937-ton Bahamas-registered passenger/cruise shift w/long series of commands plus first 6 digits of its MMSI and abbreviated ID "EXPLR" at 2145Z; WSDK, *COAST RANGE*, 40,631-ton U.S.-registered oil products tanker w/callsign and 5-digit SELCAL 11113 at 0020Z; HBLR, *LAUSANNE*, 39,429-ton Switzerland-registered container ship w/MMSI and callsign, command "NEWS47" at 0225Z; same vessel next day w/AMVER/PR 550 mi W of Baja California, Mexico, en route to Bilbao at E end of Panama Canal for transit into the Gulf of Mexico, arrival there in 7 days, heard at 1110Z. (SJ/KY)

8380.5: Unid. vessel w/SELCAL XFCV (1860) for CBV, Chilean Navy, Valparaiso R., Chile, tried several times without success, in SITOR-A at 2350Z. (SJ/KY)

8381.0: C6QZ5, *DOLE COLOMBIA*, 30,106-ton Bahamas-registered container ship w/AMVER/PR 300 mi E of Daytona, FL sailing at 20 knots around Atlantic subtropical disturbance Andrea to home port of Port Everglades, FL, arrive at midnight, in SITOR-A at 1632Z; C6FY2, *DOLE CALIFORNIA*, 11,800-ton Bahamas-registered container ship w/AMVER/PR 150 mi S of Mobile, AL en-route to Barrios, Guatemala, arrive in 2 days, in SITOR-A at 1741Z; S6OE, *EAGLE COLUMBUS*, 107,166-ton Singapore-registered AET crude oil tanker w/MMSI and abbreviated ID "ECOL" in SITOR-A at 0632Z. (SJ/KY)

8383.5: PJFM, *BLUE MARLIN*, 76,061-ton Netherlands Antilles-registered heavy

load carrier w/MMSI and abbreviated ID "BLUE" in SITOR-A at 2329Z. (SJ/KY)

8388.0: 3FWL4, *MANHATTAN BRIDGE*, 40,934-ton Panama-registered container ship w/MMSI and abbreviated ID "MHBX," TEST command in SITOR-A at 0431Z; PJYJ, SWIFT, 32,187-ton Netherlands Antilles-registered heavy load carrier w/MMSI and callsign in SITOR-A at 0939Z; WFKW, *OVERSEAS NEW ORLEANS*, 43,644-ton U.S.-registered oil products tanker w/AMVER/FR for arrival at Calcasieu Pass, LA in SITOR-A at 1432Z, same vessel heard a day earlier on 16696.5 kHz; VRAA2, *MV KANG SHUN*, 55,500-ton Hong Kong-registered bulk carrier w/vessel name and test message in SITOR-A at 2125Z. (SJ/KY)

8389.5: JFRO, *KOJIMA*, Japan-registered patrol vessel w/BBXX format wx OBS 720 mi W of San Francisco, CA in SITOR-A at 1214Z; 3FSB4, *EVER REFINE*, 58,912-ton Panama-registered container ship w/callsign and partial BBXX wx OBS in SITOR-A at 0530Z; HOVA, *PACIFIC HONOR*, 45,800-ton Panama-registered oil products tanker w/AMVER/FR and MMSI for arrival at Los Angeles, CA, repeated 3 minutes later with corrected date and time, in SITOR-A at 0754Z. (SJ/KY)

8395.0: Unid. vessel w/apparent coded numerical traffic, very weak at 0328Z. SITOR-A. (SJ/KY)

8421.0: WLO (Mobile, AL), idling SITOR w/CW marker at 0323Z. (JK/NY)

8424.0: SVO (Olympia Radio, Greece), channel marker DE SVO in CW at 0318Z. (JK/NY)

8426.0: NMC (USCG Pt. Reyes, CA), idling SITOR w/CW marker monitored at 0317Z. (JK/NY)

8434.0: TAH (Istanbul, Turkey), idling SITOR w/CW marker at 0319Z. (JK/NY)

8551.7: CTP Lisbon, Portugal (Portuguese Navy/NATO) sending: NAWS NAWS DE CTP CTP CTP SHIP SHORE NOT AVAILABLE UFN, in RTTY at 0359Z. (JK/NY)

8764.0: NMO (USCG Honolulu) w/new Synth OM voice sending maritime weather in USB at 0620Z. (GV/CO)

8806.0: WLO robo wx w/Gulf of Mexico forecast in USB at 0502Z, also heard on parallel frequency 8788.0 (GV/CO)

8828.0: Honolulu VOLMET w/west coast wx, good levels, in USB at 0539Z. (GV/CO)

8912.0: 014FEM (FEMA WGY9014) clg TSC (Customs Service Center, Orlando, FL) in ALE USB at 1709Z. (MC/SC)

8971.0: WAFER 21 (P-3C) with SPARE GROUP 3A report to GOLDENHAWK (*USN Brunswick TSCC, ME—JK*) at 1613Z; OMNI 21 (HC-130) departing Clearwater for El Salvador, requests guard from CAMSLANT, in USB at 1857Z. (MC/SC)

8983.0: CG 2120 (HU-25) p/p via CAMSLANT to DISTRICT 5 OPS. D5 diverts them to E-City to pickup a part for a C-130 disabled on the ground at Wilmington, NC. In USB at 1840Z. (MC/SC)

8983.0: CAMSLANT wkg CG-6038 (MH-60J out of CGAS-Clearwater) for flight following, passes position as 28-27N, 82-39W, in USB at 1538Z; CAMSLANT wkg RESCUE 1501 (C-130, CGAS Elizabeth City) and assumes guard in USB at 1513Z; CAMSLANT wkg J8Z (deployed USCG HH-60J/MH-60J helicopter) which reports position as "273 deg true at 53 nmi from Benchmark" in USB at 1529Z. (ALS)

8983.0: CAMSLANT working RESCUE 2134 (USCG HU-25, CGAS Miami), multipath echo on CAMSLANT signal, passing tfc from Dist. 8, in USB at 2001Z. (JK/NY)

8992.0: LL 26 (P-3C, VP-30) p/p via Andrews HF-GCS to DUTY OFFICE, in USB at 1538Z; Elmendorf HF-GCS with test counts in USB at 1410Z. (MC/SC)

9010.0: Link-11 data transmission at 2141Z. (MC/SC)

9958.5: Unid 75/850 encrypted RTTY at good levels, at 0513Z. (GV/CO)

10051.0: New York VOLMET with aviation wx, also heard on parallel frequency 6604.0, in USB at 0512Z. (JK/NY)

10320.0: AFN Pearl Harbor, HI, low signal but heard well, in USB at 0123Z. (GV/CO)

10445.6: M8a numbers station, YL/SS 5-char groups in USB at 0233Z. (JK/NY)

10493.0: WGY914 (FEMA, Thomasville, GA) wkg unheard station in USB at 1449Z. (MC/SC)

10780.0: KING 74 (C-130, 65-0974, NY-ANG 106RQW, Gabreski AP, Long Island, NY) calling CAPE RADIO (Cape Canaveral AFS, FL) with no joy in USB at 1829Z. (ALS).

10895.0: Link-11 data transmission at 1439Z. (MC/SC)

10993.7: USCG tactical comms, CONTROL working HAWK1, saying HOMEPLATE is at 280 at 12 nautical miles, in USB at 0034Z. (GV/CO)

11000.0: RIW (Russia Naval HQ Moscow) calling Navel Vessel RGV82, good levels, in CW at 0509Z. (GV/CO)

11175.0: KING 17 via unknown HF-GCS (not hrd here), p/p to DM Metro for arrival wx at KCOS (Colorado Springs), in USB at 2108Z. (JK/NY)

11175.0: LAJES HF-GCS working ETHYL 30 in USB at 2359Z; working RANGER 30 for radio check in USB at 0010Z; working GOLD 91 (Coronet Mission tanker) for phone patch to DSN number at Shaw AFB Metro; gets wx forecast for OTBH (Al Udeid AB, Qatar) for 0145Z arrival in USB at 0013Z; ANDREWS working DAREDEVIL (E-4 or E-6); DAREDEVIL gives location as over central US, in USB at 0059Z; HF-GCS station attempting to work Navy LN 45D (P-3C, NAS Jacksonville VP-45 "Pelicans"); neither station heard the other, in USB at 1655Z; wkg BLUE 71 (Coronet Mission tanker) for pp to DSN number for McGuire AFB Metro; requests 1930Z weather for KGSB (Seymour Johnson AFB), in USB at 1720Z; HF-GCS Puerto Rico wkg REACH 6223 for wx phone patch in USB at 2340Z; wkg SUMIT 23 (C-130, #96-7323, Peterson AFB) for phone patch to DSN number for Pope AFB Metro, for wx their station at 1830Za, in USB at 1545Z; wkg SHARK 81 for phone patch to DSN number for Bangor, Maine, IAP, requests airstairs on 1730Z arrival, in USB at 1604Z; wkg SUMIT 24 (C-130 #96-7324, Peterson AFB) for phone patch to DSN number for Pope AFB Base Ops, requests to land at Pope as gas-n-go, wants 20k pounds fuel, requests 2000Z departure; gets PPR #15307BLG07, in USB at 1618Z; OFFUTT with EAM broadcasts in USB at 0535Z; LAJES wkg MADFOX 03 (P-3C, Jacksonville NAS, VP-5); then QSY to 8992 kHz, in USB at 0711Z; HF-GCS station McClellan wkg MARLIN 64 for phone patch to DSN number, interrupted by OFFUTT EAMs, in USB at 0550Z; ALLERGIC (E-4 or E-6) via HF-GCS station Ascension, phone patch into the DSN to BATCHELOR for orderwire coordination, in USB at 2310Z; ANDREWS wkg BD-870 (C-130T, Willow Grove VR-64 "Condors") for phone patch to NAS Key West BO; reports inbound, 2.5 hrs out; NAS KW agrees to remain open past their scheduled 2200 local closing, if necessary, in USB at 2325Z; OFFUTT wkg SAM 1513 (Andrews AFB 89AW acft) for radio check, in USB at 1127Z; wkg BLUE 81 (Coronet Mission tanker) for phone patch to obtain 1900Z wx at KWRI (McGuire AFB) and 2030Z wx at KGSB (Seymour Johnson AFB), in USB at 1809Z; REACH 5005" calling MAINSAIL, no joy, in USB at 1810Z; HF-GCS Station wkg AKELA 58 (Kirtland MC-130P Combat Shadow) for phone patch to Kirtland; reports 21 min out, navigator's altimeter inop; in USB at 2358Z. (ALS).

