



45635

POPULAR COMMUNICATIONS

JULY 2007

Scanning Railroad Hotspots Four Fantastic Places To Experience The Excitement

- **Hunting For Radio Oddities
On The Road, pg. 14**
- **Forty-Nine Forgotten
Shortwave Frequencies, pg. 18**

**PLUS: As-Cheap-As-You-
Can-Get Scanner Antennas
• Staying Safe On Summer
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Strike Groups**

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WAM/FM-N/WFM
*Cellular blocked

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ICOM® PCR1500 R1500



The **Icom PCR1500** wideband computer receiver connects externally to your PC via a USB cable. This provides compatibility with many computer models, even laptops. Incredible coverage is yours with reception from 10 kHz to 3300 MHz (less cellular gaps). Modes of reception include AM, FM-Wide, FM-Narrow, SSB and CW. (CW and SSB up to 1300 MHz only). The PCR1500 comes with an AC adapter, whip antenna, USB cable and Windows™ CD. #1501 **\$479.95**

The **Icom R1500** is similar to the above, but also includes a controller head for additional operation independent of a PC. #1500 **\$579.95**

ICOM® PCR2500 R2500



The **Icom PCR2500** wideband computer receiver uses a similar form-factor to the PCR1500, but has several enhancements, including two powerful features: **dual watch** (the radio can receive two signals simultaneously) and **diversity reception** (two antennas can be connected at the same time and employed to provide stable reception). The optional UT-118 Digital Unit provides D-STAR® digital voice reception and the optional UT-121 supports APCO25 digital voice decoding. The R2500 is shown above. #2501 **\$709.95**

The **Icom R2500** is similar to the PCR2500, but includes a controller head for additional operation independent of a PC. #2500 **\$879.95**

FREE

ICOM UT-121 APCO 25 Board included!
A \$248.00 value included FREE with your R2500 or PCR2500 purchase valid to June 30, 2007.

Special Note: Prices shown for the R1500/PCR1500 and R2500/PCR2500 reflect the \$20 Icom mail-in rebate valid to June 30, 2007.

R5



The **R5** covers 150 kHz to 1309.995 MHz (less cellular gaps) in: AM, FM Narrow and FM wide. 1200 memories store: frequency, mode, step size, duplex direction and offset, CTCSS tone, tone squelch and skip settings. Other features include: attenuator, LCD lamp, AM ferrite bar antenna, auto power off, CTCSS decode, weather function and battery save. A great value at under \$200.00. **Call or visit website for price.**

R20



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R8500

The **Icom R8500** is a full coverage wide band communications receiver that tunes from 100 kHz to 1999.99 MHz in AM, LSB, USB, CW, FM-N and FM-W modes. Available to government customers only. #0663 **\$1699.95**



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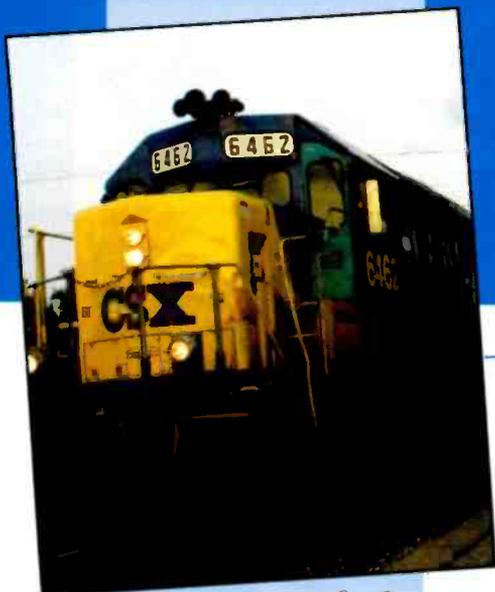
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On The Cover

Some are drawn by nostalgia, some by the awesome power of steel at momentum, but the number of those who call themselves railfans is about 175,000, according to one estimate. On this month's cover, one such fan monitors a CSX train near the famed Folkston Funnel, Folkston, Georgia.

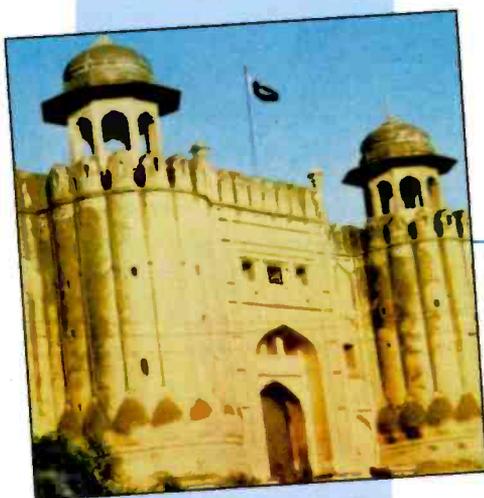
See "The Hotspots Of Railfanning," starting on page 10, for more on this popular pastime. (Photo by Larry Mulvehill, WB2ZPI)



10



14



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

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

Super Active Antenna

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

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

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Indoor Active Antenna

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

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

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Easy to use, tune and read

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

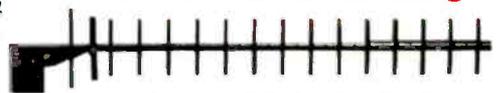
It's easy to read -- front-mounted 2 line 16 character LCD display has contrast adjustment.

Copies most standard shifts and speeds. Has

MFJ AutoTrak™ Morse code speed tracking.

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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.

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

Dual Tunable Audio Filter

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MFJ Shortwave Headphones



MFJ-392B
\$24⁹⁵

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

High-Q Passive Preselector

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

Super Passive Preselector

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

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MFJ-281
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Ship Code A

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by Edith Lennon, N2ZRW, Editor

Who Will Monitor The Monitors?

It's May 3 as I sit at my computer and write this. And May 3 is World Press Freedom Day. No, I didn't know such a thing existed either until I saw it on a blog, but I've got to say, sitting on my perch at the top of a masthead, I'm glad it does. Especially because of the nature of this particular magazine (*Pop'Comm* has always been "on the radar," as it were). While we have no intention of printing our version of the Pentagon papers, we will brush against some topics that might make some people a bit uncomfortable, which is, of course, why freedom of the press is necessary.

In a statement (manifesto is the word actually used) by Timothy Balding, chief executive officer, World Association of Newspapers, the tightening of security and surveillance measures in the face of increased terrorism concerns is described as "laudable and compelling." But he gives a warning: "There is, however, a legitimate and growing concern that in too many instances such measures, whether old or newly introduced, are being used to stifle debate and the free flow of information about political decisions, or that they are being implemented with too little concern for the overriding necessity to protect individual liberties and, notably, freedom of the press.

"Anti-terrorism and official secrets laws, criminalisation of speech judged to justify terrorism, criminal prosecution of journalists for disclosing classified information, surveillance of communications without judicial authorisation, restrictions on access to government data and stricter security classifications, all these measures can severely erode the capacity of journalists to investigate and report accurately and critically, and thus the ability of the press to inform."

A lover of irony, I had to smile at the next piece of news I read. From a May 2 Associated Press report on a Senate Intelligence Committee meeting the previous day we learn that Bush officials—National Intelligence Director Mike McConnell, National Security Agency Director Lt. Gen. Keith B. Alexander, Assistant Atty. Gen. Kenneth J. Wainstein—attempted to defend (without much success) the administration's domestic surveillance operations. In addition, they proposed expanding spying powers aimed at the population both within and outside the United States.

McConnell maintained that the president has the power to order the National Security Agency (NSA) to conduct surveillance inside the country without warrants. According to AP:

"McConnell's statements came as he gave testimony in defense of proposed amendments to the 1978 Foreign Intelligence Surveillance Act (FISA), which places restrictions on spying against US citizens and other residents in the United States. The law requires that warrants be issued by the FISA court for any domestic spying to proceed."

The main argument is that the law requires adjustment because of technological advances in cellphones, e-mail and the Internet since FISA was enacted in the 1970s. Lamented McConnell, "we're actually missing a significant portion of what we should be getting."

The AP report continued:

"Even though the administration insists the warrantless wiretapping was legal under the president's constitutional powers, the administration bill contains a provision blocking lawsuits against telephone companies that cooperated. The administration has won most of the court battles so far over that spying, but one judge declared it illegal."

Let me leave you with this: You may not care about freedom of the press (the original "monitors") and you may feel that under the threat of terrorism, the administration should have a completely untethered hand. But you should know, even as they take away your access to radio spectrum, effectively legislating physics, and continue to chip away at your rights to scan even Public Service, they're listening to you.

There are many important things to monitor in our world. This is one of the most crucial.



Edith Lennon, N2ZRW

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

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A publication of



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Offices: 25 Newbridge Road, Hicksville, NY 11801. Telephone (516) 681-2922. FAX (516) 681-2926. Web Site: <http://www.popular-communications.com/> Popular Communications (ISSN-0733-3315) is published monthly by CQ Communications, Inc. Periodical class postage paid at Hicksville, NY and additional offices. Subscription prices (payable in U.S. dollars): Domestic—one year \$28.95, two years \$51.95, three years \$74.95. Canada/Mexico—one year \$38.95, two years \$71.95, three years \$104.95. Foreign Air Post—one year \$48.95, two years \$91.95, three years \$134.95.

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News, Trends, And Short Takes

Amateur Radio Activity Shut Down In Iraq

Iraq Amateur Radio Society (IARS) President Diya Sayah, Y11DZ, has announced that all amateur radio activity in Iraq has been suspended until the security situation there improves. He says the suspension affects Iraqi citizens and foreigners alike, including military personnel and contractors, who have been on the air from Iraq. The request to halt all ham radio activity and the issuance of licenses in Iraq originated with a letter from the Iraqi Ministry of Defense to Iraqi Prime Minister Nouri al-Maliki as part of a new security plan, Sayah said. He received subsequent confirmation via the Ministry of Higher Education and Scientific Research to shut down ham radio activity, although he allows for a possible misunderstanding on the part of government officials as to the nature and purpose of amateur radio.

The shutdown does not apply to Military Affiliate Radio System (MARS) operations, which use military frequencies.

Radio Australia And RFO Sign Program Sharing Deal

The exchange of news and information across the Pacific is to be enhanced following a co-operation agreement between French global network RFO and Radio Australia. Under the three-year deal, RFO Radio News Caledonia and Radio Australia have started sharing news and information programs in French.

Listeners in New Caledonia, Wallis and Futuna, and Tahiti can hear the latest Pacific news via the "24 Hours in the Pacific" program, a French language news service prepared by Radio Australia and broadcast on RFO News Caledonia each morning and afternoon. The program will also be heard on Radio Vanuatu. The agreement will enhance coverage of major events, including the forthcoming Pacific Games in Western Samoa.

New Japanese Broadcasts To North Korea

The new service for missing Japanese believed to be abducted in North Korea started transmissions recently. Radio Sea Breeze-Shiokaze began its transmission from KDDI-Yamata at 2030 to 2100 UTC on March 25 on 6045 kHz (callsign: JSR-Shiokaze) with 100 kW, and again from 1300 to 1330 UTC on March 26 on 9485 kHz via VT Communications-Taiwan.

Photos Of VOA Now Available For Download

The Voice of America website has just launched a new feature: downloadable, print-quality images illustrating the people and work of the Voice of America. From the earliest days in 1942 to the present, the photographs show VOA's facilities and dedicated radio, television, and Internet personnel. There are four categories: Historical, Facilities, Broadcasters, and In the Field. Now journalists, researchers, and interested audience members have instant, 24-hour access to illustrative photos of VOA.

Zimbabwe Soon To Launch International News Radio

News24, a new 24-hour news radio channel owned by ZBC (Zimbabwe Broadcasting Corporation) is set to start operations by the end of next month, Zimbabwe's information minister, Dr. Sikhanyiso Ndlovu, announced on ZBC's Spot FM on March 22. Dr. Ndlovu made the announcement while conducting a tour of the ZBC studios in the city of Gweru, Spot FM said.

According to a Spot FM report, "Dr. Ndlovu told ZBC management that if they present their requirements in good time, resources would be availed for the project. He emphasized that priority is to be given to the project, which is fundamental in telling the true Zimbabwean story. News24 will use the short-wave link, which means it will go international. It is hoped the new station will counter negative publicity churned out by the international media."

DAB Seen As Having No Future In Sweden

Swedish Radio's hopes of a revival in government interest in Digital Audio Broadcasting (DAB) have been dashed by the new Minister of Culture, Lena Adelsohn Liljeroth. After several hundred million kronor in investments in the digital radio system, the previous Social Democrat Swedish government pulled the plug on DAB one year ago. The system had few listeners, largely because retailers had failed to sell the special receivers required. Ironically the government decision came just as the first receivers appeared in stores here.

An international standard, DAB has been most successful in Britain, where receivers have been plentiful with many stations available. Swedish Radio has continued to maintain a low level of DAB broadcasts to Stockholm, Malmö, and Gothenburg. But Liljeroth said DAB is not the radio of the future, considering the necessity of listeners having to buy completely new receivers neither economically nor politically possible.

Australia To Use DAB+ For Digital Radio Rollout

Australian commercial radio broadcasters have announced they will adopt the new DAB+ standard for the implementation of digital radio in Australia. DAB+ is the new standard for the Eureka 147 platform using advanced audio codec (AAC+). It was officially approved by international standards body ETSI in February.

DAB+ is two to three times more efficient than the original Eureka 147 standard, which uses the MPEG Audio Layer II coding. This means radio stations will have more choice in how they use their allocated bandwidth. DAB+ services and receivers are expected to be rolled out in a number of countries where digital radio is currently in trial phase, which potentially includes the Netherlands, Malta, New Zealand, India, and China. ■

Each month, we select representative reader letters for "Our Readers Speak Out" column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid email address. Upon request, we will withhold a sender's name if the letter is used in "Our Readers Speak Out." Address letters to: Edith Lennon, Editor, Popular Communications, 25 Newbridge Road, Hicksville, NY 11801-2909, or send email via the Internet to editor@popular-communications.com.

An Oops

Dear Kent:

I'm interested in making the four-element 800-MHz Yagi that you wrote about in the May issue of *Popular Communications*. I'm having a difficult time interpreting the table of Antenna Dimensions. Is it formatted correctly?

If not, how should it read?

Jose
Via email

Dear Jose (and other readers):

I hate to say it, but unfortunately the table was not formatted correctly. If you refer to Kent's current "Antenna Room" column you'll find the corrected table. We apologize for the confusion.

Editor

Where Credit Is Due

John Kasupski, KC2HMZ, our "Utility Communications Digest" columnist received this nice acknowledgment from Allen Pitts of the ARRL, and I just can't pass up a chance to give John a public nod. Nice work, indeed!

Dear John:

Just a short note to say that I read and enjoyed your article in the April *Pop'Comm*. Nice work!

Allen G. Pitts, WIAGP
Media & PR Manager, ARRL

Our Experts Field Your Questions

The following letter was sent to "Military Radio Monitoring" columnist, Tom Swisher, WA8PYR, and Tom gave his usual thoughtful reply. Perhaps other readers will benefit from it, too.

Dear Tom:

I've been monitoring the 225- to 399.98-MHz band here in Massachusetts on my Uniden Bearcat 898T scanner using two RadioShack discone antennas, but now have gone to a 225- to 400-MHz dipole (military version) from Fair Radio Sales out of Lima, Ohio.

There are about 50 frequencies I've locked out, some strong and some weak, that would stop the scanner and produce nothing but white noise. And, when I have the time, going through the range of frequencies the lockouts will change: one day there's white noise on a frequency, then on the next it's quiet.

What are those spots that stop the scanner? Navigation beams? Transmitters being kept warmed up? I would just like to know, or at least have some idea of what they're all doing "on the air."

Unfortunately, the antennas are all in the attic with the discones at either end in a N by NW/S by SE sitting position. The dipole is at the window facing N by NW as it is clearer of house obstacles. Westover Air Force Base is in a S by SE direction (almost a straight line as the crow flies), and I will be switching antenna locations soon to monitor the difference, even though there is an exact replica of a row house 30 feet from that window.

Any hints on the white noise or antenna location would be gratefully accepted.

Greg Gimbut
Via email

Dear Greg:

All of the things you mentioned are possible causes for your scanner to lock up. They could also be local noise sources, such as leaky television cable, or even noisy television preamplifiers.

Leaky TV cable can cause interference like you mention, and it can even change from time to time based on the programming on a given channel; sometimes the interference can be made stronger by a punched-up audio signal (like on a commercial) which may cause an overmodulated signal, which in turn can cause splattering of adjacent channels.

Some noisy TV preamplifiers have been known to "sweep" across a range of frequencies, or stop on particular frequencies from time to time, thus causing receivers to lock up. This is rather rare these days as TV preamplifiers are not as common anymore.

As far as signals that are always there, it's very likely that they are birdies caused internally in your scanner. They could also be caused by interaction with other radios or even your television, VCR, computer, or stereo.

To try to narrow down the cause, turn off all the scanners but the one most affected. Then, try turning off various pieces of equipment in the house one at a time; if the interference goes away, you'll have likely found the culprit. If nothing in the house seems to be causing the problem, then the source is likely outside.

As far as your antenna placement, keep trying different locations. Reception can be affected by a variety of things, including antenna placement, surrounding objects, weather, distance, terrain and so on. Sometimes the most unlikely location will provide the best reception, so keep plugging away at it. The most reliable advice, however, is the tried-and-true "as high and in the clear as possible." If you aren't able to get antennas outside, the attic is the next best place.

Hope this helps. Thanks for your letter.

Tom, WA8PYR

And this question was turned over to our resident historian, Bob Sturtevant, AD7IL.

Dear Editor:

Sometime last year you, and later QST, had something on 100 years of voice on radio. Some Canadian, I recall. Lots of Sociology but nothing Technical. Just how did he modulate spark?

Louis E. Fay, W5CKA/6
Chico, California

Dear Louis:

Good question. Before Reginald Fessenden made the first ever broadcast of Voice over Radio in 1906 nobody had thought much about modulation. Fessenden had done it earlier, in 1902, but had been told by his employers at the U.S. Weather Bureau to keep the whole thing quiet.

Fessenden was not just a tinkerer who hit it lucky. He was a prolific inventor who was awarded over 500 patents. One of his discoveries was Amplitude Modulation, or AM, radio transmission. This, of course, is the Principle of Heterodyne. Working from a station at Brant Rock, Massachusetts, he made a transmission that must have surprised everyone who heard it. From a practical standpoint, he mixed two high-frequency signals and brought them down to the audible low-frequency sound of the human voice.

The secret of the continuous wave signals was a compressed air spark gap Fessenden had invented. It produced a continuous sine wave that could be controlled and brought down to 40 meters and even lower. Without a continuous wave the whole AM thing would not have worked.

Bob Sturtevant, AD7IL

Capitol Hill And FCC Actions Affecting Communications

Interoperable Communications Equipment Part Of DHS Allocation

As a part of the fiscal year 2006 Commercial Equipment Direct Assistance Program (CEDAP), the U.S. Department of Homeland Security (DHS) recently announced the award of \$34.6 million in equipment and training to first responders across the nation—which includes funding for interoperable communications equipment.

“DHS awarded more than 2,000 direct assistance grants to ensure that law enforcement and emergency responders receive specialized equipment and training to meet their homeland security mission,” the agency reported.

“CEDAP is yet another mechanism for the department to work with our local homeland security partners in strengthening this nation’s ability to prevent, protect, respond and recover from a natural disaster or terrorist attack,” said George Foresman, Under Secretary for Preparedness. “This program enhances state and local communities’ capabilities as well as arms their first responders with the tools to build stronger regional coordination.”

In addition to interoperable communications, CEDAP offers equipment in the following categories: personal protective equipment; thermal imaging, night vision, and video surveillance tools; chemical and biological detection tools; and information technology and risk management tools.

“This program also focuses on smaller communities and metropolitan areas not eligible for the Urban Areas Security Initiative grant program. Awardees are required to receive training on their awarded equipment either on-site or at a CEDAP training conference,” the agency’s website stated.

DHS reported that it has provided more than \$69.7 million in equipment and training to law enforcement and fire departments through CEDAP since the program’s inception in 2005.

For more information on CEDAP and other DHS grant programs visit www.dhs.gov.

FCC Accepts Radio Amateur’s License For Cancellation

The FCC has accepted for cancellation the Technician ticket of a licensee who has been the target of inquiries and warnings from the Commission’s Enforcement Bureau dating back to 2005, according to the American Radio Relay League’s *ARRL Letter*.

“Special Counsel in the FCC’s Spectrum Enforcement Division, Riley Hollingsworth, wrote Brandon Duke, KCØUWS, March 6 to confirm receipt of Duke’s Amateur Radio license,” the League reported.

“We have forwarded your license to the Wireless Telecommunications Bureau for cancellation and for dismissal of your application for a vanity call sign,” Hollingsworth notified Duke, who has a Minnesota address on file with the Commission. Duke applied for WØBMD in late 2006. The *ARRL Letter* said that in January, a “last warning” from

Hollingsworth, mailed to Duke at a Colorado address, came back as undeliverable.

Previous correspondence to Duke from Hollingsworth cited “information before the Commission” as well as his own admission to indicate he had been operating on 10- and 20-meter frequencies not authorized to Technician licensees, the *ARRL Letter* said. Hollingsworth also has previously cited Duke for allegedly ignoring requests to stop using repeaters in his area.

“You have used false call signs, transmitted sexually explicit material and other recordings over radio and re-broadcast radio activity on police frequencies,” Hollingsworth noted in a January 2007 letter to Duke, according to the *ARRL Letter*. “In spite of your assurances on January 26, 2006, that your rule violations would end, you have continued operating in violation of Commission rules and the Communications Act.”

In 2006, Duke had pledged in a letter to Hollingsworth to change his on-air behavior, noting that he’d destroyed an audio CD containing apparently objectionable material he’d been accused of airing, the League reported. He also said he’d “refrain from jamming, interfering, kerchunking and using any repeaters.”

New Deputy Executive Director Joins APCO Staff

Mark Cannon has joined the Association of Public-Safety Communications Officials (APCO), International staff as the new Deputy Executive Director. Cannon comes to APCO “with more than 20 years of managerial experience in nonprofit and governmental settings,” according to a press release on the organization’s website.

“His service includes 12 years in senior management for national associations and brief stints in the federal executive and legislative branches, a state regulatory agency and a county budget office,” APCO said.

During his association career, Cannon “has directed the operations of both start-up and established organizations, managed staffs of two to 40 people, overseen yearly budgets of \$1 million to \$8 million, and spearheaded standards-setting programs, industry reform initiatives, governance restructuring, collaborative e-ventures, and strategic thinking and planning exercises,” the organization noted.

Illegal 2-meter Operation Brings Fine To Construction Company

A \$10,000 fine the FCC had proposed levying on a Florida construction company for transmitting on ham radio frequencies without a license has been affirmed by the Commission.

In a Forfeiture Order (NoF) released in early April, the Commission said it was “fining Parker Construction, Inc. of Panama City, FL, for ‘willful and repeated violation’ of the Communications Act of 1934 for operating radio transmitting

(Continued on page 54)

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Bearcat® BCD396T Trunk Tracker IV
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APCO 25 9,600 baud compact digital ready handheld TrunkTracker IV scanner featuring Fire Tone Out Paging, Close Call and Dynamically Allocated Channel Memory (up to 6,000 channels), SAME Weather Alert, CTCSS/DCS, Alpha Tagging.
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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., 894.0125-956.0000 MHz., 1240.0000 MHz.-1300.0000 MHz.

The handheld BCD396T scanner was designed for National Security/Emergency Preparedness (NS/EP) and homeland security use with new features such as **Fire Tone Out Decoder**. This feature lets you set the BCD396T to alert if your selected two-tone sequential paging tones are received. Ideal for on-call firefighters, emergency response staff and for activating individual scanners used for incident management and population attack warning.



Close Call Radio Frequency Capture - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. Useful for intelligence agencies for use at events where you don't have advance notice or knowledge of the radio communications systems and assets you need to intercept. The BCD396T scanner is designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS, LTR and EDACS® analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. **Dynamically Allocated Channel Memory** - The BCD396T scanner's memory is organized so that it more closely matches how radio systems actually work. Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 3,000 channels are typical but **over 6,000 channels are possible** depending on the scanner features used. You can also easily determine how much memory you have used and how much memory you have left. **Preprogrammed Systems** - The BCD396T is preprogrammed with over 400 channels covering police, fire and ambulance operations in the 25 most populated counties in the United States, plus the most popular digital systems. **3 AA NIMH or Alkaline battery operation and Charger** - 3 AA battery operation - The BCD396T includes 3 premium 2,300 mAh Nickel Metal Hydride AA batteries to give you the most economical power option available. You may also operate the BCD396T using 3 AA alkaline batteries. **Unique Data Skip** - Allows your scanner to skip unwanted data transmissions and reduces unwanted 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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 - Bearcat 248CLT 50 channel base AM/FM/weather alert scanner.....\$104.95
 - Bearcat 244CLT 30 channel base AM/FM/weather alert scanner.....\$94.95
 - Bearcat 92XLT 200 channel handheld scanner.....\$105.95
 - Bearcat 72XLT 100 channel handheld scanner.....\$89.95
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Compact professional handheld TrunkTracker III scanner featuring Close Call and Dynamically Allocated Channel Memory (up to 2,500 channels), SAME Weather Alert, CTCSS/DCS, Alpha Tagging.
Size: 2.72" Wide x 1.26" Deep x 4.6" High

Frequency Coverage: 25.0000-54.0000 MHz., 108.0000-174.0000 MHz., 216.0000-224.9800 MHz., 400.0000-512.0000 MHz., 806.0000-823.9875 MHz., 849.0125-868.9875 MHz., 894.0125-956.0000 MHz., 1240.0000 MHz.-1300.0000 MHz.



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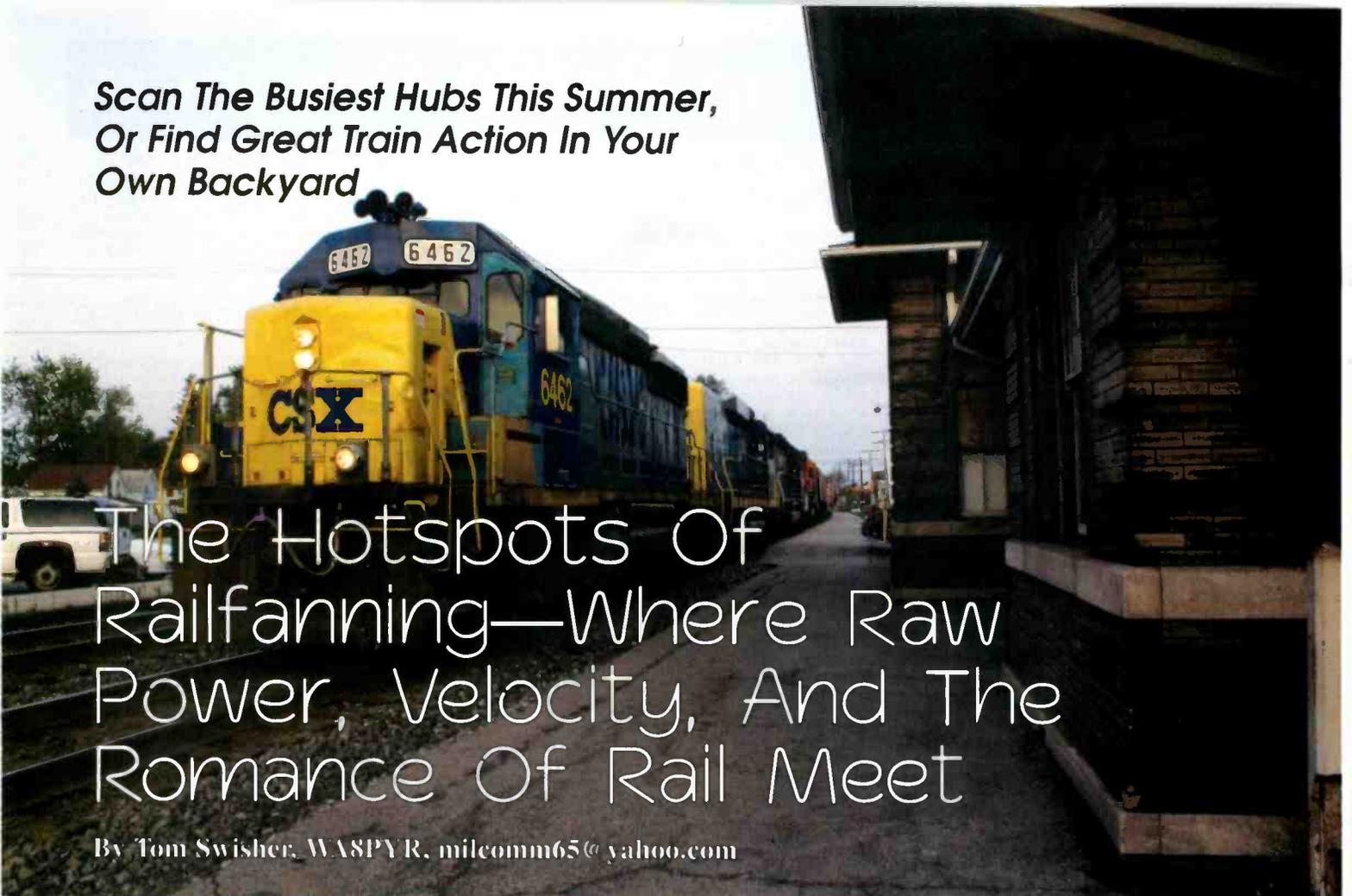
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**Scan The Busiest Hubs This Summer,
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The Hotspots Of Railfanning—Where Raw Power, Velocity, And The Romance Of Rail Meet

By Tom Swisher, WASPYR, milcomm65@yahoo.com

A CSX train at the B&O depot in Fostoria, Ohio. (Photo by the author, copyright 2006)

Are you looking for something different to listen to on your scanner as you tool around on your summer vacation? Try the railroads.

Referred to as railfanning by those who follow the lure of trains, it's a pastime that encompasses many aspects. Railfans count among their number those with an interest in history, in mechanical things, in photography, radio monitoring, maps and more. Many railfans maintain interests in all of these things, and then some.

I'm often asked what it is that interests me about trains, and I'm hard pressed to come up with just one simple answer. All of the above, certainly, but there is something about the sheer power of a train at speed or hauling a heavy coal drag up a steep grade that's just fascinating.

If you'd like to try monitoring the railroads, start by setting your scanner to search between 160.215 and 161.565 MHz. If there are any railroads in the area you'll soon start hearing them as they travel down the line, calling the lineside signals as they go. Next, gather up your camera and portable scanner, and join us trackside to see the real thing. Here are some hotspots to try (see the "Hotspots Frequencies" box for where to listen).

Fostoria, Ohio

Fostoria is located in northern Ohio, about 40 miles south of Toledo. The city is a hotbed of activity, with well over 100 trains

Tom Swisher is an avid railfan and *Pop'Comm's* "Military Radio Monitoring" columnist.

per day passing through the town. There are three major rail lines passing through: two owned by CSX and one by Norfolk Southern (NS).

The CSX (ex-Baltimore and Ohio) east-west mainline is part of this transportation company's New York-to-Chicago route and is very heavily traveled, especially by intermodal (trailer and container on flatcar) trains, as well as automotive parts and finished autos. The other CSX (ex-Chesapeake and Ohio) mainline runs north-south, between Columbus and Toledo, Ohio. This line carries a great deal of coal traffic, as well as some intermodal and automotive traffic. The third mainline through Fostoria was once the east-west main line of the Nickel Plate Road, as the New York, Chicago, and St. Louis Railroad was commonly called, and is today owned by NS. It carries mostly intermodal and automotive traffic.

Fostoria is home to one of the last operational railroad control ("interlocking") towers in the country. Known as F Tower, it controls all rail traffic through town. The three rail lines cross each other within a quarter mile of one another, creating a triangle of tracks local residents call the "Iron Triangle." The two CSX lines (C&O and B&O) cross each other at F Tower, the NS line and the north-south C&O line cross about 100 yards north of F Tower, while the NS line and the east-west B&O line cross about a quarter mile west of F Tower. This is a lot of railroading in a very concentrated area!

Fostoria also hosts a major automotive terminal. Located on the NS main line just east of the CSX (C&O) crossing, the Fostoria Mixing Center is used to switch automotive rack cars from train to train and between railroads. A great deal of inter-



A Norfolk Southern (NS) train passes the B&O depot in Fostoria, Ohio. (Photo by the author, copyright 2006)

change traffic between CSX and NS is handled here, with transfer runs between the two railroads several times each day.

Quite a bit of Fostoria's rail history is still visible if you look around. The bridge carrying the NS main over State Route 12 in the center of town still bears the cast letters "NKP" (for the Nickel Plate Road, an NS predecessor). The former B&O depot still exists as well; formerly used as the local Amtrak station, it is now used once again by CSX as an office for the local signal maintainers. Two other railroad lines once ran through Fostoria in years past, the Lake Erie and Western (part of the Nickel Plate Road) line from Sandusky to Lima, and the Toledo and Ohio Central (part of the New York Central system) line from Bucyrus to Toledo. Both of these lines have been abandoned for years, but traces remain, including both passenger stations and an interlocking tower on the old T&OC line.

The best place to watch trains is at the former B&O station, where there's a nice paved parking lot and a station platform on which to sit and while away the time in the shade waiting for the next train. The city is also in the process of building a railfan park on the site of a former junkyard; running along the north-south C&O line from F Tower to the NS/C&O crossing, it will be a nice grassy park area with a picnic shelter and will be safely fenced. It will afford a good view of all three lines, and will provide a safe and convenient place to have a picnic lunch while watching the trains whiz by.

For more information on this rail hotspot, visit Fostoria Railfan at www.fostorialive.com.

Rochelle, Illinois

One of the first—of what I hope will be many—of its kind, the Rochelle Railroad Park is a city park located at the eastern quadrant of the crossing between the Union Pacific (UP) and Burlington Northern Santa Fe (BNSF) mainlines from Chicago to the west.

Formerly the Chicago and Northwestern, the UP line runs from Chicago to Clinton, Iowa, and the BNSF (ex-Burlington Northern) mainline runs from Chicago to Savanna, Illinois.

These lines cross in the western part of the city; prior to the construction of the rail park, railfans would usually park near an interchange siding connecting the two railroads. While this parking location allowed a good view down the tracks, safety was compromised by having too many vehicles parked too close to the track. There was also no way to keep people off the tracks, thus leading to the possibility of an accident.

When planning the construction of the park, Rochelle chose the eastern part of the crossing for a variety of factors, but, luckily, this location also allowed the construction of an elevated viewing platform with a gazebo roof, picnic tables, a display area and a paved parking lot. Also provided are public restrooms, vending machines, and a small gift shop. The city also installed a scanner with outdoor speakers, programmed to receive the railroad channels, which is useful for monitoring the progress of approaching trains; nearby defect detectors (which announce the results of an inspection on the radio) give advance warning of eastbound trains, while notice of westbound trains is given by grade crossing signals east of the park.

Rochelle sees nearly 100 trains per day between the two railroads. A great deal of the traffic is intermodal or automotive, but there's also a great deal of general merchandise traffic as well as coal and ore trains.

Access for those with disabilities is provided, as is a small barbeque grill for visitors to use.

Find out more about Rochelle Railroad Park at www.rochellerailroadpark.org.

Tehachapi, California

To see one of the engineering marvels of the railroad world, some spectacular scenery, and a lot of trains, head out about 33 miles from Bakersfield, California, to the Tehachapi Loop.

The Tehachapi Loop is located on a major railroad main line through the Tehachapi Mountains in south central California, between the San Joaquin Valley and the teeming metropolis of Los Angeles. Built by the Southern Pacific Railway, the Loop is a helix of track that carries this extremely busy single-track

mainline around and over itself; a train of 85 cars or more will pass over itself while traversing the loop. The Loop was built in this manner in order to gain elevation in the smallest space possible, while lessening the grade as much as possible.

Tehachapi is in the semi-arid country east of Bakersfield. Being well away from cities and metropolitan areas, Tehachapi is not your typical railfan destination; the nearest country market is three miles away in the town of Keene, while the nearest motels, eateries, and filling stations are 14 miles distant in the town of Tehachapi. If you venture to the Loop, bring everything you might need, as well as plenty of water, and be sure to dress appropriately for the season; jeans, sturdy boots and at least a t-shirt are recommended (remember, being semi-arid country, snakes are always a possibility).

There are several prime locations from which to view the rail traffic, but none are improved. One even requires some hiking to reach, so if you're not up to a little walking, don't try that one. The others are either pull-offs from the main highway or accessible via decent, relatively short dirt/gravel roads. There is one overlook from the main highway that hosts a National Historic Site marker, and this may be a good place to start your visit.

Weekends are best, as weekdays typically have windows of time during which track maintenance is being performed; trains are held to permit this work to be done, so you'll have quite a gap between trains. On the other hand, once the maintenance work is complete, there will be a veritable flood of trains as the backed up traffic is released. Typically, several trains will be released in one direction followed by several trains in the opposite direction, but this can change at a moment's notice depending on the whims of the dispatcher and how many trains are on "short time" (meaning their crews are about to reach their limit of service time for that trip).

Be sure to go with a friend so you'll have someone to talk to, because when it gets quiet at the Loop, it gets really quiet, and you'll be out in the desert where there are few traffic and urban noises. Of course, you may be looking for just such solitude...

The following websites will give you plenty of information to plan your visit here: Tehachapi Railfan, www.trainweb.org/brettrw/maps/loop.html; Tehachapi Rail Cam, www.trainorders.com/cameras/tehachapi.

Folkston, Georgia

Moving on to the southeastern United States, we come to the town of Folkston, Georgia, location of the "Folkston Funnel." The Folkston Funnel is called that because, when viewed on a map, it looks like a funnel, with two main lines converging and continuing south as a single line, and because it funnels nearly all traffic to and from Florida. This CSX line has a double track main line and is the primary artery for rail traffic between Florida and points north.

Hotspot Frequencies

Fostoria, Ohio

- 160.230 - CSX Road
- 160.320 - CSX "CR" Dispatcher (C&O south of F Tower)
- 160.635 - CSX "RL" Dispatcher (C&O north of F Tower)
- 161.520 - CSX "IP" Dispatcher (B&O east and west of F Tower)
- 161.250 - Norfolk Southern Road/Dispatcher

Rochelle, Illinois

- 161.160 - BNSF Road/Dispatcher
- 161.040 - UP Road/Dispatcher

Tehachapi, California

- 160.320 - UP Road/Dispatcher
- 161.085 - BNSF Road/Dispatcher

Folkston, Georgia

- 160.590 - CSX Road
- 160.320 - CSX Dispatcher



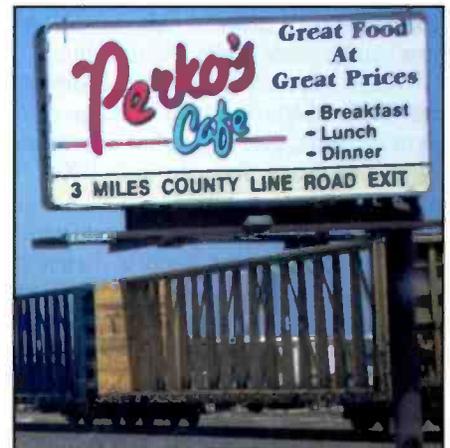
A CSX autorack train behind BNSF (Burlington Northern Santa Fe) power at the NS crossing in Fostoria. (Photo by the author, copyright 2006)



The railroad park at Rochelle, Illinois. (Photo courtesy City of Rochelle)



A Union Pacific locomotive heads south along California's Highway 99, near Delano in the San Joaquin Valley.



The tail end of a Union Pacific train winds past a slice of Americana in the San Joaquin Valley.

Located at mile 602.2 on the CSX Nahunta Subdivision, Folkston is the junction of the Nahunta Subdivision with the Jesup Subdivision. The "Nahunta Sub" runs from Savannah, Georgia, and carries traffic to and from points northeast, while the Jesup Sub begins to the west in Waycross, Georgia, location of Rice Yard, which is one of the largest rail classification yards in the southeastern United States. Both converge at Folkston, and carry the traffic south into Florida. Nearly all traffic carried on CSX to and from Florida must pass through Folkston, which means this is a serious hotspot!