11175.0: LK 11 (P-3C, VP-26) p/p via McClellan HF-GCS to DUTY OPS with ETA, in USB at 2351Z; HAWK 21 (B-1B, 7 BW) (over Amarillo, TX) p/p via Hickam HF-GCS to HAWK OPS at Dyess AFB, in USB at 0257Z. (MC/SC)

11220.0: ANDREWS working DAREDEVIL (E-4 or E-6) for data transfer coordination in USB at 0107Z. (ALS)

11232.0: Trenton Military wkg STARGATE (JSTARS E-8C for phone patch in USB at 1720Z; Trenton Military wkg jaws 04 (MC-130P, Eglin AFB) for phone patch to DSN number for Eglin AFB "Shadow Ops" in USB at 1840Z; Trenton Military working SENTRY 32 (AWACS, Tinker AFB); rqsts wx at KTIK (Tinker AFB), in USB at 1735Z; Trenton Military wkg REACH 1013 (USAF transport a/c) for phone patch to Lajes Metro, requests wx for Lajes, in USB at 2055Z; Trenton Military passing wx forecast to SENTRY 03 (E-3 AWACS, Tinker AFB) in USB at 2211Z. (ALS)

11282.0: San Francisco ARINC w/unheard A/C in USB at 0310Z. (GV/CO)

11407.0: AFA1WP (USAF MARS Boston, MA) wkg DRAGNET U (E-3, AWACS, Tinker AFB) for phone patch to DSN number at Tinker AFB, in USB at 1634Z. (ALS)

12214.0: M8a numbers station, weak but very readable, in CW at 0309Z. (GV/CO)

12479.0: Various vessels in SITOR-A QSOs with WLO, Shipcom R., Mobile, AL on paired freq 12581.5 kHz as follows: 3FMP3, *TESEO*, 99,477-ton Panama-registered VENFLEET crude oil tanker w/AMVER/PR 140 mi SW of Kingston, Jamaica, sailing NW toward Yucatan Strait for destination Lake Charles Pilot St., LA, arrive in 3 days, hrd at 1617Z, same vessel heard here again 9 days later 140 mi S of Kingston and sailing ESE back to Puerto Jose Pilot St., Venezuela, arrive in just over a day, hrd at 1614Z; 3FGV3, *ICARO*, 99,438-ton Panama-registered VENFLEET crude oil tanker W/AMVER/DR for course change of REDUCED SPEED DUE HEAVY WEATHER (through Atlantic subtropical storm Andrea), 5-digit SELCAL 42049, INMARSAT-C ID and abbreviated ID "ICAR." en route to Delaware Pilot St., arrive in 2 days, hrd at 1730Z; WCZ7837, *DELTA MARINER*, 3,950-ton US-registered Ro-Ro cargo ship w/AMVER/SP including INMARSAT ID and MMSI, for departure from Portland, ME w/detailed 9-leg route down U.S. east coast, through the Bahamas, between Cuba and Haiti, past Jamaica and on to Cristobal, Panama for Canal transit, to arrive there in 8 days, hrd at 2005Z; same vessel heard again this freq 14 days later w/AMVER/PR in the Pacific 40 mi W of Lazaro Cardenas, Mexico en route to Longview, WA, 55 mi inland on the Columbia R. to arrive in 9 days, hrd at 1930Z; ZCSP8, *STOLT INSPIRATION*, 37,205-ton Cayman Islands-registered chemical/oil products tanker w/TEST command, vessel name and callsign at 2030Z; C6FR7, *TROPICAL MORN*, 11,979-ton Bahamas-registered refrigerated cargo ship w/AMVER/PR 150 mi NE of San Juan, PR en-route to Lisbon, Portugal, to arrive in 8 days, hrd at 2040Z; VRVY8, *FEDERAL OSHIMA*, 35,750-ton Hong Kong-registered bulk carrier w/NBDP test in SITOR-A at 2122Z; 3FWA9, *GLOBAL SPIRIT*, 45,303-ton Panama-registered chemical tanker w/monthly NBDP test at 2222Z. (SJ/KY)

12481.0: Unid. vessel w/SELCAL XFCV (1860) for Chilean Navy, Valparaiso R., Chile at 2358Z, no contact. SITOR-A. (SJ/KY)

12482.0: 9V6486, *TAPIOLA*, 30,464-ton Singapore-registered vehicles carrier w/AMVER/SP departing Savannah, GA en route to Manzanillo, Mexico via the Panama Canal, arrive there first in 4 days and abbreviated ID "TPLA" in SITOR-A at 1603Z; 3FXI3, *HERO*, 99,469-ton Panama-registered VENFLEET crude oil tanker w/AMVER/PR 100 mi N of Colombia coast sailing WNW to destination Lake Charles Pilot Stn, LA, to arrive in 4 days in SITOR-A at 1635Z; 3FGV3, *ICARO*, 99,438-ton Panama-registered VENFLEET crude oil tanker w/AMVER/PR central Gulf of Mexico in SITOR-A at 1815Z; 3FAH7, *RUBIN ARTEMIS*, 151,982-ton Panama-registered bulk carrier w/AMVER/FR for arrival at Puerto Prodeco, Colombia, in SITOR-A at 2016Z. (SJ/KY)

12482.5: Unid. vessel w/SELCAL XVSC (1096) at 0307Z for USCG, Apra Harbor, Guam, no contact. SITOR-A. (SJ/KY)

12486.5: 3FHB8, *AQUARIUS ACE*, 14,353-ton Panama-registered vehicles carrier w/AMVER/SP for departure from San Diego, CA, MMSI and abbreviated ID "AQUA" in SITOR-A at 2324Z; H3BZ, *PROCYON LEADER*, 17,297-ton Panama-registered vehicles carrier w/AMVER/PR en route from Los Angeles, CA to Nagoya, Japan, to arrive in 13 days, w/MMSI, INMARSAT-C ID and abbreviated ID "PLDR"in SITOR-A at 0150Z. (SJ/KY)

12490.0: LADF6, *CLIPPER POSH*, 46,316-ton Norway-registered LPG tanker w/callsign, vessel name and very weak traffic in SITOR=A at 1523Z; Unid. vessel w/date and time, idled a couple of minutes and then off, good signal in SITOR-B at 1646Z; ELPQ9, *MAPLE ACE II*, 15,361-ton Liberia-registered vehicles carrier w/5-digit SELCAL 24571, callsign and HELP command in SITOR-A at 1723Z; WCAH, *T/S STATE OF MAINE*, 10,100-ton U.S.-registered Merchant Marine training ship operated by the Maine Maritime Academy w/MMSI and callsign in SITOR-A at 2220Z. (SJ/KY)

12492.5: XCTO, *B.T TOLTECA*, 44,690-ton Mexico-registered PEMEX oil products tanker w/lengthy traffic in SS re "Movimento de Personal," crew info and chitchat to another vessel on 12595.0 kHz, in SITOR-A at 0030Z. (SJ/KY)

12498.0: Unid. vessel w/SELCAL QVXY (2017) for XSQ, Guangzhou R., China, good signal here, but no contact, in SITOR-A at 2041Z. (SJ/KY)

12510.5: Unid. vessel w/SELCAL QVXY (2017) for XSQ, Guangzhou R., China, good signal here, but no contact, in SITOR-A at 2128Z; same again but weaker a few days later at 2022Z. (SJ/KY)

12557.0: Unid. vessel w/SELCAL MKCV (4360) for TAH, Istanbul R., Turkey, good signal here, but no contact, in SITOR-A at 1838Z. (SJ/KY)

12595.0: Unid. vessel in Spanish chitchat QSO w/XCTO, *B.T. TOLTECA* on 12492.5 kHz, in SITOR-A at 0032Z. (SJ/KY)

12788.0: NMN (USCG Chesapeake, VA) w/new synth OM voice sending maritime wx, deep fades, in USB at 0346Z. (GV/CO)

13927.0: REACH 9433 morale p/p via AFA3HS (USAF MARS, Leawood, KS) to Florida and Virginia, in USB at 1634Z; AFA1EN wkg NAVY JV 829 (C-40A, VR-58) in USB at 2030Z. (MC/SC)

13927.0: AFA1EN (USAF MARS Indiana) wkg SLAYR 01 (spelled), over Lubbock TX, for M&W phone patch in USB at 1530Z; BONE 01 (B-1B, Ellsworth AFB 28BW) via a USAF MARS operator, phone patch through DSN to RAYMOND 33 (Ellsworth AFB); passes msg with departure time out of JFK at 1413Z and ETA to Ellsworth of 1930Z, in USB at 1429Z; AFA3HS (USAF MARS, Kansas City) wkg DARK 41 (Dyess AFB B-1B Bomber), just south of Colorado Springs, for radio check in USB at 1447Z; AFA3HS wkg REACH 9170 (McChord C-17A) for M&W phone patch to Pennsylvania in USB at 1500Z; AFA6PF (USAF MARS, Los Angeles) wkg BLUE 31 (Coronet Mission tanker) w/DSN phone patch re Tinker AFB wx at 1730Z, also Holloman AFB wx, in USB at 1525Z; AFA6AY (USAF MARS, California) wkg WOODEN 71 (Coronet West flight) for phone patch in USB at 2247Z; CODY 01, phone patch via a USAF MARS operator to OFFUTT CP, passes tail number 6159, then msg re arrival and dep to KADW, in USB at 1519Z; AFA6PF wkg RAMA 01 for M & W phone patch to Oklahoma; tells party he is flying in the B-1, returning to US; now over New England, in USB at 1649Z; AFA6AY wkg REACH 6223 (poss MC-130P 66-0223) in USB monitored at 2319Z. (ALS).

14606.0: AFA6PF (USAF MARS, Los Angeles, CA) wkg DRAGNET U (E-3, AWACS, Tinker AFB) for phone patch to DSN number for Tinker AFB, DRAGNET U requests lower freq; they QSY to 11407.0, in USB at 1630Z. (ALS).

15016.0: Andrews HF-GCS with 54-char EAM, simulcast on several other freqs, in USB at 1903Z. (JK/NY)

16685.5: 9VHG, *EAGLE BALTIMORE*, 99,405-ton Singapore-registered AET crude oil tanker w/AMVER/PR en-route from Cape Breton Pilot St., Nova Scotia to Ambrose Pilot St. near NYC, to arrive in 2 days, MMSI and abbreviated ID "EBAL" in SITOR-A at 1612Z. (SJ/KY)

16687.5: Unid. vessel w/SELCAL XFCV (1860) for CBV, Chilean Navy, Valparaiso R., Chile in SITOR-A at 2105Z. (SJ/KY)

16693.0: VRBF6, *EXCELLENT ACE*, 18,881-ton Hong Kong-registered vehicles carrier w/MMSI and abbreviated ID "EXLA" in SITOR-A at 1912Z; 3EBQ6, *DYNA VOYAGER*, 54,390-ton Panama-registered wood chips carrier w/AMVER/PR 200 mi WSW of Acapulco, Mexico and sailing NW, MMSI and abbreviated ID "DNVG" in SITOR-A at 2056Z. (SJ/KY)

16696.5: WFKW, *OVERSEAS NEW ORLEANS*, 43,644-ton U.S.-registered oil products tanker 260 mi SSE of New Orleans, LA w/BBXX coded wx OBS to OBS METEO WASH DC in SITOR-A at 1815Z. (SJ/KY)

16707.5: Unid. vessel w/SELCAL XYFV (1780) for SVO, Olympia R., Athens, Greece, no contact, in SITOR-A at 1556Z. (SJ/KY)

16747.0: Unid. vessel w/long quotation from the New Testament in English followed by EE news and sports, mostly about the Philippines, good signal but w/deep fades, in SITOR-B at 1945Z. (SJ/KY)

16762.0: Unid. vessel w/SELCAL QVXY (2017) for XSQ, Guangzhou R., China, good signal here, but no contact, in SITOR-A at 2025Z. (SJ/KY)

16774.0: Unid. vessel w/SELCAL QVXV (2010) for XSG, Shanghai R., China, good signal here, no contact; in SITOR-A at 0047Z.

View Glossary of Utility Terms and Acronyms on our website: www.popular-communications.com

by Gerry L. Dexter, gdex@genevaonline.com

Bhutan Beckons, CKFX Fades, And Radio Africa Improves Coverage

Word that the Bhutan Broadcasting Service is on the air—and actually being heard by people—should have even inactive DXers blowing the dust off their receivers! BBS has been on the air for several years, all the time managing to elude thousands of attempts to hear it. Now this remote Himalayan kingdom has become a prime target thanks to a new 100-kW transmitter donated by Mainland China.

It's on the air on 6035 operating from 0100 to 0630 and 0830 to 1600, but is actually being heard as early as 0000 sign on. However, the early logs have all been by foreign-based DXers. We in North America may be better off taking our shots in the morning, say around local sunrise.

Time to say goodbye to another nice DX target. Little CKFX on 6080 is soon to be officially discontinued. It's been off the air for years after having provided a relay of mediumwave CKWX, Vancouver, BC, for decades past but now the license is to be discontinued. 6080 is currently getting use by Sackville, relaying Radio Prague in English from 0330 to 0400.

Radio Free Chosun is another new addition to the opposition broadcasters aiming at North Korea. This one goes out via Taiwan from 2000 to 2030 using 9795.

The recently expanded broadcasts of SW Radio Africa (see last month's column) have already undergone a change. 12035, originally beamed from the Rampisham site in Great Britain, has been switched to Kvitsoy (Norway), which formerly carried the now killed-off Radio Norway as well as Danmarks Radio. The station reports much improved coverage after making the change.

A new service has now been paired with those Star Radio broadcasts originating from Liberia. Cotton Tree News follows Star Radio on 9525 also via Ascension after the 0700 broadcast ends. CTN is a separate entity, produced by a college journalism class in Freetown, Sierra Leone. Two or three non-governmental organizations (NGOs) seem to be backing this new English broadcast. Don't be surprised if it doesn't last very long.

Bangladesh Betar

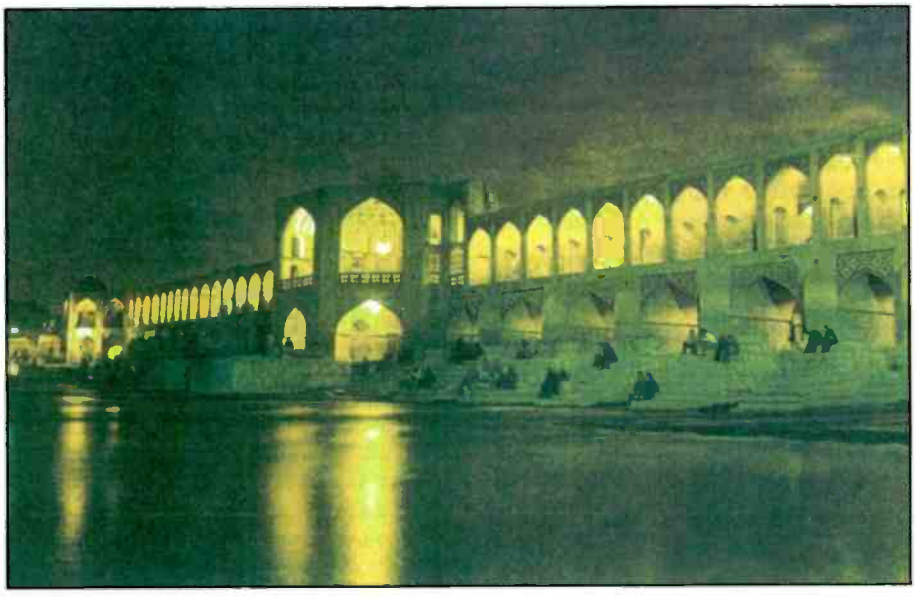
বাংলাদেশ বেতার

"Ahmed Quamruzzaman"
<rrc@dhaka.net>

Bangladesh Betar (Radio Bangladesh to us) emailed a QSL to Rich D'Angelo.

That new Zimbabwe station should be on the air by now. Originally to be called Shortwave 24/7, it's now been named the Voice of Zimbabwe and will carry an all-news format. The early publicity made much of the brand new studios but did not mention any frequencies so, even at this apparent late date, we still don't know where to look for this one. Radio Zimbabwe has been active recently on 3396, so if the Voice of Zimbabwe shows up there it will trigger shrugs from most of us. Other past frequencies used are 3306, 4828, and 6045. Zimbabwe is virtually broke so our friends in Iran are paying for this new propaganda effort. I predict this station isn't going to come in with a speaker-shaking signal.

Don't get your hopes up, but there's word that Botswana is in the midst of a long-term plan to provide country-covering broadcasting, largely by FM stations. What little mention was made of shortwave seemed to say that their facility was worn out and, although interested in the medium, repairs were not worth doing, and imply they would wait for digital methods to come into widespread use before taking any steps toward reinstating high-frequency use. Reaction from the "GIG" Corner: Pfui!