Folkston has very nice facilities for railfans. A purpose-built viewing platform and shelter features lights and ceiling fans, and like the shelter in Rochelle, Illinois, a

scanner to listen to the railroad radio traffic. The shelter area also features picnic tables, a grill, and restroom facilities. One can also watch trains from across the tracks at the restored passenger depot. Rail traffic includes virtually everything under the sun that can be hauled by rail, including automobiles and parts, coal, grain, gravel, orange juice, and sulphur, just to name a few. Several Amtrak trains pass through each day, including the Autotrain.

With so much traffic concentrated onto one main line running through town, Folkston is definitely well worth a visit. Be sure to bring a chair and bottle of water, and maybe even some snacks or a picnic lunch, along with your camera and scanner; you'll have a nice day and see lots of trains to boot.

Visit the Folkston Funnel website at www.folkston.com/trains/trains.htm for more information on this great railfan destination.

Plus A Location Near You!

So, there you have it, four great locations from which to witness, and hear, the power of real railroading at it's finest. If you'd like to find some interesting, railfan-friendly locations near you, check out www.railfanswelcome.com/ for Dave Marshall's "Railfans Welcome" webpage. Dave has an excellent listing of railfan-friendly train watching spots all over the country, complete with locations, directions, and frequencies.

See you trackside! ■

Life's A Trip, Log It!

Scouting Out Unique Radio Finds On The Road

by Janice Laws, radioreport@yahoo.com

If your summer plans call for hitting the highway with family or friends, or even if you find yourself alone in a new place, make sure your favorite radio gear comes along. It's great fun to stumble across new transmissions and never before heard stations, and it can really make your journeys away from home that much more exciting. Radio adventures still exist, and after over three decades of radio listening and voyaging across North America and around the world I'm still amazed at the variety of radio broadcasts that can be heard while I'm traveling.

When I first met my husband Steve at the SWL Winterfest, held in Kulpville, Pennsylvania, every March, I was mostly a shortwave listener and DXer. I enjoyed shortwave pirate broadcasts and liked to listen to local programming while traveling. Steve also liked to listen to pirate broadcasts and was a proficient mediumwave DXer. He also possessed a great knowledge of FM anomalies like E skip and tropospheric ducting, and he liked to tower hunt and study transmission patterns. He had an innate understanding of the more technical aspects of the hobby, and I really enjoyed the social activities and spending time with people in the hobby. And we both love to travel. Together we have a blast, combining our mutual love of all things radio and going on trips that allow us to enjoy new radio experiences wherever we go. We've taught each other about our favorite aspects of the hobby and we've discovered new things together. It's a marriage made in the ionosphere.

Together we possess over 40 radios capable of hearing AM, FM, CB, longwave, shortwave, UHF, VHF. Family Radio Service, NOAA, subcarrier sta-



Steve and I presented a "Radio on the Road" forum at the SWL Winterfest in Kulpville, Pennsylvania, in March 2007. (Photo courtesy Ullis Fleming)

tions, air band, and TV channels. We have antique radios, old transmitters, clock radios, boom boxes, car radios, scanners, and let's not even start with the antennas and other peripherals. When we travel, one of us is always scanning the bands for whatever is coming through the ether. We've discovered all kinds of oddities that not everyone may think of listening to, but that have made for some great catches and great listening. I'd like to share with you some of the most interesting things we've heard on our road trips across the United States and Canada.

Travelers' Information Stations

When on the highway you may see those signs on the side of the road that say "tune into #### for highway advisories" or "travel information." Over the years we've seen more and more of these stations appearing, not only on the expanded bands on AM (from 1610 to 1700 kHz) but on FM as well. Places with

low-powered FM stations include airports, tollbooths, border crossings, state parks, theme parks, shopping malls, monuments, cities, towns, and event stations with temporary transmissions. They almost all have licenses and call signs and may broadcast everything from road conditions, weather forecasts, information on local attractions, local history, upcoming events, crime prevention, AMBER alerts, safety tips, parking information, and directions to places of interest. All of this is usually in a tight repeating loop that lasts only a few minutes and is transmitted at low power. They do come and go pretty quickly when you're on the highway passing by, so you'll have to be attentive.

The oddest one we've ever heard was in East Orange, New Jersey. While driving down the NJ Turnpike, we tuned in one local TIS (travelers' information station) that was repeating advisories from the local police department about what to look for if your teenager was engaging in "choking games." The message advised about how to spot marks on your child's

Janice Laws and her husband Steve Karlock are the hosts of the International Radio Report, Sunday 1430 UTC on CKUT 90.3 FM (www.ckut.ca), in Montreal, Canada, and longtime members of the Canadian International DX Club (CIDX, www.anarc.org/cidx/).

neck, to be wary of them locking themselves in their rooms with their friends for extended periods of time, and to look for grogginess. It even mentioned the names the kids call this game, terms like "space cowboy" and "suffocation roulette." Bizarre stuff to hear on a TIS.

To look up these stations by state and/or frequency go to www.fcc.gov to the audio division where you can get all the information on who and what is being broadcast. Or just keep checking 530 kHz and the extended band AM and you're sure to run across them; they run up to 10 watts. The FM stations are a bit more difficult to find and pop up squished between regular commercial broadcasters and can run up to 100 watts if they have an LPFM station license.

Radio Data Systems

Radio Data Systems (RDS) is a useful feature on some radios. My RadioShack DX-398 (aka Sangean 909) has it and some car radios (like Steve's Oldsmobile Alero stock radio) also have it. What this does is stream on the digital display information about an FM radio station, including IDs, song titles, and whatever else the

station puts into the RDS encoder that's transmitted on a subcarrier channel. This is a great time saver when it comes to station identification. When traveling in different areas, there are always a lot of new things to listen to, but when you're not familiar with the local geography, it's hard to tell what's what and who's who.

The *FM Atlas* by Bruce Elving is also great for researching FM stations across North America; he lists them by frequency and state and provides maps. But when it comes to distant stations coming in because of anomalies like *E* skip and tropospheric ducting, RDS is ideal for getting a clear and accurate ID. It's so amazing to hear, like Steve did, 97.3 FM KBCO from Boulder, Colorado, coming in while you're in Erie, Pennsylvania, and you may even question your sanity. Steve kept the RDS ID on his DX-398 so he could revel in this great catch for time immemorial. We even photographed the RDS information on the car radio during an *E*-skip opening from KSMB 94.5 FM from Lafayette, Louisiana.

You can get some strange stuff when those *E*-skip openings let you pull in FM stations from hundreds, even thousands, of miles away. (If you're not familiar with

E skip, I recommend reading Ken Reiss' article on the subject in the May issue of *Pop'Comm*).

I've also used the RDS feature on my DX-398 to record the IDs of stations I've heard when in Europe. They use this technology a lot more over there than we do in North America, where it seems to just be catching on.

A-Hunting We Will Go— Towers And Pirates

Alongside the highways we often see transmission towers of all kinds. We enjoy identifying the station and frequency of the tower and often pull off the road to photograph them. Steve has the ear for tuning up and down the dial, and by the splatter he can zero in on the channel pretty quickly. By the height of the tower and equipment on it he can also tell approximately what frequency and signal pattern is being used. I'm the off-roader and do the crazy driving that's sometimes required to zig and zag down country roads to get to the tower site so we can ogle and take pictures.

We like to use Radio-Locator.com, a comprehensive radio station search

Internet Resources

Here are some useful websites to help you do a little research before you begin your road trip.

FM Atlas—<http://members.aol.com/fmatlas/home.html>

National Radio Club—<http://www.nrcdxas.org/>

Offering information on where to purchase *AM Log Book*, with a list of all AM stations in the United States and Canada, and the *Antenna Pattern Book*, maps showing daytime and nighttime coverage areas of United States, Canada, and some Mexican stations.

Zip Code Signal—<http://www.v-soft.com/ZipSignal/default.htm>

Searchable database to find the field strengths of AM day, AM night and FM stations within U.S. postal zip codes throughout the United States.

Radio-Locator—<http://www.radio-locator.com/>

Good site for info about U.S. and Canadian AM-FM stations, including links to websites, power, and antenna info with coverage area maps.

Online AM Logbook—<http://www.amlogbook.com/>

Great online database of Canadian and U.S. AM stations listed by state, city, or frequency, including AM stereo and IBOC stations. Updated frequently.

Free Radio Network—<http://www.frn.net/>

The definitive pirate radio site! Check out the Grapevines where you can post logs, info, and just hang out with other pirate radio listeners, and even the operators themselves.

DX FM—<http://www.dxfm.com/>

FM and TV DX resources with very frequent updates of DX openings and listener reports (especially during *E*-skip season). Live TV DX cam and updated FM-AM-TV-DTV spreadsheets available for download.



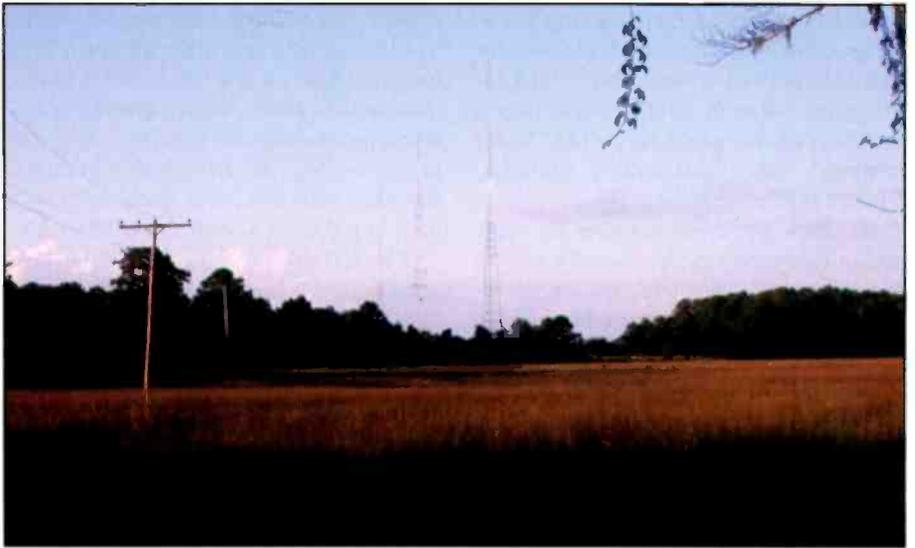
Steve at the CBC tower on the top of Mount Royal in Montreal. This tower transmits many Montreal radio and TV stations.

engine. to find the coordinates of the AM and FM sites. They have a clickable link to Google maps so you can see a map or satellite image of towers you're interested in. Sometimes we come across the radio station's studios, and sometimes they're in some pretty scary sites, like industrial parks, swamps, and other odd remote areas, with odd remote people and animals guarding them. Gates, fences, no trespassing signs, big dogs, and even an alligator have met us on our quests.

There are lots of other strange things we've heard and hunted down over the years. Satellite radio retransmissions can be heard from people's cars and homes when they re-broadcast their satellite radio service to an FM radio source with a low-powered transmitter. Dubbed "Part 15" by the FCC, they're limited to microwatts, though some do seem to exceed legal power. We usually find them at the low end of the FM dial, recognize them as non-commercial terrestrial stations, often by their content, and always want to identify the source. If we find that they're not satellite stations or some new local low-powered licensed broadcasters, then they may be pirates.

The distance and strength of a station will often reveal its intent. This entails a new search on our part and we often go hunting the operator's location. We once hunted down a pirate radio station broadcasting on 107.7 FM in Laval, Quebec. It had been relaying all Arabic music with no IDs for days and could be heard all over the island of Montreal. We got as far as the north shore of Montreal when we realized it had to be across the river in Laval. We drove up to where we last heard the station and up and down streets until we came across a house with an antenna outside appropriate for this type of transmission. As we circled our discovery, a woman came out on the back deck with a phone in her hand, she saw us and quickly went back in and off went the station. We never heard it again. Guess we spooked them.

Remember, this kind of hunt should only be undertaken if you're sure you won't put yourself in danger. When we heard many hardcore hip hop and rap pirates in Miami, Florida, our chase took us as far as the Opa-Locka neighborhood when, realizing we were in a high-crime area, we hightailed it out of there. (As a point of interest—and warning—we'd been solicited for various vices, and later I found that FBI statistics for Opa-Locka showed seven times the national murder



Lovely towers in Savannah, Georgia...also lovely alligators in the swamp below at our feet as we took the picture.

Set Them Free?

Pirate radio stations can be heard on any band and often have very interesting and original content. The stations also often serve communities that can't afford legal access to the airwaves. Licensing fees are prohibitive and stations are costly to run and keep on the air. Everyone should be able to have a free voice on the airwaves, but not everyone has access to an outlet they can afford.

Steve and I have a show on a campus/community station that we do for free. We have funding drives to finance the station, but it costs us nothing to be on the air (check out www.ckut.ca, the International Radio Report, Sunday 10:30 a.m. EST 90.3 FM Radio McGill in Montreal).

—JL

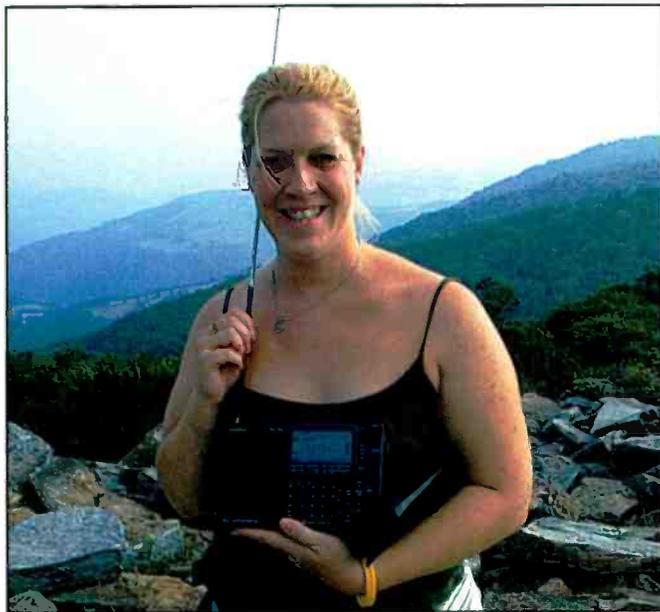
Editor's Note: Pop'Comm would like to know your views on Pirate Radio. Please take some time to fill out and send in the Reader Survey card found elsewhere in this issue.



Here I am at the console of CKUT 90.3 FM in Montreal, doing the International Radio Report, which airs every Sunday morning. Steve and I write, produce, program, and tech the whole show our own.



We found this tower site in the Florida Keys, with scary warnings on the gate, during a tower-hunting side trip while on vacation.



That's me on Spruce Knob Mountain in Virginia with WFLS from Fredricksburg on the RDS (Radio Data Systems) display on my RadioShack DX-398 (aka Sangean 909).

rate and almost 10 times the robbery rate!) Pirate radio operation is a felony in Florida, so you never know how the operators may react. Though most pirate radio operators I've met are very nice folks, the best place to meet and talk to them is at the SWL Fest in Kulpsville when all their exploits are merely anecdotal and can't be held against them!

Other stations safer to hunt down include the so-called real estate "talking houses." A realtor will often put up a low-powered transmitter inside a house for sale and broadcast a message describing the house and how to contact the seller. Tracking this down again requires getting off the highway and wandering



RDS ID on my RadioShack DX-398 from a trip to Belgium.

around neighborhoods following the signal strength until you find the source.

Life's A Trip...

There is a lot more we can say about radio and road trips and radio listening around the globe, but we will have to leave that for another day. Keep the hobby interesting for yourself and always be on the lookout for what's new on the air. Enjoy the hobby with a friend and remember that life's a trip, log it! ■

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Forty-Nine Forgotten Frequencies—A Monitoring Challenge

A Tour Of Elusive Stations For The Armchair Traveler In All Of Us

by Gerry L. Dexter

Some of us are shortwave listeners, some are strictly DXers, and some of us have touches of both DNA. Obviously, we're also human and, therefore, creatures of habit. In our case that means we probably lean toward listening during particular hours, usually a personally convenient time. Additionally, we tend to prowl particular segments of the shortwave broadcast bands, leaving some bands, areas, or even specific frequencies largely unexplored. Think of your high school annual lost in the nether regions of your attic, or maybe coins which have traversed their way from your pocket to the inner depths of the living room sofa. We forget this stuff is there. Maybe even that it exists at all!

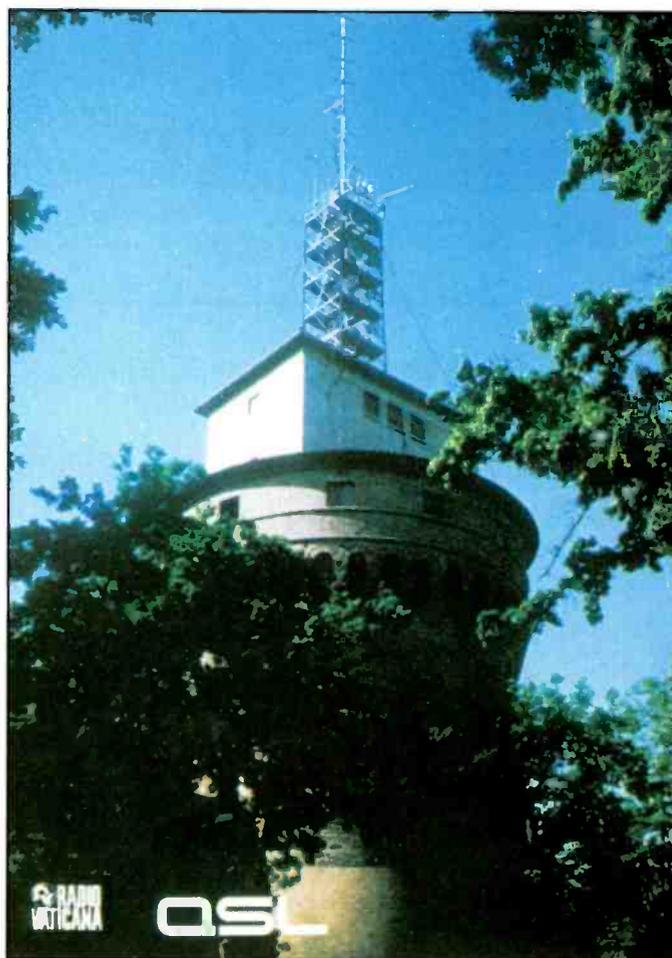
So this exercise is intended as a string tied "around your finger"—a reminder that there's other stuff out there, existing in lands you may not often visit. The stations we're highlighting here represent only a fraction of the possibilities that await you in the more or less out-of-band areas for shortwave broadcast targets. So it's smart not to limit your tries to just what we're listing here. Make it a habit to peruse the Blue Pages of *Passport to World Band Radio* or the frequency list in the *World Radio TV Handbook*, or one of the other annual shortwave guides or listings on the Internet. Then take out after whatever targets strike your fancy. Chances are you'll come up with a long list that will keep you busy and involved until that old high school annual turns up! Here we go...

The Chase Is Afoot!

2390—In terms of reception, Radio Huayacacotla in the Mexican town of the same name is as finicky as it gets. The station runs a mere 500 watts and only operates until 0100, which means that for most of our calendar year any attempt to bag it is useless. You'll need to wait until sunset occurs before 0100. Add to the challenge the fact that reception on this band is always very "iffy." Most of the checks you make for this one will turn up nothing, but don't give up.

2635—Frontline Soldiers Radio, North Korea. Not much is known about this station, other than that it is an extremely rare catch and does not operate on a regular basis. The power used is also unknown, although it's believed to be fairly low. When it is active it relays domestic network programs. If and when you do hear it, it will be in the early morning hours and, of course, in Korean.

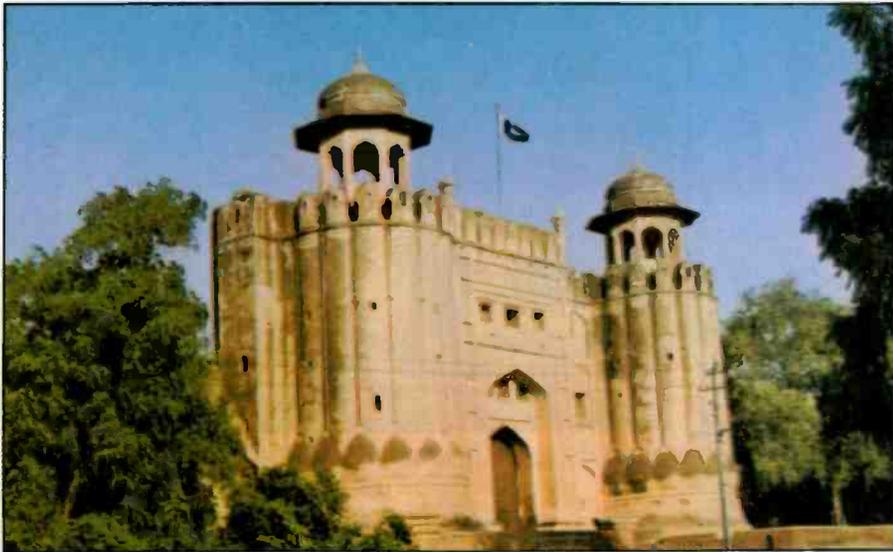
Gerry Dexter is *Pop'Comm's* "Global Information Guide" columnist.



This Vatican Radio QSL shows the antenna for the link between the studio and Vatican Radio's transmitter at Santa Maria da Galeria.

3205—Radio Ribeiro Preto, Ribeiro Preto, in Sao Paulo state Brazil. This one, too, is not always active, although it is believed to be more so now than it has been in recent years. It runs only 1 kW so hearing it will require endless patience, coupled with very complementary conditions. Needless to say, the programming is all in Portuguese.

3215—Adventist World Radio is aired via many transmission points around the globe, in this case via the Radio Nederland Relay station in Talata, Madagascar. AWR operates here from 0230 to 0330 in the Malagasy language using 50 kW. A good African night might well bring in this one.



Radio Pakistan isn't easy to hear no matter what frequency you try. But 11570 is one of more promising spots to check.

3310—Radio Mosoj Chaski in Cochabamba, Bolivia, is here from 0000 until 1200 broadcasting in Quechua. Many North American DXers have heard its 10-kW signal in the early morning or early evening hours.

3905—Radio New Ireland, Kavieng, New Ireland. Although it is a part of Papua New Guinea, New Ireland counts as a separate country on the official country list of the North American Shortwave Association, which makes it worth chasing this one down. With its 10 kW, it's far from impossible to log if you get good conditions and the ham activity is at a minimum. Check around local sunrise, especially during the spring and fall months.

3935—ZLXA, the Radio Reading Service based in Levin, New Zealand. This station was the subject of a feature story in *Pop'Comm* a few years ago. The broadcasts are intended for the visually impaired and are on daily from 0300 to 0100 but are aired with just 1 kW. Nonetheless a few in North America have been able to snare this prize catch, usually in the wee hours between 0700 and 0900.

3975—We think of Radio Budapest as something we hear up on the 6-, 9- or 11-MHz band, but they also operate down here, broadcasting in Russian for Eastern Europe daily from 0300 to 0400. And it's a hefty 250 kW, too.

4005—Vatican Radio. They also have a lower frequency outlet designed to serve a European audience. This one operates in various languages from 0230 to 0700.

4450—Korean National Democratic Front Radio. This clandestine is run by the North Korean government and beams to the South. It's not a very difficult catch. Check for it in the early mornings, say around 1200

(it runs to 1400). You can usually find a parallel feed on 4457.

5241—From time to time Argentine local stations show up here, being relayed for Argentines based in Antarctica. Radio Continental, Radio Rivadavia, Radio Diaz, and several others have made occasional appearances. The trouble is that there seems no rhyme nor reason, no pattern, to predict when these might show up, so we're left to enter this and the three to four others into our receiver memories and then remember to check for activity at various times. By the way, the broadcasts are in USB (upper sideband).

5500—Voice of Peace and Democracy is an opposition broadcaster based in

A Disclaimer...

The times and frequencies quoted here are always subject to change. Some of these, especially stations trying to reach an international audience, will have been adjusted or changed significantly. If you're unsure about a frequency or operating schedule, we suggest you check the 2007 *Passport to World Band Radio*, *World Radio TV Handbook*, or the ILG, EiBi or HFCC listings available on the Web.

Ethiopia and aimed at the now-independent former Ethiopian province of Eritrea. This station signs on at 0315. It's followed by the Voice of the Tigre Revolution, also from Ethiopia, opening at 0400. There's some question as to whether these broadcasts are daily, or even whether they're both on the air each time. This same pairing can be found on parallel 6350.

5597—The Voice of Vietnam's regional station at Lao Cai is here daily in Vietnamese to 1100 and then resumes at 1145 to 1400. It also uses 6664 at the same time.

5770—Burmese Army Radio, also known as Defense Forces Broadcasting. Not a lot is known about this station. It's been heard by a number of North American DXers, but not one of those can claim a QSL. The station runs 10 kW and is located in the town of Taunggyi. The best reception opportunity for most of us is in the depths of winter from 1330 sign on.

5775—The Italian Radio Relay Service (IRRS), Milan, Italy, is on the air Fridays,



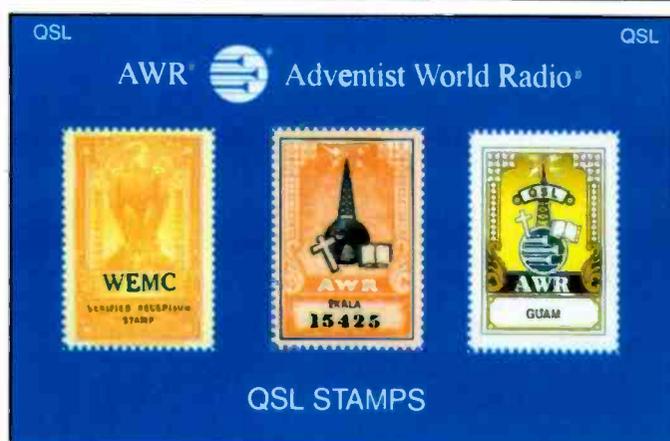
BUDAPEST

ART-POSTCARD

An oddball channel for Radio Budapest is 3975.



Lao Cai, Vietnam, is on 5597 and 6664.



One of Adventist World Radio's transmission sites is via Madagascar on 3215.

Saturdays, and Sundays to around 2200 airing various programs in English, some of them independently produced religious broadcasts. Some days and times are 100 kW (believed to be via Bulgaria) and others, from Milan, are just 20 kW.

6214—Radio Baluarete, Puerto Iguazu, Argentina. Supposedly this runs just 400 watts. When it is active, which doesn't seem to be consistent, it runs until 0300, which gives us a chance to go after it once the evening hours have arrived. This station also airs programming in Portuguese for its Brazilian audience, usually IDing as Radio Maranatha in such cases. Note, too, that the frequency is marginally variable.

6235—Here is Adventist World Radio again, this time airing via Albania. It's active Monday through Friday in Polish and Slovak from 0515 to 0545.

6250—Radio Nacional Malabo, Equatorial Guinea. This hasn't been reported in quite a while, although Bata on 5005 seems quite regular. 6250 in Spanish to Africa is supposed to sign on at 0500.

6937—Here's one of the many varieties of China's People's Broadcasting Stations, this one at Kunming in Yunnan Province. It's active from 1100 to 1500 and, as a bonus, you're likely to hear it from just before 2200 to just past 0000, although at those hours this will be largely a wintertime appearance.

7460—Radio Nacional de la RASD is an opposition station seeking independence for the Western Sahara region of Morocco. The Polisario Front operates this out of Rubuni, Algeria, and it will normally show up in your headphones from early fall, through the winter months, and possibly even into early spring. It operates from 0600 to 0900 but is just as likely to be heard during the late afternoons when its schedule takes it to 0000. Programs are in Spanish and Arabic.

7500—Radio Bulgaria can be heard here with Russian to Eastern Europe from 0300 and then in other languages from 0400 to 0530 closing.

8000—The Voice of Sudan, another opposition station, this one supporting the National Democratic Alliance. At one time when Radio Omdurman used 8000, the Voice of Sudan did its best to make listeners think they were tuned to the government station. How successful they were at this isn't known. Maybe not so much since they haven't shown up around 7200 where the official Sudanese radio now operates. They're only active for half an hour per day, from 1530, so it needs to be mid-winter in order to have any chance at this one

8300—New Star Broadcasting Station (formerly known as the New Star BC Station). This is where the famous (or infamous) Chinese numbers station hangs out. It supposedly operates 24 hours per day, but all that really means is that it may show up at any time during the day (although we need to focus on the morning hours). The broadcasts only last about 20 minutes and include some music at the beginning, before a lady begins reading off numbers in Chinese. A few DXers manage to bag this one each season. Other frequencies used are 9725, 11430, and 15388, although all of these may not be active currently or used at the same time.

9300—Radio Varna, Bulgaria is on the air here on Sundays from 2100 to 0000 continuing into UTC Monday until 0300. This one uses the government transmitters of Radio Bulgaria and broadcasts information of interest to tourists in Bulgarian.

9450—Sound of Hope, based in California but using transmitters in Taiwan beams into Mainland China in Mandarin daily from 1400 to 1600.

9935—This is the "other" Greek broadcaster, Radiophonikos Stathmos Makedonias, based in Thessaloniki. It operates here from 1100 to 1700, with broadcasts in Greek for a European audience. Actually, this is a division of the country's public broadcasting service designated as ERT3 (the Voice of Greece international service is officially ERA5).

9960—Radio Farda. This is a cousin to both the U.S. government's Voice of America and Radio Free Europe/Radio Liberty. Radio Farda broadcasts in Farsi aiming at Iran's large and growing younger population. The broadcasts are on many different shortwave frequencies. This one is active from 2000 to 2130 and is relayed in this case by the IBB transmitter at Iranawilla, Sri Lanka.

10330—All India Radio, Bangaluru (Bangladesh), often has a presence here during its 0025 to 0425 schedule.

11570—Radio Pakistan never seems to be heard well no matter where you live in North America. This, though, is probably one of the better spots to try for it. There is a Mandarin broadcast from 1200 to 1230 and another session from 1330 to 1530 in Urdu.

12115—Rikisutvarpid, these short broadcasts are relays of domestic news and information and are intended for members of the nation's fishing fleet. They air from 1755 to 1825 and again from 2300 to 2335.

12120—The Samara, Russia, transmitter site relays several opposition broadcasters on this frequency. Dejan Radio is on Wednesdays from 1700 to 1800 broadcasting in Tigrinya to Ethiopia. Mondays and Thursdays (1700 to 1730 in Oromo) is the Radio Voice of Oromo Liberation, and Fridays/Sundays (1700 to 1800 in Amharic) is the Radio Voice of the Ethiopian National United Front. And, on Tuesdays/Saturday (1700 to 1800 in Amharic) is the Voice of the Ethiopian People.

12130—Just up the dial a bit is Armavir, Russia, which airs Radio Horyaal in Somali to Somalia on Thursdays/Saturdays from 1730 to 1800. Also there's the Voice of Delina on Sundays from 1800 to 1900 in Tigrinya broadcasting their opposition to the government of Eritrea.

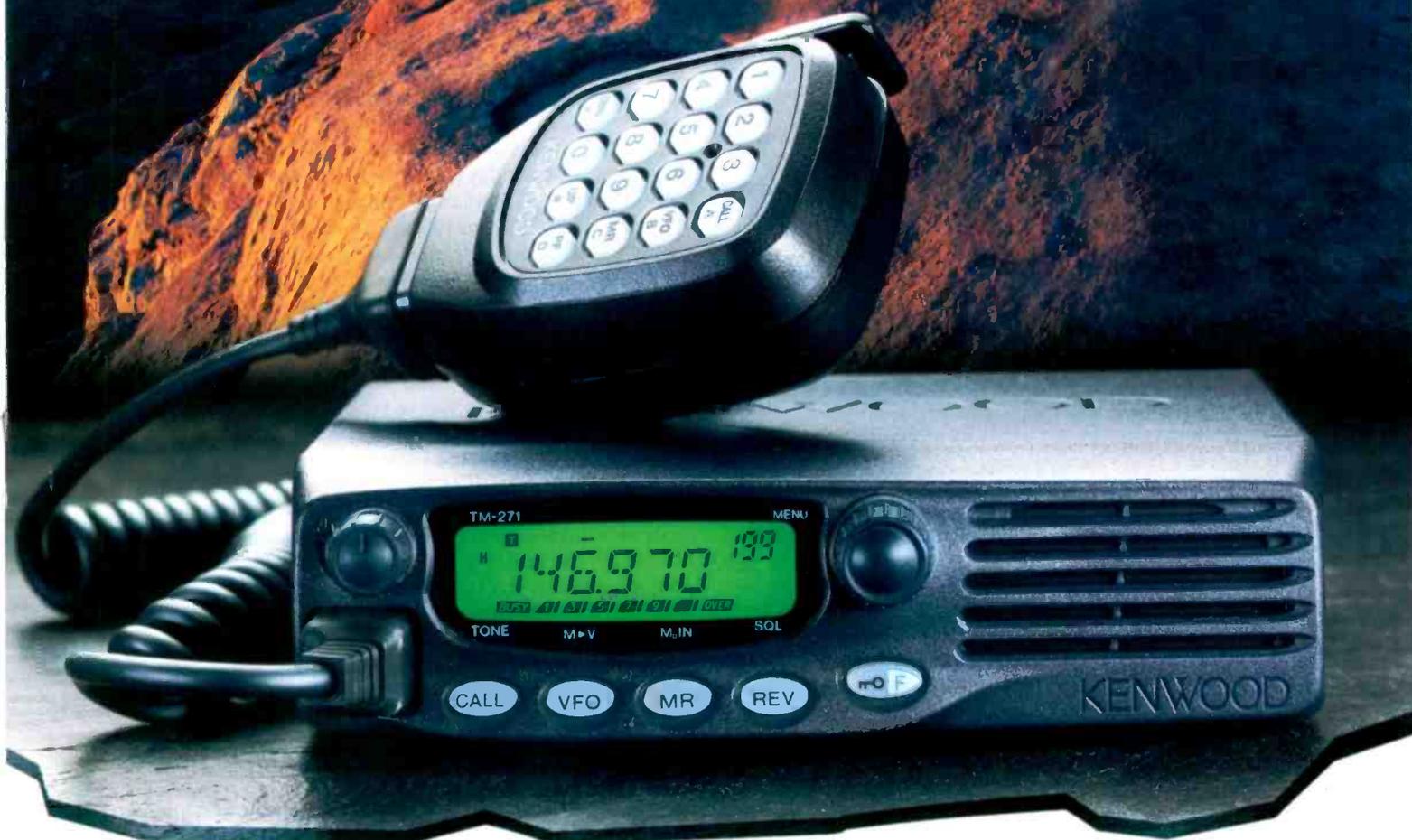
12140—This is one of the several frequencies used by Radio Free Afghanistan. The schedule here runs for just an hour, from 0230 to 0330 in Pashto/Dari, and is relayed by the IBB relay station in Kuwait.

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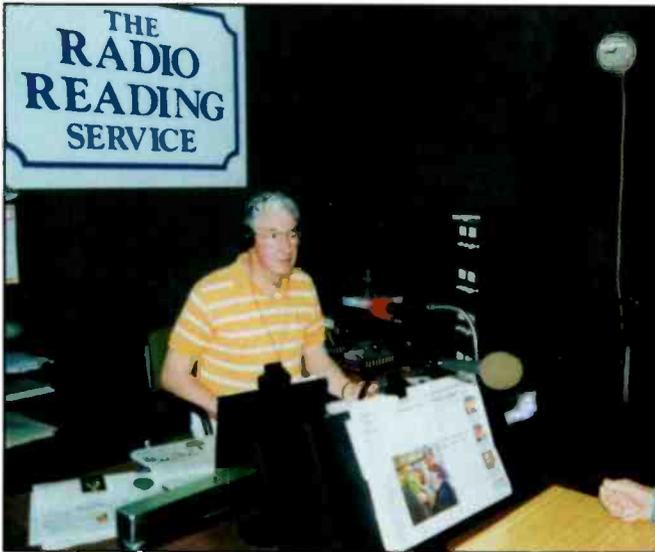




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New Zealand's Radio Reading Service for the Print Disabled can sometimes be nabbed on 3925.

13580—Bible Voice Radio, based in the United Kingdom, operates here Monday through Friday only (no weekends) from 1630 to 1700, but on Tuesday they get things started at 1600.

15020—Here's another of those odd channels of All India Radio. This one is active from 1000 to 1100 in English for the Far East.

15075—And here they are again, AIR, active here at 0215 and again at 0315 to 0530, though the band probably won't hold up that long...if it's open at all. The channel is also active during the mid-day hours, from late morning to early afternoon. Two sites, Delhi and Bangaluru, are involved on this frequency, the former during our midday period.

15530—Radio Aap ki Dunyaa, for whatever reason someone decided the Voice of America's Urdu service for Pakistan needed to have its own name. It's active here from 1400 to 1500 and is aired via Armavir, Russia.

15535—Southern Sudan Interactive Radio is scheduled here via Armavir, Monday through Friday from 0630 to 0700. Their programming is focused on the ongoing Darfur situation.

15565—The Democratic Path of Ethiopian Unity, also known as the Voice of Ethiopian Unity is active here Wednesdays and Sundays from 1900 to 2000 via Julich, Germany, with a broadcast in Amharic.

15570—Radio Rebelde or Radio Reloj from Cuba sometimes appear here, according to an undiscovered formula said to be kept under armed guard at the Ministry of Information and Communications in Havana! These appearances are anything but regular so just add the frequency to your receiver memory and make a point to check it now and then.

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New Delhi - 110001, INDIA

O.I.G.S.

No. 3/1/04 EIII/637 Dated. 06-07-04

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Time: 03:24 UTC Station: BANGALURU

Yours faithfully,

Director (Programs & Guests)
(V.K. SHARMA)

Archaeological Survey of India

U.S.A.

Stamp: 008.00

All India Radio uses many frequencies, including 15075 during our mid-day and evening hours.

15615—Radio Free Afghanistan, operated by the United States, is active here from 0330 to 0530 via Kuwait and from 0530 to 0930 via Iranawila, Sri Lanka, with programming offered in Pashto and Dari.

15675—This is as close as you're going to get to Switzerland on shortwave these days now that SRI said "sorry!" to its listeners. Radio Reveil Paroles de Vei transmits in French to Africa Thursdays from 1830 to 1900 via Julich. If you don't find it here check 11840, which was used during the last winter (B) period.

15680—Que Huong Radio, a Vietnamese opposition station with offices in California broadcasts in Vietnamese via Vladivostok, Russia. From 1200 to 1300.

15695—Radio Free Southern Cameroon is active here on Sundays from 1800 to 1900 with English programming via Armavir, Russia. It's another of the ever-growing lineup of opposition broadcasters. This one is produced by something called the Freedomland Foundation.

15745—The Sri Lanka Broadcasting Corporation, aka Radio Sri Lanka, operates here from 0030 to 0400. Sometimes the first hour or so makes it, but it can hardly be classified as a regular.

15820—More Argentine "feeders" (see 5241). If only we had that math genius guy from the TV show *Numbers*—bet he could come up with a formula to figure out the most likely days to check for these.

17550—Radio Waabari, a Somali opposition broadcaster, is on via Julich on Fridays from 1330 to 1400. Also here is the Voice of Tibet via Madagascar in Tibetan from 1530 to 1600.

18727—Coalition Maritime Forces, aka "Information Radio," is a shipboard station plying the Arabian Gulf with broadcasts in Arabic and Kurdish. The idea is to appeal for information on suspected terrorists, which people may have come across in their daily routines. 9133 is another Forgotten Frequency used by CMF. The downside is that it is very difficult to hear within the United States.

19010—Radio Free Afghanistan (see 15615) also operates here, running in Pashto and currently on from 1230 to 1330 via Kuwait. This frequency saw much more use during the winter period 1 last year.

Be Patient—Big Payoffs Await

All that should keep you busy for awhile. There's a lot of stuff to be heard in between the frequency areas you usually prowl and you should find it well worth your while to take some DXing time to nose around those "Forgotten Frequencies" once in a while. A little perseverance should turn up some interesting signals, even some you may not yet have added to your log. Good hunting!

On Summer Outings, Security Starts With Your Personal Preparedness

Spring has sprung, or so I thought. After almost two full weeks of mild weather, a sudden cold snap settled in and we are now back down in the 20s at night and only up to the low 40s during the daytime. Nonetheless, I write this for the July issue, when we'll be in the midst of the summer vacation season, and that means taking our hobby on the road.

Sometimes this flies in the face of a happy marriage, but to those of us who really enjoy the radio hobby, there is nothing wrong with dragging a few small pieces of battery-operated gear out into the bush, or to Disney World, or wherever. Just remember the family comes first and the radios second.