Our pals in Iran replied with this card. (Thanks Rich D'Angelo)

Cupid Radio, a Dutch pirate, sent D'Angelo this card for his reception on 15070.

Radio Free Asia has issued a new series of QSL cards promoting youth, democracy, and freedom, which were designed by the children of RFA employees. The new series began in May with a new issue released each calendar month.

Last month, in reporting Deutsche Welle's discontinued use of the Wertachtal site I noted that the only remaining active in-country site was Nauen. New info indicates that now Nauen is also a naught! So "The Voice" of Germany no longer even transmits from Germany. How do you say "good grief!" in German?

Reader Logs

Remember, your shortwave broadcast station logs are always welcome. But *please* be sure to double or triple space between the items, list each one by country and include your last name and state abbreviation after each. Also much wanted are spare QSLs you don't need returned, station schedules, brochures, pennants, station photos, and anything else you think would be of interest. And how about sending a picture of you at your listening post? Your 15 minutes of fame await!

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, 13720 at 2000 with ID and news. (Strawman, IA)

ANGUILLA—University Network, 6090 at 2315 with Gene Scott preaching. Also 11775 at 1745. (Maxant, WV) 1855 with an 800 number for donations. (Charlton, ON)

ANTARCTICA—Radio Nacional Arcangel, LRA36, 15476 at 2035 with woman hosting music pgm in SS to 2055 fade out. (Strawman, IA)

ARGENTINA—RAE, 11710 at 0234 in EE with music and woman host. (MacKenzie, CA) In FF at 0300 with IS, music and multiple IDs in different languages. (Parker, PA) 15345 in SS at 1805. (Maxant, WV) 1900. (Charlton, ON)

ASCENSION IS.—BBC Atlantic Relay, 7160 with news and sports at 0426 and 15105 in FF at 1815. (MacKenzie, CA)

AUSTRALIA—Radio Australia, 9580 with news at 1236. (Davis, IN) 9580//9590-Shepparton at 1155. (Charlton, ON) 1320. Also 9590 on mining there at 2220, 15515 on local elections at 2215 and 17785 at 2320. (Maxant, WV) 11660 in CC at 1413, 11880 at 1852, 13630 at 2242, 17785 at 2245 and 17795 at 2320, all from Shepparton. (MacKenzie, CA) 17715 to Pacific at 0030, //17795. (Parker, PA)

CVC International, 13635-Darwin at 1253 and 15715 via Wertachtal heard at 1524. (Charlton, ON)

VL8T Northern Territory Service, Tennant Creek, 2325 kHz at 1058 with an interview, ABC News at top of the hour. (Taylor, WI) Live sports at 1150. (Brossell, WI)

AUSTRIA—Radio Austria International, 6155 in GG at 0420 with classical music. (Wood, TN) 0430. Also 9865 with multi-lingual ID at 0058. The frequency was taken over by Radio Farda at 0100. (Parker, PA) 13730 with music monitored at 1309. (Charlton, ON) 13775 with news items at 1505. (Maxant, WV)

BANGLADESH—Bangladesh Betar 7185 at 1235 with something about music around the world. Severe ARO interference. (Maxant, WV)

BELARUS—Radio Belarus, 7105 at 2040 with news, features and light instrumentals, //7390. Occasional ham and RTTY QRM. (Anderson, PA)

BOLIVIA—Radio Malku, Uyuni, 4796.4 at 0012 with flute, man in SS, rustic vocals, ID. (D'Angelo, PA)

Radio Mosoj Chaski, Cochabamba, 3310 at 0140 with local music, Quechua talk. Off at 0201. (Alexander, PA)

Radio Santa Cruz, Santa Cruz, 6134.8 at 0935 with local music, IDs, talks in SS and Aymara. (Alexander, PA)

Radio Yura, Yura, 4716.7 at 0130 with local music, SS anmts, ID, march-type music. (Alexander, PA)

BONAIRE—Radio Netherlands Relay, 9625 at 0710. (Maxant, WV) 11675 with mailbag pgm heard at 1135. (Fraser, ME)

BOTSWANA—VOA Relay, 12080 in FF at 1931 and 15580 in EE heard at 1852. (Charlton, ON)

BRAZIL—(All in PP) Radio Clube do Para, Belem, 4885 with annor, echo effects, ID and anmts from 0351 tune. (Wood, TN)

Radio Senado, Brasilia, 5990 at 0955 with Brazilian music, ID at 1000. (Alexander, PA)

Radio Guaruja Paulista (p) Presidente Prudente, 5045 at 0614 with boisterous talk. Weak. (Parker, PA)

Radio Inconfidencia, Belo Horizonte, 6010 at 0655. (Maxant, WV)

Radio Bandeirantes, Sao Paulo, 6089.9 at 0605 with local music, talk, ads, anmts. University Network was off. (Alexander, PA) 11925 heard at 0546. (Parker, PA)

Radio Nacional, Macapa, 4915 with talks at 0201. (Brossell, WI) Music, ads, ID at 0556. (Parker, PA)

Radio Difusora, Acreana, 4885 at 0427 with ID and songs. (Brossell, WI)

Radio Brazil Central, Goiania, 1815 with talks at 0233. (Brossell, WI)

Radio Nacional Amazonia, Brasilia, 11780 with anmts, echo effects at 0213. (Parker, PA)

Radio Aparecida, Aparecida, 9630 with talks at 0320. (Parker, PA)

Radio Marumby, Florinapolis, 9665 with religious music and sermon at 2310, //11750. (Alexander, PA) 9665 with solid ID at 0455 and 11749.8 with woman annor and music at 0533. (Parker, PA)

Radio Educacao Rural, Campo Grande, 4755 with talks heard at 0554. (Parker, PA)

Radio Tupi, Curitiba, 11765 at 0543. (Parker, PA)

BULGARIA—Radio Bulgaria, 7400 on private companies there at 2220. (Brossell, WI) 0241. (Weronka, NC) 9400 in RR at 0337. (MacKenzie, CA) 9400 in SS at 0140 and

Help Wanted

The "Global Information Guide" consistently presents more shortwave broadcast loggings than any other monthly SW publication! (Some 425 shortwave broadcast loggings were processed this month!*) Why not join your fellow SWLs, let us know what you're hearing, and also become eligible for our monthly shortwave book prize! Send your logs to Gerry Dexter, "Global Information Guide," 213 Forest St., Lake Geneva, WI 53147. Or e-mail them to gdex@genevaonline.com (please see the column text for basic formatting tips.) Come join the party—we look forward to hearing from you!

**Not all logs get used; there are usually a few which are obviously inaccurate, unclear, or lack a time or frequency.*

13600 in RR at 1208. (Parker, PA) 15700 with DX pgm at 1145. (Fraser, ME) 1336 in BB. (Charlton, ON)

Radio Varna, 9900 at 2052 with pop vocals, 2100 with 5 + 1 time pips, ID, orchestral anthem and news in BB. (D'Angelo, PA) (Sundays/Mondays UTC—gld)

BURKINA FASO—Radio Burkina, 5030 at 0529 sign on with anthem, FF talk, and African folk music. Weak under Gene Scott. (Alexander, PA) 2225 with folk and anmts in FF. (Brossell, WI) 2325 in FF with music pgm to close at 0001. (D'Angelo, PA)

CANADA—Radio Canada Int. 4877.5 sub-harmonic of 9755 weak in SS at 0247 to 0259 close. (D'Angelo, PA) 0250–0259, thanks D'Angelo tip. (Alexander, PA) 6100 at 0030 with song requests, 9515 in FF at 1440. (Maxant, WV) 15235 at 1846. (MacKenzie, CA) 1938. (Wood, TN)

CBC Northern Service, 9625 at 1750 in local Inuit language 0414 with bossa novas. (Wood, TN) 0458 with BBCWS relay. Off at 0507. (Parker, PA)

CHU, Ottawa, time station, 7335 at 0250 with QRM from Vatican until 0300. (Maxant, WV) 0300. (Weronka, NC)

CHILE—CBC-La Voz, 11665 in SS at 0340, 11970 in SS at 0313 and 15410 in PP at 2356. (MacKenzie, CA) 17680 in SS at 1843. (Charlton, ON) 11970 in SS at 0230 and 17680 in SS at 0028. (Parker, PA)

Radio Esperanza, Temuco, 6089.9 at 0805 with SS religious sermon and music. Anguilla was off. (Alexander, PA)

CHINA—China Radio International, 5960 in CC via Canada at 0004, 6020 via Albania at 0002, 9570 via Cuba in CC at 1203, 9845-Beijing in CC at 1221, 11695 via Albania in FF at 1924 and 15220 via Canada in CC at 1509. (Charlton, ON) 6020 via Albania in CC at 0220, 6080 via Sackville at 0415, 9570 via Albania in CC at 0245, 11935-Shijazhuang in RR at 1200, 13760-Kashi at 1600 and 13680-Shijazhuang in RR at 1607. (Parker, PA) 6040 via Canada at 1015. (Alexander, PA) 9665 via Brazil in SS at 0345, 9790 via Cuba at 0337, 9690 via Spain at 0332, 11895 in CC at 1837 and 13650 in CC at 0347. (MacKenzie, CA) 9760-Kashi at 1331 with the old "East is Red" IS and historical ID sequence to the modern CRI ID. (Taylor, WI) 9790 via Cuba at 0341. (Wood, TN) 13675 via Canada in CC at 15120. (Maxant, WV)

Voice of the Strait, Fuzhou, 7280 in Mandarin at 1130 with headlines or anmts separated by music bridges. (Taylor, WI) 1249 in CC. (Brossell, WI)

Xinjiang PBS, Urumqi, 7310 in CC at 1315. (Brossell, WI)

Firedrake Music Jammer, 6160 against VOA at 1308 and 7445 against Radio Taiwan Int. at 1312. (Brossell, WI) 9540, //9865 at 1825 and 13625 at 1758 against RFA, //13670 and 15510. (MacKenzie, CA)

COLOMBIA—La Voz de su Concencia, Puerto Lleras, 6009.4 at 0510 with SS religious talk. Frequency was a little lower than usual. (Alexander, PA)


Voice of America

IBB São Tomé Transmitting Station
São Tomé Island
Democratic Republic of São Tomé e Príncipe
WEST AFRICA

VERIFICATION OF RECEPTION

Mr. Richard D'Angelo
2216 Burkey Drive
Wyomissing, PA 19610-1553

Dear Mr. D'Angelo,

This letter confirms your reception of our transmission on 7290 kilohertz on October 18, 2002 at 0307 to 0335 UTC. Your written report accurately reflects our programming during that period.

The transmitter you heard is a 100,000 watts Thomcast. The antenna that was in use is a TCI dipole curtain.

Happy DXing,

Charles L. Lewis
Transmitting Station Manager
IBB São Tomé Transmitting Station

We do not normally QSL from this station; we forward QSL requests to our headquarters in Washington, DC.

You may see photographs of the station in personal photo albums I have at http://groups.msn.com/ibbs and http://pictures.yahoo.com/ibbs1999/. The former gives more information, but the latter has a better quality display. The latter is best viewed by selecting the site's slide show mode and setting your browser to full screen.

The VOA confirmed reception of its Sao Tome relay for D'Angelo.

La Voz del Guaviare, San Jose de Guaviare, 6035, at 2320 with news in SS, various male annors, some from remote locations. 5+1 time pips at 2330, ad strings, ID. (D'Angelo, PA)

CROATIA—Voice of Croatia, 9925 via Germany in Croatian at 0247. (Parker, PA) SS at 0254. (MacKenzie, CA) HRT Croatian Radio home service, 6165 in Croatian at 2215. (Brossell, WI)

CUBA—Radio Havana, 6000 at 0255. (Weronka, NC) 6000 at 0350, 6060 with DX pgm at 0555, 6180 at 0553, 9550 at 0613 and 15190 in SS at 1557. (Parker, PA) 6060 at 0635 and 13750 in SS at 1420. (Maxant, WV) 6180 at 0443. (Wood, TN) 9570 at 0020. (Fraser, ME) 11705 in SS at 2248. (MacKenzie, CA) 12000 in SS at 1350. (Charlton, ON)

Radio Rebelde, 5025 in SS at 0614. (Parker, PA) 9600 in SS monitored at 1154. (Charlton, ON)

CZECH REPUBLIC—Radio Prague, 5930 in Czech at 0208, 9445 in Czech at 0139 and in RR at 0419. (Parker, PA) 7345 at 0015 on Prague airport reaching 70 years. (Fraser, ME) 9955 on diets at 1010. (Maxant, WV) (*This is via WMRI-Miami.—gld*)

ECUADOR—Radio Chaskis, Otavalo, (t) 4909.2 at 0100 with local music, SS anmts. (Alexander, PA)

Radio Quito, Quito, 4918.9 at 0110 with local music, SS ballads, ads, jingles, IDs. Very irregular. Stronger at 0400. (Alexander, PA)

HCJB, 6050 in listed Cofan at 1115. (Taylor, WI) 9745 in SS at 0348. (Parker, PA) 9325. Also 9780 in High German at 0320, 12000 in SS at 2224 and 12040 in Low German at 2230 sign on. (MacKenzie, CA) 11960 in SS at 1430. (Maxant, WV) 15295 in PP at 1758. (Charlton, ON)

EGYPT—Radio Cairo/Egyptian Radio, 7270 at 0310 with low modulation, 9990 at 2120 on utilities, 11740 with local music at 1755. (Maxant, WV) 9990 at 2200 with Middle East news. (Fraser, ME) 12050 in AA at 1804. (Charlton, ON) 2237. (MacKenzie, CA)

ENGLAND—BBC, 5975 at 2220 and 17830 at 1435. (Maxant, WV) 6005 via South Africa at 0346, 9410 via Cyprus at 1605, 7120 via Meyerton at 0452, 7180 with ID at 0100, 7160 via Ascension at 0458. Also 12095-

Rampisham at 2115, 15245-Wooferton in RR at 1713, 15485-Skelton to abrupt close at 1800 and 17615 via Thailand at 0020. (Parker, PA) 6110 via Thailand in Indonesian at 1310, 7330 via Vladivostok in CC at 1307, 9915 via Cyprus in AA at 0510 and 11895 via Singapore at 1239. (Brossell, WI) 12095 via Russia at 1248, 15180-Rampisham in AA at 1505, 15245-Wooferton in RR at 1514 and 15400 via Ascension at 1949. (Charlton, ON) 15360 via Singapore monitored at 0012. (MacKenzie, CA)

EQUATORIAL GUINEA—Radio Nacional, Bata, 5005 in SS at 2227. (Brossell, WI) 2240 in SS with continuous vocals, ID 2254, long orchestral anthem and off at 2259. (D'Angelo, PA)

Radio Africa, Bata, 15190 with EE religious pgms at 1105, IDs. Weak with RHC in SS co-channel. (Alexander, PA)

ERITREA—Voice of Broad Masses of Eritrea, 7090 at 0358 with local language at 0401, HoA music. Ex-7100. (Alexander, PA)

ETHIOPIA—Radio Ethiopia, 9704.2 monitored at 0354 with HoA music, woman in Amharic and ID at 0359, music fanfare, ID by man and news. (D'Angelo, PA)

Radio Fana, 7210 at 0257 with IS and sign on, talk in local language, HoA music. Covered by BBC IS at 0258. (Alexander, PA)

FRANCE—Radio France International, 7135-Issoudun in FF at 0456, 13640 via French Guiana in FF at 1140 and 17525 in FF at 1123. (Parker, PA) 7135 in FF at 0430, 9790 in FF at 0520 and 15300 in FF at 1822. (MacKenzie, CA) 11705-Issoudun in FF at 1927 and 15275 via Ascension in FF at 1216. (Charlton, ON)

GABON—Africa Number One, 9580 in FF at 0533. (MacKenzie, CA) 0620. (Parker, PA) 17630 in FF at 1526. (Charlton, ON)

Radio Gabon, 4777 at 0501 sign on with last part of national anthem and into FF talk, ID. (Alexander, PA)

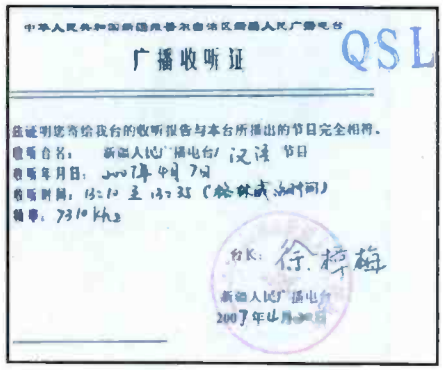
African Music Jammer, 17665 at 1425 with continuous African music. Thought to be against Swat al Amal to Libya but it remained on for a full hour after that broadcast ended. (Alexander, PA)

GERMANY—Deutsche Welle, 6075 in GG at 0411, 7105-Nauen in RR at 0318, 9430 via Sri Lanka in GG at 0127, 9545-Nauen in RR at 0445 and 9700 via Rwanda at 0503. (Parker, PA) 7130 at 0045. (Maxant, WV) 7245 via Rwanda at 0420, //7225 and 15445. Also 9825 via Rwanda in GG at 0332. (Mackenzie, CA) 15275 via Rwanda in GG at 1914. (Charlton, ON)

GREECE—Voice of Greece, 7475 at 0046 and 9420 at 0227. (Parker, PA) 9935 at 1225 in Greek. Monday bests are in EE. Also 15630 at 1310. (Maxant, WV) 9420 at 0345 and 15630 at 1845. (MacKenzie, CA) 15630 at 1854. (Charlton, ON) (*all in Greek—gld*)

Radiofonikos Stathmos Makedonias, 7450 in Greek at 2220. (Brossell, WI)

GUATEMALA—Radio Cultura Coatan, San Sebastian, 4780 with SS gospel music at 1105. (Maxant, WV)



Xinjiang Peoples Broadcasting Station in Urumqi, China, verified its 7310 broadcast (direct!) for Bob Brossell in Wisconsin.