"Saddle Up And Move 'em Out!"

It's been many years since I did any serious backpacking and camping. After two foot surgeries and losing over 100 pounds of blubber, I am trying to convince myself that I need to start backpacking again. My friends Ed Breneiser, WA3WSJ, and Ron Polityka, WB3AAL (aka "The Appalachian Trail Ninja"), have both been after me to go on the "A-Trail" with them and combine some low-power (QRP) ham radio operation with a chance to get outdoors and get some much needed exercise.

Now at 61 years old, I am not the young stud-muffin I used to be. After many, many years of neglecting the old bod in favor of food, beer, and a sedentary lifestyle, I'm in no shape to go galumphing about in the bush with two experienced (and extremely physically fit) backpackers 10 and 20 years (respectively) my juniors. However, one must have a goal. Mine: To start an intense walking exercise regimen combined with some bicycling in an attempt to get into some kind of shape before the summertime. I know, I know...good luck! (Where have I heard that before?)

In fact, I do plan on doing some backpacking this summer once I get the legs and back in shape to haul a 40- to 45-pound Alice pack around. One thing I know for sure is that thousands of normal civilians get into trouble in the back country each year because they: 1) are out of shape physically; 2) are inexperienced in backpacking, outdoor lore, and woodcraft; 3) try to accomplish more than they are physically capable of; 4) don't watch for and read weather changes that can turn their outing from a fun time into a deadly encounter in the bush; 5) are not wearing appropriate clothing and footwear for the task at hand; and finally 6) fail to plan and leave detailed notes on their backpacking/canoeing/mountain biking trip with friends and/or family.

A Late Christmas Present

So let's take a hypothetical situation: You are over 50, but you've been working out regularly by walking and biking during the good weather, and doing 30 to 45 minutes every other day on the exercycle on days with inclement weather. You are eating healthy and feel better. Additionally you're now loading



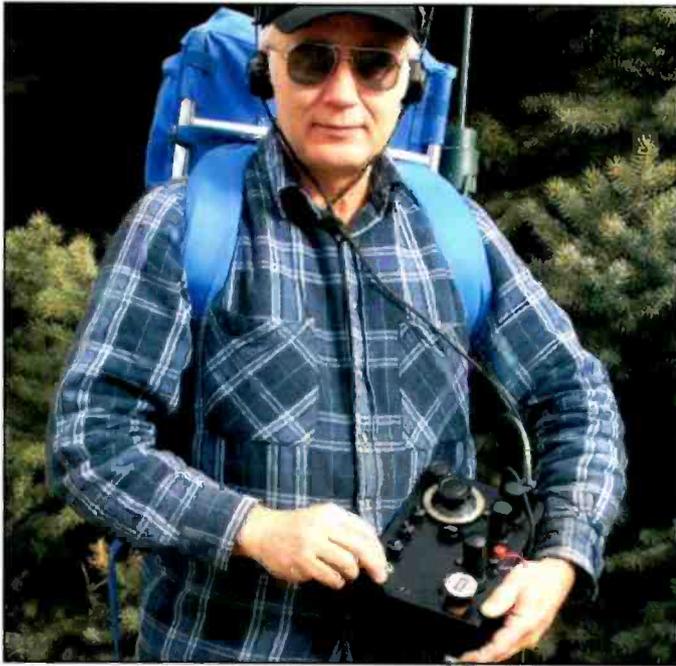
Ron Polityka, WB3AAL, aka "The Appalachian-Trail Ninja," is busy out on the Appalachian Trail with his radio gear. Ron has been out on the Trail every month for the past four years, giving out contacts to other ham radio operators throughout the United States and overseas. An avid hiker and camper, his entire station and all his camping gear fit into his backpack. This is one prepared individual.

up your backpack with about 30 to 40 pounds of bricks or bags of dry dog food to simulate the weight you are planning on carrying in your backpack and humping it every time you go out for a walk. Good for you! You're well on your way to safely enjoying some weekend backpacking.

But what happens if you get into trouble on the trail? You're not hiking/backpacking alone, are you? Not a good idea unless you are as sure-footed as a Big Horned Ram and have extensive backwoods experience. It only takes one misstep, a rotten log, a loose stone, and you can find yourself in all kinds of trouble, especially if you're going it solo.

Can you splint a broken bone...how about by yourself? Do you have first aid training (CPR, too)? Do you have an emergency kit in your pack that you can get to in order to extricate yourself from your dilemma? How about a radio? No, not the AM/FM broadcast receiver; I mean a "real radio"—something that will transmit so you can summon help. If you don't have some kind of transmitting unit, might I be so bold as to suggest that you get one, pronto?

If you have an amateur radio license you're in great shape (pun intended). Oh, by the way, there is absolutely *no reason* for anyone not getting a ham ticket. In January 2007, the FCC removed the CW (Morse code) requirement for all classes of license. This means that you do not have to know Morse code



Paul Signorelli, WØRW, is another avid hiker/ham radio operator who has things down to a science. Paul operates pedestrian mobile with several radios, including a reproduction of the WWII Parasets, used by European resistance movements against the Nazis (left), and his Elecraft KX-1 ultra-portable HF transceiver "wristmitter" (right).

in order to get a license! See the June 2007 issue of *Pop'Comm* for helpful information on how to get started.

Thanks to the FCC's late Christmas present, now there are no excuses for you to put off getting a ham license.

A Five-Watt Life Saver

If you do have your ham ticket, you can pack along a small handheld VHF transceiver (commonly called an HT) and have, at your disposal, a method of summoning help during an outdoor emergency. For years, in the back country of the United States, hams have reserved 146.520 MHz (the national simplex frequency for North America), as a place to listen for anyone needing help in the wilderness.

Alternatively, if you have other hams in the family or as close friends, give them your hiking itinerary and a list of 2-meter frequencies you'll be monitoring besides 146.520 MHz during your outing in the wilds. If there's trouble and you can't raise anyone on ".52 simplex," switch to some of the other frequencies you've provided to your family and friends and try to make contact. In any case, be sure you have people who know when and where you are going. Giving this info, along with a list of frequencies you'll be monitoring, to the Search and Rescue (SAR) folks will provide addi-

tional, possibly life-saving, assistance should things go sour in the bush.

Now, before you start sending me flaming e-mails stating that a 2-meter HT won't do anyone any good while out in the bush, let's examine some facts relating to VHF radios.

First the new VHF HTs are very small, jam packed with features, incorporate wideband receivers (136 to 174 MHz), can scan, and are very robust physically. The other nice thing: the price! You can procure a brand new low-end ICOM, Yaesu, or Kenwood 2-meter HT for around \$100 to \$150! Considering all the features and the capabilities of these newest HTs the price is a steal of a deal!

My wife, the beautiful and talented Patricia, KB3MCT, and I both carry tiny Yaesu VX-150 handheld 2-meter rigs. These are very small and extremely robust radios compared to similar radios 10 years ago. There are some smaller units on the market, but after a close look at these we chose the VX-150s since they were the best compromise between size and ease of operation. Additionally, you can program these radios using a computer along with some third-party software. If you've ever tried loading up 50 to 100 channels by hand, plugging each frequency, PL tone, and split using the push buttons, you'll really like the idea of using a computer to load up the frequencies on your new HT.

The VX-150 is small enough to fit in a hip pocket, shirt pocket, vest pocket (since I'm a photographer I usually wear a photographer's vest when I'm out and about), or backpack pocket. The power output is adjustable from under 1 watt to a full 5 watts output! Now that is some serious HT power!

One more item to note: these new VHF HTs have an expanded receiver frequency range, typically from 136 to 174 MHz. This means that your 2-meter "survival radio" will also double as a NOAA Weather Receiver. Check your local NOAA VHF outlet for the proper frequency to tune, load it up, and check it often when in the bush. Being forewarned about impending severe weather just might make the difference between life and death while on the trail.

Of course, using the VX-150 2-meter HT radio at the high-power level drastically shortens the battery life of the stock NiMH rechargeable pack that comes with the radio. Yaesu also offers a model FBA-25A auxiliary battery pack that will take six "AA" alkaline cells. I stoke mine with "AA" lithium-ion cells available at Wal-Mart as well as most other retail outlets.

These lithium-ion cells are expensive, roughly \$7 to \$8 per four-pack. The reason I like these replacement cells, though, is that their power density is much higher than alkaline, nickel-cadmium, or nick-

el-metal hydride cells. In other words, the lithium-ion cells last a lot longer and, at the 5-watt power output level, you're going to need every bit of power available in the battery pack for extended communications. Are your life and safety or the lives and safety of your fellow backpackers/campers worth a few extra dollars? I think so, how about you?

It's The Little Things In Life

Ask a group of ham radio operators what's the single simplest way to increase your transmitted signal level to the distant end station and you'll get varied answers, but the most common response will be "increase your power output." Ask a group of low-power operators (QRPers) and you'll get an entirely different answer: improve your antenna! There is no doubt about it; the antenna is the simplest modification you can make to improve your transmitted RF signal. It's also the cheapest and the most ecologically sound.

Most 2-meter HTs sold today come equipped with what has affectionately become known as a "rubber duck" antenna. This is a shortened, helically loaded rubber coated whip antenna that screws or locks down onto the RF output connector on the top of the HT. Convenient they are; efficient they are *not*! The "duck" antenna is a compromise to be kind.

In effect it is about a 4- to 6-dB attenuator! Why is that? Because the helically loaded, shortened antenna is not an efficient RF radiator, and is adversely affected by the ground plane, or lack thereof. Guess where the ground plane is on an HT? It's *you*! That's right—you and your body capacity act as an RF counterpoise when you use an HT.

About 20 years ago a couple of active VHF hams did a scientific experiment using several different VHF antennas: the standard rubber duck, a 1/4-wavelength (19.5-inch) 2-meter whip, and a couple of coil-loaded 5/8-wavelength telescoping whips on a 2-meter HT. The best performance with the duck antenna occurred when the operator held the HT about chest height, tilted at 45 degrees to the perpendicular and with the body of the operator facing the distant end station. This actually had the effect of turning the duck into a directional antenna of sorts.

When they compared the results of the other antennas against the duck they found that all the other antennas outperformed the rubber antenna, and in some cases by several dB. Okay, now you know

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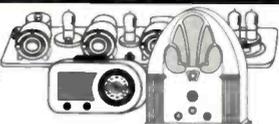
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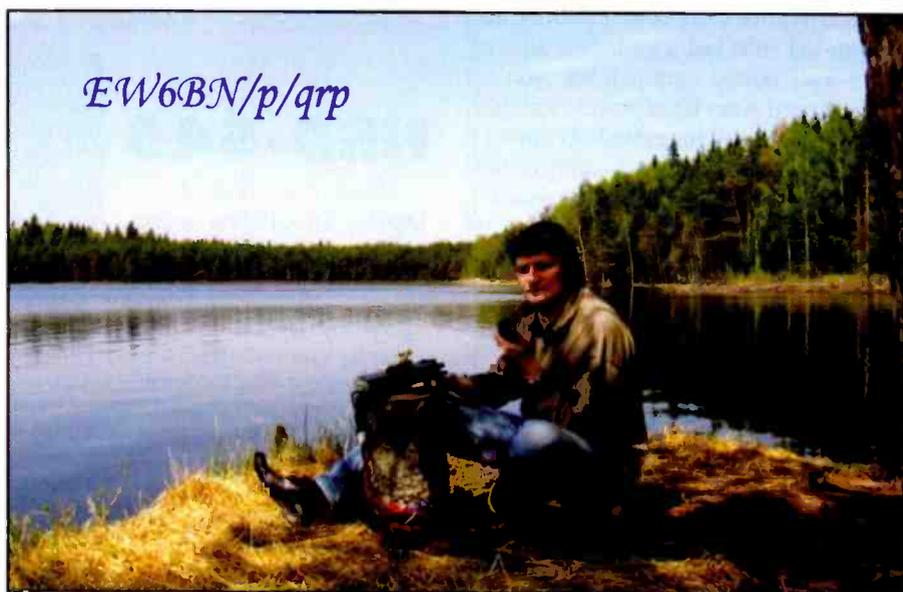
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Further afield, Yuri Kazakevich, EW6BN, from Belarus, is shown operating from the wilds of Russia. Yuri is a member of a Russian QRP group composed of active hikers/backpackers/campers who couple their love of radio with their love of the outdoors.

one of the biggest secrets in ham radio: work on your antenna to improve your on-air signals. This is true of HF operations as well as VHF/UHF.

For convenience and everyday use in urban environments, use the rubber duck antenna furnished by the manufacturer. However, when you're out on the trail or in the bush, trade a duck antenna for a 1/4-wavelength whip or a gain whip like the 5/8-wavelength units. Your body still makes up the RF counterpoise, but your overall signal will be several dB higher if you "ditch the duck" and get a real antenna on that HT.

The nice thing about all this is that there are various manufacturers of VHF/UHF antennas that offer small telescoping whips that will collapse into a very small footprint weighing only an ounce or two. Low bulk, small weight penalty...hey, there's absolutely no excuse to wander in the bush with an inefficient antenna for your emergency radio.

Okay, we've tackled the DC and RF power issues, what else can we do to our VHF survival radio to enhance the chances of contacting outside help during an outdoor emergency? In addition to a full-length whip antenna, you might want to consider a collapsible vertical dipole antenna that wads up into a small package that will fit into your pack or vest pocket.

What are we talking about? Well, I got this idea after obtaining a Uniden scanner several years ago. Uniden packages a very small VHF antenna with many of their scanners to augment the

traditional telescoping whip that's normally attached to the RF connector at the back of the scanner.

Essentially the Uniden model is a short length (six to eight feet) of RG-174 miniature 50-ohm coaxial cable, terminated in a BNC connector (to connect to the scanner antenna port) with the other end of the coaxial cable made into a single element radiator by stripping off the coaxial shield to a length of about 18 inches. Hmm...what we have here is the beginnings of dipole antenna.

My idea was to take this short length of coax and prepare the far end so that, instead of lopping off the shield, I'd keep the shield intact to form the other portion of the dipole element. Stripping back about 20 inches of shield, I then use a sharp X-Acto knife point and separate the braid from the inner conductor and insulation by working a small hole at the base of the dipole and pulling the center insulator out the side of the hole. This yields a very nice little 2-meter dipole that can be hung vertically or horizontally (or anything in between) to make a standard VHF dipole that's much more efficient than either the rubber duck or 1/4-wavelength VHF whip antennas.

Robin Hood Should Be So Lucky!

If you need a walking stick to go with your hiking gear, might I suggest that you look seriously at the Arrow Antenna line

of portable VHF/UHF antennas that collapse and stow in the boom, which doubles as a walking stick. Check out the Arrow Line at www.arrowantennas.com/. Once on the site, you'll see what an extensive product line is available for your VHF/UHF antenna needs. Remember, tailor your portable antenna needs to your hiking/camping style.

A year or so ago, my good friend Dave Carey, N3PBV, an outstanding engineer and adjunct professor of electronics at Wilkes University, and I sat down to plan an antenna project for his undergrad engineering students. We settled upon a five-element 2-meter Yagi, made from 1-inch

square aluminum stock for the boom, using Easton aluminum arrow shafts for the elements. To be quite candid we "liberated" the idea from the Arrow Antenna line, only we incorporated an extra element (for a total of five elements) and a six-foot boom that doubles as a proper walking stick.

All in all, after prototyping and tweaking the design, Carey's class ended up making about a half dozen of these high-performance 2-meter Yagis. For my part in the process I was given one to test drive. My results were about what I'd initially expected, and the fact that I could use this antenna as a walking stick

as well as a 5- to 6-dB VHF antenna really made it a handy radio accessory for outings in the bush.

Happy, And Safe, Trails...

So, there you have it: get into some semblance of good physical shape, pick a hiking buddy, get your ham ticket (if you don't already have it), pick up a small robust 2-meter HT and gain antenna and have some great fun hiking and camping in our vast American wilderness.

Until next time, remember our (paraphrased) mantra: In the wilderness, preparedness is not optional. ■

Emergency Communications (EmComm) Training

As a new feature for our readers, we'll periodically run a sidebar detailing POCs (points of contact) for upcoming emergency communications training as we receive them. This information is presented in the hopes that those interested in furthering their communications skills will avail themselves of the opportunities presented to receive additional training. Here are two submissions about upcoming events; check them out if you can.

From: Joseph Ames Jr. W3JY
Training & Safety Officer
ARES/RACES of DELAWARE COUNTY
www.delcoares.org

Delaware County EOC, Lima, Pa

ARECC Level 1 Training & Testing Session:
Saturday, June 16, 2007

Registration: 7:30AM
Session A: 8:00 AM
Lunch: Noon
Session B: 12:30
Testing: 3:00 PM (approximate)

Registration Deadline: June 1, 2007

RSVP: Send name, call, phone and email to w3jy@delcoares.org; please read the "Important Information" carefully before registering.

Important Information

a.. While Delco ARES/RACES is charging no classroom or testing fee for this session, Amateurs that register but go AWOL will be asked to make a \$25.00 "voluntary contribution" to the DelcoARES training fund!

b.. Pre-study is required of all students as this will be presented in review format only. We estimate twenty hours of advance study will be required for students with no exposure to ARECC concepts and principles.

c.. ARECC Level 1 textbook (required): Amateur Radio Emergency Communications Course (ARECC) Level 1

This is the printed version of the ARRL CCE on-line course, EC-001. 148 pages. 3rd edition. © 2004-2005, published by American Radio Relay League, Inc. (ISBN: 0-87259-846-2) #8462 — \$19.95

Purchase directly from the ARRL at <http://www.arrl.org/catalog/?category=Public+Service+and+Emergency+Communications&words=>

a.. Amateurs who wish to test for ARECC Level 2 or Level 3 may do so with permission and two-weeks' advanced notice.

b.. Students should bring a bag lunch; there will be insufficient time to take lunch off-site.

c.. Morning coffee and pastries will be provided.

Location

Delaware County Emergency Operations Center
601 N Middletown Road
Media, Pa 19063-5505

Snyder County ARES Inc. is sponsoring their third Emergency Communications Conference. The previous two events were section-wide (Eastern PA). Building on our previous successes we are taking our conference to the entire region, and aiming to make 2007 the best one yet. The conference will take place on Saturday, 9th June 2007 commencing at 09:00 (Registration and coffee from 08:00). Venue will be the VFW Hall on Rte. 522, Selinsgrove. It boasts ample parking and comfortable accommodation for up to 200 delegates.

Tentative Schedule

08.00 - 09.00 Registration and Coffee/Danish (Meet and Greet)
09.00 - 09.15 Welcome by Snyder County Commissioners and Snyder County RO/EC
09.30 - 10.30 Principal speaker - Rich Arland - W3OSS, Popular Communications, Homeland Security column author
10.30 - 10.45 Break (Coffee/Soda/Light Snack)
10.45 - 11.45 NIMS - Joe Roberge, PEMA - State NIMS Coordinator
11.45 - 01.00 Buffet Lunch
01.00 - 01.15 Announcements/50-50 Drawings/Door Prize
01.15 - 02.00 Breakout Session A: NVIS Antennas by Al Yessel - AB3CE
Breakout Session B: TBA (Technical or operations oriented topic)
02.00 - 02.15 Break (Coffee/Soda/Light Snacks)
02.15 - 03.00 Breakout Session C: Funding your Operations - William Michaels - KB3KUM - Snyder Co. Dept. of Emergency Services
Breakout Session D: TBA (Technical or operations oriented topic)
03.00 - 03.15 Break
03.15 - 04.00 Breakout Session E: Erie County ARES/SKYWARN - Working with your County Government.
04.00 Thank you and good-byes

For more information go to: www.midatlantem.com

Chris Snyder
Emergency Management Specialist
PA Emergency Management Agency
717.346.3103

About-As-Cheap-As-You-Can-Get Scanner Antennas

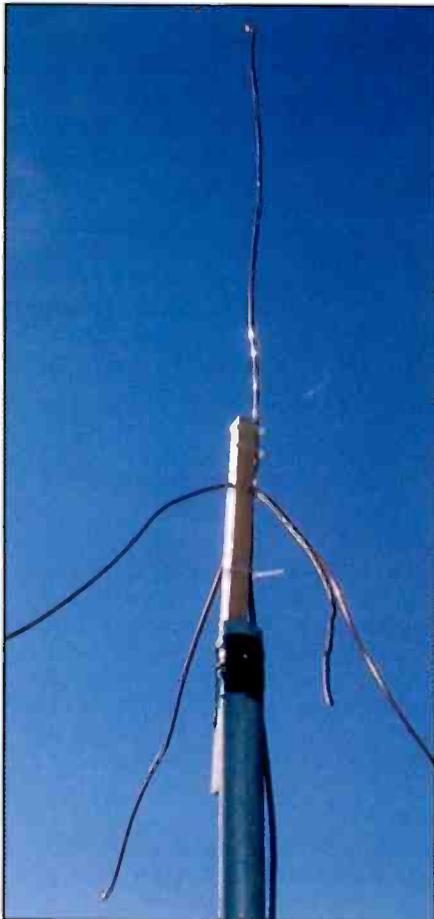


Photo A. A cheap ground plane antenna.

This month we're going to cover a family of very easy-to-build ground plane antennas. A piece of wood and some wire can work just as well as very expensive antennas. They're not going to look as pretty and may not last as long when mounted outside, but after an outing, emergency, field day, or clandestine operation, leaving these antennas behind is not going to hurt your wallet, either.

Again, mainly all you need for these ground planes are some wood and wire, and except for the coax, that should cost under \$3. With the junk in most garages, you should be able to build one out of materials "recycled" from your garage.

The elements can be made from #10, #12, or even #14 copper wire (see Photo A). For a stronger version, bronze welding rod makes nice elements, though

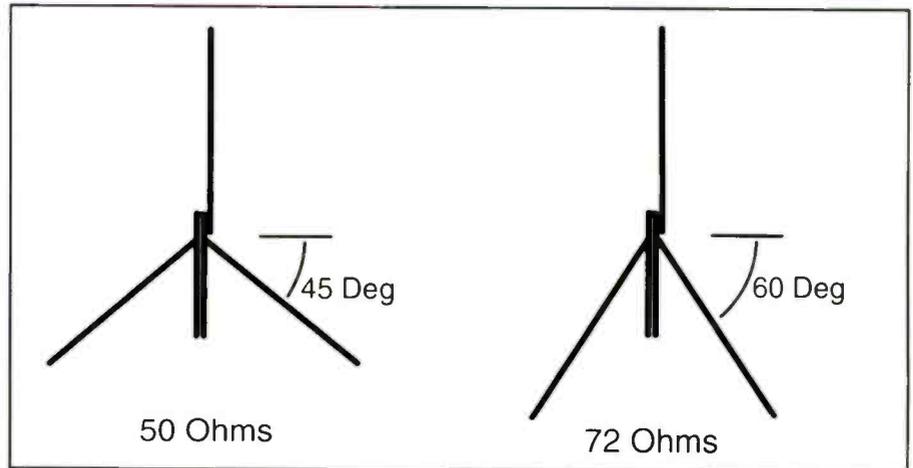


Figure 1. Element positions for 50- or 72-ohm versions.

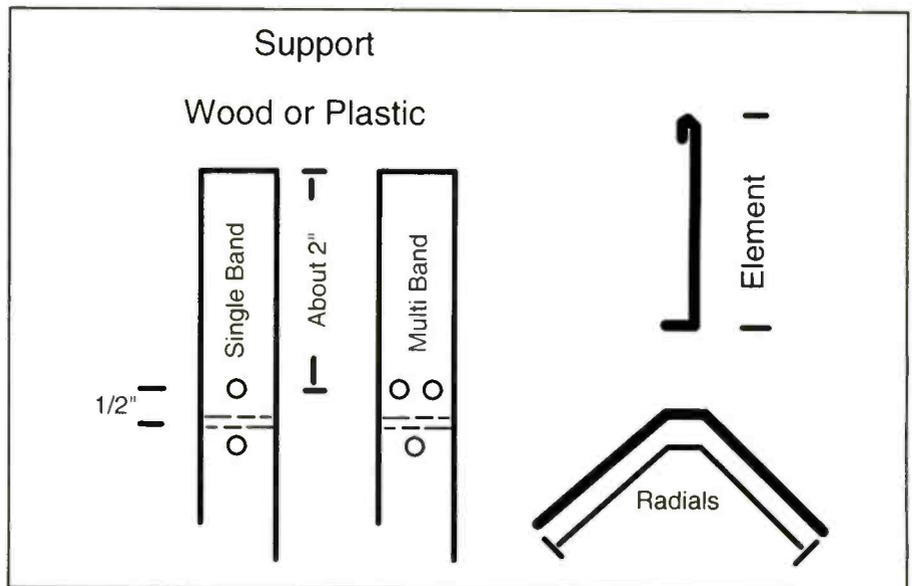


Figure 2. Drilling your support.

you're not going to be able to fold up the antenna. If you get desperate, the elements can even be made from old coat hangers, but it's often hard to get a good solder joint on that iron wire.

I used nylon cable ties to hold the center element and the coax, but you can use electrical tape, rubber bands, garbage bag ties, or even that all-round universal adhesive, duct tape. To hold the radial elements in place, just bending the elements down at an angle is usually enough, but a few

drops of glue, or even a blob of solder where the wire goes into the wood, will keep the elements from falling out.

Coax

50-ohm coax is what people usually use for this type of application. It's commonly available, and RG-58 is thin and light. Good for camping, too. The larger 72-ohm coax, like RG-59 or RG-6, is thicker and heavier, but it has less than



Photo B. The 150/450/850-MHz cheap scanner antenna.

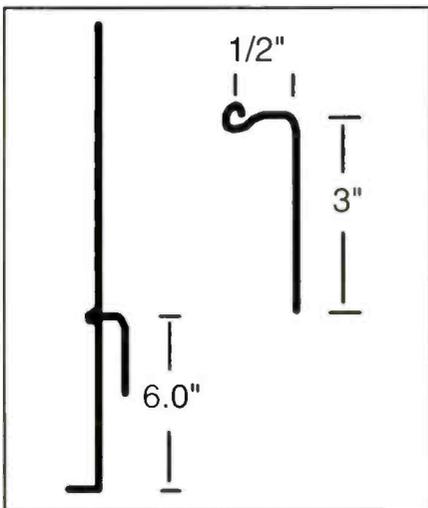


Figure 3. Dimensions and placement of the 850-MHz decoupling stub.

half the loss of RG-58. And 72-ohm coax is often available surplus off TV cable drops and satellite TV systems. It's good, low-loss coax, which is why 72-ohm is used instead of 50-ohm coax on most commercial systems.

Oh, yeah, you might also want to solder the coax to the center element *before* you tie it down with the cable ties. I melt-

ed a set of cable ties the first time I tried to solder the coax to the elements.

I used some of the shielding braid from the coax as a jumper between the radials, but you'll need to make sure that the two ground radial wires are electrically connected.

As you can see in **Figure 1**, the antenna is easily tuned for 50- or 72-ohm coax, so use whatever coax you have in your junk box or can easily scrounge up.

When the elements for a ground plane are perfectly flat, the antenna has an impedance of about 30 ohms. Bend the elements down to a 45-degree angle and the impedance is near 50 ohms. Bend them a little more, down to 60 degrees, and the impedance is good for 72-ohm coax.

The boom or support is easy enough. You can use a piece of wood 6 inches to 1 foot long and about 1 inch wide. **Figure 2** shows you that for the single-band version you need to drill three holes in the support; for the multi-band version you need to drill four holes. The holes should be the same diameter as your elements.

The wood can be a piece of 3/4- or 1-inch-wide trim wood or part of an old broom handle. Or you can use a piece of plastic pipe instead. I know a lot of you like to use PVC pipe, but I personally find that it melts easily when you try to solder on the coax, so—again—you have to solder the elements, then assemble them.

Element Dimensions Single

Here are the measurements for the single-band versions:

Frequency Band	Center Element	Ground Radials
140–170 MHz	17 inches	36 inches
300–350 MHz	8 inches	17 inches
440–480 MHz	6 inches	13 inches

The length of the ground radials might look a little long, but the wire is really two elements and just bent in the middle.

Here's the more complicated version (see **Photo B**; see also **Photos C** and **D** for closeups of the center element and coax attachment, respectively). The antenna works as a ground plane on 150 and 450 MHz with elements for each band. At 850 MHz a decoupling stub resonates part of the 150-MHz element as a 850-MHz quarterwave element, and we then have a three-band ground plane antenna. On my network analyzer this multi-band vertical had a good response

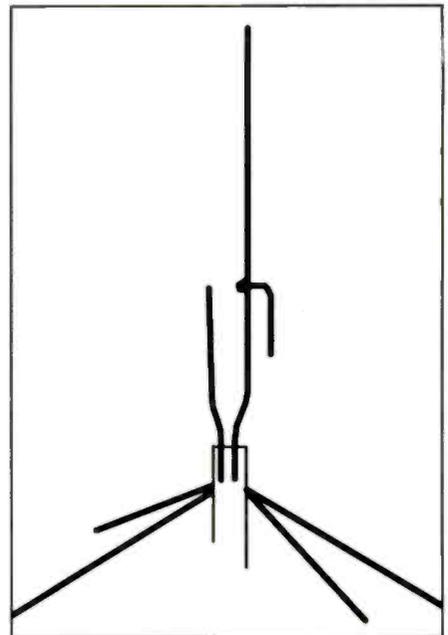


Figure 4. The three-band cheap ground plane.



Photo C. Close-up of the multi-band elements.

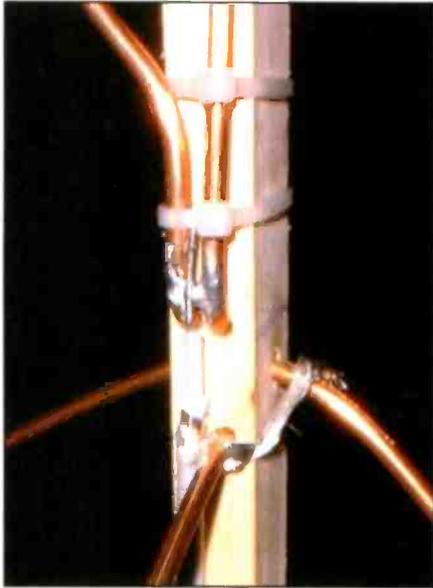


Photo D. Closeup of coax attach points.



Photo E. Here's the antenna in a tree.

or SWR from 800 to 1000 MHz with the decoupling stub.

You can see that it has two long radials for 150 MHz, and two shorter radials for 450 MHz. At 800 MHz, the stub elements "see" all four radials as a nice large ground plane.

Construction is similar to the single-band ground planes, you only need to drill one more hole in your boom.

The decoupling stub is something you rarely see in a scanner antenna, but as you can tell from looking at Figures 3 and 4, it's really not that complicated.

Element Dimensions Multi

And for the multi-band versions:

150 MHz Radial 36 inches (bent in the middle)

450 MHz Radial 13 inches (bent in the middle)

150 MHz Center element 17 inches

450 MHz Center element 6 inches

Mount .5 to 1 inch from the 150-MHz element



Photo F. Packed up and ready to go on the road!

850 MHz stub length and mounting position

3 inches long mounted 6 inches above the coax on the 150 MHz element.

the antenna from a tree, roof rafter, or whatever (see Photo E).

Mounting

Usually I put a loop in the element tips. This makes it a little harder to poke your eye out with an element, and now you can put some string, fishing line, or rubber bands through that loop and hang

Camping Or Backpacking

The elements are just soft copper so they're really easy to bend. Now you can just wad the antenna up with the elements close to the wood (see Photo F) and just bend them back when you get to your camp. The elements are good for about a dozen waddings before you need to build another \$3 antenna.

So now when the guys in Black Kevlar arrest you while camping just outside the fence near Area 51, at least you didn't lose much money on that scanner antenna. As for the multi-band prototype, it is now hanging from a rafter on my ceiling, connected to my second R-7000. Now, go out and get some more of your own antennas in the air!

As always, I welcome your technical questions and suggestions for future articles. Contact me at wa5vjb@flash.net. I look forward to hearing from you. ■

Editor's Note: In the process of editing the May issue of Pop'Comm, a couple of uninvited columns squirmed their way into a table in Kent's excellent piece on building an 800-MHz Yagi. Here is the corrected table. We regret the error.

Antenna Dimensions

		Ref.	DE	D1	D2	D3	D4	D5	D6	D7	D8
4-element length		6.5	6.0	5.5							
	Spacing	0	2.5	3.5	6.0						
6-element length		6.5	**	6.0	6.0	6.0	5.5				
	Spacing	0	2.5	3.5	6.0	9.0	12.1				
10-element length		6.75	**	6.0	6.0	6.0	6.0	5.75	5.75	5.75	5.5
	Spacing	0	2.5	3.5	6.0	9.0	12.0	15.0	18.0	21.25	25.5

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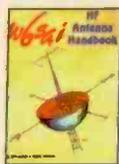
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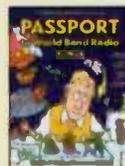


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Heading Out On Holiday? Bring Your Radio



Have a big road trip with the family in the works? How about a camping adventure? Fishing expedition? Whatever your vacation plans involve this summer, be sure they also include your radios.

CB For Starters

For the travel part, it would be wise to dig out your CB. You can pick up a lot of valuable safety information from professional truck drivers along your route. Those tips can save you lost time, even lost lives. Just monitor CB Channel 19, the trucker channel, or the channel used by truckers in your region of the nation. You will be amazed.

CB can help you avoid pile-ups, get directions, warn of bad weather ahead, give you leads on best routes, and more, all courtesy of those road warriors in the big rigs. No cell phone can do that. Professional drivers have saved my bacon a number of times on various trips. I wouldn't set out on any road trip without my trusty CB.

Enter FRS

At your campsite, fishing lodge, etc., your FRS/GMRS radios can take over. They can be especially helpful if you have children along. Their small size means FRS radios can easily be

carried in a pocket. Their inexpensive cost means minimal loss if anything happens to them.

FRS can also boost your security level and give you greater peace of mind. You will want to invest some time before you leave home in making the kids thoroughly familiar with the radios. When an emergency arises—and the anxiety level soars—is no time to be wondering where the ON button is. Be sure to teach them good radio manners, too.

Remember that FRS is a short-range radio. Take the advertised range on the package with a grain of salt. At best, you can perhaps expect to get about half the advertised range. Test it beforehand with the kids or other adults so your expectations are realistic.

Know Your Stuff

Remind your kids to conserve batteries, and make sure you install fresh ones to ensure maximum service. Tell them if they get lost to stop and stay put. You or searchers will find them faster. Teach them correct distress message content. Remember, shouting "Help!" over and over into the radio will do little good, but will drain precious batteries quickly.

Pre-select a "talk" channel for routine communications. Channels 8 to 14 are good bets since they're solely FRS chan-



REACT Kaamulan volunteers assist Philippines authorities with a school earthquake drill. Their radios provide valuable communications in disaster exercises. REACTers hope the real thing doesn't occur, but they and the school are now prepared.

nels with little likelihood of interference. Most FRS/GMRS radios now have a scan feature that your family can use to listen for radio traffic on any channel. If they hear any, they can seek assistance from those parties in an emergency. Be sure they know how to use the scan feature.

The FRS call/distress channel, by gentlemen's agreement, is FRS-1*. Teach everyone in your party to use FRS-1* for those two purposes only. Inform them to immediately move to a "talk" channel so they will not endanger anyone else's life. Because FRS is short-range, it is very important to monitor FRS-1* whenever the radio is inactive. Doing so may give them the privilege of helping to save someone else's life.

In an emergency, they need to broadcast on FRS-1* **WHERE** exactly they are. Teach them to observe trail signs, landmarks, and distinctive objects that would help searchers to locate them. They also need to broadcast **WHAT** is wrong, say if anyone is injured, etc.

They repeat the distress message three times, slowly, on FRS-1*, keeping it the same each time to help REACTers or other monitors who may have to piece it together. Then they listen or scan for a while, to conserve batteries, before broadcasting again. The distress procedure is the same on any type of radio.

GMRS, Too

If you're a licensed GMRS operator, your stronger GMRS radio will be a real asset in an emergency. Take it along. Its greater range will better pick up signals from FRS-1*, so it's a great help. REACTers and other GMRS operators in the area where you are camping, fishing, hiking, etc., can do likewise, and they are a valuable resource in an emergency.

Channels 15 to 22 in your FRS/GMRS radios are solely GMRS channels. They require an FCC license. Please respect that and avoid those channels entirely unless you hold a valid GMRS license. You may be repaid in spades for your courtesy some day when you urgently need help from those licensed GMRS operators.

Don't Leave Home Without One (Or More...)

Well, there you have it. Your CB, your FRS/GMRS, and your GMRS radios can all help to safeguard your holiday. REACT Teams and many individuals often monitor all three bands. Take your

radios along to enjoy the advantages and safeguards they provide on vacation.

REACTers On Holidays?

Of course, even REACTers need some fun, and Wisconsin members from various REACT Teams get together for an annual weekend campout. Clearly, REACT is not "all work and no play." Some from neighboring states even sneak in on occasion to share the good times. The event is so popular that others arrive a day early to extend their visits.

It's a fun event, but it also builds close relationships among Teams. That pays big dividends since the Wisconsin REACT Council has a top-notch mutual aid system whereby Teams help one another with events or in emergencies. There is method in their merriment.

Schools Prepared

Authorities in the Philippines rely on REACT Teams to supplement their efforts in disaster preparedness. REACT Kaamulan volunteers recently assisted Civil Defense, medical, and other personnel to conduct earthquake drills at local schools.

Girl Scouts who were students at the schools helped with the drills as well, assisting "casualties" from the school to safety and administering basic first aid. REACTers helped teach the youngsters to seek safety beneath their desks in the event of an earthquake. Their radios also helped to provide valuable communications during the disaster exercise.

You Too?

REACT has a place for you. Your radio can help make your community a safer place for all. You can enjoy the friendship of other REACTers on your local Team, and beyond, as you have fun serving.

REACT marks 45 years of service around the world in 2007, and new radio volunteers are always needed and welcome. It's rewarding and fun. Put your radio skills to work, or learn those important skills among REACT friends. Check out www.REACTintl.org for more information on REACT. You can e-mail REACThq1@REACTintl.org to request a Team Charter application, or call 1-866-REACT-9-9 (toll free).

Until next time...

*(no tone)

Pop'Comm July 2007 Survey Questions

Do you listen to unlicensed "pirate" broadcast stations? (Please circle appropriate number)

- Y..... 1
- N..... 2

To what extent is seeking out and monitoring pirate stations part of your listening routine?

- It is my primary listening interest 3
- It is a major interest 4
- It is one among many interests 5
- I listen if I find one, but I don't look for them 6
- I disapprove of them and will not listen if I do tune one in 7
- They're not on my listening "radar" 8

What is your feeling regarding unlicensed "pirate" broadcasters?

- They should be put in jail when caught 9
- The FCC should shut them down whenever possible, but should not prosecute them 10
- They should be left alone as long as they are not causing interference to licensed stations 11
- They represent a legitimate free-speech outlet for the "little guy" and should be legalized. 12
- None of the above / No opinion 13

Have you ever been involved with the operation of a "pirate" broadcast station?

- Yes 14
- No 15
- Depends on who's asking 16

Wideband Receivers— Frequency Coverage You Can Count On... Or Can You?

Wideband receivers, which include coverage of both traditional scanner frequencies and the shortwave range, have become very popular over the last few years. Ranging from the pocket-sized ICOM R-2 and AOR's AR-8000 series through ICOM's PCR-1500 and AOR's 5000 series communications receivers, these sophisticated radios offer a wide range of radio listening activity. Yet many scanner enthusiasts find them difficult, or at least surprising, to use on frequencies they're unaccustomed to, or they may complain of poor performance.

A recent round of letters I received dealt with some of these issues, so I thought it was time to take another look at these receivers and why you might, or might not, want to own one. Of course, you know what happens when they let the scanner guy think...

A Give-And-Take Relationship

So what's up with these radios and why do we tend to have a love/hate relationship with them? On the surface, it should be the coolest thing since the transistor: one radio that covers virtually everything from below the broadcast band, through shortwave, up above cell phones and the 1.2-GHz amateur band. So why is it that many of us, particularly those who buy one of these radios as a first receiver, are disappointed?

The first problem that arises immediately is the antenna. Remember that all antennas are frequency sensitive. Yes, some perform better than others over a wider range of frequencies, but all represent some sort of compromise to get there. You can have maximum performance on one frequency or narrow band, or moderate performance across a wide range of frequencies, but not both. The wider the range of frequencies you're trying to cover, the worse this problem gets.