Radio Verdad, Chimquimula, 4052.5 at 0224 with soft religious music. (Brossell, WI)

GUYANA—Voice of Guyana, 3291 with gospel music at 0640. (Maxant, WV)

HONDURAS—Radio Missiones Intl, 3340 with SS talks at 0204. (Brossell, WI)

ICELAND—Rikisutavarpid, 12115 at 2259 with woman hosting phone calls interviews in II. Was on prior to listed 2300 sign on and off earlier (2322) than listed. (D'Angelo, PA) (*This was supposed to have left SW by now.—gld*)

INDIA—All India Radio, 9425-Bangaluru at 1319 with sitar IS, ID at 1320 in presumed Hindi, 9820-Panaji (Goa) in an Asian language at 1335. (Brossell, WI) 10330 in HH at 0025, 11620 with Indian music at 1750. (Maxant, WV) 11985 (p) in Kannada at 0228. (Taylor, WI) 11620-Aligarh at 1904 and 13605-Bangaluru at 1902. (Charlton, ON) 11620 at 2205. (Fraser, ME) 15050-Delhi in listed Sinhalese at 1332. (Strawman, IA)

INDONESIA—Voice of Indonesia, 9525 with woman in II heard at 1322. (Brossell, WI)

RRI—Pontianak, 3976 with woman in II at 1200. (Barton, AZ)

IRAN—VOIRI, 9495 with Voice of Justice program to abrupt close at 0230. Also 15085 in RR at 1815 (Parker, PA) 9875-Kalamabad at 0225 talking about the US. (Weronka, NC) 15150 in AA at 1502. (Charlton, ON)

ISRAEL—Kol Israel, 6280 at 0438 and 7545 in HH at 2225. (Brossell, WI) 9345 in HH at 0120. (Parker, PA) 11590 at 1905. (Fraser, ME) 11590 at 0328 and 13675 in HH at 1803. (MacKenzie, CA) 11590 in FF at 1933 and 15760 in HH heard at 1528. (Charlton, ON)

Galei Zahal, 6973 in HH at 0309. (Parker, PA) 2305 in HH. (Wood, TN) 15790.2v in HH at 2135 drifting, as is 6973. (Alexander, PA)

ITALY—Radio Italia, 6110 in II at 0418. (Parker, PA) 11800 in II at 2245 and 15380 in II at 1833, //17780. (MacKenzie, CA) 11800 in II at 0040. (Maxant, WV) 15280 in II at 1400, //17780. (Fraser, ME)

JAPAN—Radio Japan/NHK World, 5975 via Rampisham at 0528, 6110 via Sackville at 0503 and 11790 via Gabon in Swedish at 0550. (Parker, PA) 6120 via Canada at 1020. (Alexander, PA) 6145 via Sackville at 0008, 11705 via Sackville in JJ at 1455 and 15355 via Gabon in JJ at 1844. (Charlton, ON) 6145 via Sackville at 0045, 9535 at 1735. (Maxant, WV) 6190 at 1500. (Barton, AZ) 7115 in JJ at 2210. (Brossell, WI) 11935 in JJ at 0318 and 17605 in SS heard at 2332. (MacKenzie, CA)

Radio Nikkei, 9595 in JJ at 0530. (MacKenzie, CA)

JORDAN—Radio Jordan, 11690 with local FM relay heard at 1720. (Maxant, WV)

KUWAIT—Radio Kuwait, 9855 in AA at 2105. (Maxant, WV) 15505 in AA at 1800. (Charlton, ON) 1840. (MacKenzie, CA) 1928, in AA and seemingly with a Christian religious program. (Wood, TN)

LATVIA—Latvia Today, (t) 9290 at 0845 but too weak for any details. (Alexander, PA)

LIBYA—Radio Jamahiriya/Voice of Africa, 17725 back on this frequency for EE at 1400–1600, ex-21695. Poor and also poor on //17870. (Alexander, PA) (*Sites for this are now in question. Some are now direct, possibly even all of them.—gld*)

LIBERIA—Star Radio, 9525 via Ascension at 0700 sign on with talk in vernacular and EE, IDs, local music. At 0735 into Cotton Tree pgm from Sierra Leone in EE and news in local language at 0740. (Alexander, PA) 0745. (Maxant, WV) 0831 with ID by woman. No Cotton Tree at half past. (Taylor, WI)

LITHUANIA—Radio Vilnius, 9875 at 0040. (Maxant, WV)

MALI—Radio TV du Mali, 4835 in FF with local music at 0611. (Parker, PA) 2317 to 0001 close in FF. (D'Angelo, PA)

MEXICO—Radio Educacion, 6185 in SS at 0650. (Maxant, WV)

MOROCCO—Radio Medi Un, 9575 in FF monitored at 0535. (MacKenzie, CA)

This Month's Winner

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

Our winner this month is **Mark Taylor of Madison, Wisconsin**. In addition to the many fine logs he submits here each month, Mark edits the weekly *NASWA Flash Sheet*, which is available on line free to members of the North American Shortwave Association. Mark receives a really neat Radio Free Asia coffee mug as our thanks for his steadfast support!

Remember RCI's popular Maple Leaf Mailbag program? Jack Linonis in Pennsylvania got this special QSL a couple of years ago.

RTV Marocaine, 11920 with call-in program in AA at 0410. (Parker, PA) 15345 in AA at 1847. (Charlton, ON) 1941. (Wood, TN) 2010. (Maxant, WV)

NEW ZEALAND—Radio New Zealand Int., 6095 with news item at 1000, 9890 with discussion at 1215, 11725 on elections at 1755 and 15720 with North Island weather at 2215. (Maxant, WV) 9870 on sports ticket prices at 1223. (Charlton, ON)

NETHERLANDS—Radio Netherlands, 6015 in DD at 0539. (Parker, PA) 11655 via Madagascar at 1942 and 15595 via Madagascar at 1519. (Charlton, ON) 12080 via Madagascar with news at 1403. (Brossell, WI) 17810 at 2030. (Maxant, WV)

NIGER—La Voix du Sahel, 9705 in FF at 2010. (Maxant, WV)

NIGERIA—Radio Nigeria, Kaduna, 4770 with Afro-pops at 0420. (Brossell, WI) 6089.5 to 2300 close with folk music and anthem at sign off. Covered by Anguilla at 2207. (Alexander, PA)

Voice of Nigeria, 7255 to 2300 with FF talk, Afropops, into listed Hausa at 2200, off with national anthem at 2258. (Alexander, PA) 15120 at 1701 with news, ID. (D'Angelo, PA) 1815 on religious parties there. (Maxant, WV) 1933. (Charlton, ON)

NORTH KOREA—Voice of Korea, 9345 at 0343 and 15180 in FF at 0349. (MacKenzie, CA) 11710 on Korean history at 1020. (Alexander, PA) Classical music at 1342. (Strawman, IA) 15100 in CC at 0047 and 15180 at 0112. (Parker, PA) 0100 opening English, //13760. (Alexander, PA)

KCBS—9325 in KK at 1200 sign on, //9345. (Taylor, WI)

NORTHERN MARIANAS—KFBS, Saipan, 9465 in RR at 1427. (Brossell, WI)

OPPOSSITION—Denge Mesopotamia (Iran), 11530 via Moldova in Kurdish at 1246. (Taylor, WI)

Sudan Radio Service (Sudan), 15575 at 1520 with Sudanese music. (Maxant, WV)

Radio Okapi (Congo), 11690 via South Africa in FF at 0525. (Parker, PA)

Radio Marti (Cuba), 7405-Greenville in SS at 0300. (Parker, PA)

Radio Nacional Saharaui (Morocco) 6300 at 2304 in SS with numerous IDs. Off at 0001. (D'Angelo, PA)

Radio Farda (Iran) 9865 via Morocco in Farsi with Western pops at 0100. (Parker, PA) 0515 with AA vocals. (MacKenzie, CA)

Radio Free Asia, 9805 in RR at 1335. (Brossell, WI) 11695 via UAE with an EE ID at 0230. (Parker, PA) 15585 in CC at 2332, //13775, 15430 and 15485. (MacKenzie, CA)

Voice of the People (Zimbabwe), 9765 via Madagascar 0400 sign on with African music, opening anmts in EE and vernacular. (Alexander, PA) In EE and vernacular at 0402. (Wood, TN)

SW Radio Africa (Zimbabwe) 12035 via Rampisham at 1659 sign on with vocal group, mention of 4880 and website URL. //11810-Armavir. Other frequencies not heard. (D'Angelo, PA) 1825 with interview on state of Zimbabwe economy. (Taylor, WI) 1700 sign on running to 1859. (Alexander, PA)

Democratic Voice of Burma (Burma) 9490 via Wertachtal at 2328 open carrier with song popping on at 2330. Mostly phone interviews in BB. (D'Angelo, PA)

PAKISTAN—Radio Pakistan, 11570 with talks in listed Urdu heard at 1346. First log of this one for me in a month of Sundays. (Brossell, WI)

PERU—Radio Victoria, Lima, 6019.5 at 0615 with presumed SS religious pgms. (Alexander, PA)

La Voz de la Selva, Iquitos, 4824 with SS talks and songs at 0306. (Brossell, WI)