Also remember that the frequency an antenna operates best at is essentially a function of its length. I realize there are some exceptions to this rule achieved with active antennas and electrical characteristics, but for the most part longer antennas mean lower in frequency, according to the formula, Overall Length in feet = 468/Frequency in MHz. Multiply the answer by 12 to get inches if you're dealing with higher frequencies. You might prefer the 1/4-wave formula, substituting 234 for 468. That will give you the length of a 1/4-wave segment (each element) of the 1/2-wave dipole (or you can use that amount for a 1/4-wave antenna).

At 155 MHz, the antenna comes out to 3.019 feet total. That's 36.2 inches for a 1/2-wave dipole, or 18.1 inches for a 1/4-wave whip using an external ground. The metal body of a car or a filing cabinet works very well for this purpose. You can build one of these out of coat hangers if you're interested, or desperate. Wrap that length of wire around a plastic or air core of some sort and put a rubber jacket on it and you have a rubber duck



Discones come in all shapes and sizes (this is a DA5000 from AOR). Smaller versions like this are designed for higher frequencies, but larger ones can easily cover 4 or 500 MHz of spectrum—all with equal mediocrity. But at least some coverage is better than none.

type antenna that can be put conveniently on a handheld. Even telescoping antennas 18 inches long aren't too unwieldy. Handheld receivers use the body of the radio as best they can to make up for the missing part of the dipole.

However, when we transition to the shortwave bands, things get totally out of hand. At 9 MHz, which is about the center of the common utility bands and many of the broadcast bands, that 1/2-wave dipole is going to be 52 feet long. Even a 1/4-wave will be 26 feet. Put that on top your Alinco DJ-X2 or ICOM R2! In the AM broadcast band, 1/2-wave antennas can be 500 to nearly 1,000 feet long.

The radio manufacturers, of course, realize this and try to compensate on many of the handhelds by adding amplification. The idea is to make the most of any signal that does reach the tiny antenna so that you might hear it. And it works to a certain extent. AOR's AR-8200 is a fairly decent performer on HF with not much more than a telescoping antenna. Shortwave portables use this same technique to achieve better performance with the smaller antenna, and many of them will actually overload with a larger antenna—they simply can't handle the increased signal.



The AR5000 is clearly labeled a Communications Receiver, not a scanner.

The advantage the shortwave portables have is that they are designed for, in the grand scheme of things, a fairly narrow band (1.7 to 30 MHz) and so can be optimized for that area. Even performance across this frequency range can vary on some portables. Your wideband receiver has to perform well not only on the shortwave bands, but equally well on the VHF/UHF where additional amplification can easily cause interference or overload. In fact, it does on some of the portables, too.

In North America, we're not bothered with particularly high signals on HF, so an over-amplified receiver, wideband or dedicated shortwave portable will work reasonably well. In Europe and other parts of the world where signals are stronger, overload can become a significant problem. It's really a delicate balance, and the receiver that works best in your area might not work best for someone only a few miles away with different reception conditions.

The larger, base-type receivers can compensate for some of this by allowing multiple antenna jacks. Two is most common, one for HF and one for VHF/UHF, but I have seen other combinations. The ICOM R-9000 accepts two antennas and you can pick which one you want to use when you want, which is nice, but you have to remember to switch. That's simply not a viable option on a handheld, and it helps contribute to the slightly more desirable status of the base receivers, but also to their cost!

At the high end, these devices are called Communications Receivers, as that's what they're supposed to do. And they do it well, and the receiver portion of many of these receivers is quite impressive. There are, of course, all sorts of designs on the market and some are engineered better than others. Many of the lower-cost units are focused on giving you the most frequency coverage for the dollar, while others (tending to cost more) are focused on pulling the maximum signal out of the air, over a wide range of frequencies. There's a lot of "you get what you pay for" in this arena. None of them, by a long shot, are what you'd call cheap.

Scanning?

The next issue I've been asked about tends to arise when you try to set the receiver to scan mode. It's not likely to be as sim-

ple as pressing the scan button, like it is on most scanners, because many of the communications receivers have multiple scanning "modes." It turns out that many of them can't scan more than one bank of memories at a time! Some of them will scan, but don't have "lockouts" to drop unwanted channels. And then there's the whole idea of trying to scan on a band that's a bit unstable, depending on conditions and using SSB (single sideband) instead of FM like we're used to.

First of all, as you well know if you're familiar with the HF bands at all (and if you're not, you owe it to yourself to spend some time down there—it's a fascinating world), the noise level can vary significantly in just a few kilohertz. Yet the whole idea of scanning the HF range is to keep an ear on the various activity that could be taking place at any point in the band (see "HF Frequencies To Monitor" for a list of a few, but by no means all, utility frequencies from a couple of categories).

HF Frequencies To Monitor

Military

- 11.175 Global HF system (mostly Air Force); primary day frequency
- 8.992 Global HF system primary night frequency

Coast Guard

- 5.696 Coast Guard rescue frequency
- 8.983 Coast Guard rescue frequency

Aviation

- 5.520 NY Radio, overseas flights
- 5.598 NY Radio, overseas flights
- 6.586 NY Radio, overseas flights
- 6.628 NY Radio, overseas flights
- 8.906 NY Radio, overseas flights

Weather

- 4.426 Automated weather reporting
- 6.501 Automated weather reporting
- 8.764 Automated weather reporting

The Coast Guard is a good example of this. On HF, the coast guard has three primary frequencies: 2.182, 5.696, and 8.983. Why? Because at any time, the propagation conditions—and, therefore, the distance that each of those frequencies will travel—is different. Depending on where in the water the craft is that the Guard wants to communicate with, and what the conditions are for the evening, you'll find them switching back and forth between frequencies regularly. All of the services operate this way, so to track their activity you'll either need multiple receivers or a way to scan.

But scanning presents some major problems of its own. Again, back to antennas, what antenna do you use? At 2 MHz, you'll need 234 feet for a dipole! At 8.9 MHz, it's down to a mere 52 feet for optimum performance. The answer here is that you make a compromise. Pick something in the middle, or possibly use an antenna with slightly wider band performance on HF and live with what you can get. It won't be ideal for DX, but we shouldn't be scanning for DX anyway.

Some of the higher-end units at least feature two antenna inputs: one for the higher frequencies and one for lower. The AOR AR-5000 offers an optional multi-antenna switch so that

antennas can be selected based on frequency ranges. This is a nice feature and will help enhance performance as you scan a wide range of frequencies. This option does solve the multi-antenna problem, but if you're trying to use a handheld or other receiver with only one antenna input, it's almost impossible to get good performance everywhere.

Of course, if signals are strong enough, you can get acceptable performance from many compromise antenna designs. Wideband discons and active antennas are commonplace.

The other major issues with scanning on HF are squelch and mode. Setting the squelch at a high enough level so you can scan will certainly block the weaker sig-

nals. With noise levels changing as you hop from frequency to frequency, setting the squelch at a level sufficient to stop the noise on the noisiest frequency means you'll be missing weak signals on other channels.

If you're only interested in the stronger signals, scanning with a high squelch setting might be okay. As a case in point, I sometimes like to scan the air frequencies for NY Radio, which is operated by ARINC, a consortium of airlines and aviation industry partners to provide communications services for transoceanic flights. They are either there at about S9, or not. There's not much middle ground. Once I find active frequencies for the evening, I can stop scanning and turn the



One feature that's becoming common on newer communications receivers is the spectrum display, a graphical view of signals that are near your current frequency. This AOR AR-8200 features this somewhat useful version, but it's no substitute for a true spectrum display unit.



Another popular handheld wideband receiver is the ICOM R-3. While it does have wideband coverage, this receiver was more popular for its television screen and ability to receive television channels off the air.

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 **450.6125**. If you're so equipped, try 5.598 as well and see what happens there. Check it out and see what's on it in your area! Then let me know via e-mail or snail mail. Send to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126 or via e-mail to radioken@earthlink.net. Remember to mark frequency entries with the frequency on the envelope or subject of the e-mail for so they'll be entered correctly.

RSGB Books from CQ

HF Antenna Collection

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

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



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IOTA Directory - 11th Edition

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



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

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RSGB, 2nd Ed., 1996. 160 pages.

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



Order: RSTAEG **\$28.00**

Low Power Scrapbook

RSGB, © 2001, 320 pages.



Choose from dozens of simple transmitter and receiver projects for the HF bands and 6m, including the tiny Oner transmitter and the White Rose Receiver. Ideal for an experimenter or someone who enjoys building and operating their own radio equipment.

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Another feature of the true communications receiver is the ability to choose the operating mode. Shown here are the mode switches from an ICOM R-9000.



The types of scan available are varied, but none of them approaches the convenience of your garden-variety scanner. This R-9000 has a Priority Scan, Program Scan, Triangle F (Delta F) Scan, a Mode Scan, and Memo Scan. Memo is the closest to what a normal scanner does, but its top speed is about 10 or 15 channels per second.

you'd want to do for long; the constantly changing background noise, and conversations cut off in the middle because it's time to move on, will drive you bonkers!

Of course, the situation is made worse if you're trying to add VHF/UHF activity into the scanning mix. Here, in the FM mode, squelch behaves a bit differently and must be set accordingly. Switching back and forth with such a wide frequency and mode setting may simply not be workable on your receiver. Many receivers also have internal relays that must switch as the receiver crosses certain frequencies. This clickety clack can sometimes annoy users while the receiver looks for activity.

One More Surprise

One final surprise that often gets to new users of a wideband receiver is that most of them lack a lot of scanning con-

veniences, and increasingly, these convenience features are becoming a necessity. Things like trunktracking and control channel lockouts are essential for the VHF/UHF enthusiast in almost any size metro area, yet are almost never present in today's wideband receivers. CTCSS (continuous tone code squelch system) and DCS (digital coded squelch) are either not available or are optional on a very few models. Make sure before you spend your money that the receiver you're eyeing has the features you need.

Often scanner enthusiasts find they're better off with two or more radios to get the job done so they get all the features they need. This also has the advantage of allowing you to keep an ear on the scanner, while exploring the cool stuff you can find on HF.

Give It A Try!

So if you have a receiver that will scan HF, give it a try. Find a few frequencies you're interested in and see what you can hear. Check out the suggestions we offered in the table and, of course, John Kasupski's "Utility Communications Digest" right here in *Pop'Comm*! Pick a few that sound interesting and see what happens. If you've never spent much time on HF, you'll need to be a bit patient. You might even want to park on a frequency for half an hour or an hour at a time to see if there's any traffic that you can hear before deciding to include the frequency in your scan.

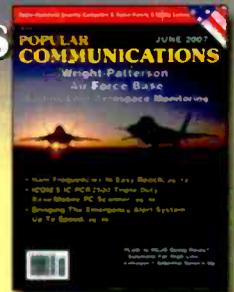
Let me know how you made out. Until next month, good listening!

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The Etón FR300— This Radio Charges Cell Phones, Too!

Like you, my eyes glaze over when I see yet another portable radio that carries a claim of being the ultimate disaster preparedness receiver “when the lights go out.” But something caught my attention: this radio was carrying an endorsement from the American Red Cross. Being a member of the Red Cross for disaster communications, as many of you are, too, I wondered what the arrangement was for the American Red Cross and Etón to come together with this receiver.

Etón has a long time partnership with Grundig, and offers three product lines: Etón, Grundig, and Porsche designs.

“The American Red Cross FR300 by Etón is one of our many products that combine the best of design, technology, and innovative features—ranging from the only radios in the world to combine AM, FM, shortwave, and XM satellite radio technology...,” says Julia Elkington of Etón Corporation in Palo Alto, California.

“The American Red Cross recommends that all households have a portable battery-operated radio as part of their complete disaster supply kit, and the capability to listen to local TV, radio, and NOAA emergency information broadcasts. The American Red Cross FR300 by Etón allows us to contribute a portion of the sales price to support the American Red Cross,” added Elkington.

The American Red Cross, with its one million volunteers and thirty-five thousand employees, plays an integral part in training fifteen million people to gain the skills they need to prepare for and respond to emergencies. And with the American Red Cross FR300 radio receiver by Etón, both Red Cross responders and citizens living through a disaster can switch this portable power station on and keep instantly informed via AM and FM radio, plus TV audio on Channels 2 through 13.

There are also seven pre-set NOAA weather channels.

So Many Extras

And it gets better still: The American Red Cross FR300 by Etón, which normally runs on common alkaline AA batteries, also contains a built-in 3.6-volt nickel metal hydride (NiMH) reserve battery, rechargeable by simply cranking the recessed dynamo. During testing, five minutes of cranking on a nearly depleted NiMH pack allowed terrific reception for nearly a day!

And there’s *still* more: If your power continues to stay out overnight, a pair of built-in wide angle, white LEDs can be switched on so you can see your way around the house or evacuation center. There’s even a siren and red strobe LED that you might use in an emergency to alert rescuers to your location.

A built-in loop stick antenna provides for excellent AM radio reception. All of the AM, FM, and TV bands tune via an internal capacitor, not PLL (phase-locked-loop). This means you can tune precisely, with the smaller fine tuning knob, weak AM stations that are in between strong AM stations. Same thing with FM and TV tuning—PLL AFC (Automatic Frequency Control) will sometimes skip over weak signals, beyond your control.



A Red Cross Disaster Preparedness Guide comes with the Etón FR300.



Here’s the dynamo crank to recharge the encased battery pack.

But with *this* receiver, the big tuning knob gets you close to the frequency you want, and the fine tuning knob lets you zero in on a weak and elusive AM, FM, or TV audio signal, using a variable capacitor, rather than PLL. This is a great feature!

The FM and TV audio channels tune using the variable capacitor, and reception comes off the heavy duty telescopic whip. I compared the reception on AM, FM, and TV to several other, much larger Grundig receivers, and I much prefer this variable capacitor tuning over PLL.

When you switch to weather channel reception, the big bottom The American Red Cross logo knob has an outside rotor that clicks on weather Channels 1 through 7. The weather channels are pre-set in ascending frequency, beginning at 162.400 MHz. Many weather receivers do the same thing, creating a disparity between what NOAA may list as weather Channel 1, at 162.550 MHz, which will show in Weather

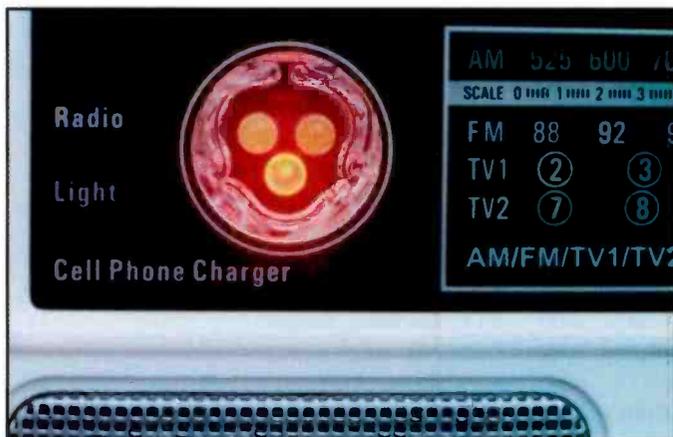


Cell phone chargers are included for most popular phones brands.

Channel position 7. In any emergency, you would simply dial around for ANY weather channel reception, and likely your best reception will give you your local area's weather coverage. There is no weather alert feature on these auxiliary-weather reception channels, however.

Cell Phone Friendly

Included with the American Red Cross FR300 by Etón is a plastic bag full of cell phone connectors. What's this for? Well, the FR300 outputs a low-current voltage to run most cell phones suffering from dead cell phone battery syndrome!



The flashing red LED was quite bright and will surely catch anyone's attention in an emergency.

"Ham radio operators and emergency radio communicators, working with their local American Red Cross chapter, will quickly set up their radio equipment in one corner of a shelter, and regularly get shelter workers stopping by to ask if the ham operator can remotely charge their cell phones," said Larry Wilson, K6SCH, of the Orange County Chapter of the American Red Cross.

Many of our local chapter communicators carry the MaHa rapid charger, and it will revive nearly any type of dead portable battery system. Sometimes a cell phone call needs to be made in a real hurry, so the Etón FR300, with the included adapter tips, will get many cell phones back on the air. Of course, palm phones may require some exotic jacks that the Etón hasn't supplied, but for the majority of single tip cellular phone jacks, this little radio makes for a great DC cell phone adapter.

Even More Reasons To Buy One

Good audio, big speaker, plus the provision for an earphone are other features of the Etón FR300. Be careful if you try to run it off AC with your small wall adapter, though: DC input is limited to 5 volts ONLY!

The American Red Cross FR300 by Etón comes with a black carrying case. "We also include a free emergency preparedness guide with every American Red Cross FR300 radio," adds Elkington, obviously proud to help sponsor the American Red Cross disaster relief programs.

For under \$59, this little radio receiver is definitely worthy of your disaster response field case. For more information, visit www.EtónCorp.com and www.RedCross.org.

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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	UTC	Freq.	Station/Country	Notes
0000	7225	IBC Tamil Radio, Germany		0300	5910	Marfil Estereo, Colombia	SS
0000	5955	Democratic Voice of Burma, via Germany	BB	0300	4810	Radio Transamerica, Mexico	SS
0000	5865	Voice of Greece	GG	0330	4976	Radio Uganda	
0000	9840	RAI Italia, Italy	II	0330	7130	BBC Cyprus Relay	
0000	15500	China Peoples Broadcasting Station	CC	0330	6973	Galei Zahel, Israel	HH
0000	9755	Radio Canada International		0330	6140	Radio Lider, Colombia	SS
0000	15360	BBC Relay, Singapore		0330	6110	Radio Fana, Ethiopia	Amharic
0030	15320	Deutsche Welle, Germany, via Russia		0400	7440	Radio Ukraine International	
0030	9455	RDP International, Portugal	PP	0400	5915	NBC, Zambia	
0030	7325	Radio Austria International		0400	3396	Radio Zimbabwe	
0100	6175	Voice of Vietnam, via Canada		0400	4775	Trans World Radio, Swaziland	GG
0100	7230	Radio Slovakia		0400	4960	Voice of America Relay, Sao Tome	
0100	11780	Radio Nacional Amazonia, Brazil	PP	0400	15515	Radio Australia	
0100	5995	Radio France International	SS	0400	5030	Radio Burkina, Burkina Faso	FF
0100	4780	Radio Cultural Coatan, Guatemala	SS	0400	3340	Radio Misiones International, Honduras	SS
0100	9570	China Radio International, via Albania		0400	7100	V of the Broad Masses of Eritrea	vern
0100	9770	Sri Lanka Broadcasting Corp.		0430	7350	Vatican Radio, via Russia	
0100	4795	Radio Aquidauana, Brazil	PP	0430	6020	Voice of Turkey	
0130	7125	Russian International Radio, via Moldova	RR	0430	7150	Voice of Russia	
0130	11710	Voice of Korea, North Korea		0430	3291	Radio Guyana	EE/DD
0130	6110	RAI Italia, Italy, via Ascension	II	0430	7545	Kol Israel	
0130	9745	HCJB, Ecuador	SS	0430	6280	Kol Israel	
0200	9560	KBS World Radio, South Korea, via Canada		0430	7335	FEBA Radio, England, via Armenia	RR
0200	4885	Radio Clube do Para, Brazil	PP	0430	4909	Radio Chaskis, Ecuador	SS
0200	11710	Radiodifusora Argentina al Exterior	SS	0500	7115	Voice of America Relay, Morocco	Kurdish
0200	4052.5	Radio Verdad, Guatemala	SS	0500	7255	Voice of Nigeria	
0200	7335	CHU Canada	FF/EE time	0500	5025	Radio Rebelde, Cuba	SS
0200	4800	Radio Buenas Nuevas, Guatemala	SS	0500	4950	Radio Nacional, Angola	PP
0230	4965	The Voice-Africa, Zambia		0500	9755	Deutsche Welle Relay, Rwanda	
0230	6010	Radio Sweden, via Canada		0530	5005	Radio Nacional, Equatorial Guinea	SS
0230	7465	Radio Tirana, Albania		0600	7250	Vatican Radio	
0230	6195	Radio Budapest, Hungary		0600	11640	Trans World Radio, via South Africa	
0230	7285	Croatian Radio	Croatian	0600	7180	Radio Romania International	
0230	4815	Radio Buen Pastor, Ecuador	SS	0600	4915	Ghana Broadcasting Corporation	
0230	15115	Radio Pilipinas, Philippines		0600	6185	Radio Educacion, Mexico	SS
0300	3320	Radio Sondergrense, South Africa	Afrikaana	0600	7275	Radio Nigeria	
0300	7390	Channel Africa, South Africa		0600	4777	RTV Gabonaise, Gabon	FF
0300	5890	Radio Thailand, via USA	TT	0600	4770	Radio Nigeria	
0300	6100	Radio Republica, USA, via Canada	SS	0600	4835	RT Malienne, Mali	FF
0300	5010	Radio Madagasikara, Madagascar	Malagasy	0700	5950	Radio Taiwan International, via WYFR	SS
0300	4780	Radio Djibouti	AA	0700	7125	RTV Guineenne, Guinea	FF
0300	4790	Radio Thailand, via Greenville	SS	0700	6160	CKZN, Newfoundland	
0300	4930	Voice of America Botswana Relay		0830	4835	ABC Northern Territory Service, Australia	

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0830	9765	Radio Tikhy Okean, Russia	RR	1600	17680	La Voz, Chile	SS
0930	4910	ABC No. Territories Service, Australia		1600	13820	Pan American Broadcasting, Germany	
1030	4745	Radio Huanta 2000, Peru	SS	1630	9905	Radio Free Asia, via Palau	unid
1030	5986	Myanmar Radio, Burma	BB	1630	15205	BSKSA, Saudi Arabia	AA
1100	4824	La Voz de la Selva, Peru	SS	1700	11690	Radio Jordan	
1100	5009	Radio Pueblo, Dominican Republic	SS	1700	15710	Radio Prague, Czech Republic	
1130	6105	Voice of Han, Taiwan	CC	1730	11695	Radio Voice of the People, via Madagascar	
1130	3335	Radio East Sepik, Papua New Guinea	Pidgin	1730	13660	Radio Cairo, Egypt	AA
1130	3385	Radio East New Britain, Papua New Guinea	Pidgin	1800	17850	Radio Exterior de Espana Costa Rica Relay	SS
1130	3995	Radio Republik Indonesia - Kendari	II	1800	15315	Radio Nederland Bonaire Relay	
1200	6080	Radio Singapore International		1800	17825	RDP International, Portugal	PP
1200	12759	AFN/AFRTS, Diego Garcia		1830	15580	Voice of America Relay, Botswana	
1200	7255	Voice of America Relay, Thailand	unid	1830	9430	Bible Voice, England, via Germany	
1200	5050	Voice of the Strait, China	CC	1900	15120	Voice of Nigeria	
1200	4605	Radio Republik Indonesia-Serui	II	1900	11730	Radio Pilipinas, Philippines	
1200	4990	Hunan People's Broadcasting, China	CC	1900	9400	Kol Israel	
1200	6110	Xiziang PBS, Tibet, China	TT	1930	9855	Radio Kuwait	AA
1200	7280	Voice of the Strait, China	CC	1930	9855	V of Islamic Rep. of Iran	
1200	6050	RT Malaysia Sarawak		2000	9870	BSKSA, Saudi Arabia	AA
1200	3925	Radio Nikkei, Japan	JJ	2000	9445	All India Radio	
1230	15700	Radio Free Asia via No. Marianas		2000	11620	All India Radio	
1230	5075	Voice of Pujiang, China	CC	2000	9525	Voice of Indonesia	
1230	4748	Radio Republik Indonesia-Makassar	II	2000	9460	China Radio International	CC
1300	12020	Voice of Vietnam		2000	13650	Radio Canada International	AA
1300	9290	Latvia Today/Radio SWH, Latvia		2030	11735	Radio Tanzania-Zanzibar	Swahili
1300	12065	Radio Nederland, via Uzbekistan	unid	2030	11855	BBC Relay, Ascension	unid
1300	15105	Radio Romania International		2030	15476	LRA36, Antarctica	SS
1300	7295	Radio Malaysia	Traxx FM	2030	11760	Radio Havana Cuba	
1300	9525	Polish Radio External Service, via Germany		2100	11960	Star Radio, Liberia, via Ascension	
1300	9580	Radio Australia		2100	9830	AWR-Europe via Austria	
1300	5945	China Peoples Broadcasting Station, China	CC	2100	11775	University Network, Anguilla	
1300	15700	Radio Bulgaria	BB	2100	9580	Africa Number One, Gabon	FF
1300	12130	KWHR, Hawaii	unid	2100	17630	Radio France International Relay, French Guiana	SS
1300	13580	Radio Prague, Czech Republic		2100	11800	Radio Havana, Cuba	SS
1300	9600	Radio UNAM, Mexico	SS	2100	12085	Radio Damascus, Syria	
1300	9485	Shiokaze, Japan via Taiwan	KK/EE	2100	9335	Radio Farda, US, via Sri Lanka	Farsi
1330	7310	Sound of Hope, Taiwan	CC	2100	9850	RT Algerienne, Algeria, via England	AA
1330	11510	Radio Deewa (VOA)	Pashto/Dari	2130	15345	Radio Nacional, Argentina	SS
1330	9760	Voice of America Relay, Philippines		2130	9615	Deutsche Welle Relay, Sri Lanka	
1400	15140	Radio Sultanate of Oman		2200	6010	Radio Veritas Asia, Philippines	CC
1400	6100	Korean Central Broadcasting Stn, N. Korea	KK	2200	7400	Radio Bulgaria	
1430	15240	Radio Sweden, via Canada		2200	9990	Radio Cairo, Egypt	
1430	15595	Radio Nederland, via Madagascar		2200	9420	Voice of Greece	Greek
1430	13740	China Radio International, via Cuba		2230	6300	Radio Nacional de la RASD, Algeria	AA/SS
1430	15265	Radio Solh, via England		2230	7325	Radio Vilnius, Lithuania	
1500	17770	Channel Africa, South Africa		2230	6165	RN Tchadienne, Chad	FF
1500	15680	CVC International, Australia, via Germany		2230	11815	Radio Brazil Central	PP
1500	15150	V of Islamic Rep. of Iran	AA	2300	7190	RT Tunisienne, Tunisia	AA
1500	11830	CVC International, via Germany		2300	12130	Trans World Radio, Guam	CC
1500	17725	Radio Jamahiriya, Libya, via France	AA/EE	2300	9575	Radio Medi Un, Morocco	AA
1500	17630	Africa Number One, Gabon	FF	2330	13820	Radio Marti, USA	SS
1530	9345	Radio Nederland, via Uzbekistan		2330	12010	Voice of Russia	RR
1600	17650	BSKSA, Saudi Arabia	AA	2330	15720	Radio New Zealand International	
1600	15345	RT Marocaine, Morocco	AA	2330	17605	Radio Japan/NHK, via Bonaire	JJ
1600	21630	Radio Japan/NHK via Ascension	JJ	2330	15465	Far East Broadcasting, Philippines	Burmese
1600	12050	Radio Cairo, Egypt	AA	2330	6220	Mystery Radio (Euro pirate)	wknds
1600	11615	Radio France International					

New, Interesting, And Useful Communications Products

SWIFT WX Professional Storm Tracking Software

SWIFT Weather Company has released a comprehensive weather tracking software tool called SWIFT WX Professional. The new software, for consumers only, lets you stay ahead of deadly weather and keep your families protected with advanced warnings—even before the weatherman makes public announcements. All you need is an Internet connection to use SWIFT WX.

Designed by the tornado-chasers of SWIFT Weather, it features more than 1,100 weather maps, weather radar down to the street level, GPS tracking, perimeter alerts/first alerts, and up-to-the-minute data feeds from 140 weather service offices. Now consumers can be one step ahead of local weather news departments.

SWIFT WX provides the same technology used by U.S. government agencies for only \$14.50 per month (you can cancel anytime). Those who lived through Katrina, Rita, and Wilma, or the more recent ice storms, will understand how important it is to be prepared well in advance of twisters, hurricanes, mud

slides, flash floods, ice storms, blizzards, and other Mother Nature scourges.

For more information contact www.swiftwx.com. Also look for a “Tech Showcase” on SWIFT WX next month right here in *Pop’Comm*.

New Radios From Cobra

Cobra has released three high-powered additions to its LI Series: the LI 4900, the LI 6500, and the LI 7000. These new two-way radios are part of Cobra’s redesigned 2007 microTALK line and offer extended ranges of up to 25 miles and lithium ion technology with a sleek, modern look. Features include 2,662 privacy combinations; VibraAlert to provide silent alerts for incoming calls; SCAN to quickly locate conversations in progress; VOX Hands Free Transmitter, which recognizes when a person is speaking and automatically begins transmitting.

And for you boaters, Cobra also recently launched two new marine products: a handheld and fixed-mount VHF radio. The MR HH425LI VP is the first handheld radio with Rewind-Say-Again, a digital voice recorder that automatical-



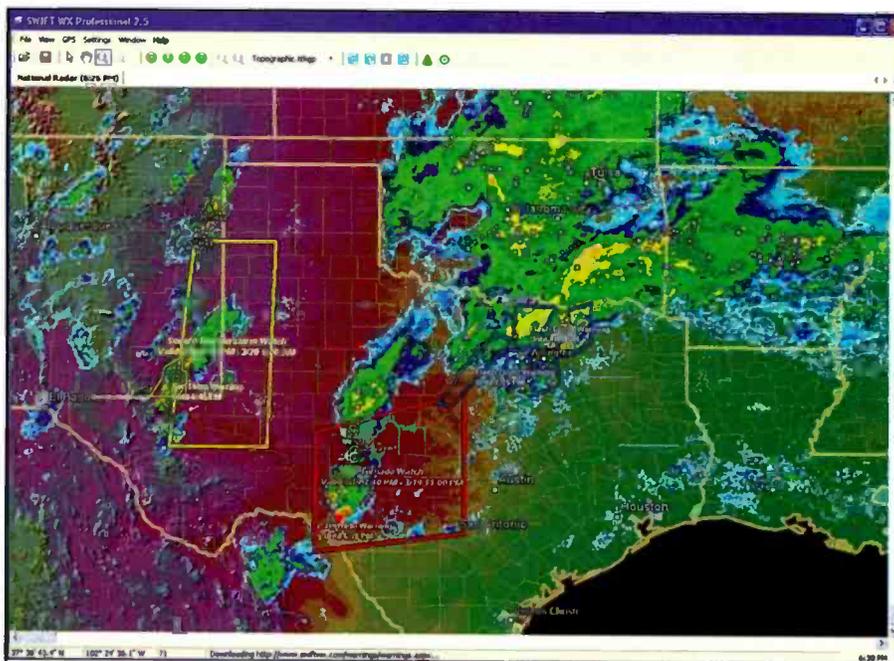
Cobra’s new high-powered two-way radios, the LI 4900, the LI 6500, and the LI 7000, offer extended ranges of up to 25 miles. Pictured here are the LI 4900 and the LI 6500.

ly records the last 20 seconds of transmission. It can also be used as a GMRS radio for use on land or at sea. The MR F80B fixed-mount radio offers Rewind-Say-Again, customer channel presets, operation from the hand mic, and local and distant modes for busy waterways. Other features include: 10 NOAA weather channels and weather alert with SAME (Specific Area Message Encoding) filtering; large, illuminated LCD; and Memory Scan to quickly locate conversations

List pricing is as follows: LI 4900, \$69.99; LI 6500, \$79.99; LI 7000, \$89.99. List pricing for the MR HH425LI VP is \$169.95, and for the MR F80B \$189.95. For more information, visit www.cobra.com.

Hy-Gain Remote-Controlled, Programmable UHF/VHF/6-Meter/TV/FM Antenna Rotator

The new Hy-Gain remote-controlled, programmable antenna rotator, the AR-38, is designed for use with small UHF/VHF, 6-meter, TV and FM antennas. It also offers digital remote programmable antenna rotator controller, rotator, mount-



A screen shot from the SWIFT WX Professional storm tracking software showing tornadic storms roaming across Texas.



Hy-Gain's AR-38 digital remote-controlled, programmable antenna rotator is designed for small UHF/VHF, 6-meter, TV and FM antennas.

ing clamps, and mounting hardware. The remote-controlled antenna rotator automatically aims outdoor antennas for best possible reception, and it remembers up to 12 antenna directions even after a power outage. Its control console displays location chosen and relative position.

The AR-38 features a weatherproof, one-piece cast aluminum housing, rugged heavy-duty rotator motor, precision metal gears, steel thrust bearings for durability, and integrated provisions for guying. It comes with a three-device universal remote that controls antenna, TV, and VCR, and requires three-conductor rotator control cable (not included) and two AAA batteries (not included).

The AR-38 lists for \$99.95. For more information, visit www.hy-gain.com.

MFJ Mobile Amplified Communications Speaker

MFJ has announced a new mobile amplified communications speaker, the MFJ-383, that, according to the company, offers "great clarity and clear tones on CW and SSB [and] has excellent mounting bracket." Simply plug it directly into the cigarette lighter socket of your power supply. Its 2 3/4-inch speaker, with a 3-inch fine metal mesh grill, brings out speech fidelity and restores the smooth sound of sinewaves that CW naturally generates, making it easy to understand and copy. It was designed to improve the intelligibility of speech in the 600- to 4000-Hz frequency range, while reducing undesirable noise, static, and hum.

The MFJ-383 offers 6 watts output and 8 ohms impedance. It features a 12-VDC cigarette lighter plug with an 8-foot cord, a 3.5-mm mono jack plug with a 13-foot cord, an on/off power switch and a gain control knob, and includes a free swivel



MFJ's new mobile amplified communications speaker, the MFJ-383, offers clarity and clear tones on CW and SSB. It was designed to improve the intelligibility of speech in the 600- to 4000-Hz frequency range.

mobile mounting bracket with thumb-screw locks. It requires 12 VDC, has a 2-amp fuse, maximum 1-watt audio source, maximum 6 watts output. It measures 4 x 5 x 1 3/4 inches (HWD), with bracket, and weighs less than one pound.

The MFJ-383 lists for \$29.95. For more info, visit www.mfjenterprises.com.

Elecraft K3 Transceiver

Elecraft's new high-end rig, the K3, covers the 160- to 6-meter ham bands. It offers state-of-the-art main and sub receivers with crystal roofing filter bandwidths as narrow as 200 Hz. Each receiver accommodates five crystal filters, its own DSP subsystem, a high-level switching-mode mixer, and a low-noise phase-locked loop synthesizer for superior dynamic range. Both receivers also feature narrow ham-band filtering, as well as optional general-coverage band-pass filters for the 0.5- to 30-MHz range. Other features include Professional-grade 32-bit intermediate frequency DSPs for true software-defined functionality and plenty of expansion memory; high-contrast, full-custom LCD with alphanumeric text display; high-level switching-mode first mixer; and switchable preamp and attenuator for extreme conditions.

Two models are available: the K3/100 (100-watt version) and the K3/10 (10-watt version); the K3/10 can be upgraded to the K3/100. The K3 can be purchased factory assembled or as a modular, no-solder kit. The K3 Downloader PC application lets you download the latest K3 DSP and microprocessor features from the Web with a single click.

The K3/10 transceiver lists for \$1,399; the K3/100 for \$1,749. For more information, visit www.elecraft.com.

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A New Station From A New Country! And Other Great News

Calendar pages have turned over many times since we've had so much positive news to report! One of the rarest events in the radio hobby is the appearance of a new country on the shortwave broadcast bands. That very thing has recently happened with the arrival of Pacific Missionary Aviation's new station on Pohnpei, one of the island states of Micronesia. The station has recently been discovered on 4755 kHz. Our challenge is logging it despite its use of an anemic 500 watts, which will make it extremely difficult for any of us here in North America. Your best shot, though, will come deep in the dark, say around 0800 or 0900. Be sure to let me know if you score on this one. Micronesia (technically The Federated States of) will almost certainly be added to the official country list of the North American Shortwave Association, whose list is used by most serious SWLs.

Uruguay is reported to be active on shortwave again after a long absence. Radio Uruguay (SODRE) in Montevideo is said to have resumed operations on its old frequencies of 6125 and 9620, although the 31-meter band channel can vary just a bit and both are using very low power. The station is relaying mediumwave 1050 kHz, and sometimes the 1290 outlet. SODRE stands for Servicio Oficial de Difusion de Radio Electra, the original name of the station but little known these days. Uruguay has always proved to be a tough catch for us in North America.

Still another new station just on the air is in Boali, in the Central African Republic. It's being operated by something called Integrated Community Development International, with assistance from HCJB Global. Unfortunately for us it will prove to be another tall challenge since it runs a modest 1000 watts and uses 6030, which is usually occupied by Radio Marti. Its mission is to broadcast health and community information to the many hard-to-reach villages in the C.A.R.

Zimbabwe plans to launch a 24-hour news channel to push that government's view of things. It was supposed to have gone on the air on shortwave late in the spring, but no word has yet come through on what frequency will be used.

Still in Africa, would you believe that Muammar al-Qaddafi, the lackaday Libyan leader, has supposedly purchased Africa Number One? If this is for real you have to wonder whether there will be significant changes in the programming at AF #1.

New from Bolivia is Radio Logos in El Alto, now active on 4865 and 6165, the former frequency with 1 kW. Figure on placing an 0900 wake-up call if you want to take aim at this one!

What once upon a time was Radio Yugoslavia, but over ensuing years devolved to become Radio Serbia and was later cut down to only one shortwave frequency (6100), has recently expanded its schedule and now operates from 1400 to 2200 using over a dozen languages in half-hour blocks. (English is on at 1400 and 1930.) The period from 2030 to 2130 is active only on weekends. It's good to see expansion from this troubled broadcaster in a troubled nation. If you can hear them, drop them a line and give them some encouragement.

Now we hear that Saudi Arabia's government broadcaster (BSKSA) has begun English language broadcasts again, hav-



*The current and stylish QSL card used by Radio Miami International.
(Thanks Rich D'Angelo, PA)*

ing decided it's important that foreign listeners hear positive things about the nation and its Islamic religion. The service appears to operate from 1000 to 1200 and again at 1600 (probably to 1800) on 15250 and perhaps also 17660

Former opposition broadcaster Voice of the Tigray Revolution has gone legit. It's now operating legally, and as a commercial venture no less. Broadcasts have begun using 5980 and 9650, currently opening a few minutes before 0400.

After all that positive news there *have* to be a couple of negatives somewhere, right? Thus we have word that Radio Budapest is in for downsizing, which means some languages will be cut back or even dropped. Part-time and freelance employees have been sent packing and overall weekend programming is being cut. Also about to feel the blade is Radio Japan, which, come October, will drop Japanese broadcasts to



The Mighty KBC, based in the Netherlands, and aired via Sitkuani, Lithuania, sent Rich D'Angelo this nice card.

Help Wanted

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

North America and Europe, Spanish and French to Europe and Italian, German, Swedish, and Malay completely.

Minivan Radio, which broadcast in opposition to the government of the Maldives, has now left shortwave. In what seems a rather odd step, the government there is going to allow private FM broadcasting, and the backers of Minivan Radio are looking to that as a better method. In principal, maybe. But

A Guide To "GIG-Speak"

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

* — (before or after a time) time the station came on or left the air

(l) — (after a frequency) lower sideband

(p) — presumed

(t) — tentative

(u) — (after a frequency) upper sideband

v — variable time or frequency

// — in parallel

AA — Arabic

ABC — Australian Broadcasting Corporation

AFN — Armed Forces Network

AFRTS — Armed Forces Radio TV Service

AIR — All India Radio

Alt — alternate

AM — amplitude modulation, AM band

Anmt(s) — announcement(s)

Anncr — announcer

AWR — Adventist World RadioBC broadcast(er)

BSKSA — Broadcasting Service of Kingdom of Saudi Arabia

CA — Central America

CC — Chinese

Co-chan — co-channel (same frequency)

comm(s) — commercial(s)

CP — Bolivia, Bolivian

CRI — China Radio International

DD — Dutch

DJ — disc jockey

DS — domestic service

DW — Deutsche Welle/Voice of Germany

EE — English

ECNA — East Coast of North America

f/by — followed by

FEBA — Far East Broadcasting Association

FEBC — Far East Broadcasting Company

FF — French

freq. — frequency

GBC — Ghana Broadcasting Corp

GG — German

GMT — Greenwich Mean Time (UTC)

HH — Hebrew, Hungarian, Hindi

HOA — Horn of Africa

ID — station identification

II — Italian, Indonesian

Int/Intl — international

Irr. — irregular use

IRRS — Italian Radio Relay Service

IS — interval signal

JJ — Japanese

KK — Korean

LSB — lower sideband

LV — La Voz, La Voix (the voice)

MW — mediumwave (AM band)

NBC — National Broadcasting Corporation (Papua New Guinea)

OA — Peru/ Peruvian

OC or O/C — open carrier

PBS — People's Broadcasting Station

PP — Portuguese

PSA — public service announcement

QQ — Quechua

QRM — man-made interference

QRN — noise (static)

QSL — verification

RCI — Radio Canada International

Rdf. — Radiodifusora, Radiodiffusion

REE — Radio Exterior de Espana

RFA — Radio Free Asia

RFE/RL — Radio Free Europe/Radio liberty

RNZI — Radio New Zealand International

RR — Russian

RRI — Radio Republik Indonesia

RTBF — RTV Belge de la Communate Française

Relay — transmitter site owned/operated by the broadcaster or privately operated for that broadcaster

relay — transmitter site rented or time exchanged.

SA — South America

SEA — Southeast Asia

SCI — Song of the Coconut Islands (transition melody used by Indonesian stations)

s/off — sign off

s/on — sign on

SIBC — Solomon Is. Broadcasting corp.

sked — schedule

SLBC — Sri Lanka Broadcasting Corporation

SS — Spanish

SSB — single sideband

SWL — shortwave listener

TC — time check

TOH — top of the hour

TT — Turkish

TWR — Trans World Radio

Unid — unidentified

USB — upper sideband

UTC — Coordinated Universal Time (as GMT)

UTE, ute — utility station

Vern — vernacular (local) language

via — same as "relay"

VOA — Voice of America

VOIRI — Voice of Islamic Republic of Iran

WCNA — West Coast of North America

ZBC — Zimbabwe Broadcasting Corporation

I'd wait to see how things shake out before blowing up that bridge behind me!

And, now there are some (read the government in Beijing) who are beginning to call for ending Radio TV Hong Kong! RTVK used to have a minor shortwave operation and has continued to use shortwave briefly every other year or so to broadcast weather conditions during the South China Sea Yacht Races, an event which always made for an interesting and challenging DX event.

Reader Logs

Remember, your shortwave broadcast station logs are always welcome. But please be sure to double or triple space items, list them by country, and include your last name and state abbreviation after each log. 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 the wait continues—I'm still looking for that phantom photo of you at your listening post. Come on and claim your 15 minutes of fame!

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 specified the broadcast is assumed to have been in English (EE).

Begin transmission:

ALBANIA—Radio Tirana, 6115 with open carrier at 0245 and 7465 LSO at 0245 on election reform. (Maxant, WV) 0250 in EE. (Parker, PA) 7460 on economics at 0350. (Weronka, NC) 7530 with ID at 2100. (Adams, FL)

ANGUILA—University Network, 6090 with Dr. Scott sermon at 0338. (Adams, FL) 11775 at 2100. (Gay, KY)

ANTARCTICA—LRA36-Radio Nacional Arcangel, 15476 with male ballads, woman host, ID and closing anmts heard at 2101. (Strawman, IA)

ARGENTINA—Radiodifusion Argentina al Exterior (RAE), 11710 in SS at 0215 with Argentine music. (Linonis, PA)

ASCENSION—BBC Relay, 6145 at 0322, 11855 in an African language at 2045 and 15105 in FF at 1812. (Brossell, WI) 15400 at 2040 to South Africa. (Parker, PA) 17830 at 1720. (Charlton, ON)

AUSTRALIA—ABC Northern Territories Service, VL8A-Alice Springs, on 2310 at 1258 with interview and song through ToH. //2325-VL8K-Katherine. (Taylor, WI) 4835-Alice Springs with regional news at 0830. (Barton, AZ)

Radio Australia, 9580-Shepparton at 1310. (Charlton, ON) 11550 via Taiwan at 2225. (Brossell, WI) 15515 with Pacific area news at 0402. (Adams, FL) 17795-Shepparton with interview at 2348. //17785. (MacKenzie, CA)

CVC International, 9500 via Uzbekistan in listed Hindi at 1332. (Brossell, WI) 15680 via Wertachtal at 1526. (Charlton, ON)

AUSTRIA—Radio Austria International, 7325-Moosbrunn at 0026 to 0030 close. (Parker, PA) 9830-Moosbrunn at 2116. (Patterson, Philippines) 13675 at 1735. (Maxant, WV) 1613 in GG and 13730 in GG at 1328. (Charlton, ON)

BONAIRE—Radio Nederland Relay, 5975 in DD at 0450, 15315 at 1910 and 17725 at 1925. (Maxant, WV) 6165 at 0121 and 17610 at 2013. (Charlton, ON) 15525 at 1900 and 15580 at 1845. (Wood, TN) 17895 in DD at 2125. (MacKenzie, CA)

BOTSWANA—Voice of America Relay, 4930 with ID and news from 0400. (D'Angelo, PA) 13710 at 2029 and 15580 at 1615. (Charlton, ON)

BRAZIL—Radio Clube do Para, Belem, 4885 in PP at 0645. (Parker, PA) 0842. (Barton, AZ)

Radio Difusora Acreana, Rio Branca, 4885 heard at 0340 in PP. (Brossell, WI)



This is what a monster 500-kW transmitter looks like up close and personal. This one belongs to WEWN, Vandiver, Alabama. (Thanks to Charles Maxant, WV)

Radio Nacional Amazonia, 11780 in PP at 2025. (Brossell, WI)
BULGARIA—Radio Bulgaria, 7400 at 2200, //9400. (Fraser, ME) 2214. (Parker, PA) 9400 with news at 2224. (Gay, KY) 15700 in BB at 1313. (Charlton, ON)

BURKINA FASO—Radio Burkina, 5030 with FF ID at 2303 in pop pgm running to 2359 close. Also at 0803 with ID at 0806 and apparent radio drama in FF. (D'Angelo, PA)

CANADA—Radio Canada International, 5850 via Sweden at 2115 and 9880 via Kunming, China, at 0025. (Patterson, Philippines) 6100-Sackville in SS at 0120, 11845-Sackville in FF at 2120, 11870 via Germany at 1505 and 13650-Sackville in AA at 2027. (Charlton, ON) 9755 with "weird and wonderful Internet music program" at 0020. (Parker, PA) 11845 in FF at 2130. (Gay, KY) 17740 heard at 1822. (Wood, TN)

CKZN, St. John's, 6160 with news at 2214. (Brossell, WI)
CHU, Ottawa, 7335 with EE/FF time anmts at 1905. (Maxant, WV)

CHILE—CVC-La Voz, 15410 with contemporary Christian music at 2045 in SS. Also 17680 at 2215. (Barton, AZ) 17680 in SS at 1320. (Charlton, ON) 1630. (Parker, PA) 2340. (MacKenzie, CA)

CHINA—China Radio International, 6005 via Canada at 0115, 6100 via Albania at 0116, 9570 via Cuba at 1324 and 15230 via Canada at 1404. (Charlton, ON) 7170 via Mali in CC at 2315, 7180-Jinhua to 1200 close, 11640 via Mali at 2015 and 12080 at 1232. (Brossell, WI) 9460 in CC at 0107, 9570 at 0114, 11975 in CC at 2341 and 13580 in Hakka at 0110. (MacKenzie, CA) 9435-Kunming in CC at 2350. (Strawman, IA) 11640 at 2113. (Wood, TN) 11975 via Mali in CC at 2213. (Barton, AZ) 13740 via Cuba at 1445. (Gay, KY) 17735 via Cuba in CC at 1622. (Parker, PA)



Apintie
 Verlengde Gemeentelandweg 37
 PARAMARIBO - SURINAME
 Phone 400450 Fax 400884 P.o. box 585



Paramaribo, 31 January 2007

Joe Kenneth Wood

U.S.A.

Dear Mr./Mrs. Wood,

With great pleasure we hereby confirm that you listened to Radio Apintie on 12th March 2005 from 02:20- 03:37 o'clock on a frequency of 4990 kHz.

Thanks for your receipt.

Regards,

Ch. Vervuurt
 Director

Radio Apintie in Suriname is a good catch on 4990. (Thanks to Joe Wood, TN)

China People's Broadcasting Station, 5030 in CC at 1210 and 5945 in CC at 1302. (Brossell, WI) 7345-Beijing in CC at 2334. (Foss, Philippines) 15550 in CC at 0010. (MacKenzie, CA)

Hunan PBS, 4990-Changsha in CC with pop/rock at 2129. (Foss, Philippines) 5050 in CC at 1307, 5075 in CC at 1310. (Brossell, WI)

Firedrake Music Jammer, 6280 at 2235. (Brossell, WI)

COLOMBIA—Radio Lider, Bogota, 6140 in SS at 0320, mentions of Venezuela, Chavez, and Castro. (Linonis, PA)

CROATIA—Croatian Radio, 6165 with talks in Croatian at 2213. (Brossell, WI) 7285 in presumed Croatian at 0230. (Linonis, PA)

CUBA—Radio Havana Cuba, 5965 in SS at 0111 and 11800 in SS at 2117. (Charlton, ON) 6000 in EE at 0438. (Adams, FL) 11760 at 2040. (Gay, KY)

Radio Rebelde, 5025 in SS at 0503 with long string of Beatles songs. (Wood, TN)

CZECH REPUBLIC—Radio Prague, 6200 at 0358. Also 7385 with news at 1505. (Adams, FL) 7345 at 0403. (Wood, TN) 9430 at 2113. (Patterson, Philippines) 15710 with ID at 1710. (Maxant, WV) 13680 at 1306. (Charlton, ON)

DIEGO GARCIA—AFN/AFRTS, 12759u monitored at 1210. (Patterson, Philippines)

DJIBOUTI—RT Djibouti, 4780 in AA at 0335. (Brossell, WI)

ECUADOR—Radio Chaskis, 4909 in SS with flutes at 0454. (D'Angelo, PA) (Charlton, ON)

HCJB, 9745 in SS at 0130. (Charlton, ON)

EGYPT—Radio Cairo/Egyptian Radio, 7270 at 0255, 9990 at 2130, 13660 in AA at 1745 and 15155 at 1745. (Maxant, WV) 9990 at 2210. (Adams, FL) 12050 in AA at 1622. (Charlton, ON) 13660 in AA at 1731. (Parker, PA)

ENGLAND—BBC, 7160 at 0635, 7335 in RR at 0435, 12096 at 1910, 21470 at 1725. (Maxant, WV) 5875 in unid language at 0315, 7130 Cyprus Relay at 0340, 7140 Cyprus Relay in AA at 0344 and 15360 Singapore Relay at 0005. (MacKenzie, CA) 11820-Skelton at 1531 and 12095-Rampisham at 1615. (Charlton, ON) 17640-Skelton at 1235. (Patterson, Philippines)

Bible Voice Broadcasting, 9430 via Germany heard at 1843. (Brossell, WI)

EQUATORIAL GUINEA—Radio Nacional, 5005 with non-stop pop/rock in SS at 2240. (Brossell, WI)

FRANCE—Radio France International, 5995-French Guiana Relay in SS at 0113, 11615-Issoudun in EE at 1609, 15160 via South Africa at 1601 and 15300-Issoudun in FF at 1519. (Charlton, ON) 7315-Issoudun in FF at 0352 to 0430 close. (D'Angelo, PA) 9800-French Guiana Relay in SS at 0130. (MacKenzie, CA) 11995 at 1645. (Maxant,

WV) 13640 at 1140. (Fraser, ME) 17630-French Guiana Relay in SS at 1615. (Parker, PA) 2100 in SS. (Linonis, PA)

GABON—Africa Number One, 9580 in FF with upbeat jazz at 2155. (Parker, PA) 15475 in FF at 1702. (Charlton, ON)

GERMANY—Deutsche Welle, 7210 at 0632. (Weronka, NC) 7225 via Portugal at 0445, 9545 in GG at 1945 and 15275 at 1915. (Maxant, WV) 7285 at 0500. (Adams, FL) 9615-Sri Lanka Relay, *Newslink* program at 2127, // 7280-Nauen and 11690-Rwanda Relay. (D'Angelo, PA) 2130. (Patterson, Philippines) 9655-Rwanda Relay in GG at 0120. Also 15320 via Petropavlovsk at 0048. (MacKenzie, CA) 9720-Rwanda Relay in Indonesian at 2237. (Taylor, WI) 11685-Nauen in GG at 1610. (Parker, PA) 11695-Nauen at 1608 and 13780-Rwanda Relay in AA at 2030. (Charlton, ON)

GHANA—Ghana Broadcasting Corp., 4915 with DJ and U.S. pops at 2235. (Brossell, WI)

GREECE—Voice of Greece, 5865 via SVO-Olympia Radio in Greek at 0000. (D'Angelo, PA) 0150 with Greek folk songs. (Strawman, IA) 9420 in Greek at 0145 and 7475 at 0150. (Maxant, WV) 2153. (Parker, PA) 2240. (Gay, KY) 17525 monitored at 14215. (Charlton, ON)

GUAM—Trans World Radio/KTWR, 12130 in Cantonese at 2315. (Mackenzie, CA)

GUATEMALA—Radio Cultural Coatan, San Sebastian, 4780 in SS at 0220 to 0233 close. (D'Angelo, PA) 1120. (Barton, AZ)

Radio Verdad, Chiquimula, 4052.5 in SS at 0241. (Brossell, WI) 0502 in EE. (Wood, TN)

GUINEA—RTV Guineenne, 7125 with FF discussion at 2238. (D'Angelo, PA)

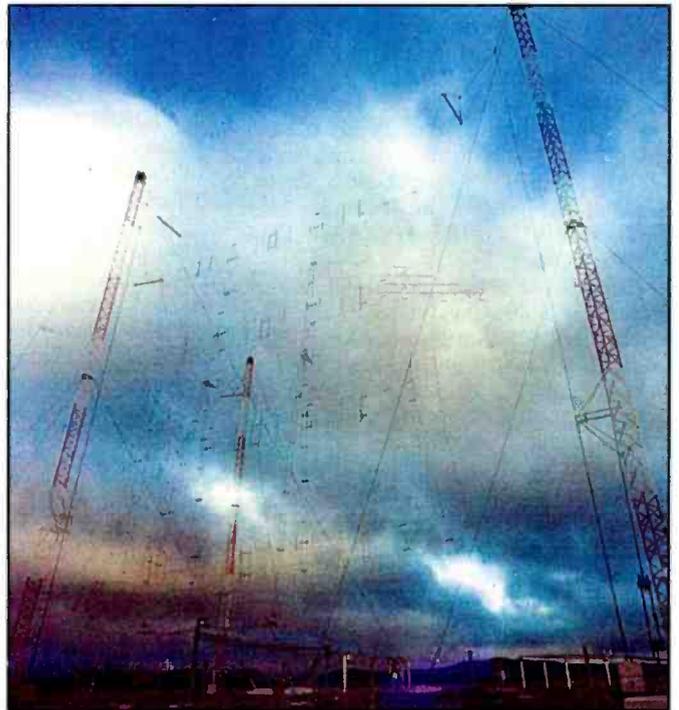
GUYANA—Voice of Guyana, 3291 at 0416 with Hindi vocals. EE news at 0500. (D'Angelo, PA) 0433. (Wood, TN)

HAWAII—KWHR, 12130 with religious songs and talks in an Asian language at 1318. (Brossell, WI)

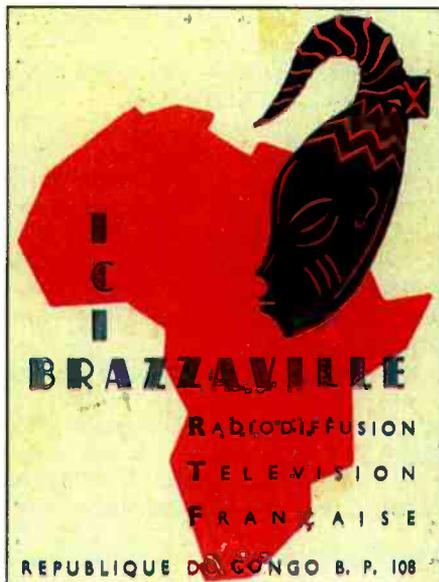
HONDURAS—Radio Misiones Int., Tegucigalpa, 3340 with soft instrumentals, ID, man in SS from 0454. (D'Angelo, PA)

HUNGARY—Radio Budapest, 5980 at 0201. (Maxant, WV) 6140 in HH at 2215. (Brossell, WI)

INDIA—All India Radio, 9445-Bangaluru at 2050. (Adams, FL) 2224. (MacKenzie, CA) 1930 and 11620, //9445 with Indian music, news. (Maxant, WV) 9690-Bangaluru at 1337 and 9950-Aligarh at



Radio New Zealand International's "leaning" towers, aren't really. (Thanks to Charles Maxant, WV)



If you can remember this station, especially its late afternoon English language news broadcast on 25 meters, you qualify as an ultra-old timer! (Thanks to Mike Adams. FL)

2300 with ID, news. (Brossell, WI) 11715 to Australasia at 2130. (Barton, AZ) 13605-Aligarh at 1720. (Parker, PA) 13710-Bangaluru at 1415. (Charlton, ON) 17875-Aligarh in Bahasa Indonesian at 0942. (Patterson, Philippines)

INDONESIA—Radio Republik Indonesia, Ternate (Maluku), 3345 in II at 2056. (Foss, Philippines) RRI, Serui (Papua), 4605 with phone-in requests in II at 1411. (Barton, AZ) RRI, Makassar (Sulawesi) 4750 with pop ballads from 1258. (Strawman, IA) 1345. (Barton AZ)

Voice of Indonesia. 9526 in II with pop ballads at 1355. Off at 1401. (Strawman, IA) 9545 in EE at 2015. (Maxant, WV)

IRAN—Voice of Islamic Republic of Iran/Voice of Justice, 7160 in EE at 0215. (Adams, FL) 0220 with times and frequencies. Also 9885 at 1955 on "Zionist threat." (Maxant, WV) 9835 in Urdu at 1354. (Strawman, IA) 15150 in AA at 1514. (Charlton, ON)

ISRAEL—Kol Israel, 6280 in EE at 2001. (Patterson, Philippines) 0445 with local weather and 7545 with news features at 0430. (Maxant, WV) 0010 in HH. (Charlton, ON) 0438. (Adams, FL) 2025 in FF. (Parker, PA) Galei Zahal, 6973 in HH heard at 0330. (Linonis, PA)

ITALY—RAI Italia, 6110 via Ascension in II at 0136. (Charlton, ON) 6120 to the Mediterranean at 0446. (Adams, FL) 9840 in II at 0024. (Parker, PA)

JAPAN—Radio Japan/NHK, 6180-Skelton in EE at 2135. (Patterson, Philippines) 9535 at 1815 and 11885 in SS at 2115. (Maxant, WV) 9875-Yamata at 1517 and 11705 via Canada in JJ at 1322. (Charlton, ON) 13650 in Indonesian at 2345, 17605 via Bonaire in JJ at 2345, 17810 in VV and CC at 2330. (MacKenzie, CA) 21630 via Ascension in JJ at 1625. (Parker, PA)

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!

Rick Barton in Phoenix, Arizona, is our winner this month with a copy of the 2007 edition of the *World Radio TV Handbook* already on his radio desk, courtesy of Watson Guptil Publications. I've said it before, I say it again: You cannot get very far in this great hobby of ours without a copy of this essential annual volume within reach of your receiver. It's a must.

JORDAN—Radio Jordan, 11690 at 1530 with rap from domestic FM. (Maxant, WV) 1620 in EE with rap/pop. (Parker, PA) 1707 in EE with news from 96.3 FM, then into rap. (D'Angelo, PA)

KUWAIT—Radio Kuwait, 9855 in AA at 1936. (Charlton, ON)

LIBERIA—Star Radio, 11960 via Ascension ending music and into discussion at 2120. (Maxant, WV)

LIBYA—Radio Jamahiriya, 17725 via France in EE at 1508. (Charlton, ON)

LITHUANIA—Radio Vilnius, 7325 at 2256 running continuous loop of organ music and IDs and into LL to NA. (Strawman, IA)

LATVIA—Radio SWH, 9290-Ulbroka with *Latvia Today* at 1302 with EE interviews and Latvian vocals, frequent program IDs. (D'Angelo, PA)

MADAGASCAR—Radio Madagasikara, 5010 at 0300 open with woman in Malagasy, brief music, more talk. (D'Angelo, PA) 0311 with religious service in presumed Malagasy. (Brossell, WI)

MALAYSIA—Radio Malaysia (t), 7295 at 1320 carrying Traxx FM and U.S. pop. Many fades and no ID noted. (Linonis, PA)

MOROCCO—RTV Marocaine, 7135 in AA at 2315. (Brossell, WI) 15345 heard at 1602 with news in AA. (D'Angelo, PA) 1902. (Charlton, ON)

NETHERLANDS—Radio Nederland, 9590-Madagascar Relay in Indonesian at 2315. (Taylor, WI) 11655-Madagascar Relay at 2015. Also 12065 via Uzbekistan in an Asian language at 1332. (Brossell, WI; Fraser, ME) 15595-Madagascar Relay at 1435. (Patterson, Philippines)

The Mighty KBC, 6255 via Lithuania at 2210 with EE talks, IDs and rock intros. (D'Angelo, PA)

NEW ZEALAND—Radio New Zealand International, 5950 at 1305 and 9765 with national news at 0615. (Maxant, WV) 15720 heard at 2351. (Foss, Philippines) 2357. (MacKenzie, CA)

NIGERIA—Voice of Nigeria, 7255 at 0457 and into news at 0500. (Moser, IL) 15120 on education there at 1940. (Maxant, WV) 1945. (Fraser, ME) 2045 with ID, TC. *Report on Africa*. (Adams, FL)

NORTH KOREA—Hamgyong PBS, 3220 in KK at 2032. (Foss, Philippines)

Korean Central Broadcasting Station, 6100 with vocals at 1615. (Barton, AZ)

Voice of Korea, 9975 in EE at 1915. Also 11710 at 0135 on Japanese cruelty. (Maxant, WV) 13650 in FF at 0107 and 13760 in EE at 0103. //1785 and 15180. (MacKenzie, CA)

OPPOSITION—Radio Republica (to Cuba) 6100 via Canada with abrupt 0300 sign on in SS. (Taylor, WI)

Radio Solh (Afghanistan), 9875 via England with ME music monitored at 1625. (Brossell, WI)

Democratic Voice of Burma, 5955 via Wertachtal at 0020 with M/W and many mentions of Burma. Off at 0030. (Adams, FL)

Radio Saa (Nigeria) (p) 15180 at 1612 with non-stop African tribal singing. Scheduled 1600-1700. (D'Angelo, PA)

Radio Voice of the People (Zimbabwe) 11695 via Madagascar at 1743 with talks about Zimbabwe government activities. Mixing with apparent music jammer, which ended at 1802 after RVOP went off at 1756. (D'Angelo, PA)

Radio Nacional de la RASD (Morocco) 6300-Rabuni at 2149 with AA music and talk. In SS at 2330. (Taylor, WI) 2316 to 0001 close with talks in SS, mentions of "Polisario." ID at 2331 and news. (D'Angelo, PA)

Radio Free Asia, 7470 via Ulan Bator in CC at 2317. (Foss, Philippines) 9930 via Palau in VV at 2352, 11830 via Sri Lanka in Lao at 0017, 13710 via Saipan in Burmese at 0036 and 15700 via Tinian in Burmese at 1258. (Patterson, Philippines) 9905 via Palau at 1658 with Firedrake jamming. (Brossell, WI) 15565 via Vladivostok in CC at 2350. (MacKenzie, CA)

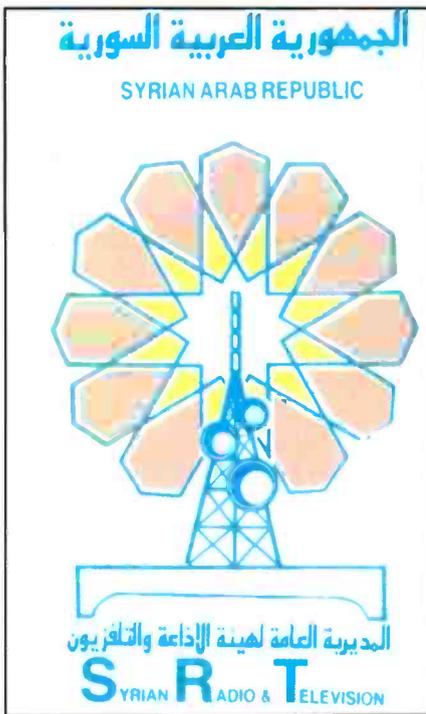
Sound of Hope (China) (p) 7310 in CC from 1343 to off at 1400. (Brossell, WI)

Radio Marti (Cuba) 6030 in SS at 0458. (Adams, FL) 13820 via Delano in SS at 2330. (Patterson, Philippines)

OMAN—Radio Sultanate of Oman, 9760 with ME music, sudden off at 2245. (Barton, AZ) 15140 at 1402 with woman hosting pop. EE anmts. TC, dedications. (D'Angelo, PA) 1424. (Charlton, ON) 1918. (Parker, PA)

PAKISTAN—Radio Pakistan, 15100 in Urdu at 0915 and 17835 in EE at 0745. (Maxant, WV)

PAPUA NEW GUINEA—Radio East Sepik, Wewak, 3335 with local news items at 2046. (Foss, Philippines)



It used to take a "syrias" effort to pry a QSL out of Radio Damascus. (Thanks David Weronka, NC)

PERU—La Voz de la Selva, 4824.5 at 1053 with fast-talking man in SS with ID and brief music segments. (D'Angelo, PA)

Radio Huanta 2000, 4746.8 at 1040 with man in SS with OA vocals. (D'Angelo, PA)

PIRATES—Mystery Radio (Euro) 6220.8 at 0120 with various pop vocals, female anner laughing during ID. (Adams, FL) 0140 with dance/techno stuff. (Balint, OH) 0400 with R&B. Off abruptly at 0410. (Linonis, PA)

The Crystal Ship, 6875 at 0032 with rock, pop, Beatles, slogan "Voice of the Blue States Republic and Defender of the Airways." E-mail as tcsshshortwave@yahoo.com. (Adams, FL) 2321 with music and audio clips from old movies and TV shows. Belfast postal address. (Wood, TN)

WTCR, 6925u at 0015 with wide variety of music, Belfast address. "Twentieth Century Radio" slogan. Also at 0100 to past 0200 with lots of drop-in remarks. Wants three U.S. mint stamps or \$1. (Adams, FL) 0040 with smooth jazz, soft pop. Also at 0215 (Hassig, IL)

Cupid Radio (Netherlands) 15070.1 at 1410 with ID, frequency anmt in EE/FF, and rock. Postal address: Box 9, 8096 ZG Oldebroek, Netherlands. Also 1625 with male host and techno. (D'Angelo, PA)

Grasscutter/Sunshine Radio, 6925u at 0000

with rock/pop. Off with song "Radio-active" (Hassig, IL) 2354-0022 close. (Wood, TN)

WKNR Relay, 6925.2u loud level for this relay of the UK's West North Kent Radio at 2321 with Dave Martin, rock and novelty. E-mail as: wknr@rock.com. At close there was a relay anmt, "You've got the last channel you'll ever need—Channel Z" (Zeller, OH) 0102 to 0129 and 0202 to 0227 close, (Wood, TN)

"Lonely Computer Radio," 6925u with music and sign off with "terminating all processes" at 2310. (Gay, KY)

KIPM, 6925u at 0201 with station ID and Lulu, Georgia, mail drop, so it was apparently an old program. (D'Angelo, PA) 1939 with a radio drama. (Wood, TN)

A1B, 6925u at 0016 to 0132 close with mostly dance but also some CW segments mixed in. A1Bradio@yahoo.com. (Zeller, OH)

WBNY, 6950u at 2341 to 0000 close with novelty songs and bits. (Wood, TN)

Free Radio, 6925 at 0226 with soft rock/pop and seemingly intentional "sweeper" QRM. (Hassig, IL)

PHILIPPINES—Far East Broadcasting Co., 12065 in CC at 2322 and 15645 in Burmese at 2358. (MacKenzie, CA)

Radio Veritas Asia, 6110 in CC at 2220. (Parker, PA)

Radio Pilipinas, 11730 at 1801 on Catholic conference there. (Barton, AZ)

POLAND—Polish Radio, 9525 via Nauen with 1300 EE sign on. (Linonis, PA) 1317. (Charlton, ON)

PORTUGAL—RDP International, 9455 in PP at 0059, 15560 in PP at 1524. (Charlton, ON) 15540 in PP with live sports at 1935, 17680 in PP at 1845 and 17825 in PP at 1827. (Parker, PA)

ROMANIA—Radio Romania International, 6150 with letters pgm at 0155, 7180 at 0630 and 9525 in SS at 0157. (Maxant, WV) 15105 at 12315 and 15235 in AA at 1516. (Charlton, ON)

RUSSIA—Voice of Russia, 6240 via Moldova at 0305. (Brossell, WI) 7150 at 0445. (Maxant, WV) 0430. Also 7350 at 0406. (Adams, FL) 7260-Vladivostok at 1545. (Barton, AZ) 7350, //9840 at 0512. (Moser, IL) 0310. (Parker, PA) 7350 via Vatican at 0440. (Wood, TN) 11500 via Tajikistan in unid lang at 1249. (Charlton, ON) 12010 in RR at 2337. (MacKenzie, CA)

Russian International Radio, 7125 via Moldova in RR at 0134. (Charlton, ON)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 9870 in AA at 2025. (Barton, AZ) 13710 in AA at 1626 and 15435 in AA at 1521. (Charlton, ON) 17560 with Koran at 1600. (Parker, PA)

SINGAPORE—Radio Singapore Inter-

national, 6080-Kranji at 1210. (Patterson, Philippines)

SLOVAKIA—Radio Slovakia International, 7230 at 0059 opening broadcast. (Adams, FL) 0100. (Charlton, ON) 7345 to Western Europe at 1950. (Parker, PA; Maxant, WV)

SOUTH AFRICA—Channel Africa, 3345 with news at 0340. (Brossell, WI) 0418. (Wood, TN) 7390 at 0350, 9685 at 0510, 15235 at 1720 and 15475 in FF at 1715. (Maxant, WV) 6120 in Swahili at 0400. (Taylor, WI) 7240 at 0310. (Linonis, PA) 0351. (Adams, FL) 0503 (Moser, IL) 17770 at 1520. (Charlton, ON)

Trans World Radio 11640 via Meyerton at 0615 on the Dead Sea Scrolls. (Maxant, WV)

Adventist World Radio, 11845 via Meyerton in FF at 2009. (Charlton, ON)

Radio Sondergrense, 3320 at 0250. (MacKenzie, CA) 0310 in Afrikaans. (Brossell, WI) 0320. (Parker, PA)

SOUTH KOREA—KBS World Radio, 9560 via Canada at 0200 sign on. (Linonis, PA) 0250 with KK/EE lesson. (Maxant, WV) 1256 same. (Charlton, ON) 9570-Kimjae at 0840. (Patterson, Philippines)

SPAIN—Radio Exterior de Espana, 6055 in SS at 0100 and 17850-Costa Rica Relay in SS at 1921. (Charlton, ON) 9765-Costa Rica Relay in SS at 0127. (MacKenzie, CA) 17595 in SS at 1612. Also 21570 and 21610 in SS at 1621. (Parker, PA) 17850-Costa Rica Relay in SS at 1813. //17715. (Wood, TN)

SWAZILAND—Trans World Radio, 3200-Manzani in GG at 0402 and 4775 with opening in EE and into GG at 0430. (D'Angelo, PA) 4775 in GG at 0447. (Wood, TN)

SWEDEN—Radio Sweden International, 6010 via Canada at 0220. (Linonis, PA) 0235. (Maxant, WV) 9490 via Canada in Swedish at 1150, 11550-Horby in SS at 1400 and 15240 via Canada at 1431. (Charlton, ON) 7420 in Russian at 1845. (Parker, PA) 15240 at 1445. (Adams, FL)

TAIWAN—Radio Taiwan International, 5950 via Florida in Hakka at 0045. 11665 via Florida in FF at 2015 and 17760 via Florida in CC at 1921. (Charlton, ON) 5950 via Florida at 0328. (MacKenzie, CA) 0700. (Adams, FL) 2250. (Parker, PA) 11850 via France at 1752. (Wood, TN)

Voice of Han, 6105 in CC at 1137. (Foss, Philippines)

TANZANIA—Radio Tanzania-Zanzibar, 11735-Dole in Swahili at 2020. (Brossell, WI) 2036. (Charlton, ON) 2054 to 2100 close. (D'Angelo, PA)

THAILAND—Radio Thailand, 5890 via Greenville in RR at 0040. (MacKenzie, CA) Thai at 0104. (Charlton, ON)

TUNISIA—RT Tunisienne, 7190 in AA at 2304. (Brossell, WI)

TURKEY—Voice of Turkey, 6020 at 0435. (Maxant, WV) 0450. O/C at 0452 and off at 0454. (Adams, FL) 7240 at 0350. (MacKenzie, CA) 12035 in TT at 1345. (Brossell, WI) 1408. Also 15195 in AA at 1515. (Charlton, ON)

In Times Past...

Here's our blast from the past for this month:

TADZHIK—SSR (USSR) Radio Dushambe, 4635 at 0005 on April 17, 1967. 50 kW (Dexter-WI)

RADIO**PRAHA**

UGANDA—Radio Uganda, 4976 with Afro-pops at 0340. (Brossell, WI) 0405 with EE news. (D'Angelo, PA)

UKRAINE—Radio Ukraine, 7440 to NA at 0409. (Parker, PA) 0430. (Weronka, NC)

UNITED STATES—Voice of America, 7115-Morocco Relay, in Kurdish at 0515. (Strawman, IA) 7205-Thailand Relay into Special English at 2305, 7255-Thailand Relay in an Asian language at 1217 and 13870-Sri Lanka Relay in an African dialect at 1808. (Brossell, WI) 7595-Kuwait Relay in Special English at 2040. (Patterson, Philippines) 9760-Philippines Relay at 1250, 15395-Philippines Relay in CC at 0016 and 21555-Delano in FF at 2114. (MacKenzie, CA) 13605 via Julich closing at 1730. (Maxant, WV) 15460-Thailand Relay at 1504 and 17895-Morocco Relay at 1919. (Charlton, ON)

Radio Deewa (VOA), 11510-Sri Lanka Relay in presumed Pashto or Dari at 1345. (Brossell, WI)

WYFR, 6020 via Madagascar at 1955 and 12015 via UAE at 1512. (Patterson, Philippines) 11875 via Ascension at 2146. (Gay, KY)

Pan American Broadcasting, 13820 via Germany in Farsi at 1616. QRM from Radio Marti and Cuban jamming. (Taylor, WI)

VATICAN—Vatican Radio, 5915 at 0140, 7360 at 0515 and 9610 in FF at 0245. (Maxant, WV) 7250 at 0600. (Weronka, NC) 2110. (Patterson, Philippines) 7340 to 1314 close. Also 15570 in an African

dialect at 1822. (Brossell, WI) 7355 to SE Asia at 0152 (Parker, PA) **VENEZUELA**—Radio Nacional, 11760 via Cuba at 2200 in SS with frequencies and times. (Fraser, ME)

VIETNAM—Voice of Vietnam, 6175 via Canada at 0102. (Charlton, ON) 0345 on improving economic development. (Adams, FL) 12020-Son Tay at 1230 sign on in EE. (Brossell, WI) 1502. (Patterson, Philippines)

ZAMBIA—Radio Zambia, 5915 at 0455 with apparent religious program and a single tone at the top of the hour. (Strawman, IA)

The Voice-Africa, 4965 with gospel music at 0135. (Maxant, WV) 0340 with hymns and a sermon. (Brossell, WI) 2112 with religious message. (Foss, Philippines)

ZIMBABWE—Radio Zimbabwe, 3396 at 0214 with local vocals and Shona language talks, phone calls. (D'Angelo, PA) 0423 with Afropops. (Wood, TN)

And a resounding roar of thanks goes out to the intrepid troop that reported for duty this time: Howard Moser, Lincolnshire, IL; Joe Wood, Greenback, TN; Mike Adams, Lynn Haven, FL; William Hassig, Mt. Prospect, IL; Charles Maxant, Hinton, WV; Rick Barton, Phoenix, AZ; Bob Brossell, Pewaukee, WI; Jack Linonis, Hermitage, PA; Jerry Strawman, Des Moines, IA; Robert Charlton, Windsor, ON; Bob Fraser, Belfast, ME; Chris Gay, Lexington, KY; Stewart MacKenzie, Huntington Beach, CA; Richard Parker, Pennsburg, PA; Dave Balint, Wooster, OH; Marty Foss, Guinayangan, Philippines; Rich D'Angelo, Wyomissing, PA; George Zeller, Cleveland, OH; Dave Weronka, Benson, NC; T.C. Patterson, Cebu, Philippines and Mark Taylor, Madison, WI.

Thanks to each of you! Until next month—good listening!

WASHINGTON BEAT *(from page 8)*

equipment on 2 meters without a license,” according to a press notice appearing in the *ARRL Letter*.

“Responding to a complaint of apparently unlicensed radio activity, agents from the FCC’s Tampa Office using mobile direction-finding equipment tracked the source of the transmissions,” the *ARRL Letter* said. “Parker’s owner admitted the company had been using amateur radio transceivers for about three years to talk with crew members.

“Agents found an amateur radio handheld transceiver set to 145.02 MHz. Responding to the FCC’s January 2007 Notice of Apparent Liability in the case, Parker requested a reduction claiming it did not know that Amateur Radio Service radios required a license, that it had stopped using them and had obtained the proper radio license,” the *ARRL Letter* said.

The FCC denied the Parker request, stating that corrective action taken to come into compliance with the rules “does not nullify or mitigate any prior forfeitures or violations.”

FCC Posting Radio Amateur Enforcement Actions

The majority of amateur radio enforcement correspondence is now available to the public on the FCC’s “Amateur Radio Service Enforcement Actions” website: www.fcc.gov/eb/AmateurActions/Welcome.html.

Special Counsel in the FCC Spectrum Enforcement Division, Riley Hollingsworth, expects the information to be updated “every 7 to 10 days.” The listing will be cumulative.

“The site will not be a comprehensive listing of enforcement correspondence,” according to the *ARRL Letter*. “For example,

it will not include letters requiring retesting pursuant to §97.519(d) of the FCC’s rules, letters regarding radio frequency interference to amateur licensees and letters requesting an initial response to a complaint.”

Inquiries regarding the Amateur Radio Service Enforcement Actions Web postings should be directed via e-mail only to Riley Hollingsworth in the FCC Spectrum Enforcement Division at fccham@fcc.gov.

Senate Commerce Committee Examines Antitrust Issues

The Senate Commerce, Science, and Transportation Committee recently held a hearing on the proposed Sirius-XM merger, during which Mel Karmazin, chief executive officer of Sirius Satellite Radio claimed that not only would the merger not hurt consumers, but actually benefit them by providing access to more services at a reduced rate. His arguments, however, were met with a good deal of skepticism, and Committee Chairman Daniel K. Inouye (D-Hawaii) said that the “merger proponents, in this case, have a steep hill to climb,” because of “the public interest in promoting competition and maximizing diversity of media outlets.” While expressing concern for the possible impact on rural areas, Vice Chairman Ted Stevens (R-Alaska) was less dubious, saying, “I do think that this proposed merger between XM and Sirius presents a great opportunity for us to learn more about this concept of audio entertainment.”

If the companies are allowed to merge, it will negate all future competition, as well, as XM and Sirius currently have the licenses for all the available radio spectrum for this technology. ■

Radio Fun And Going Back In Time

Q. When was radio first used in Disaster Relief Aid?

A. That would probably be during the 1906 San Francisco Earthquake. The *U.S.S. Chicago* left San Francisco on April 17, 1906: the next day the city was hit by one of the worst earthquakes on record, which was followed by a devastating fire that destroyed much of the city. The *Chicago* was ordered back to render all possible aid. Berthed at the Ferry Building it was soon determined that the *Chicago* had the only working wireless in the area. Western Union and Postal Telegraph systems had both been destroyed, so no messages could leave the city. The Army's Signal Corps had re-established telegraph communications between key areas within the city but not beyond.