Radio Huanta 2000, Huanta, 4747 0145 with long SS talk, off at 0209 with anthem but pulled the plug midway through, (Alexander, PA)

PHILIPPINES—FEBC, 9430 at 1315 with a sermon in EE translated into CC. (Brossell, WI)

PIRATES—Derby Shortwave, 6925u at 0033 open with repeated bugle call post and intro replay of Kentucky Derby and vocals of "My Old Kentucky Home." derbyshortwave@yahoo.com for emails. (Zeller, OH)

The Crystal Ship, 3275 at 0315 at 2007 "You're on board The Crystal Ship, sailing on 3275 and 6875." Also heard at 0106 on 6875 with 50s music, audio clips from President Kennedy. (Wood, TN) 0250 with rock and IDs. / (Alexander, PA)

Undercover Radio, 6925u heard at 2305 and 2321 sign ons and lengthy best from Dr. Benway. First part was in USB with "Hello Radios" and other tx tests. Gave both Merlin and undercoveradio@gmail. com addresses. Switched to AM mode at 2321 with replay of their 20th anniversary best. (Zeller, OH) 6926u at 0130 sign on with IDs, mention of using 6 kW, calls for reports and offer of t-shirts. (Wood, TN)

WTCR, 6925u opening variously at 0032, 0102, 0107, 0124 with MGM trumpet fanfare and classic rock. Anncing Belfast address. (Zeller, OH) Noted at 0108, 0120, 0200 with various rock, 20th Century Fox movie opening and Belfast address. (Hassig, IL)

Ground Zero Radio, 6924.5 at 0238 opening with sirens and fallout shelter anmts, into Burt the Turtle and his duck and cover routine. (Zeller, OH)

Voice of Laryngitis, 6925.6 at 2309 open. Seemed to be an encore of the old "Pirate Busters" pgm. Gave old, defunct Battle Creek address. (Zeller, OH)

Channel Z Radio, 6925.2 at 0044 open with rock and brief mailbag pgm. Blue Ridge Summit address and also channelzradio@ gmail.com. (Zeller, OH)

Northwoods Radio, 6925u at 1800 open with mix of rock and military tunes, taps and brief CW at 1824 close. No address heard. Also noted at 0148 with Loon IS and rock. Said broadcasting from the Great Lakes. northwoodsradio@ yahoo.com for reports. (Zeller, OH)

WMPR, 6925 at 0024 with techno and ID at 0029. (Wood, TN) 0025 with IDs between selections. (D'Angelo, PA) 6945 at 2345 with weak signal and apparent techno. (Hassig, IL)

Radio 6X, 6935 at 0108 with distorted audio, doo-wop oldies. "DXing With Cumbre" best at 0230. (Hassig, IL)

Weekend Music Radio (Scotland) 6400 at 0000, 2345 and 0125 with pops, canned IDs, UTE QRM. A regular here on Saturday nights. (Alexander, PA)

Maple Leaf Radio, 6925u at 0013 open with Canadian anthem, very old pops. Un-copied email address. (Zeller, OH)

Random Radio (t) 6850 at 0039 with tunes from 60s and 70s, Beatles numbers, crowd noises. Off with national anthem, laughter. (Hassig, IL)

Wolverine Radio, 6925u at 0040 with bluesy music, some country-western, several IDs. (Wood, TN) 0055 with pop and psychedelic things, country rock, Grateful Dead. (Hassig, IL) 0250-0300 close "Only Rock and Roll," and several IDs, comedy bit. (D'Angelo, PA)

WBNY, 6925 at 2230 with Commander Bunny and spoof songs, several references to Al Fransom, tire pressure anmts, anmts in FF and SS and close with Warner Brothers cartoon theme. (Hassig, IL) Opening at 2108 and 2245 with strange croaking noise IS, right-wing

Here's a 1983 QSL from Radio RSA, now Channel Africa.

host, later into Commander Bunny of the Rodent Revolution, rock oldies and novelties. (Zeller, OH)

Mystery Radio (England) 6220.2 at 0312 with near continuous contemporary rock and occasional ID. (D'Angelo, PA)

WEGR, 6925u at 2313 open after WBNY broadcast on the terrible fate of those who listened to this broadcast, having failed to turn their radios off after WBNY closed. Off at 2324. (Zeller, OH)

Borderhunter Radio (Netherlands) 6310 at 2345 with rock, pop, ID. (Alexander, PA)

Cupid Radio (Netherlands) 6265 at 2345 with pops, address. (Alexander, PA)

Radio First Termer, 6925u at 0100 with ID, movie commercials, Beatles. (Wood, TN)

Captain Morgan, 6925 at 0344 with unintelligible male anncr, song by Dobie Gray. (Wood, TN)

PORTUGAL—RDP International, 12000 at 0813 with two men conversing in PP, phone interviews. //12020. (D'Angelo, PA) 15295 with cabaret music at 2349, pips and ID at top of the hour. (Wood, TN) 15540 at 2237 with PP talk and music. (MacKenzie, CA) 15560 in PP at 1521. (Charlton, ON)

ROMANIA—Radio Romania Int., 6150-Galbeni, at 0256 open with ID for North American service and into news. (Wood, TN) 9515 at 0443 and 9635-Tiganesti in Romanian at 0327. (Parker, PA) 9630 in SS at 0448. (MacKenzie, CA) 11735 at 1740 with woman hosting classical music. (D'Angelo, PA) 15235 in AA at 1512. (Charlton, ON) 15465 at 2055 with transmission times and frequencies. (Maxant, WV)

RUSSIA—Voice of Russia, 7125 via Moldova at 0040 with RR vocals. (Maxant, WV) 6185-Samara in RR at 1308, 9800-Irkutsk in RR at 1335 and 9900-Samara in an Asian language at 1320. (Brossell, WI) 9435 to 0500 sign off, 9515 with contest info at 0430 and 9860 via Vatican at 0442 and 9880-Armavir at 0405. (Parker, PA) 9865 at 0315. (Weronka, NC) 9435 at 0438 and 13635 at 0300 with ID, news. (MacKenzie, CA) 9665 via Moldova at 0345 and 9880-Armavir at 0335. (Wood, TN) 12070 at 2015. (Fraser, ME)

Yakutsk Radio, 7200 at 1210 carrying Radio Rossii. (Brossell, WI)

Magadan Radio, 7320 at 1215, // 7200. (Brossell, WI)

Kzyl Radio, 7120 unlisted in RR at 1300 sign on. Normally on 6100. (Brossell, WI)

Radio Tikhy Okean, 12065 heard at 0834 open with IS, ID and pgm in RR, //9765. (D'Angelo, PA)

SAO TOME—VOA Relay, 6080 at 0415. (Wood, TN) 0609. (Parker, PA) 6095 at 0553. (MacKenzie, CA) 15730 in FF at 1955. (Charlton, ON)

SAUDI ARABIA—BSKSA, 15205 in AA at 1750. (Charlton, ON) 15435 in AA at 1717. (Parker, PA)

SIERRA LEONE—Cotton Tree News, 9525 via Ascension at 0825 with Afro-pop, talk in vernacular. (Taylor, WI)

SINGAPORE—Radio Singapore Int., 6080 at 1345, better than 6150, which was poor. (Barton, AZ) 7235 at 1258 with vocals and talk in II. (Brossell, WI)

SLOVAKIA—Radio Slovakia Int., 7110 in FF at 0212. (Brossell, WI) 9440 at 0105 on its relationship with Czech Republic. (Maxant, WV) SS to South America at 0228. (Parker, PA)

SOUTH AFRICA—Channel Africa, 7305 in FF at 0448. (Brossell, WI) 9685 at 0526. (MacKenzie, CA) 15235 with African news at 1704. (Charlton, ON) 17770 heard at 1510 with interview. (Maxant, WV)

SOUTH KOREA—KBS World Radio, 9560 via Canada with listener request pgm at 1220. (Maxant, WV) 0249 with comments on various subjects. (MacKenzie, CA) 9650 via Canada at 1226. (Charlton, ON) 9770 at 1324. (Barton, AZ)

SPAIN—Radio Exterior de Espana, 3350 via Costa Rica in SS to 0601 close, 6055 in SS at 0226, 6125 via Costa Rica in SS at 0423 and 9535 in SS at 0237. (Parker, PA) 6055 at 0003. (Charlton, ON) 0050. Also 9620 at 0050 and 11625 at 2115. (Maxant, WV) 15110 in SS monitored at 2252 to sign off at 2257. (MacKenzie, CA)

Liberia's SW station ELWA has been destroyed by factional fighting a couple of times, but it keeps coming back! This 1961 reply went to Mike Adams in Florida

SUDAN—Radio Peace (t) 4750 heard at 0308 weak with talk in unid language. (Alexander, PA)

SWAZILAND—Trans World Radio, 3240 at 0332 with choir and man in Shona. Off at 0347. Also 4775 at 0402 with religious talk in GG. (D'Angelo, PA) 0420. (Brossell, WI) 9500 in EE at 0545. (Parker, PA)

SWEDEN—Radio Sweden, 15240 at 1245 on Sweden's only astronaut. (Fraser, ME) 1302 via Canada and 15735 in Swedish at 1315. (Maxant, WV) 15735 in Swedish at 1303. (Charlton, ON)