A young Naval officer, Stanley C. Hooper, had some experience working a summer job at a small country railroad station of the Southern Pacific Railroad. Because of this limited experience he was placed in charge of the *Chicago's* communications operations. Hooper knew American Morse but learned International "on the job." He remembered later that the old spark gap transmitter could be heard, or felt, all over the giant cruiser.

The *Chicago* sent its vital traffic via wireless to Mare Island Naval Shipyard where it was put on the telegraph system. Hooper was to continue to work in Naval Communications and became known as "the Father of Naval Radio."

Q. When were amateur radio operators first able to send signals across the Atlantic?

A. It was first tried in a test in February 1921 by 25 amateurs in America with about 35 listening in England. (British regulations limited their amateurs to 10-watt transmitters while the Americans could use up to 1000 watts.) The British were to do the listening and the Americans were to send. Although distances of 2,000 miles had already been reached within America, on the test days the British heard nothing.

On December 9th of that same year an American named Paul Godley, who had come over just for the test, picked up part of a message from Connecticut, though he was using an antenna too large for British Regs. Two days later, eight British hams and Godley picked up the signal perfectly. One of the eight Brits was W.E. "Bill" Corsham, 2UV, of Willesden, London, who was later credited by both American and

English amateurs as the inventor of the QSL card.

Q. When a ship is interned for being in a neutral port at the outbreak of a war aren't the radios disabled by the neutral country that interns them?

A. Yes they are disabled or removed, but it doesn't always work. In the early part of World War II, U-boats had little trouble locating Allied merchantmen to sink. With the development of the Convoy System and developments in anti-submarine warfare it became more difficult for the U-boats to find prey. The Germans turned to espionage with land-based agents transmitting sailing times and locations of Allied shipping. Some of these land-based agents were using transmitters on German ships that had been interned in neutral ports where they'd been caught at the outbreak of hostilities.

According to the Rules of War, at the outbreak of hostilities the neutral port's authorities removed any radio equipment aboard the interned ship. But if a spare set was aboard or could be built, the newly unemployed radio operator could get back to work telling the U-boats where to find targets.

In early 1943 British shipping was taking a beating in the Indian Ocean. U-boats were picking off shipping vessels every day. A secret transmitter was located by Direction Finding in the neutral Portuguese colony of Goa on the west coast of the Indian subcontinent. A group of British Commandos sank the interned ship. In the first 11 days of March, U-boats had sunk 11 British ships. After the Commando raid, however, only one more British ship was lost that month.

Looking Back...

Five Years Ago In Pop'Comm

In a sign of the times, "Clandestine Communiqué" heralded the resurrection of Radio Free Afghanistan, and "Washington Beat" covered the DoD's report on the feasibility of sharing the 138- to 144-MHz band with public safety users. And readers learned to work the world on less than 5 watts.

Ten Years Ago In Pop'Comm

Gordon West, WB6NOA, shared the big excitement with readers—the new Family Radio Service. The new Uniden BC235XLT "TrunkTracker" was under our magnifying glass. And—surprise—anti-government stations in Afghanistan again made news (is there a pattern?).

Twenty Years Ago In Pop'Comm

The Voyager Project, the first non-stop and unrefueled flight around the world, was the scanning achievement of a lifetime for one writer. Editor Tommy Kneitel revisited the mystery of Amelia Earhart's last flight 50 years after it disappeared. Kenwood proudly announced its new R-5000 on the back cover.

SPURIOUS SIGNALS

Jason Togyer KB3CNM



Morse Code? Why?

In the last few months, we've been exploring the new opportunities afforded to Technician class amateur radio operators by the FCC's ruling, effective on February 23, 2007, to eliminate Morse code testing for all levels of amateur radio licenses and extending limited HF operating privileges to all Technicians. Thanks to this ruling the shortwave spectrum is now open for many new radio hobbyists. Specifically, we've been looking at the world of HF (or shortwave) operations.

But, the new rules do not only apply to the Technician class operator. You're now able to obtain additional privileges by passing the General and Amateur Extra class exams, without ever having to learn and pass the traditional Morse code elements. So what's holding you back from moving into all of the available opportunities of this radio hobby?

With the removal of the requirement to pass a Morse code exam to obtain an FCC-issued amateur radio license, you'd think that Morse code (CW, or Continuous Wave mode) might fade into the dim light of history. However, amateur radio operators who are passionate about weak-signal operation use the CW mode to accomplish those challenging communications.

One of the many driving goals behind the research and experimentation in the science of radio signal propagation is the pure

desire to obtain efficient communications between two stations. Often, when people talk about radio reception, signal strength is touted as the most useful factor in the effort of getting a signal from the transmitter to the receiver. However, since the problem of reception is more complex than a simple power issue (just pump more watts into the antenna), the better way to get a handle on the problem is to use the Signal-to-Noise Ratio (SNR) measurement of a radio circuit. (The radio circuit is the path between, and including, the transmitter and receiver). The SNR is a real measure of effectiveness. With it, we can better understand how effectively a signal can get from point A to point B.

On an abstract numerical basis, the SNR is inversely proportional to the width of the slice of frequencies we're detecting our signal in. This slice is also known as the bandwidth we are receiving, and that bandwidth contains the intelligence we're trying to detect. A slice that is 10 Hz wide (we can also call this a 10-Hz channel) would give an SNR power advantage of 23 dB, or is 210 times greater in strength than the level of inherent noise in a 2100-Hz channel (a typical bandwidth for SSB, or single-sideband, voice communication).

In simplified terms, that means that a signal that is transmitted with 1 watt in a very narrow 10-Hz-wide channel is 210

The Ap Index And Understanding Propagation Terminology

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

Classification of A-indices is as follows:

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

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

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

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

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

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

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

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

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

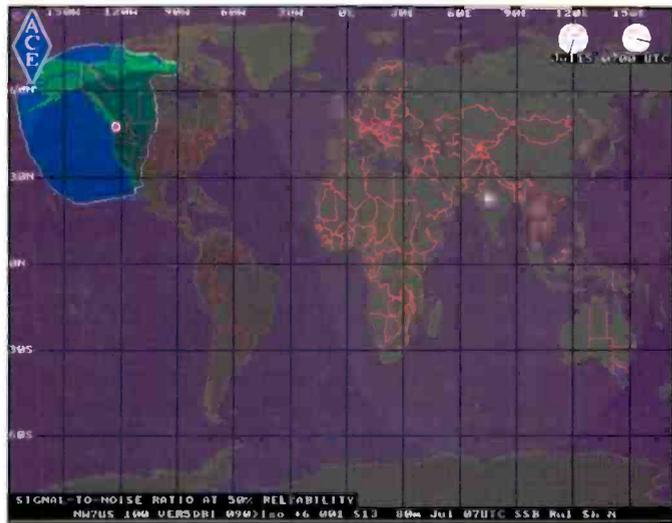


Figure 1. One-hour slide from the animated movie created by ACE-HF PRO showing the footprint of an SSB signal on 80 meters during July 2007. (Source: NW7US, using ACE-HF PRO; <http://hfradio.org/ace-hf/>).

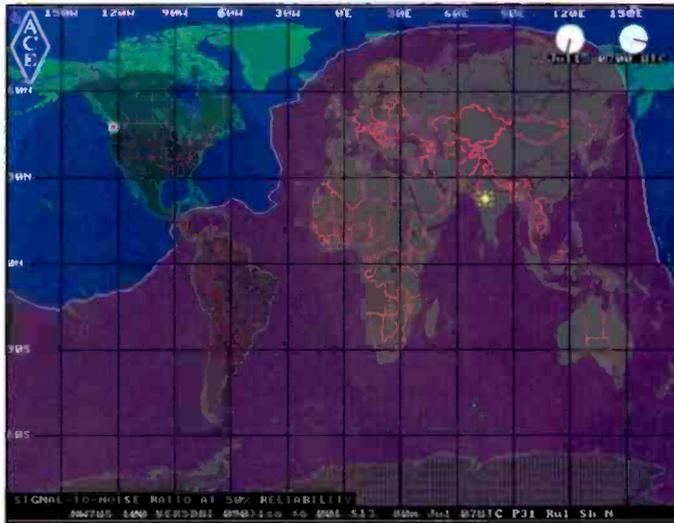


Figure 3. Another slide, taken from the same hour in July 2007, showing the footprint of a PSK31-mode signal from NW7US' location in Washington State. Again, this illustrates the advantage of using a narrow-bandwidth mode. By upgrading from Technician class to a General or Amateur Extra class license, you gain quite an advantage by being able to use the many digital modes available on all the amateur radio allocations. (Source: NW7US, using ACE-HF PRO; <http://hfradio.org/ace-hf/>)

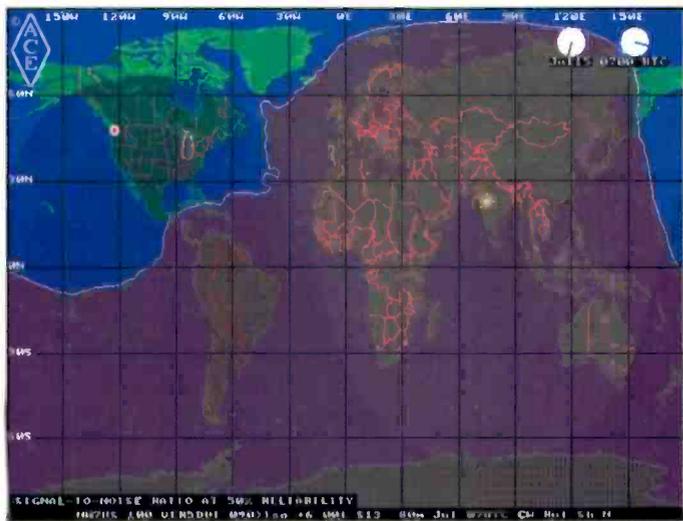


Figure 2. A slide of the animated movie created by ACE-HF PRO showing the footprint of a CW-mode signal during July 2007. This example illustrates how a narrow-bandwidth signal has a higher Signal-to-Noise Ratio (SNR), which increases the effective "power" of the signal over a wider-bandwidth signal using the same transmitter power level, antenna, and under the same propagational conditions. (Source: NW7US, using ACE-HF PRO; <http://hfradio.org/ace-hf/>)

times more efficient than a 1-watt (fully-modulated) SSB signal. **Figure 1**, created by ACE-HF PRO (<http://hfradio.org/ace-hf/>), illustrates the "footprint" of an SSB signal that originates at my home QTH in Washington State, during one hour a day in July. **Figure 2** illustrates the "footprint" of a CW signal with the same output power level, the same antenna, and during the same month of analysis. Notice how much more area I can communicate with if I switch from SSB to CW, using the same power level and antenna? Imagine the improvement you would get on your signal between your radio and a distant radio if you change your antenna so that you would have a gain of 23 dB. That's like going from 5 watts to just over 1 kW! The same effect is possible simply by changing the bandwidth of your communications mode.

When we talk about using modes like CW, we're interested in how effective that mode is compared with other modes. We want to find the most efficient modes possible and concentrate our signal propagation efforts on those modes. Over great distances, the signal will experience loss. The more "power" it has, the more chance we'll "hear" it on the receive side of that long journey.

There's another advantage of using CW over other modes. The typical amateur radio operator utilizing CW manually copies Morse code "by ear." The bandwidths commonly employed in receivers for CW operation are between 250 Hz and 500 Hz. It has been postulated by researchers that the human brain acts like a special DSP filter, giving a weak signal detected in a 250-Hz bandwidth an even better SNR than what is purely available at the speaker.

That's why Morse code as a mode of operation will continue to be one of the viable options for weak-signal communications. In addition to the ability for operators to DSP a CW signal, and do so more efficiently than by using a mode like SSB on that same path with the same power and other operating parameters, there are modes based on CW that utilize the power of computer processing technology and other hardware advances. There is Coherent CW, High Speed CW, and other narrow-bandwidth digital modes that are proving to greatly increase the SNR of an already weak-signal transmission.

Figure 3 is a footprint of a PSK31 signal originating from my home QTH, with the same power level and antenna, during July. (See **Figure 4** for an example PSK31 program and signal trace.) Notice that, in this example, there's an even larger working area? When you upgrade from a Technician class license to a General or Amateur Extra class license, you gain an edge because you have so many more modes of communication at your command. By the way, these sample footprints are on 80 meters, during the lowest point in the current solar cycle. This proves that you can work many areas of the world by choosing the right mode, whether CW or a digital mode like PSK31.

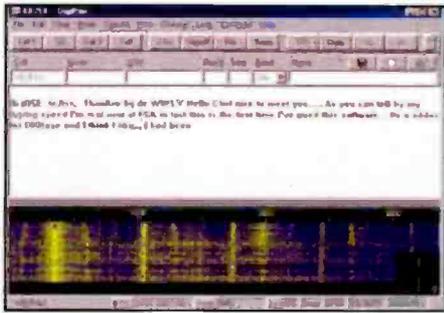


Figure 4. Sample screen shot of the DigiPan program (available at www.digipan.net/), showing PSK31-mode operation and signal traces. Such narrow-bandwidth modes greatly increase your effective operating range on any amateur radio band. (Source: www.qsl.net/kk7lk/Digital-PSK31.htm)

If you're interested in overcoming the odds inherent in the propagation of your communications, consider learning Morse code and increasing your skill in using CW. How? I strongly recommend using the "Koch" method, a method of CW training developed by a German psychologist called Ludwig Koch back in the 1930s. The Koch method is not only useful for learning "code" if you have not yet done so, but it is also very effective in improving your speed and skill if you are already using CW.

There is a well-tested, highly recommended training aid that uses the Koch

method of learning Morse code. It's a software program, created by Ray Goff, G4FON, called "Koch Method CW Trainer - G4FON." (See Figure 5 for a screen shot.) Point your browser to www.g4fon.net/ and look for the menu option that takes you to the "Koch CW Trainer." The version current at the time of writing this article is Version 9.

For details on how the Koch method works, check out David Finley, N1IRZ's article at www.qsl.net/n1irz/finley.morse.html. Once you've acquired the skill to work CW at 20, 30, or even 40 words per minute (yes, it's very possible for nearly anyone using the Koch method), you can apply your skill to your DXing efforts on the weak-signal subbands on VHF and HF. If you want to find someone to work with you on practicing your code skills, check out the International Morse Preservation Society (also known as the FISTS Club) at www.fists.org.

One more thing: Are you interested in a challenge? Since you can gain such an advantage over SSB by using narrow-bandwidth modes like CW, imagine what you can accomplish with low-power operation? Low-power operation, known as "QRP," typically means using 5 watts or less output power. If you have a high-gain antenna, and are using CW or other narrow-bandwidth digital mode, you can

compete with the typical SSB station running the typical 100 watts of output power. Check out the QRP Amateur Radio Club International at www.qrparci.org/ and the North American QRP CW Club at www.arm-tek.net/~yoel/. Also, check out my page at <http://cw.hfradio.org>. QRP is an exciting activity—using just a whisper of power, you can still work the world.

HF Propagation For July

Solar activity is much quieter than it was just one year ago. We're now seeing long periods with no visible sunspot activity. This results in lower Maximum Usable Frequencies (MUFs) for the same period than last year witnessed.

Those of us in the lower latitudes can expect poor to fair openings into most areas of the world throughout the day on 22, 19, and 16 meters. At higher latitudes (above 40 degrees), these openings are a bit less frequent and tend to be weaker. Through the summer, you can expect propagation between the north and south regions during the daylight hours. Nineteen and 16 meters will be the strong daytime bands, with 19 remaining a popular band throughout the year.

Reception of stations located in tropical or equatorial areas may be possible well into the hours of darkness. For distances between 800 to several thousand miles, expect exceptionally strong signals. Multi-hop signals will be observed.

Thirty-one meters is a year-round power band with outstanding domestic and international paths, around the clock. During periods of low geomagnetic activity this summer, this band may offer long-distance DX all through the night.

Forty-one and 49 meters offer domestic propagation during daylight hours and somewhat during the night. The tropical bands (60, 75, 90, and 120 meters) are not noticeably affected by the solar flux, but are degraded during geomagnetic storminess. Through the summer, expect these bands to be more challenging, though less this year than last year.

Overall, daytime bands will open just before sunlight, and last a few hours after dark. Look higher in frequency during the day, as these frequencies will be less affected by any solar storms occurring, and more broadcasters have transmissions in these upper bands.

Tropospheric Ducting

Scattered reports of some very strong tropospheric openings on VHF have been

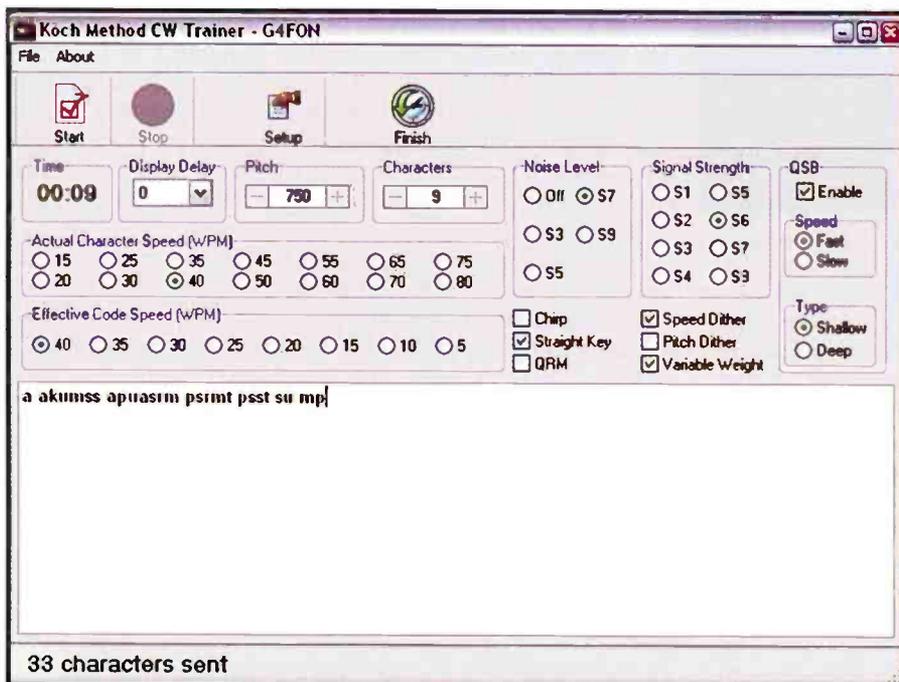


Figure 5. Screen shot of the amazing "Koch Method CW Trainer - G4FON" software. Using this program will greatly increase your skill in CW mode operation. Whether you're just learning Morse code, or you are already using it, this program's Koch-method of training can help you become an accomplished CW mode operator. Don't be scared away from Morse code, try this method and see what you can accomplish with this narrow-band mode. (Source: NW7US, using the "Koch Method CW Trainer" by G4FON)

made during April (corresponding to severe spring weather). Now that we're in the first part of summer, tropospheric ducting should be on the increase. In tropospheric ducting, radio waves are trapped in a type of natural wave-guide between an inversion layer and the ground, or between two inversion layers. Ducting causes very little signal loss and often signals are only heard at each end of the wave-guide.

Ducting via the troposphere can propagate signals over great distances, like from Hawaii to California. This ducting depends on large weather systems, however, that are more common during the late summer. Early reports, though, indicate it's worth watching for this mode of propagation. The summer weather season may well be violent and eventful.

Advanced visual and infrared weather maps can be a real aid in detecting the undisturbed low clouds between the West Coast and Hawaii or farther during periods of intense subsidence-inversion band openings. This condition occurs also over the Atlantic. There is a great resource on the Internet that provides a look into current conditions. Bill Hepburn has created forecast maps and presents them at <http://home.cogeco.ca/~dxinfo/tropo.html>; the site includes maps for the Pacific, Atlantic, and other regions.

If you know that conditions are favorable for tropospheric ducting in your area, try tuning around the 162-MHz weather channels to see if you can hear stations way beyond your normal line-of-sight reception. It's possible to hear stations over 800 miles away. Amateur radio repeaters are another source of DX that you might hear from the other end of the duct.

These openings can last for several days, and signals will remain stable and strong for long periods during the opening. The duct may, however, move slowly, causing you to hear one signal well for a few hours, to then have it fade out and another station take its place, from another area altogether.

Sporadic-E Season Is In Full Swing

In past issues, we've looked into the radio propagation mode known as sporadic E (*Es*). *Es* is mostly a summertime phenomenon, when it tends to occur in two peaks during the daylight hours centered on either side of noon. *Es* occurrence during the year seems to follow a similar trend, with the main peak in the late summer, and a second but weaker

peak occurring in the winter. During the winter peak *Es* is most common just after sunset. The summer daytime peak is in the morning between 7 a.m. and 12 p.m., local time. A secondary peak occurs between 8 and 10 p.m.

Observations over many decades, however, show a slightly stronger likelihood of *Es* in the morning than in the afternoon or evening. Despite the apparent greater likelihood of *Es* in the morning hours, however, this diurnal characteristic is much less noticeable in the day-to-day casual observation of DXers. In addition, check for *Es* after dark! I remember many summertime *Es* openings around midnight between Washington State and California on 10 meters. Many still remember an opening that occurred after midnight on June 19, 1992, that resulted in propagation of 144-MHz and higher signals.

While there are various contributing factors and influences that are known to, or at least thought to, create *Es*, one strong theory (supported by good science and observational data), suggests that *Es* is correlated with the presence of an excess of meteor dust in the E layer. This dust is pushed into dense patches on the outside of jet stream wind eddies. Several studies over the past 30 years have confirmed the presence in *Es* clouds of dense patches of meteoric comet dust. This idea is further supported by looking at the seasonal nature of *Es* and how it coincides directly with those times of year when the Earth passes through the dense tracks of comet dust.

How To Know When *Es* Is Beginning

DX enthusiasts know that during the summer months television channels between 45 and 108 MHz, and also FM radio stations between 88 and 108 MHz are regularly propagated long distances via *Es* propagation. The first sign that an *Es* event is starting is the observation of "rolling" black bars across TV Channel 2 (or the appearance of signals on that channel if you have no local station on the channel). As the ionization level increases, Channels 3 through 6 and the FM band become filled with signals. During *Es* propagation, signals can abruptly appear or disappear. Signals are usually very strong during *Es*. Ordinary "rabbit ears" are adequate for *Es* reception, and are preferred by some TV and FM DXers because they can be sharply directional.

Is it possible that *Es* can support DX of signals in the higher VHF frequency band, say, 175 to 226 MHz? Doubling the frequency reduces the probability to one tenth. This means if you are receiving via *Es* a signal of 50 MHz, then a 100-MHz signal will be propagated one tenth of the time period of the 50-MHz signal. A 200-MHz signal will be propagated one hundredth of the time. Since many high MUF propagation paths are multi-cloud, the probability could be higher than these figures.

The MUF of a single cloud can be lower than the frequency propagated by a two-cloud path. In practice, it's difficult to know of a possible propagation path for the highest frequency because of the geometric restrictions imposed, and unless the DXer and the transmitter are in precise relative positions, the DX station will not be heard.

Since *Es* reception above 138 MHz often involves high-path losses, it's important that you use the highest gain and lowest noise receiving equipment possible. A directional Yagi antenna, with at least 8 dB of gain, mounted 15 to 20

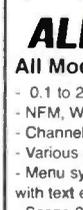
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Optimum Working Frequencies (MHz) - For July 2007 - Flux = 75, Created by NW7US

UTC	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
TO/FROM US WEST COAST																									
CARIBBEAN	20	19	17	14	13	12	11	11	10	10	10	9	9	9	16	18	20	21	21	22	22	22	22	22	21
NORTHERN SOUTH AMERICA	28	27	25	22	19	18	17	16	15	14	13	13	12	12	18	21	23	25	26	27	28	28	29	29	28
CENTRAL SOUTH AMERICA	28	26	23	20	18	17	16	15	14	14	13	13	12	12	20	23	25	26	27	27	28	28	28	28	28
SOUTHERN SOUTH AMERICA	29	28	27	25	22	20	18	17	16	15	14	14	13	13	15	21	24	26	28	29	29	30	30	30	30
WESTERN EUROPE	9	9	9	8	8	8	8	9	9	8	8	8	8	11	14	16	17	17	17	16	15	14	11	10	9
EASTERN EUROPE	8	8	8	8	9	10	9	9	8	8	8	8	8	13	15	14	14	14	13	12	11	9	9	9	9
EASTERN NORTH AMERICA	22	21	18	13	13	12	11	11	11	10	10	10	10	13	19	21	22	23	24	24	24	24	24	24	23
CENTRAL NORTH AMERICA	13	12	11	10	7	7	6	6	6	6	6	5	5	5	8	11	12	12	13	13	13	13	13	13	13
WESTERN NORTH AMERICA	7	7	6	6	5	3	3	3	3	3	3	3	2	2	2	5	6	6	7	7	7	7	7	7	7
SOUTHERN NORTH AMERICA	21	20	19	17	14	13	12	11	11	10	10	10	9	9	13	17	19	21	22	22	23	23	22	22	22
HAWAII	19	19	19	18	17	15	13	12	11	10	10	9	9	9	8	8	9	13	16	17	18	19	19	19	20
NORTHERN AFRICA	9	9	9	8	8	8	8	9	9	8	8	8	8	12	15	16	17	18	18	16	14	11	10	10	10
CENTRAL AFRICA	13	12	11	11	10	9	9	9	9	8	8	8	8	12	14	16	17	17	18	18	17	15	14	13	13
SOUTH AFRICA	19	18	16	12	12	11	11	10	10	10	10	10	9	15	19	20	21	22	23	23	23	23	22	21	21
MIDDLE EAST	8	8	8	8	8	10	9	9	9	8	8	8	8	13	15	16	16	13	10	10	9	9	9	9	9
JAPAN	19	19	18	18	17	15	13	10	10	9	9	9	8	8	8	8	8	8	8	8	12	16	17	18	18
CENTRAL ASIA	19	19	18	18	17	15	13	10	10	9	9	9	8	8	8	8	9	12	11	11	11	10	16	19	19
INDIA	8	8	8	8	8	8	8	8	8	8	8	8	8	8	7	7	7	7	7	8	8	8	8	8	8
THAILAND	17	18	18	17	16	15	13	10	9	9	9	8	8	8	8	11	14	13	12	12	11	11	11	12	12
AUSTRALIA	24	25	26	27	26	23	19	17	16	15	14	14	13	13	12	14	15	14	14	14	14	17	20	22	22
CHINA	17	18	18	17	16	15	12	10	9	9	9	9	8	8	8	8	9	9	8	8	8	8	8	12	15
SOUTH PACIFIC	28	29	29	28	26	23	21	19	18	16	15	15	14	13	13	12	15	14	14	18	21	24	25	27	27
TO/FROM US MIDWEST																									
CARIBBEAN	23	22	19	18	16	15	14	13	12	12	11	11	11	16	19	22	23	24	25	25	25	25	25	25	24
NORTHERN SOUTH AMERICA	26	24	23	21	19	17	16	15	14	13	13	12	12	15	18	20	22	23	24	25	26	26	26	26	26
CENTRAL SOUTH AMERICA	27	25	23	21	19	18	17	16	15	14	13	13	13	19	22	23	25	26	27	27	28	28	28	28	28
SOUTHERN SOUTH AMERICA	29	28	26	24	22	20	18	17	16	15	14	14	13	15	20	23	25	27	28	29	29	30	30	29	29
WESTERN EUROPE	9	9	9	8	8	8	8	8	8	8	8	8	8	13	15	17	17	18	18	17	16	14	12	10	9
EASTERN EUROPE	9	8	8	8	8	8	9	8	8	8	8	8	8	12	15	16	16	16	15	15	14	13	12	9	9
EASTERN NORTH AMERICA	16	14	12	10	9	9	8	8	8	7	7	7	7	12	15	16	17	18	18	18	18	18	17	17	17
CENTRAL NORTH AMERICA	7	7	6	4	4	4	4	3	3	3	3	3	3	4	6	7	7	8	8	8	8	8	8	8	8
WESTERN NORTH AMERICA	13	12	11	10	7	7	7	6	6	6	6	6	5	5	8	11	12	13	13	13	14	14	14	14	13
SOUTHERN NORTH AMERICA	15	14	13	11	10	9	9	8	8	7	7	7	7	7	11	13	14	15	16	16	16	16	16	16	16
HAWAII	22	22	21	19	17	14	13	12	11	11	10	10	10	9	9	10	11	16	19	20	22	22	23	23	23
NORTHERN AFRICA	12	11	10	10	9	9	9	8	8	8	8	8	14	16	17	18	19	19	19	19	19	18	14	13	13
CENTRAL AFRICA	13	13	10	10	9	9	9	8	8	8	8	8	14	16	17	18	19	19	19	19	18	17	15	14	14
SOUTH AFRICA	19	18	17	16	15	14	14	13	13	12	12	12	19	24	26	27	28	29	29	28	28	25	23	21	21
MIDDLE EAST	9	8	8	8	8	9	9	8	8	8	8	8	13	15	17	18	18	17	15	11	10	10	9	9	9
JAPAN	18	18	17	16	14	10	10	10	9	9	9	8	8	8	8	8	8	8	8	8	11	15	17	18	18
CENTRAL ASIA	18	18	17	15	13	10	10	9	9	9	8	8	8	8	8	13	12	11	11	11	10	10	15	19	19
INDIA	9	11	11	12	10	9	9	9	8	8	8	8	8	12	12	12	11	10	8	8	8	8	8	8	8
THAILAND	16	17	16	15	12	10	9	9	9	9	8	8	8	8	12	15	15	14	13	12	12	11	11	11	11
AUSTRALIA	24	25	26	25	21	18	17	16	15	14	13	13	13	12	12	17	16	15	14	14	15	18	20	22	22
CHINA	16	17	16	15	12	10	9	9	9	9	8	8	8	8	10	9	9	9	8	8	8	8	10	15	15
SOUTH PACIFIC	29	29	27	26	23	21	19	18	16	15	15	14	13	13	12	15	14	14	16	20	23	25	26	28	28
TO/FROM US EAST COAST																									
CARIBBEAN	19	17	16	14	13	12	11	11	10	10	9	9	11	14	16	18	19	20	20	21	21	21	20	20	20
NORTHERN SOUTH AMERICA	23	22	20	18	17	15	14	13	13	12	11	11	12	15	17	19	20	21	22	23	23	23	24	23	23
CENTRAL SOUTH AMERICA	27	25	22	21	19	17	16	15	14	14	13	13	18	20	22	23	25	26	26	27	27	28	28	27	27
SOUTHERN SOUTH AMERICA	28	27	25	23	21	19	18	17	16	15	14	13	15	19	22	24	26	27	28	29	29	29	29	29	29
WESTERN EUROPE	9	9	8	8	8	8	8	7	8	7	10	14	16	17	18	18	18	18	17	16	15	14	11	9	9
EASTERN EUROPE	9	8	8	8	8	8	8	8	8	8	8	8	14	16	17	17	17	17	16	15	14	12	9	9	9
EASTERN NORTH AMERICA	7	6	5	5	4	4	4	4	3	3	3	5	7	7	8	8	9	9	9	9	9	8	8	8	8
CENTRAL NORTH AMERICA	16	15	12	10	10	9	9	9	8	8	8	8	7	13	16	17	18	18	19	19	19	19	18	17	17
WESTERN NORTH AMERICA	22	21	18	14	13	12	12	11	11	10	10	10	10	14	19	21	23	23	24	24	25	24	24	23	23
SOUTHERN NORTH AMERICA	18	17	14	13	12	11	11	10	10	9	9	8	8	13	16	17	19	19	20	20	20	20	20	19	19
HAWAII	23	22	19	15	14	13	12	11	11	11	10	11	11	11	11	11	12	17	20	22	24	24	25	24	24
NORTHERN AFRICA	13	12	12	11	11	11	10	10	10	10	14	19	21	23	24	24	25	24	23	22	20	18	17	15	14
CENTRAL AFRICA	14	13	12	12	11	11	11	10	10	10	14	19	21	23	24	24	25	24	23	22	20	18	17	15	14
SOUTH AFRICA	19	18	17																						

feet above ground level, with low-loss matched coax cable, low-noise receiver, and a low-noise MOSFET pre-amplifier are ideal for receiving weak signals.

Current Cycle 23 Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-centimeter observed monthly mean solar flux of 72.3 for March 2007, down from February's 77.8. The 12-month smoothed 10.7-centimeter flux centered on September 2006 is 80.2. The predicted smoothed 10.7-centimeter solar flux for July 2007 is 75, give or take about 15 points.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for March 2007 is 4.8, down quite a bit from February's 10.6. The lowest daily sunspot value recorded was zero (0) on March 7 through March 10, March 14 through March 22, and March 31. The highest daily sunspot count was 17 on March 5. The 12-month running smoothed sunspot number centered on September 2006 is 15.6. A smoothed sunspot count of 12, give or take 12, is expected for July 2007.

The observed monthly mean planetary A-Index (Ap) for March 2007 is 7, one point up from the previous few months. The 12-month smoothed Ap index centered on September 2006 is 8.7. Expect the overall geomagnetic activity to vary greatly between quiet to disturbed during most days in July.

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 like the solar flux, Ap reading, and so forth using a cell phone or other WAP device, check out <http://wap.hfradio.org/>, the wireless version of my propagation site.

Please don't hesitate to write and let me know about any interesting propagation that you have noticed. Do you have questions about propagation? I look forward to hearing from you. Until then, happy signal hunting! ■

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The FCC Rules On IBOC

The FCC has fully adopted in-band on-channel (IBOC) digital broadcasting for AM and FM radio, taking digital radio out of the experimental phase and closer to reality. Most significantly, in a second report and order on digital radio, the FCC has given the go-ahead for nighttime AM IBOC digital, which was previously limited to daytime use due to potential skywave interference problems.

While many AM broadcasters are hopeful about a digital future, some AM broadcast engineers and DXers, likened to the proverbial canaries in the coalmine, sounded the interference alarm when IBOC was first officially selected by the FCC five years ago. Now that AM IBOC digital is here for real, what does it mean for AM radio?

The FCC Ruling

From the Second Report and Order, First Order on Reconsideration, and Second Further Notice of Proposed Rulemaking, March 22, 2007, FCC 07-33, Media Bureau Docket No. 99-325, we learn,

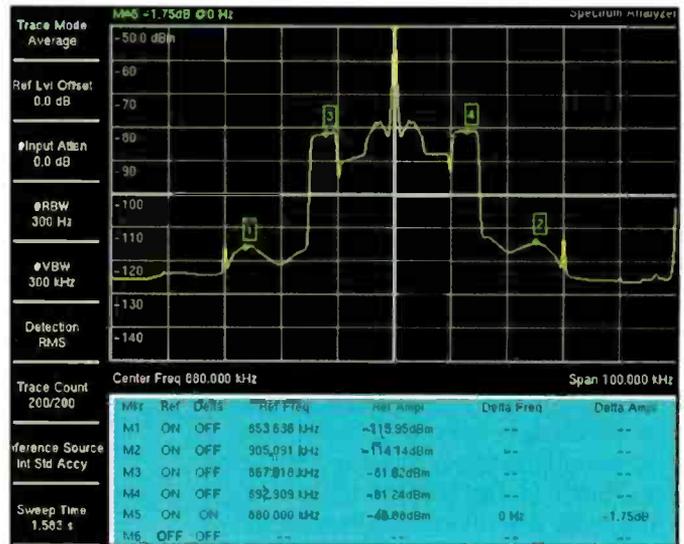
In October 2002, the FCC selected IBOC as the technology enabling AM and FM radio broadcast stations to begin digital operations...IBOC allows broadcasters to use their current radio spectrum to transmit AM and FM analog signals simultaneously with new digital signals. Since the Commission first authorized Digital Audio Broadcasting on an interim basis, over 1200 stations have notified the Commission that they have commenced or intend to commence hybrid digital broadcasting. Radio stations broadcasting in a digital format using IBOC technology are able to offer listeners enhanced sound quality, improved reception, as well as new multicasting and datacasting services.

In the ruling, the FCC announced that FM radio stations would be allowed to operate in the extended hybrid digital mode (the next step in transition from hybrid analog/digital to all-digital broadcasting), and authorized AM nighttime operations. While FCC Chairman Kevin J. Martin fully endorsed the order, it was not without a level of dissent among FCC commissioners.

"Today's action by the Commission will promote radio's transition from the analog world to the digital one," wrote Chairman Martin in a public statement.

"Today, the radio industry is at a challenging crossroads," stated Commissioner Jonathan S. Adelstein. "With the emergence of different platforms such as broadband, mp3, and satellite radio, there is increased pressure on terrestrial radio to digitize and to expand its delivery capacity and capability over the most ubiquitous of all platforms—over-the-air broadcasting...In supporting digital radio, I cast a vote for the future..." Conversely, Adelstein dissented,

Unfortunately, I cannot fully support today's item because it is another missed opportunity for the Commission to promote diversity, another dream deferred. After years of ignoring the issue, punting the question, and delaying a constructive dialog to develop meaningful solutions, it is really disappointing that the Commission has once again failed to step up to the plate. There is no justification for the Commission's outright refusal to encourage digital audio broadcast-



Spectral measurement of the 880 WCBS hybrid analog/digital waveform. At the center is the 880-kHz analog signal, 3 and 4 are the primary IBOC digital signals at 870 and 890 kHz, 1 and 2 are spectral regrowth at 860 and 900 kHz. (Thanks to Robert Berrand, Engineer, WCBS-AM; from the FCC Public File)

ers to enter into time brokerage agreements with women and minority broadcasters or new entrants.

"What we see holds special promise for consumers, with all kinds of possible new and valuable services that can significantly alter the radio listening experience," echoed Commissioner Michael J. Copps, yet also dissenting in part. "By adopting a blanket authorization for all digital radio, this decision confers a free pass on others to take their spectrum, bypass local communities and run more of the canned and nationalized programming that is all too common on our consolidated analog system today and which is, truth be told, responsible for many of broadcast radio's current problems."

"Today, the Commission adopts rules and policies to facilitate and encourage an orderly transition of the nation's radio stations to digital audio broadcasting, which holds the promise of better reception, better sound quality, and, most importantly, more varied programming that better promotes localism and diversity," offered Commissioner Deborah Taylor Tate.

Commissioner Robert M. McDowell was the only commissioner to issue a statement of "enthusiastic" support of Chairman Martin and the FCC ruling:

Our order today enables broadcast entrepreneurs to bring to the marketplace this powerful new technology to the benefit of all American consumers. Our action today also allows the U.S. to catch up to several other countries that have already adopted digital broadcast standards...We at the Commission will watch market developments carefully, mindful of our role to adopt new rules should they become necessary. The Further Notice is broad and strong and I wish all four of my colleagues had supported it because it really does tee up the issues that they, and all of us, care about so much.

Why now? About a month prior to the FCC announcement, there was a meeting between the Commission and iBiquity Digital Corporation, developer and sole proprietor of licensing for IBOC technology. "During the meeting, iBiquity provided an updated status report on the significant progress being made to implement HD Radio (IBOC) technology, and encouraged the Commission to quickly complete the existing rulemaking proceeding in order to promote continued expansion of the HD Radio rollout," reported John M. Burgett representing iBiquity. "In this regard, iBiquity urged the Commission to authorize nighttime AM service and also allow digital radio broadcasters to offer supplemental audio services and advanced data services."

FCC: Frequency Collision Course

While the FCC concern for diversity is duly noted, interestingly the Commission seems totally oblivious to harmful interference issues. Not a single word regarding interference was issued.

"What this does is open the door to significant interference to other stations," editorialized broadcast engineer Craig Healy on am-dx.com shortly after the FCC order was announced. "A 50 kW clear channel station can run a digital transmitter at far more power than would be authorized for any conventional station in that location, on those two frequencies."

The two frequencies that Healy references are the adjacent frequencies above and below the center-assigned frequency of an AM radio station broadcasting IBOC digital. In simplest terms, broadcasting simultaneous analog and digital, called the hybrid mode, requires transmission of the digital signal on the adjacent frequencies above and below the existing analog frequency.

For example, while 710 WOR New York broadcasts its conventional analog signal on the assigned frequency of 710 kHz, the digital signal is broadcast over a bandwidth that extends beyond 700 and 720 kHz, thus causing interference to both analog and digital signals on those frequencies, which will only be exacerbated by nighttime skywave propagation. It's the equivalent of assigning two new radio stations in New York on 700 and 720 kHz. Thus blanket nationwide approval of AM IBOC without due process potentially triples the number of

signals on an already overcrowded AM broadcast band.

"It will be interesting from a rather perverse sense to see what happens," concludes Healy, "much like watching a car crash."