TAIWAN—Radio Taiwan Int., 5950 via Okeechobee at 0212. (Parker, PA) 7445 with Groove Zone to SE Asia at 1145. (Barton, AZ) 11640 in CC at 0336. (MacKenzie, CA)

TANZANIA—Radio Tanzania-Zanzibar, 11735 at 1756 in Swahili with local music. (D'Angelo, PA)

THAILAND—Radio Thailand, 11685 at 1346 with presumed vocals in Thai under ever-present RTTY UTE. (Strawman, IA)

TUNISIA—RT Tunisienne, 7275 in AA at 0412. (MacKenzie, CA) 7275-Sfax at 0435. (Wood, TN) 0446. (Brossell, WI) 0515. And 9720 in AA heard at 0335. (Parker, PA)

TURKEY—Voice of Turkey, 9460-Emirler with Turkish language lesson at 0146 and 13760-Ermiler in GG at 1215. (Parker, PA) 12035 in EE at 1405. (Brossell, WI)

UKRAINE—Radio Ukraine Int., 7440-Mykolayiv, with *Ukraine Today* at 0009. (Charlton, ON) 0040. (Parker, PA) 0304 with EE to NA. (Strawman, IA) 0305. (Weronka, NC) 15670 with opera at 1245. (Maxant, WV)

UNITED STATES—Voice of America, 6000 via Biblis at 0155 colliding with RHC. 9575-Greenville at 0451 and 17765 via Philippines in CC at 0036. (Parker, PA) 6040

In Times Past...

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

SWAN ISLAND—Radio Swan, Swan Island, 6000 in SS to Cuba at 0501 on 8 August 1960. Operated by the "Gibraltar Steamship Company," a CIA front. 7.5 kW. (Dexter-WI)

via Thailand in EE/CC at 1250, 9510 in Urdu at 1430 and 11510 via Sri Lanka with "Radio Deewa" service at 1342. (Brossell, WI) 9760 via Philippines at 1354 to 1400 close. (Taylor, WI) 12040 via Philippines in CC at 1255. (Charlton, ON) 15385 via Philippines in CC at 0005. (MacKenzie, CA)

WINB, Red Lion, PA, 9265 at 2345 with religious pgms. (Alexander, PA)

Adventist World Radio, 11670 via UAE at 15120. (Maxant, WV) 11955 via Austria with 2059 sign on to Africa. (D'Angelo, PA) 15315 via Austria in an African language heard at 1828. (MacKenzie, CA)

University Network, 9725 via Costa Rica at 0630 and 13750 via Costa Rica heard at 2305. (Maxant, WV) 1918. (Charlton, ON)

AFN/AFRTS, 5446.5-Key West with relay of ABC News at 0750. (Maxant, WV) 7811-Key West with Paul Harvey at 0055. (Parker, PA)

KAJI, Frisco, TX, 5755 at 0522 with *The Power Hour*. (Parker, PA)

WBCQ, Monticello, ME, 7415 monitored at 0100 with music from the 20s. (Parker, PA)

WMLK, Bethel, PA, 9265 on Yaweh at 1820. (Maxant, WV)

WYFR/Family Radio, 7175 via Armavir in unid Asian language at 1422. (Brossell, WI)

KJES, Vado, NM, 11715 in SS at 1315. (Maxant, WV)

UN Radio, 17810 via Ascension with UN news items at 1747. (Charlton, ON)

VATICAN—Vatican Radio, 7250 to Africa at 0501. (Parker, PA) 7335 over CHU at 0245. (Maxant, WV) 13765 at 1543. (Charlton, ON)

VENEZUELA—Radio Nacional, 13680 via Cuba in SS heard at 1447. (Charlton, ON)

VIETNAM—Voice of Vietnam, 6175 via Canada in VV at 0108. (MacKenzie, CA) 0525. (Parker, PA)

ZIMBABWE—Zimbabwe Bc. Corp. 3396 with rock and pops at 0207, (Brossell, WI) 4828 at 2220 (p) continuous African music. Also 6045 at 2330. (Alexander, PA) (*These last two may have been tests from the new Voice of Zimbabwe.—gld*)

And that, ladies and gentlemen, is it! A mighty roar of thanks go to those who shared their efforts with us this time: Stewart MacKenzie, Huntington Beach, CA; George Zeller, Cleveland, OH; William Hassig, Mt. Prospect, IL; Brian Alexander, Mechanicsburg, PA; Robert Fraser, Belfast, ME; Joe Wood, Greenback, TN; Robert Brossell, Pewaukee, WI; Charles Maxant, Barboursville, WV; Jerry Strawman, Des Moines, IA; Robert Charlton, London, ON; Rick Barton, Phoenix, AZ; Richard Parker, Pennsburg, PA; Rich D'Angelo, Wyomissing, PA; Mark Taylor, Madison, WI; and David Weronka, Benson, NC. Thanks to each one of you. ■

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by Bill Price, N3AVY

Rats Send CW, Tennessee Reunion, And An Angel At The Mic

If you've read my words long enough, you probably know that my biggest passion is Morse code. I was a radio operator in the U.S. Coast Guard, where I came to love "the code." No matter how many of my friends have tried, none have gotten me to use voice communication on either the Coast Guard radio frequencies way back before the Earth cooled, or since then on the amateur radio bands where I've been licensed since 1973. Some people were just not intended to use a microphone; I believe that I am one of them.

My friend Norm would have written me off a long time ago for my complete lack of interest in voice communication, except that he still hopes that I may someday see the light and begin to enjoy using a microphone. It's no exaggeration to say that he has given me—free of charge—a complete amateur station, including a modern multiband transceiver, microphone, speaker, power supply, and oscillator, and he has helped me install many antennas since 1989. And, in exchange for this kindness, I have embarrassed and abused him unmercifully in these pages since roughly that same date. After all, what are friends for?

I'm sitting in a friend's home in northeastern Tennessee, reunited with that friend and a few others from as far back as July 1960. For some reason, our friendship has endured time and distance, aging, weight gain, and hair loss (none of the distaff members of our group has suffered either of these maladies, I might add).

I might also add that I have been waiting patiently here for three days for my host's Internet service provider (who shall remain nameless because my friend and I are really afraid that we will start to rant so much as to incur serious lawsuits over what we might say about them) so that I can pass on to you (and our long-suffering editor) not only the tales of my enjoyment of Morse code communication in so many of its forms (including the beginner's practice oscillator), but also its use by our quadruped friends in strange lands halfway around the globe.

Yes, as I mentioned in the closing line of last month's column, I really was contacted by a Brigadier General who served our country during the Vietnam War. After he read enough of my columns to know that I loved Morse code and that I had a few pet rats living with me, he thought I would find it interesting (and I *did*) that he, too, enjoyed Morse code—enough to begin to study it and become proficient in sending and receiving CW on his own time while in Southeast Asia many moons ago.

During this time, he lived (and often worked) in a lovely underground accommodation (root word: commode), which he tells me was roughly a hole in the ground. The army referred to it as a bunker. They were indeed kind.

As if his mere presence in Vietnam would not be enough to induce nightmares aplenty (and I'll pause here to offer a genuine and serious salute any and all who serve and who served), the poor man awoke one night in said "bunker" to the sound of Morse code being sent—with little regard for accuracy—on his practice oscillator. Since he knew that he went to sleep *alone* in that bunker, he was quite concerned that #1) he was either imagining what he heard, or #2) his minimal security had been breached.

"Since he knew that he went to sleep alone in that bunker, he was quite concerned that #1) he was either imagining what he heard, or #2) his minimal security had been breached."

Flashlight illumination revealed to him that the correct choice was #2, and that some Rodentia, presumably rattus norvegicus, had invaded his space and for some reason enjoyed playing with the oscillator and key almost as much as he did. While they were not quite as tame and friendly as my Finnegan and Larry, the general assures me that they meant him no harm, and in fact left him alone and played with the key and oscillator until he gave them chase and they left. I believe he said that they became regular visitors, wanting nothing more than to create and hear the friendly beeps of the general's oscillator.

I am afraid that this might prove that I have something in common with rodents, so I'm going to move on to another area without further comment.

The "voice of an angel" became known to me here in Tennessee, just down the road in Elizabethton, in a place called Bridges Café, where one of our reunion troupe enjoys participating in a karaoke evening. As we looked forward to an enjoyable supper and while waiting to be seated, I noticed a young lady (who I later learned was also a server there at Bridges) who took a turn at the mic—something I'd NEVER in a MILLION YEARS do—and sang her heart out with what I'd call one of the more difficult pieces on the song list.

I was later able to talk the young singer into a ballad, when she could find the time to set down her order pad, and she again tore a small hole in what my physician calls an already overtaxed heart with Willie Nelson's "Crazy." She probably has no idea that I'm writing about her. As a person who would *never* want to be in front of a microphone, I feel I am a good and qualified judge of someone who should spend a whole lot more time in front of one.

Maybe I'll stop back there and give her the nice ham rig that Norm gave me. Till then, if you'd like to have a little hole torn in a corner of your heart, stop in there when you might find Casey at the microphone. She sure sounds better than I ever would.

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