Reality Radio

Is interference a real issue, or just speculative? Try this simple test with any standard AM radio. Tune into a local radio station broadcasting in IBOC hybrid analog/digital. At first you might think that nothing has changed because the signal may sound the same as always. Next tune the receiver slightly off frequency, +/- 10 kHz. What do you hear? If the radio station has the digital transmission turned on, then you should hear digital hash or a continuous loud hissing sound. That's the adjacent frequency interference caused by an AM IBOC digital signal. Now imagine all the new digital signals being propagated over long distances at night in addition to existing analog signals, and it's easy to understand the potential for disaster.

The first signs of stress were already being reported with daytime AM IBOC underway. In public comments to the FCC, 910 WRKL New York City alleged that interference to its analog signal was due to the digital signal of 880 WCBS, also in New York City. "Digital hash can be heard on the WRKL signal within its 0.5 mV/m protected contour," reported Lewis D. Collins, Senior Radio and Telecommunications Engineer with Broadcast Signal Lab, LLP. Collins also conceded, "An unresolved question at this time is whether the mechanism responsible for the WRKL interference arises from inadequate second-adjacent channel selectivity in typical broadcast receivers that are being used for the reception of WRKL."

Robert Bertrand, an engineer at CBS-AM, responded as follows:

Under the FCC's current attenuation requirements, an AM station must achieve an attenuation of -35 dB for emissions that are 20 to 30 kHz removed from the carrier frequency. Under the significantly more stringent attenuation standards set forth in the NRSC-5 (proposed by the National Radio Standards Committee), an AM station must achieve an attenuation of -65 dB for emissions that are 15.8 to 25 kHz offset from the carrier frequency. For frequencies that are 25 to 30.5 kHz offset, the attenuation requirement varies based on the calculation $-65 \text{ kHz (frequency offset in kHz - 25) \times 1.273}$.

Currently at frequencies offset by 25 kHz, WCBS is operating with an attenuation of -67

dB for its upper sideband emissions and -69 dB for its lower sideband. This level of attenuation is significantly better than the -35 dB attenuation currently required by the FCC's rules and similarly meets the NRSC-5 proposed attenuation requirement of -65 dB for emissions at that frequency offset. At frequencies offset by 30 kHz, WCBS is operating with an attenuation of -72 dB for its upper sideband emissions and -73 dB for its lower sideband...WCBS's digital signal complies with both current attenuation standards and the significantly more stringent proposed NRSC-5 standards.

While harmful interference from WCBS could not be conclusively demonstrated by WRKL, the conflict is indicative of problems that will likely be encountered as more AM radio stations commence fulltime digital broadcasting.

Engineer Barry D. McLarnon commented further on reports of such interference: "Considering the relatively small number of AM stations actually using IBOC to date, and the daytime nature of the emissions thus far, these reports are merely the tip of the iceberg. Most of these reports concern IBOC interference from second, and sometimes third, adjacent channel stations, which are the major source of daytime problems. At night,

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Table. AM Radio Stations Authorized For Hybrid Digital Operation

As of this writing, the following 185 AM radio stations were approved for hybrid (simultaneous) analog/digital broadcasting per the FCC database.

550	KFYI Phoenix, AZ	850	WXJC Birmingham, AL	1240	WHVN Charlotte, NC
550	KTSA San Antonio, TX	850	KOA Denver, CO	1250	WHNZ Tampa, FL
560	KLZ Denver, CO	850	KFUO Clayton, MO	1250	WMTR Morristown, NJ
560	WQAM Miami, FL	850	KHHO Tacoma, WA	1250	WEAE Pittsburgh, PA
560	WRDT Monroe, MI	860	WAEC Atlanta, GA	1250	KWSU Pullman, WA
570	KLAC Los Angeles, CA	860	WWDB Philadelphia, PA	1260	WLGD Birmingham, AL
580	KMJ Fresno, CA	860	KONO San Antonio, TX	1260	WSDZ Belleville, IL
580	WGAC Augusta, GA	870	KRLA Glendale, CA	1260	WNDE Indianapolis, IN
580	WTAG Worcester, MA	870	WKAR E. Lansing, MI	1260	WMKI Boston, MA
600	KOGO San Diego, CA	880	WCBS New York, NY	1260	WWMK Cleveland, OH
600	WCAO Baltimore, MD	890	WLS Chicago, IL	1260	WVVT Christiansburg, VA
610	KOJM Havre, MT	910	KPOF Denver, CO	1270	WXYT Detroit, MI
610	WTVN Columbus, OH	910	WFDF Flint, MI	1270	WCGC Belmont, NC
610	WIP Philadelphia, PA	910	WRNL Richmond, VA	1280	KWSX Stockton, CA
620	WDAE St. Petersburg, FL	920	KARN Little Rock, AR	1290	WCCC W. Hartford, CT
620	KMKI Plano, TX	920	WHJJ Providence, RI	1300	KAKC Tulsa, OK
620	WTMJ Milwaukee, WI	950	WWJ Detroit, MI	1310	WGSP Charlotte, NC
630	KHOW Denver, CO	950	KMTX Helena, MT	1310	KTCK Dallas, TX
630	KJSL St. Louis, MO	950	WPEN Philadelphia, PA	1340	KCFR Denver, CO
630	WPRO Providence, RI	950	WXGI Richmond, VA	1340	WEXL Royal Oak, MI
640	KFI Los Angeles, CA	960	KQKE Oakland, CA	1340	WIZE Springfield, OH
640	WMEN Royal Palm Beach, FL	970	KESP Modesto, CA	1340	WHAT Philadelphia, PA
640	WOI Ames, IA	970	WFLA Tampa, FL	1340	WJYI Milwaukee, WI
640	WWLS Moore, OK	970	WHA Madison, WI	1360	WKAT N. Miami, FL
650	KENI Anchorage, AK	980	KFWB Los Angeles, CA	1360	WSAI Cincinnati, OH
660	WFAN New York, NY	980	WTEM Washington, DC	1370	WSPD Toledo, OH
670	KLTT Commerce City, CO	980	WHSR Pompano Beach, FL	1370	KAST Astoria, OR
680	KKYX San Antonio, TX	980	WOFX Troy, NY	1380	KMUS Sperry, OK
690	WSPZ Birmingham, AL	990	WMYM Miami, FL	1390	KGNU Denver, CO
690	KSTL St. Louis, MO	990	WDYZ Orlando, FL	1390	WGRB Chicago, IL
700	WLW Cincinnati, OH	990	WLGZ Rochester, NY	1400	WJLD Fairfield, AL
710	KSPN Los Angeles, CA	1000	KTOK Oklahoma City, OK	1400	WVAE Biddeford, ME
710	WOR New York, NY	1020	KTNQ Los Angeles, CA	1400	WCOS Columbia, SC
720	WGN Chicago, IL	1020	WRHB Kendall, FL	1410	WEGO Concord, NC
730	KBSU Boise, ID	1030	WBZ Boston, MA	1420	KBHS Hot Springs, AR
730	WXTR Alexandria, VA	1040	KCBR Monument, CO	1420	WHK Cleveland, OH
740	KBRT Avalon, CA	1040	WHO Des Moines, IA	1430	WXKS Everett, MA
740	KCBS San Francisco, CA	1050	KTCT San Mateo, CA	1430	WPLN Madison, TN
740	KVOR Colorado Springs, CO	1070	WAPI Birmingham, AL	1440	KDIF Riverside, CA
740	WSBR Boca Raton, FL	1070	KNX Los Angeles, CA	1450	KMRY Cedar Rapids, IA
750	KOAL Price, UT	1070	WIBC Indianapolis, IN	1450	WBYU New Orleans, LA
760	KKZN Thornton, CO	1070	WNCT Greenville, NC	1450	WCTC New Brunswick, NJ
760	WJR Detroit, MI	1080	KRLD Dallas, TX	1470	KIID Sacramento, CA
770	KCBC Riverbank, CA	1100	WWWE Hapeville, GA	1470	WWNN Pompano Beach, FL
770	WWCN N. Fort Myers, FL	1100	WTAM Cleveland, OH	1470	WSAN Allentown, PA
770	WABC New York, NY	1110	KDIS Pasadena, CA	1480	WDAS Philadelphia, PA
770	KAAM Garland, TX	1110	KFAB Omaha, NE	1490	KCFC Boulder, CO
780	WBBM Chicago, IL	1120	WTWZ Clinton, MS	1490	WBAE Portland, ME
790	KABC Los Angeles, CA	1130	KFAN Minneapolis, MN	1490	WOLF Syracuse, NY
810	KLDC Brighton, CO	1130	WISN Milwaukee, WI	1500	WTWP Washington, DC
810	WGY Schenectady, NY	1140	WRVA Richmond, VA	1510	WLAC Nashville, TN
820	WMGG Largo, FL	1160	KRDY San Antonio, TX	1530	KCMN Colorado Springs, CO
820	WNYC New York, NY	1160	KSL Salt Lake City, UT	1530	WCKY Cincinnati, OH
820	WOSU Columbus, OH	1170	WWTR Bridgewater, NJ	1540	WDCD Albany, NY
830	KLAA Orange, CA	1180	WHAM Rochester, NY	1570	KCVR Lodi, CA
830	WCCO Minneapolis, MN	1190	KEX Portland, OR	1580	WSRF Ft. Lauderdale, FL
840	WHAS Louisville, KY	1200	WRTO Chicago, IL	1590	WHGT Chambersburg, PA
840	KXNT N. Las Vegas, NV	1200	WCHB Taylor, MI	1590	KMIC Houston, TX
		1200	WOAI San Antonio, TX	1600	KATZ St. Louis, MO
		1220	KLVZ Denver, CO	1630	WRDW Augusta, GA
		1220	WZBK Keene, NH	1640	WKSH Sussex, WI
		1230	WECK Cheektowaga, NY	1690	KDDZ Arvada, CO
		1230	WYTS Columbus, OH	1690	WVON Berwyn, IL
		1240	WBUR W. Yarmouth, MA		

skywave IBOC interference from first adjacent stations will be the additional problem that is far from small." McLarnon recommended extensive nighttime testing by a sufficient number of radio stations, and consultation with neighboring countries under existing international agreements for AM broadcasting in the Americas.

Yet not everyone is convinced that nighttime operation will be a problem. According to Craig L. Fox, President of 1490 WOLF Syracuse, New York,

WRI (WOLF Radio Inc.) recognizes there is potentially a greater risk of interference to existing analog signals from nighttime operation of the HD Radio (IBOC) system. However, any increased interference is likely to occur primarily at the edge of or outside a station's protected coverage area. WRI believes any impact on our listeners in these areas will be greatly offset by the significant benefits HD Radio technology will offer the majority of listeners. Existing AM services are severely limited by the many impairments that affect analog broadcasts. HD Radio technology is the first viable solution to many of AM radio's problems and will ensure the continued long-term success of AM. As a result, WRI is willing to tolerate some increased interference in the short run to derive the full benefits of digital.

Interference Standards

Both the FCC and NRSC attenuation standards for adjacent frequency interference referenced in the WCBS and WRKL comments have become topics of contention.

"The NRSC mask was designed solely for transient analog interference and should not be used to evaluate the acceptability of IBOC," wrote electrical engineer Charles Hutton in public comments to the FCC. "IBOC subcarriers are each transmitted 100% of the time and yield an effective interference that is much higher than transient products with analog modulation."

"The NRSC mask is being improperly applied when claims to the contrary are being put forth," said Craig Healy. "That mask was never intended for continuous data stream modulations."

Specifically responding to the WCBS versus WRKL interference issue, Engineer Leonard R. Kahn further contends, "Under existing law 47 CFR Section 73.44(b), emissions 20 to 30 kHz from a carrier must be at least 35 dB below a station's unmodu-

lated carrier. So WCBS in its filing got that right, but they 'inadvertently' forgot the rest of the story as clearly stated in that same section of 47 CFR Section 73.44(a) that measurements of the spectrum must be made with a 'peak hold of 10 minutes' whereas WCBS and all of the other IBOC stations use only millisecond long measurements." Kahn is a long-time opponent of IBOC, and the plaintiff in a lawsuit challenging FCC adoption of IBOC as the exclusive digital platform. Kahn is the principle developer of alternative technologies for AM radio.

As indicated by the WOLF comments, AM IBOC digital interference may not impact the average local radio listener by and large. Nevertheless it will impact long-distance reception. Will long-haul truckers still be able to tune into the overnight Trucking Network program on 700 WLW Cincinnati with digital interference from 710 WOR New York City? Will transplanted New Englanders lose their connection via 1030 WBZ Boston once 1020 KDKA Pittsburgh commences digital broadcasting? Will out-of-state baseball fans no longer enjoy 880 WCBS New York coverage of the Yankees because of digital interference from 890 WLS Chicago? Where will listeners tune to for the latest information during an emergency or natural disaster if digital reception proves unreliable? What will be the impact on long-distance listening and the DX hobbyist?

Obviously there are alternatives to noisy long-distance AM reception for loyal listeners. Many cross-country truckers already listen to their favorite overnight programs via satellite radio. Sports fans can follow their favorite teams via satellite and Internet subscription services. An Internet search should find a hometown station with crystal clear streaming audio worldwide. Undoubtedly the Emergency Alert System will have to be revised, as proposals for additional nuclear-hardened Primary Entry Points and alternatives to AM radio are already under consideration.

DXers have endured the break-up of the clear channels, the transformation of AM programming from local music to network talk, and increased noise levels from electronic devices and power lines, and the hardest DXers will continue to endure as long as the possibility of long-distance reception exists by the powers of nature.

Sadly, no matter what, it appears that legacy analog AM radio is approaching its end of days. There was always something special about waking up in the middle of the night and tuning distant signals bedside in the dark, whether it was the warm glow of a vacuum tube set or the earphone of a pocket transistor radio. Somehow tuning in the local IBOC digital signal or logging on to a computer will never replace the experience of pulling exotic random signals out of the nighttime ether.

Consult the June 2006 edition of *Popular Communications* for more information about IBOC digital, and the May 2007 edition for a look at digital receivers. Visit the FCC website at www.fcc.gov for the latest developments in digital regulations and releases. Let us know about digital interference and reception in your area. Do you own an HD Radio receiver? How reliable is digital reception? What kind of alternative digital programming is available? Send in your analog and digital reception reports to be featured in a future edition. Next month, look for the return of your AM DX logs, along with some end of summer antenna projects in anticipation of what should be an exciting autumn season while at the bottom of the solar cycle—that is if IBOC digital doesn't interfere.

Until then, 73 and good DX! ■

Note: There is no FCC callsign list this month.

1550 KTXO Reno, Nevada, DX Test

Here's a call for DXers to pitch in and help out a radio station for a DX test; all the pertinent information is given below. Refer to the January 2007 edition of *Popular Communications* and www.dxtests.info to learn more about DX tests.

Dates: July 1–15, 2007

Time: 12–4 a.m. Pacific Time

Modes of Operation: Varied, see notes.

Programming: Morse Code IDs & Sweep Tones, La Voz Cristiana in Spanish.

Notes: July 1–13, 96 watts non-directional. July 14–15, non-directional daytime power of 2500 watts. Please do not call or e-mail the station during the test, as this is being done automatically via remote control and computer automation.

QSL Information: Reception reports are preferred via e-mail with mp3 recordings, to les@highnoonfilm.com, please put "KXTO DX Test" in the subject line. Regular mail address; Les Rayburn, High Noon Film, 100 Centerview Drive Suite 111, Birmingham AL 35216. Please include a SASE for reply.

A Fleeting Recollection Of West Virginia Radio



“We’re looking for a radio detective,” the long e-mail began, “and truly wish that you can help restore a memory that, quite possibly, never really happened.” The writer then revealed the story about her husband having had a brain tumor, an operation, and a torn postcard that was strangely fascinating him during his long recovery.

“He pulled the card out of a dusty scrapbook we found in the attic,” the woman explained. “My husband spends hours staring at it and trying to say something about once riding a bicycle to the building pictured there. He looks at it and keeps repeating, *radio song, radio song*. Sometimes he’ll also say something like,

aracoma 71 room—whatever that means. It’s not much to go on,” she apologized. Still, she hoped there might be some way I could tell her how the small building pictured on the postcard related to a radio or perhaps to a song.

Pondering the assignment, I could hardly wait for the mailman to deliver a photocopy of the partial postcard described by the woman. As promised, it arrived promptly, carefully folded in an envelope with a Northern California return address. Just a single sentence was penned across the image: “We’d be so grateful if you can turn this clue into a fact or two about whatever is pictured here!”

Like a Cyclops, the structure, partially revealed on the copy paper, stared back at me through its prominent, centrally positioned round window. At first glance, the place gave the impression of the proverbial corner bar. But what would a kid have been doing in such a gin joint? Maybe our convalescent went there for a sandwich with an older relative and remembers listening to a favorite country song on the establishment’s five-tube radio, positioned on some conspicuous oilcloth covered shelf. At best, though, this represented broad poetic license.

Block lettering made me refocus on the full moon window again. Whatever was stenciled on the huge porthole appeared as fuzzy to me as it might have looked to a tipsy customer who drank one too many there. No matter how I approached the printing with my Sherlock Holmes-style magnifying glass, the window’s intended message could not be deciphered. But elusive, too, in that circular portal and two glass doors standing guard on either side, were any traces of neon beer signs, quintessential in such a venue. So much for the neighborhood bar theory!

What’s That “X” In The Box?

Admittedly, studying the ripped picture drove me batty enough to give the search a rest for a few days. That’s when an “X” shape outlined by a box near the back of the building practically jumped off the page at me. At that instant, it certainly



We’d be so grateful if you could turn this clue into a fact or two about this picture here! Thank you, Jennifer Hall

The mystery location postcard as received from the California couple. Would you have guessed that it pictured an AM radio station studio/transmitter site? My first impression was that the building housed some mom & pop neighborhood tavern!

seemed to be part of a tower—maybe a broadcast tower. Looking closer, however, I wasn’t so sure.

The picture definitely showed a tight hillside setting with nearby houses. That being the landscape, where would ground radials—normally positioned around the AM tower like wagon wheel spokes—be installed? If this were a radio studio/transmitter site, I figured, the tower locale would most logically indicate FM broadcasting. Still, there were no giveaway clues related to specific city-of-license and/or callsign.

Now I realize that bringing *Broadcast Pro-File*’s Jan Lowry into the mystery earlier would have saved me a lot of time and considerable conjecture. “Are you sure your hillside station is FM?” the radio historian asked in one of our late night (especially in my eastern time zone) cross-continent phone conversations. “Nothing like that rings a bell in the frequency modulation genre,” he admitted. “Any other peculiar features?”

Nearly five minutes of abstract descriptions and snippets of the couple’s story followed before I happened to mention the little building’s big round window. “Well, of course,” Jan enthused like an excited *Wheel of Fortune* contestant, “if we’re talking big round window, that’s got to be WLOG in Logan, West Virginia! And didn’t you say the place is at the bottom of a hilly street? As soon as we hang-up,” he promised, “I’ll email you a quick thumbnail image of a WLOG postcard I’ve got in my *Broadcast Pro-Files* inventory.”

In no time, the WLOG picture materialized on my computer. It was the crucial missing puzzle piece. I held the woman’s photocopy to the screen and compared the two graphics. Indeed, my “X” had been part of the base of a four-legged, self-supporting tower. Only about 25 feet of the stick got caught in the shot before disappearing into the pale blue sky bordering the

vintage linen postcard. A trio of small homes in the immediate hilly background seemed right on top of the WLOG building. Even without room for a traditional ground system, no doubt that tower bathed them in an AM signal so strong that WLOG could easily be detected on their telephones, and quite possibly their kitchen toasters!

Right after breakfast, I e-mailed the news to the lady who'd so wanted to know about the picture. In return, I asked how this small market radio station fit into her husband's memory. While a particular locale had been solved, the bicycle ride, "radio song," and "aracoma 71" were still owed a place in the story. Thankful for at least the WLOG identification, she pledged to keep me posted on how her spouse might react to hearing the call letters and the name of the community they represented.

History While You Wait

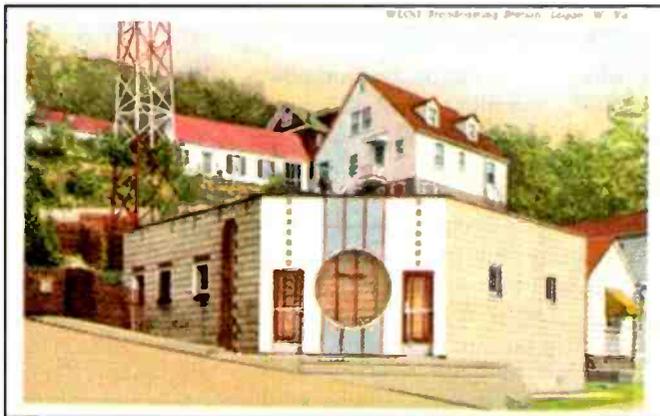
I wasn't completely confident that I'd ever hear from the woman again, but was sure that Jan would "surprise" me with a WLOG *Broadcast Pro-File*. Always thoughtful, he did, and in less than a week, I found myself slicing open the white envelope with the *Pro-File*'s familiar Castaic, California, return address. (That's 28243 Royal Road, 91384-3028. Use it to send for your free *Broadcast Pro-File* catalog today!)

Inside were two very interesting pages that began by identifying the publisher of the *Logan Banner* and a payroll clerk at the nearby Henlawson, West Virginia-based Merrill Company coal mine as WLOG's founders. Clarence Frey, the newspaper guy, and Robert O. Greever from the mines, had formed their radio partnership in the late 1930s. At first, this association was simply to determine whether or not Logan, with a population of around 5,000, and its surrounding bucolic environs could economically support a small station. Friendly talk at an autumn 1938 newspaperman dinner had been the catalyst, as one of Frey's colleagues there happened to wonder why Logan did not have its own radio outlet.

During his drive home from the Morgantown business affair and over the next few days, Frey pondered the local broadcasting question and figured his pal Greever might think it an idea worth pursuing. Anyway, the duo decided to file FCC paperwork after *The Banner*'s advertising manager, who was tasked to poll area business leaders and citizenry, reported to Frey and Greever that everyone liked the hometown station concept. The FCC granted them a construction permit, specifying that Logan's proposed standard broadcast outlet would be a daytime-only operation yielding 100 watts on 1200 kilocycles. Shortly after that January 25, 1940, direction, the Commission approved Frey's and Greever's request to name their facility, WLOG, for Logan.

A tight, sloping corner lot at Chestnut and Kanada (pronounced by Loganites as *ca-NAUD-duh*) Streets, north of downtown Logan, was secured for the installation of a modest size, five-sided masonry studio/transmitter building. Contained within the structure with its large circular window was a Western Electric transmitter, and on its north side, several feet higher than WLOG's front entrance elevation, was a Blaw-Knox 150-foot tall vertical radiator. Equipment tests were conducted in the middle of the night on May 23, 1940, with the resulting measurements satisfactory for the FCC's nod for an official WLOG debut.

The inaugural broadcast was the following Sunday afternoon. A West Virginia radio history website states that some of



The "case of the corner kilocycle conundrum" solved! Thanks to Jan Lowry's Broadcast Pro-File photo archives, we were able to put a roof and needed context onto the mysterious partial postcard picture. The results? An evocative hand-colored image of W-L-O-G in Logan, West Virginia, as the then-100-watt station looked on a calm, now long forgotten, early summer day not long before the full outbreak of World War II. What an exciting little facility it must have been!

the station's most popular early offerings included the *King Koal Show*, a 13-week Sunday afternoon program sponsored by area coal companies. Apparently miners and their families auditioned, and the best were put on the air along with mine safety messages as commercials. Anyone who saw the coalmine culture crisis movie *October Sky* can picture life in a West Virginia mining community and imagine why a radio show offering respite from the daily grind, as well as a chance at momentary fame, would be well received.

Not long before Christmas 1940, WLOG's owners got a nice present from Washington. The FCC gave them an OK for nighttime operation. This newfound fulltime status was joined with a March 1941 (NARBA Treaty) mandate to shift WLOG's carrier frequency from 1200 to 1230 kilocycles, plus a bonus in the form of a CP to throttle-up the black and chrome Western Electric to its full 250-watt potential.

Through the war years and into the late 1940s, WLOG chugged along, concentrating on local voices and a bit of transcribed programming just like a good little hometown "coffee pot" station should. Behind the scenes, though, its ownership made plans to open new studios at 445 Stratton Street, the site of Frey's *Logan Banner* newspaper headquarters, and establish a new transmitter/tower site on Ward Rock Mountain (later Radio Tower Road) above Central Logan. These changes took place in 1949.

For some reason, Frey and Greever decided to retain the novel round window building, after having its 150-foot Blaw-Knox stick removed. Eventually, a covered carport was attached to the old WLOG venue "where the self-supporting tower once stood." There's not much documented evidence of what, if anything, went on in the small building pictured in our haunting WLOG postcard between 1949 and early 1958, when—for now mysterious reasons—the studios/office got moved back to the original WLOG building.

Reacting To Unanticipated Competition?

Perhaps the return to the steep corner of Chestnut and Kanada (though the upgraded Ward Rock Mountain tower site stayed active) was a belt-tightening measure resulting from a new

Logan AM, WVOW. Begun in the early 1950s, WVOW debuted at 1290 on the dial with 5000 watts of daytime power and a 1000-watt night signal. It's reasonable to assume that the WLOG people—after pioneering the area's modest radio business and pretty much having had it to themselves by plugging along with standard programming fare—were shocked to discover a vibrant competitor transmitting 20 times WLOG's output and courting listeners and advertisers for ears and dollars.

While a candidate for its own story in a subsequent column, suffice it to say that WVOW's enthusiastic management and energetic young staff missed little opportunity to be anywhere around town that Loganites might find interesting, talking to the locals about whatever they wanted to know. This responsive schedule ran the gamut from dance broadcasts in the station's auditorium-style studio, lots of local news, editorializing, and local residents' opinion expression, to extensive play-by-play school sports, and public

service telethons (such as one raising funds to entice a clothing manufacturer to locate his new factory in Logan County).

What really shone the spotlight on WVOW, though, was its 11-day around-the-clock coverage in 1960 of a mineshaft cave-in. Through its reporting, WVOW (and the hundreds of stations taking its audio feed) made the miners' plight almost tangible to concerned listeners around the world. In the process, it put WVOW on the map as an exemplar of community service radio. Needless to say, little WLOG plugging along on the sidelines appeared to have become an also-ran.

A Power Increase, An Owner's Passing, And The First Of Many Sales

Perhaps not registering much more than a local footnote was the March, 1961, FCC construction permit enabling WLOG to jump from 250 to 1000 watts during days. This hike didn't get instituted until 1963, however, as the station was trading water after the late 1961 passing of co-owner Clarence Frey and the subsequent sale by partner Robert Greever. The transaction's timing suggests that WLOG's founders had been wearying of the struggle to catch up with WVOW, and that without Frey, Greever possessed no desire to continue in radio.

On February 1, 1963, Guyan Valley (named for the nearby Guyandotte River) Broadcasting Company paid \$80,000 for WLOG and its assets. On the property list was equipment to facilitate the station's affiliation with the Mutual Network, a relationship it contracted in 1951. The Class IV AM still featured Mutual fare in the mid-1960s when Jan Lowry captured the following programming snapshot: WLOG "operated daily from 6:00 a.m. until 11:00 p.m. (Sunday hours were 7:30 a.m. until 9:00 p.m.) It aired country music 15 hours weekly."

Jan also notes WLOG airing "a 'middle-of-the-road' music format by the early 1980s," and the 1986 transfer of WLOG to the Donco Corporation. Its principal, Don E. Coleman, Sr., soon oversaw a nighttime power jump from 250 to 1000 watts, a switch from Mutual to ABC Entertainment Network and West Virginia Network, as well as the adoption of an adult contemporary music play list. The Donco reign hardly lasted two years, though, and in 1988, WLOG's license was turned over to Thomas G. Truman,

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Trustee and then, in 1989, to the Logan Bank and Trust Company.

In the midst of this, somebody convinced the overseers to run classic rock over WLOG on a 24-hour-a-day basis. It's likely that this came from an outside programming source by satellite. Whether or not there was a hardcore Van Halen fan in the bank management, the financial institution gladly "sold the station to the non-profit Southern West Virginia Community College Foundation in early 1991." The school modified WLOG's schedule to 6 a.m.-to-midnight and opted to spin relatively sanitized adult contemporary records after dropping the ABC and West Virginia Network feeds in 1992. Apparently the college brass tired of AM radio quickly, selling WLOG a year later.

A. R. "Chip" Spencer paid those educators \$40,000 for the station and went to a 24-hour broadcast schedule. His CD Entertainment, Inc., made one other change, a slight musical tempo up-tick from traditional A-C to "hot" adult contemporary music. Unfortunately, it didn't matter. CD Entertainment took WLOG dark in early April 1997 and told the FCC it did not plan on ever again firing-up the little AM's transmitter. Shortly thereafter, and with the clicking of a few computer keyboard strokes, a Commission clerical worker matter-of-factly deleted WLOG's license and callsign.

My Dad, The Bicycle Buff

As luck would have it, my folks were visiting me when I got the e-mail update. Its subject line simply read, "ANOTHER CLUE?" Inside were more sketchy details from the woman with the recuperating husband. For therapy they'd been going through some additional dusty stuff stored in the attic when he grabbed hold of an old receipt from a place called Endres Cycle Store, 41 Genesee Street, Utica, New York.

"Radio song!" the fellow exclaimed in a struggled manner that hinted of his brain injury. The lady reported that her spouse grew up in Central New York, though they'd met during college in California. "He's never been back East since then," she noted, clouding-up the latest lead.

Dad and I sat transfixed in front of the computer screen as a scan of the 3-by-5 inch document downloaded. Its bulbous cursive identified a March 12, 1960, purchase: "26" Huffy R-B (leftover/discount) w/battery. \$25.00 cash paid." I'd heard of Huffy brand bicycles, but the "R-



Not a toy. Powerful radio has lock, sensitive tuner, volume control, clear cone speaker. The bike's a beauty, streamlined design, gearshift, new easy-pedal tires.

New Super Bike Has Built-in Radio

A section of the Huffy bicycle company's 1955 catalog showing one of its premier offerings that year: the Radiobike. Those young fellows in the promotional picture fit right into this month's story. We can imagine one as the bike's original owner, a visitor from New York, and the other as the lucky local Logan, West Virginia-area kid to whom it was given in a gesture of kindness. Apparently, the Radiobike was offered through 1958. Its stock antenna consisted of a tubular ceramic affair about 10 inches long and mounted on brackets connected to the lower front frame. Some sophisticated electronic buffs who owned a Radiobike souped up their rolling receiver's reception with a tall whip stemming from a loading coil base affixed to the bicycle's rear luggage rack.

B" coding and reference to a battery threw me for a loop.

A look of deep thought came over my father while, with his thumb and forefinger, he stroked his face in a classic contemplative gesture. "Yes, it *would definitely have been* a leftover in 1960," he mused.

"A leftover what?" I anxiously asked.

"Well, daughter," he announced and then hypothesized, "it is quite logical to assume that the R-B stood for 'Radiobike,' a fancy, but poor-selling bicycle manufactured by the Huffy people in 1955. As a bit of a vintage bike enthusiast myself, I've heard they're quite coveted by collectors today.

"My guess is that this Huffy had been sitting in the Utica showroom for five years. The Endres people were probably thrilled to finally get rid of it. That annotation about a battery being included in the sale also makes sense because the radio built into the bike was a small tube-type set that, if I remember correctly, was a rather hefty—by today's standards—dry cell that was stowed on the bicycle's luggage rack."

"What kind of radio was in this bike?" I asked.

"The main type of radio from that era, of course," Dad announced. "A-M all the way... True blue standard broadcast band for us amplitude modulation enthusiasts... From 540 kilocycles all the way up to 1600 k-cs."

Already, I'd begun clicking out R-a-d-i-o-b-i-k-e into a search engine. Quickly unveiled were a few pictures of such a vehicle. One site mentioned Jay Pridmore's book *Classic American Bicycles*. The author described the 1955 Radiobike as being a remarkably "short-lived classic with a car-sized radio in the horn tank and a battery [inside a metal box marked *Power/Pak*] riding conspicuously on the rear carrier."

Reportedly, Horace Huffman Jr., son of the Huffy bike company's president, suggested the idea for a radio-equipped bicycle also sporting a streamlined headlight. He predicted boys his age would go bonkers for the bike if it had a rear-mounted automotive antenna, big dials on a horn tank (or center bar section) fashioned to mimic a dashboard, all adding up to "a childhood version of automotive luxury." For some reason, however, the model turned out to be an Edsel-size flop.

"Folks in the fifties didn't take too kindly to kids riding around the neighborhood blaring music out of a radio," my father said. "Plus, by about 1956 or '57, one could affordably purchase something much more modern than the receiving rig on that Radiobike," he recalled. "Transistor radios were starting to become the rage. After all, they were space-age technology, much more portable than tube radios and ran on smaller, cheaper batteries. Guys with a cool transistor could hide the radio in their jacket pocket and listen on a secret earphone. That way nobody complained about noise and there was no obvious antenna for some bully to break off and poke you with in the ribs. The only danger was a risk of getting the earphone wire caught in the spokes!"

Any Luck Snagging The Logan Connection?

"Lunch, you two!" my mother called from the kitchen. She had overheard us talking radio history and figured the only way to break that longtime father/daughter bond was with tomato soup and sub sandwiches—fixings for which she'd already had time to walk to our neighborhood store and back.

"Care to share your mystery?" Mom interjected as we methodically attempted chronological reconstruction of our facts. We were pretty sure that the woman's husband—as a child of about 13 or 14—owned a Huffy Radiobike and that he could have tuned 1230 WLOG on its AM receiver. Maybe that was the "Radio song" component of his seemingly fragmented memory. After dessert, I e-mailed the lady with our findings, and asked if she had been successful digging out any other info.

"Just a couple of little things that maybe aren't really anything," was her preface to heralding the discovery of an attic letter signed, "Uncle Ken." Its professionally printed envelope had been rather carelessly ripped open, though the sender's address wasn't difficult to read once the torn flap was smoothed out. "Kenneth M. Wells," the bold block lettering spelled. "Registered Professional Safety Engineer, Washington, D.C."

Nobody would accuse the writer of being verbose, as the enclosed note, dating to early-April 1960, ran only several sentences. They can be summed up as follows: 1. Uncle Ken had bought our main character a bicycle; 2. Took him and the bike on a business trip which "turned out to be something that could be shared in Social Studies current events class"; and 3. Uncle Ken and the family were very proud of some unselfish thing our protagonist did.

"And we found something else," the now sixty-something man's wife added. "Again, it's not much, but perhaps it'll be useful. That ripped postcard—the one my husband has been holding...the one that started this hunt...well, I happened to see what looked to be pencil writing on the message side of the card. Only a few words are visible, and they're poorly formed in what is arguably a child's hand. The fragments included, '...OR THE MICE BYCICLE... OM SAID WHEN SHE...

EARS ITS RAYDO... ONG TO HER HART... ULY, ...IM DENINS (or BEVINS)."

Mom, Dad, and I couldn't remember having so much fun trying to fill in the gaps of this nearly 50-year-old conundrum. Our collective effort yielded the following supposition: The author of the card was expressing thanks for being given a bike and wanted the giver to know how much he and his mother were moved by the gesture, hence, "Thank you for the nice bicycle. Whenever my Mom hears its radio, it brings a song to her heart. Yours truly, Jim (Dennins or Bevins)."

Regarding the short letter from Ken, we believe this was the recovering man's uncle, and that this gentleman, a safety inspector, took his nephew to Logan County, West Virginia, while assigned to survey the aftermath of the March 8, 1960, disaster at the Holden, West Virginia mine at Island Creek #22. There, 18 miners died when fire erupted in a coal seam, generating poisonous carbon monoxide gas.

According to a website chronicling the tragedy, these tragically departed souls left behind a total of 16 wives and 72 children. We made the assumption that Uncle Ken had extensive duties at the mine site, so—for most of the workdays—left our young subject back at whatever lodging establishment they were staying. He'd probably given the boy a dollar or two for lunch and a bit of spending money at some Logan 5&10-cent store or hobby shop, and then directed him to "be careful" but have fun riding his bike around town.

Remember the earlier reference to "aracoma 71 room"? Well, one of my father's eccentric buddies is interested in restaurant industry history and has a library of a food/lodging directory series called the *Hotel Red Book*. Under Logan, West Virginia, there's a listing for the Aracoma Hotel at Coal & Main Streets. It was noted to contain 80 rooms. That being the case, our travelers could have been quartered in the Aracoma's Room 71.

No doubt, circa 1960, a guest on official mine business from the Nation's Capitol and his young nephew would have been afforded treatment cordial enough to accommodate the boy's new bicycle—especially an unusual model equipped with a radio. It's plausible that a helpful hotel clerk might have kindly admired the bike, demonstrated where on the dial the kid could tune the closest station, and then directed him about which route to pedal in order to visit the broadcasting studio.

Our conjecture takes the boy to the station where he hears about or perhaps meets a youngster his age who'd lost a dad in the recent mine catastrophe. Maybe he was an impromptu and convenient guest on some local WLOG interview show where the kid from faraway New York was asked about life in the Empire State, and then commented on how folks back East were praying for the families of the miners who perished. In any event, we think that our hero donated his new Huffy Radiobike to one of the fatherless boys, and that the recipient followed-up with a thank you on—for some reason still unclear to us—the WLOG card.

Epilogue

One Sunday afternoon last month, I received a phone call from the lady in California. She'd shared our pieced-together story with her husband. He had listened intently, his eyes misting. Through some sobs, he nodded, "Yes!" All the while, he held that tattered WLOG postcard close to his heart.

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



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Sun 'n Fun At The Lakeland Linder Regional Airport, Plus The Four Elements Of Air Traffic

Good afternoon from nice sunny St. Petersburg, Florida. This is being written on the heels of the second largest private aircraft fly-in in the nation: Sun 'n Fun at the Lakeland Linder Regional Airport (LAL). The 12 controllers and two supervisors had a great time briefing pilots from all over the United States and many foreign countries.

I personally gave weather briefings and took flight plans from not only American pilots, but also from pilots from Great Britain, Germany, Canada, Switzerland, Austria, Australia, and South Africa. General aviation as well as retired and even some active duty military aircraft were in abundance. Watching World War II war birds flying in formation and simulating attacks brought out the patriotic heart in almost all there.

I even briefed two pilots from the last remaining T-37 training squadron left in the U.S. Air Force, based at my old stomping grounds at Columbus AFB, Mississippi (CBM). The major and captain told me the T-37 is being phased out of the Air Force inventory in favor of the new AT-6, being built by Raytheon, for initial flight training. Though not a jet-powered trainer, it gives nearly the same performance and top speed as the T-37, but uses about one fourth the fuel.

An Angel Remembered

On an extremely sad note, I offer my condolences to the U.S. Navy Blue Angels and especially to the family of Lt. Cmdr. Kevin J. Davis of Pittsfield, Massachusetts, the Blue Angel pilot who died in the crash of one of the solo F/A-18 Super Hornets in South Carolina. It was only Davis' second year with the Blue Angels. The team had performed just a few weeks earlier near me at MacDill AFB (MCF) at the annual open house. Growing up in Orlando in the 1960s I remember watching the Blue Angels performing in the old F-111s at



Lieutenant Commander Kevin J. Davis.
(U.S. Navy photo)

Sanford Naval Air Station, now Sanford International Airport, Florida (SFB).

From A Reader

Edith, our new editor, forwarded a letter to me, sent to the *Pop'Comm* offices in New York. It's from David Kruzek of Santa Monica, California, who writes:

Any frequencies for the LAX area (Los Angeles)? Some days I notice many contrails over LA. Are they "talking" to anyone? Any new military air frequencies? Any nighttime or day freqs.? I am a night owl and I have my scanner on all night. I listen to LAX departure control and approach control while I'm in bed. I can get away with this—I am not married. I enjoy your column! Thank you."

David, thank you for your letter. It's nice to see an article you've written placed in the pages of a newspaper or magazine. But you always wonder how many people actually read it and what they think about it. It's refreshing to know

that some people are actually reading it and using the information you write. (By the way, Dave, my wife won't let me leave the scanner on when I'm in bed. Enjoy!)

This letter actually conjures up far more in my mind than just the frequencies for the LAX area. I've stated before that there are four aspects of air traffic, and I've worked them all: Flight Service (FSS); Airport Traffic Control Tower (ATCT); Approach Control, Radar and Non-Radar; and Air Route Traffic Control Center (ARTCC). And I do mean all, including both Radar Approach in the Air Force and Non-Radar Approach in the FAA. So before I give some frequencies for the LAX area, let me do a, hopefully, brief review of each part of ATC. Remember these are general rules of thumb and in no way describe any one tower, approach, or center.

The first aspect of ATC most pilots deal with is Flight Service. FSS controllers do not actively control air traffic, but instead brief pilots on their intended routes of flight, giving information on weather, aviation hazards, temporary flight restrictions, and relaying clearances. They are truly the first involved in search and rescue, long before the Civil Air Patrol (of which I am a member) of the Coast Guard Auxiliary are activated. By the time this article is printed flight service will be in the final phases of its new guise under the leadership of Lockheed Martin.

Flight plan areas involve great portions of the Lower 49. The St. Petersburg AFSS (PIE), where I'm currently assigned, is the busiest in the nation. It watches over airports in Georgia, South Carolina, and all of Florida except for a small area in the southeast, which is monitored by Miami AFSS (MIA). By the end of summer there will be 20 flight service stations active in the lower 49 states and Puerto Rico. Alaska FSS facilities remain under the auspices of the FAA. So far I've worked at St. Petersburg FL (PIE), Northway Alaska (ORT/PAOR), and Lakeland FL (LAL).



Festivities at the Sun 'n Fun fly-in at Lakeland Linder Regional Airport opened with this dramatic stunt—every day! (All Sun 'n Fun photos by Harvey Riedel and copyright 1997-2007 Sun 'n Fun Fly-in, Inc.



All manner of aircraft crowded the tarmac, from the single-engine MX2 (foreground) to the American Airlines DC-3 (background), the first plane to offer passenger service.

The next aspect, which is the only thing most people think of when they hear the phrase air traffic control, is the control tower. The people in these glass enclosed monoliths, which can be operated from mobile trailers to 300-plus-foot buildings, control aircraft normally within a five-nautical-mile radius of the center of the airport from the surface up to, but not including, 2,500 above the surface. Towers normally have one local controller who controls aircraft actually flying through the airspace as well as those who are departing and landing at the airport, and one ground controller, who directs aircraft taxiing to and from active runways and movement on the ramps. This dance must be carefully choreographed as most aircraft accidents occur during take offs and landings.

Of course the bigger the airport and the more runways, the more controllers in the tower. With three pairs of runways and an additional runway, Chicago O'Hare (ORD) airport had at least three local controllers working when I visited them in the early 1990s. I've worked at Albany GA (ABY), Orlando Executive FL (ORL), Grand Island NE (GRI) and Moultrie Spence Field GA (MUL).

The third aspect is the approach control. Approach controls normally go out about 40 miles from the center of approach control airspace, and with a ceiling normally under 10,000 feet, but can go to a higher altitude. In the beginning, ATC approach control had no radar and radios were very rudimentary. Separation between was based initially on the reports of the pilots over various fixes based on crossing headings from different navigational aids, or NAVAIDS. This was a Non-Radar Approach and was the norm until the advent of radar in the mid-20th Century.

Radar allowed controllers to "see" the aircraft, or at least a radio reflection of the aircraft. Because of the size of the returns on radar (larger at farther distances), the craft separation was increased at greater distances. But all radar returns look pretty much the same, so early radars were placed horizontal to the floor with small plastic or wood "shrimp boats" used to manually track the position of aircraft.

Later a "secondary" radar was used that allowed the controllers to "attach" information to the primary targets. Today's secondary radar places the callsign, type of aircraft, speed, altitude, and other sundry items with each radar return or blip. I worked at the Albany GA (ABY) Non-Radar Approach Control



High above the onlookers, P-51s in a "Flight of Two."

and Radar APproach CONtrols, or RAPCONS at Patrick AFB FL (COF), Columbus AFB MS (CBM) and the Berlin Air Route Traffic Control Center, or BARTCC (pronounced Bar Tack) approach control at Tempelhof Flugplatz in West Berlin Germany (EDBT).

Finally, there's the Air Route Traffic Control Center, or just plain Center. These, for lack of better terms, are enhanced approach controls, usually cover much larger areas, and extend up to flight level (FL) 600 or 60,000 feet above sea level. Not every airport has a tower, and approach controls don't cover every square inch of land, but centers cover every square mile of airspace in the United States and the world, with perhaps the exception of Antarctica. But I could be wrong here. As noted above I worked at the Berlin Air Route Control Center (BARTCC) (EDBT).

Now this doesn't mean that all aircraft are under some kind of control at all times. All are that are under instrument flight rules (IFR) at and below FL600—flight level six zero zero. Above that no one controls aircraft. Also most pilots flying under visual flight rules (VFR) are not under control except when talking to control towers and some approach controls. However many pilots flying "cross country" will talk to approach controls and flight service stations for updates on weather and to pass along pilot reports (PIREPs) for other pilots to ascertain weather



The center of attraction for these aviation buffs is an A-10 "Warthog" static display.

between airports where weather instrumentation is not available.

Speaking of PIREPs, controllers need a minimum of information, such as time of the report, type of aircraft, location and altitude, and at least one bit of information concerning weather, such as cloud

cover, visibility, icing, turbulence, and wind direction and velocity. Information on icing and turbulence is particularly useful depending upon the type of aircraft: What may not affect an Airbus could really wreak havoc on a small airplane like a Cherokee or Bonanza.

But pilots are not without a sense of humor. Some years back a PIREP came through the system from a pilot in Columbus, Nebraska. It said the pilot was on the ground and "can see moon, cannot see mailbox." It's reasonable to think that the fog was rather thick.

Since David's from Santa Monica CA (SMO) I'll throw in some frequencies for the Santa Monica area (over the next few issues I'll deal with the California frequencies):

Local Control	120.1
Ground Control	121.9
ATIS	119.15
UNICOM	122.95
SoCAL Approach	124.3/124.9/ 125.2/128.5
Noise Test	122.85

Thanks again for the letter, David. I'll be answering more letters in the future, and as I said I'll be doing a few articles on the two major approach controls: SoCAL and NoCAL.

Enjoy and happy listening. ■

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Modern Ham Radio Kits: Heathkit Would Be Proud!

If you're a raw recruit, you probably haven't been around our hobby long enough to remember the demise of the great ham radio and electronics "kit companies": Johnson, Knight and, of course, Heathkit. But the passing of these bedrock companies was felt throughout the ranks.

When I was in college in the early '80s, we could see the writing on the wall...we knew that Heathkit wouldn't be around forever. And although the company held on into the early '90s in one shape or another, the Heathkit ham radio era was all but gone long before then. (At the eleventh hour I was shocked to learn that Heath's then-new SB-1400 ham transceiver was a rebadged Yaesu FT-747. Although common today, that kind of "outsourcing" was very controversial back in the day, and the fact that Heath was forced to do something that drastic was a harbinger of its demise. The '1400 was a decent entry-level radio, but it wasn't kit-built, so in the minds of many, it just wasn't a Heathkit!)

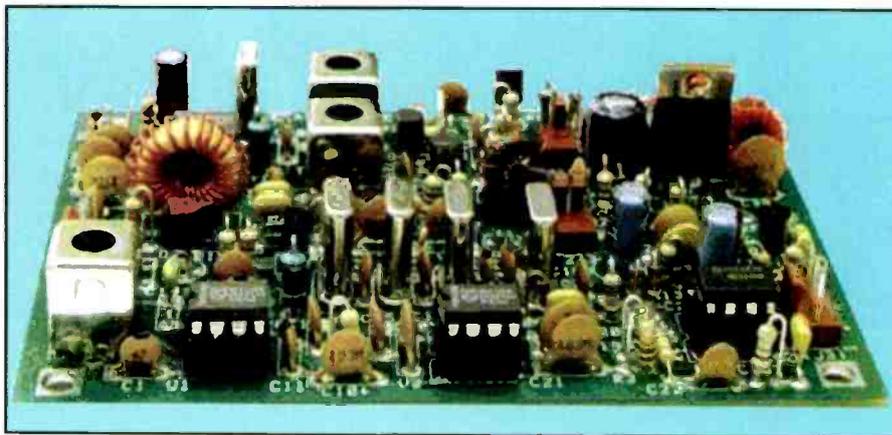
When I heard that the Heathkit store in the Twin Cities was closing, a proverbial lump formed in my throat. I'd never been there in person, but I knew what the closing meant, and I knew what ham radio was losing.

If you travel back a ham radio generation or two—before the Internet, the age of miniaturization, and toll-free phone numbers—commercial gear cost a boatload of cash, which forced many hams to build their own receivers, transmitters, tuners, and so on.

Many intrepid and resourceful hams built lots of stuff from scratch (as a small minority does even today), but many more created kit-built electronic masterpieces made possible by the aforementioned companies.

From the mid-'60s through the early '80s (which heralded the era of Kenwood and the other Japanese makers), Heathkit meant ham radio, much like "Kleenex" means facial tissue and "Xerox" means photocopy (please: no e-mail from trademark-protection weenies!).

Just about everyone who couldn't afford a Collins or Drake setup was using



Some kit designs are more elegant than others, of course, and when it comes to QRP CW transceivers that don't cost an arm and a leg, the Small Wonder series from Small Wonder Labs is a fine example of elegant design and affordability. Available for 80, 40, 30, and 20 meters (single band), the SW-series transceivers feature VFO control, superhet circuitry, solid-state T/R switching and power output of about 2.5 watts—all for about \$50!

a Heathkit station that somebody, if not the operators themselves, had lovingly built from a kit of parts using Heathkit's fabulous step-by-step assembly manuals.

Even in the Heathkit era there were other ham radio kit companies—and there are *many* more today, which we'll address further on—but nobody else produced big-ticket kits that featured complete stations, receivers, transmitters, transceivers, etc.

With Heathkit finally gone, kit builders wandered in a desert of accessory kits and smaller projects while everyone else was buying used Heathkits or Kenwood TS-520s!

The Modern Era

We modern hams are certainly a spoiled bunch! We enjoy ham radio superstores, instant Internet access (to check out rig specs), toll-free telephone numbers (to order them), and compact transceivers that cover every conceivable band (and then some). And all for a fraction of what things cost in the good old days (towers excepted).

Our rigs have every modern convenience. Digital displays track our operating frequencies to the nearest hertz, pow-

erful DSP chips filter and massage our receiver audio, and a multitude of gadgets and handy "RF tweaking" controls are never more than a moment away.

Yet for many hams, despite the compelling performance of modern radios, the mystique and satisfaction that accompany using radio gear they've built themselves is in a class by itself. Believe me, when you make a contact with a transceiver you've assembled from raw parts, you'll feel a thrill that stands alone!

And unlike many kit-builders of generations past, you won't have to build "second-string" radios and accessories that offer fewer features and reduced performance when compared to the finest store-bought radio stuff. Quality amateur radio kits, ranging from simple station accessories to powerful multi-band transceivers, are now the norm. More than a hundred companies offer an amazing assortment of high-quality products, and many of those products are aimed at low-power ops (QRPer). Building kits and QRP go way back and are truly inseparable.

The flagship of modern kit companies, and the company that most hams view as Heathkit's spiritual successor, is Elecraft. This California-based kit radio compa-

Pound for pound, the NorCal QRP Club is one of the most influential clubs of its type anywhere. The same goes for many of its kits, too! Shown here is the business end of the club's FCC-1 frequency counter kit. By itself it can measure RF to about 50 MHz, and with a prescaler it's good into the GHz range. Use it as a bench counter or build it into your homemade receiver, transceiver, etc. Paired with the club's FCC-2 DDS kit, the combo makes a nifty digital VFO or signal generator that works up to about 20 MHz. Each kit costs about \$35.



ny's K2 all-band HF transceiver offers "basic radio" performance that's better than many commercial radios costing thousands of dollars more. And you can add every conceivable accessory and doodad to the base-model K2—and when it's all said and done, you "built it yourself." The company's other products are on par with the best of the best. Check them out at <www.elecraft.com>.

If you've always wanted to build your own station hardware, now's a fantastic time to get started! Check out <www.ac6v.com/kits.htm> for links to dozens of ham radio kit sites on the Web. Some of my favorites include Hendrick's QRP Kits (www.qrpkits.com); Ramsey Electronics (www.ramseyelectronics.com); Small Wonder Labs (www.smallwonderlabs.com); Ten-Tec's, this country's only remaining major ham radio and kit manufacturer, (www.tentec.com); and the NorCal QRP Club (www.norcalqrp.org).

Do-It-Yourself Tips

What about tools and complicated doohickeys? Good news: most kits can be built using a soldering iron, wire cutter/stripper, pliers, a screwdriver or two, and some solder. If you don't have a well-stocked toolkit, chances are good that one of your ham buddies does. So don't be shy—building kits isn't as difficult as it might seem. Even teeny surface-mount parts can be assembled with a magnifying glass and a little patience. Be sure to study the assembly guide and go through assembly steps one at a time and you'll have few problems, if any.

Regardless of your kit and its manufacturer, the first step in building any kit is to lay everything out on a clean, uncluttered surface and check each part against

the parts list. Make sure nothing's missing and be sure the part values are correct! One trick used by veteran kit builders is to write each part's value on a small piece of masking tape (remember to stick the tape to each part!). Spending a little extra time at this early stage can save headaches later.

If you don't have a lot of experience with a soldering iron, be sure to learn how to solder *before* tackling that first kit (or start off with low-level kit that essentially teaches you how to solder as you go). Cold solder joints and a general lack of soldering skills are the two biggest trouble spots for modern kit builders.

Once you've made sure everything's okay, it's time to dive in and get started! Here are a few more tips to help make your kit-building process be successful.

- Check off each step as you complete it. So you don't duplicate your efforts.
- Keep your soldering iron tip clean and bright. Wipe it with a wet sponge to clean off the crud, and your solder joints will be consistently good. (As mentioned, kit manufacturers say that poor solder joints are the main cause of non-functional kits.)
- Always bend component leads away from foil pads and circuit traces on the underside of the printed circuit boards, and make sure to trim the leads of soldered components as close to the circuit board as possible. This will greatly reduce the incidence of nasty solder bridges.
- When attaching wires, tin each lead with a bit of solder. This keeps wires from fraying and helps make a strong mechanical connection.
- Although you may never need to use it, owning or borrowing a "solder sucker," a small spring-loaded device to help you unsolder components, can make cor-

recting little bugaboos a snap. RadioShack and many parts jobbers sell these (and other "de-soldering tools") for only a few dollars.

- Before powering up your new creation, double check the assembly instructions, look for bad solder joints and solder bridges, make sure there aren't any "left-over" parts sitting around, and confirm the polarity of power supply wiring, etc.

- After inspecting your new kit, carefully apply power and follow any alignment and setup instructions.

- If your kit doesn't work after you've double-checked everything, ask a friend to take a look. I've been embarrassed a time or two when someone else instantly spotted a problem that had left me scratching my head!

You'll Be Glad You Did

With a kit under your belt you'll have a fine piece of radio equipment that you made yourself and can be proud of, and you'll be closer to experiencing the hobby as our ancestors did.

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Carrier Strike Groups— The U.S. Navy's Force Of Choice

Regular readers of this column are undoubtedly aware that I'm fairly active on the Internet. I've made no secret of my activities on Internet Relay Chat, and I've encouraged others to become active on the radio-related IRC channels. There is a reason for this: The ability to exchange monitoring information in real time with other utility enthusiasts has led me directly to some of the most interesting listening I've had the pleasure of enjoying over the years I've frequented these channels.

Just over a week before I sat down to write this column, I had the opportunity to reap the benefits of the most recent such occurrence. It happened one otherwise uneventful night, shortly after 9:00 p.m. local time, while I was idling in the #monitor channel on my "home" IRC network. A comment from a user on another IRC network, relayed via the network of IRC "bots" that links the #monitor channel across several different IRC networks, popped up on my screen:

[21:16] <@lexicon> (Jon-FL@ZN) 4360 U

That doesn't look like much in print. At first glance, it's indistinguishable from other catches of everything from numbers stations to foul-mouthed fishing boat captains chatting with counterparts aboard other vessels that are routinely reported in #monitor. Nevertheless, that innocent-looking one-liner eventually resulted in one of the most enjoyable listening sessions I've had in recent memory.

Not really knowing what—if anything—I was going to hear, I tuned the receiver I had my hand on at the time (my Kenwood TS-450S transceiver with a dipole antenna) to the 4360.0-kHz frequency in the USB (upper sideband) mode as the one-liner from Jon in Florida suggested. I was almost immediately rewarded by an earful of feedback and a bunch of callsign phonetics that I missed because my ears were too busy protesting the exposure to the squealing sound of the audio feedback someone on the frequency was transmitting. The signal was strong; my backup receiver (a DX-394 with a random length wire antenna) also had it loud and clear. After a few moments, my ears recovered from the feedback assault, and I was able to make out the callsign HOTEL WHISKEY, along with several other stations using single-letter callsigns being spoken phonetically.

The radio procedures and jargon being used by the radio operators I was hearing made it readily apparent that I was listening to a U.S. Navy tactical net. There were numerous players in the net, with several stations using single-letter callsigns calling HW to request that another station report information, and numerous references to track numbers, possibly the voice coordination net for a TADIL (tactical digital link) or a tactical net for a Navy CSG (carrier strike group). However, before I had more time to listen and discern its exact purpose, a close

friend called me and said she wanted to go out for coffee. Not being one to have my priorities incorrectly ordered, I logged the catch and headed out for a caffeine "fix," with the intent to check the frequency again later.

When I arrived back in my shack a few hours later, the net was still going at it. The very first thing I heard was a situation report that included a fire status and an authentication message from the station that transmitted it. That made it a carrier strike group's tactical net, but by this time, it was past midnight. I left the receiver tuned to the frequency and headed off to bed.

The next evening, when I switched the receiver on again, the net was not only still there, but the CSG was apparently engaged in a full-blown exercise. "Air warning yellow, weapons tight," intoned the net control station, authenticating with a two-letter code spoken phonetically. It was almost like having picked up right where I'd left off when I'd gone to bed the night before. The NCS (net control station) then asked for the state of two players, identified only by the numbers 201 and 204, and received the reply TIGER. He then issued the order, "Commit 201 204 to track..." and referenced the track number that these two assets were being ordered to cover.

Other tracks were subsequently referenced with one of the stations in the net—OSCAR—being told to cover one track "with OSCAR birds" and then, about six minutes later, the order "Scram 201 204" was issued. Three minutes later, the NCS again asked "say state 201 204," but the reply was covered by local static and I could not hear it. In any event, the NCS followed by twice repeating the phrase "Knock it off" and a nice little on-the-air debriefing followed in which each commander shared his comments on the exercise that had just taken place.

As the activity ended and the frequency fell silent, all I could think of was how fortunate I was to be familiar with the interservice brevity codes they'd been using so I could follow what was going on—and how I'd have probably missed all of it if I hadn't happened to be on IRC when Jon-FL dropped a line about the net into #monitor during the previous evening's monitoring session!

A few days later, an item in the Navy News Service's daily release noted that the *USS Enterprise* (CVN-65) had just completed two weeks of carrier qualifications, returning to its homeport at Norfolk, Virginia, just two days after I had spent several enjoyable hours listening to them on HF.

Naval battle groups constructed around carriers such as the "Big E" (so named because at 1,123 feet it is the longest warship in the world) are the backbone of the U.S. Navy's ability to project military force on a global scale. Operating in international waters, a carrier battle group does not need cooperation from other countries for landing or overflight rights, nor do they need to build and maintain bases in foreign lands. The U.S. Navy's aircraft carriers are sovereign U.S. territory that can be sailed to anywhere in international waters, as instruments of diplomacy or in response to a crisis—and more than 70 percent of the Earth's surface is covered with water.

Editor's Note: To help you make sense of military tactical net terminology, we've posted a Glossary of some frequently encountered terms on our website (www.popular-communications.com), as well as the standard Utility Glossary.

The Big E itself provided an example of this on September 11, 2001. Having just been relieved from being on station in support of Operation Southern Watch in Iraq, the Big E was southbound in the Indian Ocean on her way back to Norfolk when her crew (3,350 ship's company, 2,480 Air Wing) saw the live television coverage of the attacks on the World Trade Center and the Pentagon. Without an order from the chain of command, the Big E executed a 180-degree course change and headed back to the waters off Southwest Asia, where it remained on station in support of Operation Enduring Freedom, flying nearly 700 missions and dropping hundreds of thousands of pounds of ordnance on al Qaeda terrorist training camps and Taliban military installations in Afghanistan.

When one hears that an aircraft carrier is being deployed somewhere, the uninitiated observer may imagine the carrier steaming alone across the ocean towards its eventual destination, and perhaps wonder why sending just one ship, albeit a large one, to a trouble spot halfway around the world would cause such a big fuss. Rest assured that this does not happen. An aircraft carrier almost never goes anywhere by itself. Instead, it is accompanied by the rest of its CSG. There is no real definition of a CSG since strike groups are formed and dis-established as needed, and one may be quite different from another. They are, however, all typically composed of similar types of ships, including not only the carrier, but also other warships such as guided missile cruisers, destroyers, and attack submarines. That's a lot of offensive and defensive firepower going along for the ride!

The carrier itself isn't exactly helpless either. In addition to the combat systems aboard the Big E—which includes Sea Sparrow missiles, RIM-116 Rolling Airframe Missile launchers, and 20mm Phalanx MK-15 CIWS (pronounced "sea-whiz," the acronym stands for Close-In Weapons System) guns, as well as some of the most sophisticated radar and fire-control systems in the world—the aircraft it carries provide quite a bit of firepower as well. The typical air wing aboard a U.S. Navy aircraft carrier usually includes four F/A-18 squadrons. That amounts to approximately 50 of one of the world's most versatile and reliable all-weather combat aircraft! There are half a dozen different versions of this aircraft, but all of them are capable of performing either fighter or attack roles, or both, using the most modern air-to-air and air-to-surface weapons in the U.S. inventory, including precision-guided munitions.

The point is that when you hear about an aircraft carrier being deployed to that trouble spot halfway around the world, it doesn't show up alone. It shows up with plenty of friends, and they're capable of causing a whole lot of trouble of their own—trouble for our nation's enemies, that is!

As for the radio nets associated with these carrier battle groups, typically there will be more than one net going on HF at any given time when a CSG is under way, with each net having its own purpose within the overall mission of the CSG. Some nets are voice coordination nets for tactical digital links between air and surface assets. Other nets you'll hear will be tactical nets involved in directly controlling and coordinating the efforts of assets engaged in offensive and/or defensive operations.

The frequencies used are not static. They are subject to change at any time according to the needs of the strike group. If you hear a particular CSG on a certain frequency during one deployment, past experience suggests that you probably will not hear them on that frequency again during their next underway period. I'm sure the frequencies are selected in advance, and

documents I've found on the Internet suggest that this may be done by a frequency coordinator responsible for the area in which the CSG is operating.

I also suspect that the frequency coordinator may issue a group of frequencies for use by the CSG, perhaps to be used at the discretion of the strike group's C5I (Command, Control, Communications, Computers, Combat systems, and Information) staff, because I've heard these nets change frequencies in the middle of operations on account of unfavorable propagation conditions on the original frequency or because of interference from other signals.

The best ways to find these nets are to troll the utility bands listening for them yourself, and to make use of available Internet resources to keep in touch with other utility monitoring enthusiasts so you, too, can hear about it as soon as possible after someone else finds one!

These nets are my favorite listening targets when I find an active frequency but, as mentioned above, the radio operators throw a lot of jargon around. The use of jargon is certainly nothing new when it comes to radio! However, these nets have a language all their own, which can make it almost impossible to follow the action unless you are privy to the brevity codes and other terms these guys use. With that in mind, I've provided definitions for some of these to help you understand what you're hearing on these nets (see "Some Terminology Used In Military Tactical Nets"). It is by no means an exhaustive list, but it should help you get started!

Sadly, there is one aircraft carrier from which you will probably not hear any more communications. The *USS John F. Kennedy* (CV-67) was decommissioned in Mayport, Florida, on March 23. The 80,000-ton warship named for the 35th president of the United States saw 18 deployments and 30 commanding officers during its 38 years of service. Those with particularly dependable memories (which doesn't necessarily include me!) may recall that it was "Big John"—on a deployment in early January 1989—that was involved in the incident in the Mediterranean Sea near the Gulf of Sidra, which resulted in the Navy shooting down a pair of Libyan MiG-23 "Flogger" fighter/bomber aircraft.

The Libyan MiGs approached the carrier battle group, and were detected by an airborne E-2C "Hawkeye" aircraft as well as the ship's F-14 CAP (combat air patrol, an aircraft patrol provided for the purpose of intercepting and, if necessary, destroying hostile aircraft before they reach their target) aircraft at about 78 nautical miles. A pair of F-14 "Tomcat" aircraft embarked on a series of pre-planned, non-provocative maneuvers, changing course and altitude in order to establish offset and, hopefully, to peacefully escort the Floggers away from the carrier group. However, unlike other Libyan aircraft that had been observed and monitored earlier, but had not behaved aggressively, these two MiGs countered the F-14s' maneuvers with their own, eventually closing on Big John at high speed within range to release their own weapons. At that point, the Tomcats were forced to "splash" both MiG-23s, using radar-guided AIM-7 Sparrow and heat-seeking AIM-9 Sidewinder missiles.

Revisiting Humber Radio

In last month's column, I reported that David Hopcroft, the last manager of Coastal Station Humber Radio in the UK, had contacted me to advise that he still has some remaining QSL cards from the station (callsign GKZ) and would be happy to fur-

nish a confirmation of reception to SWLs who could find the station in their logbooks. That offer, incidentally, is still open. Check your old logbooks. If you logged Humber Radio, simply drop me a line via e-mail to the address that appears at the top of the column, and I'll let you know how to get in touch with David to obtain your, somewhat belated, confirmation of reception for station GKZ.

In the weeks that have passed since, David followed up with a couple of nifty photos of the Marconi H1000 transmitter used at Humber for the DSC (digital selective calling) trials that were conducted at GKZ, and which were mentioned in last month's column. David also posed a question in his initial communication with me concerning BPL (broadband over power lines) that's worth addressing. Let's first revisit Humber Radio (GKZ). I use the term "revisit" because David contributed a couple of things for the "Utility Communications Digest" back in 2002 when Joe Cooper was writing this column (see the March 2002 and June 2002 issues). After that, we'll get to David's BPL question.

Humber Radio was located at Trusthorpe, which is situated between Mablethorpe and Sutton on Sea (where Hopcroft now lives) in England's Lincolnshire county, and was one of eight Coast Radio Stations located along the UK coast. Along with commercial telegram and telephone services, Humber Radio also maintained permanent listening watch on the 500-kHz and 2182-kHz distress frequencies, and the station's radio operators handled all distress (SOS), urgency (XXX), and safety (TTT) communications on behalf of the UK Coastguard Service.

Humber opened in December of 1927 to replace a station at Grimsby, some 20 miles to the north that had outgrown its available space. The station continued operation from then until its closure on June 30, 2000, when it became a victim of the arrival of other technologies (such as INMARSAT, a global mobile satellite communications network) that resulted in declining traffic and difficult economic conditions for commercial maritime wireless telephone providers. Sadly, what's left of the station has been sold to a local developer, its building boarded up and awaiting redevelopment, and its antenna masts having been removed.

The photos of the Marconi H1000 transmitter at GKZ (see above **Photos A** and **B**) show the very transmitter that was

used for the aforementioned DSC trials. It was a wideband transmitter covering 0 to 30 MHz that was used as a backup for the single-channel transmitters and receivers that had come into use by this time. David recalls that Humber and Ostend (OST, in Belgium) were the two stations used for those trials. David wrote about the Ostend station, "I visited them one day with the development engineer for the ships' equipment. It turned out he had installed the equipment on a ship I later served on—small world!"

BPL Revisited

David wrote after subscribing to *Pop Comm* in time to read the November 2006 issue, in which my column included a discussion of BPL and its potential for posing a significant interference threat to over-the-air radio services. David commented on BPL in the UK, saying, "I don't think it is here in the UK yet, but I hear stories of trials, so perhaps it is coming."

David then posed the following question: "If power lines act as transmission lines and radiate just like an aerial, surely anything transmitted can be received and decoded, including information on the Internet that you thought should be secure. It already happens at Wi-Fi spots, so why not with BPL?"

Because the interference concerns inherent with BPL deployment affect all of us in the radio hobbies, not to mention commercial, government, and military users of the RF spectrum, BPL is an issue we cannot ignore. David raises what I believe is a very real concern. Certainly, BPL signals can be intercepted over the air, and that means individual BPL vendors would be responsible for using appropriate security measures to prevent packet theft vulnerabilities and protect networks against "man-in-the-middle" attacks. While presumably—or hopefully, at least—these systems would be deployed with various security-enhancing features in place, the question is whether those security features would prove sufficient.

Past experience suggests that there are likely to be problems in this regard. We need look no further than to examine what happened when 802.11 Wi-Fi came into use. This is pertinent to BPL systems anyway, since some BPL vendor systems utilize 802.11 Wi-Fi as part of their systems to deliver service to end users, much as today's DSL and cable-modem services use wireless routers and 802.11 Wi-Fi to

create a wireless LAN within a household or business. While the "core" BPL network would be using power lines as the basic method of transmission, this would not eliminate the existence of security issues for end users using 802.11a, b, or g wireless distribution schemes. This is simply one of the facts of life: Wireless networks create security issues that do not exist in wired networks.

In any event, whether or not 802.11 wireless is used as part of a BPL system, security issues will undoubtedly exist, and while they can certainly be solved, sometimes it takes time for these issues to become apparent and for a solution to be found and implemented. For example, the original IEEE 802.11 specification had no provision for per-user identification and authorization, no support for extended authentication methods such as smart cards or one-time passwords, and no support for key management. These measures had to be added later through the adoption of modified standards, which in the meantime left end users to try to cope with the resulting security issues on their own. Furthermore, once solutions were found and modified standards adopted, it was still necessary for vendors and end users to implement them. Finding solutions to problems is nice, but until the solutions are implemented, the problems continue to exist.

It's also well worth noting that the original 802.11 standard did provide an encryption algorithm, two different authentication methods, and other measures that were intended to protect data integrity. These measures proved to be insufficient. Wireless LAN communications were vulnerable, especially in environments with large traffic volume.

Moreover, even today, most anyone living in a city or suburban community can plug an 802.11g adapter into a suitable port on a computer and find at least one, and often several, wireless LAN networks within range. Too often, these networks have no security in place at all, leaving the door wide open for someone down the street or around the block to help themselves to free broadband Internet access, courtesy of the neighbor who hasn't bothered to protect his or her wireless 802.11 network against intrusion by unauthorized users. It stands to reason that any other wireless distribution scheme will, at least in the initial stages of its deployment, be subject to security issues that were not foreseen by those who designed them.



Photo A. The front end of the Marconi H1000 transmitter at Humber Radio. (Courtesy David Hopcroft)



Photo B. The back end of station GKZ's Marconi H1000 transmitter. (Courtesy David Hopcroft)

If you need further convincing, just look at Microsoft Windows, an operating system that has now been around for over 20 years. After all that time, since the release of Windows 1.0 back in 1985, Microsoft is still flat-out confused about how to deal with Windows security problems. Their newest version, Windows Vista, was developed with the primary objective, as stated by Microsoft, of improving the state of security in the Windows operating system. And yet, despite the numerous security and safety features new to Windows Vista, several new vulnerabilities have already been found, some of which are still not fixed.

Should BPL be deployed and the vendors proceed to compile a track record with respect to addressing security issues that is comparable to Microsoft's, the consumer issues will constitute a major public relations nightmare, not only for the BPL vendors, but also for the governmental agencies responsible for overseeing them. Here in the United States, the FCC has been pushing BPL as a viable alternative to DSL and cable in spite of radio interference concerns.

Some have speculated that the Commission wishes to shield itself against charges that it is permitting the re-monopolization of wireline services. This is too bad. BPL was never designed to carry that amount of data in a typical broadband connection to begin with. It was designed for power grid monitoring and meter reading, not for 200MBps Internet access. The lack of performance coupled with the security and radio interference issues may eventually cause the FCC to sorely regret that it ever got involved in pushing this niche technology onto the public.

QSL Japan's National Institute For Sea Training

This month, regular "Utility Communications Digest" contributor Steven Jones has contributed a QSL letter and photo card from the *Kaiwo Maru*, a sailing ship operated by the Japanese National Institute for Sea Training in Yokohama. Steven reported this catch a few months back in logs submitted for the

column, and recently received the QSL letter shown in **Photo C**, along with the photo card shown in **Photo D**.

The *Kaiwo Maru* that Steven logged should probably be named the *Kaiwo Maru II*. It's a four-masted barque that was built in 1989 to replace the original *Kaiwo Maru* built back in 1930. It's one of five ships operated by the Institute; the others are named the *Nippon Maru*, *Taisei Maru*, *Ginga Maru*, and *Seiun Maru*. The Institute trains approximately 1,600 students a year who are interested in pursuing careers in the merchant marine service. In the 58 years from 1943 to 2001, the Institute trained some 123,300 students. In addition to almost continuous domestic cruises, each training vessel carries out an overseas voyage once or twice a year, and it was apparently during one of these voyages that Steven logged the *Kaiwo Maru*.

Itinerary information on the Institute's website indicates that the *Kaiwo Maru* departed Yokohama on January 11 and visited Honolulu from February 7 to 14. Then on February 15, the vessel left Honolulu, arriving in Tokyo on March 8. Steven's February 22 logging of the vessel in QSO with USCG Communications Station (COMMSTA) Honolulu (callsign NMO) would thus have taken place on the Honolulu-to-Tokyo leg of the voyage.

It's also worth noting that COMMSTA Honolulu is remotely controlled from USCG CAMSPAC (Communications Area Master Station Pacific, callsign NMC) located at Pt. Reyes, California. CAMSPAC also remotely controls COMMSTA Guam (callsign NRV). This has been a source of confusion for some listeners in the past. Most USCG COMMSTAs aren't manned anymore. With the notable exception of COMMSTA Kodiak in Alaska, which is still manned, they are remotely controlled from elsewhere. Therefore, listeners are often unsure whether to log a contact, such as Steven's, as Honolulu or CAMSPAC. The answer is that although the station may be under remote control from elsewhere, the transmitter you're listening to is located in Honolulu. That's the key; the transmitter is physically located in Honolulu, so you would log it as such.

Enjoying Summertime Monitoring Opportunities

Since it will be summer in the northern latitudes as you sit down to read this



NATIONAL INSTITUTE FOR SEA TRAINING
57 Minamikadori 5-chome
Nishiku, Yokohama-shi, KANAGAWA
221-0002 JAPAN

Mar 9, 2007

To: Steven D. Jones

Confirming your Reception Report

Date (UTC): 22 Feb. 2007

Time (UTC): 10:14Z

QTH: 19-36N 178-20E

Freq: 8389.5 kHz

Mode: F1B

QSO with: NMO QSA: 4

TRX: JRC Co. Ltd. JSS-896 out 800 W

ANT: INVERTED L

北条 和臣
Kazutami KITAHARA
Second Radio Officer of
National Institute for Sea Training



TEL: 045-233-5700 FAX: 045-211-7519 E-MAIL: mail@nissai.go.jp http://www.nissai.go.jp



Photo C. Pop'Comm reader Steven Jones received this QSL letter from the Japanese National Institute for Sea Training as confirmation of having monitored the Kaiwo Maru in QSO with USCG station NMO (see article text).

Photo D. Steven also received this nifty photo card of the Kaiwo Maru along with his QSL letter.

month's issue, I would be remiss if I failed to encourage you to take advantage of the unique opportunities the arrival of summer offers for utility monitors.

For example, if you live in an antenna-restricted location, perhaps a condo or apartment building where you cannot erect outdoor antennas, this is the time of year when the weather generally favors your efforts in overcoming this obstacle. For one thing, at this time of year you can open a window, toss a wire outside, and leave the window open without freezing to death.

Beyond that, though, the weather also favors getting out of the building entirely. With a receiver that's reasonably portable, a deep-cycle marine battery for power, and a wire antenna that you can throw up in a tree, you can visit a local park and troll the bands with a much better antenna than you might otherwise be able to use at home. Bring along some

paper and pencils to keep a log, or a laptop computer if you prefer, and chances are you'll log plenty of new and interesting catches that you couldn't log with the compromise antennas "cliffdwellers" are often forced to use.

Propagation during the summer means that higher frequencies have better propagation, and July is the height of the sporadic-E (Es) season. Es events never seem to happen in the wee hours of morning. When they occur, they usually begin at dawn, with a peak in the afternoon and another in the evening, and disappear by local midnight. These events can bring you signals from 2,000 miles or more away, and they'll generally be strong signals, though they'll exhibit slow, deep fading. Es will generally be observed on from one to three successive days, then remain absent for a few days, only to occur again. This is in addition to regular E-layer refraction that is commonly

observed on HF. This method of propagation also is present on medium frequency (below 3 MHz) once daytime D-layer absorption disappears.

If your radio activities include portions of the RF spectrum other than the HF bands, you should keep in mind that Es can affect VHF as well. The effect on VHF can often be quite dramatic. For example, a few years ago a double-hop Es event made it possible for a DXer in Northern Ireland to receive the broadcast band signal of WFRY-FM 97.5 in Watertown, New York, over a distance of 3,040 miles. That's the current world record for FM broadcast band Es reception!

Back on the HF bands, even though we're at the low point in the sunspot cycle, I found it interesting last weekend to listen to activity on several ham bands during a DX contest and note that there were localized openings occurring on the 10-meter band at a time when conventional

propagation wisdom says this band should be totally dead. While conditions certainly aren't what they were half a dozen years ago, when 10 meters would often be wide open from dawn to midnight and sometimes into the wee hours of morning, it still doesn't hurt to scan the higher frequencies once or twice during a session in front of your radios.

Don't ignore grayline enhancement, either. The area along the sunrise/sunset zones, called the terminator in astronomy, is referred to in radio circles as the grayline. Signals that travel along this grayline often exhibit significant improvement in received signal strength compared to signals arriving via direct, shortest-distance routes. The reason for this is simply that *D*-layer absorption along the grayline disappears more quickly than does the F_2 layer at the time of sunset (while the opposite is true at sunrise). With the F_2 layer ionized along this grayline, signals traveling along the grayline have less attenuation than signals that travel along more direct shorter paths.

While maximum ionization of the F_2 layer generally occurs during the winter months—unlike all the other layers of the ionosphere—and is located at lower altitudes at higher latitudes, this layer is the most important layer in the ionosphere from a propagation standpoint. And because it is the highest layer, it provides decent possibilities for propagation, even during the summer.

On With This Month's Logs!

This month, we welcome a new contributor, as Richard Webb, NF5B, of Eads, Tennessee, about 30 miles east of Memphis, joins us with several military, marine, and aero catches. He did not mention anything about his ham radio activities in his e-mail, but I'm aware that Richard is a long-time ham with many years experience in traffic handling and emergency communications. Richard, welcome aboard. This is the first time I've received logs from you. I certainly hope it will not be the last!

2899.0: Gander Radio working Delta 46, and gave 5616.0 as secondary frequency, in USB at 2346Z. Shanwick Radio working U.S. Air 718 in USB at 0251Z. (JK/NY)

3485.0: New York VOLMET, in USB at 0149Z, followed by Gander VOLMET in USB at 0150Z. (JK/NY)

4007.0: NNN0GAA/4 conducting MARS training net in USB at 0225Z. (GV/CO)

4011.0: NNNOFFN and others in Navy MARS net, either passing traffic or practicing

same for a training net. Another op sending, "I have successfully completed the MARS operator review test. I will now complete the final test. Break, over." in USB at 2248Z, later heard net secured promptly at 2300Z. (JK/NY)

4012.0: AAM5EMI, U.S. Army MARS as NCS for training net, then transitioning to net in informal mode, in USB at 1229Z. (JK/NY)

4013.5: NNN0OPY in US Navy MARS net, caught just as NCS was closing the net, in USB at 2332Z. (JK/NY)

4027.0: AAR2ET, AAM3TA and others participating in Army MARS net, in LSB at 1229Z. (JK/NY)

4028.0: Cuban ENIGMA M8a, female w/5N groups in Spanish, horrible audio, suppressed carrier DSB at 0220Z. (SJ/KY)

4030.0: AAT4HM and AAM4ETN in USAF MARS training net in USB at 2341Z. (RW/TN)

4036.0: Unid MARS Net, partial callsigns beginning with AA heard but unable to get a complete callsign due to QSN/QSB, mixed digital and LSB at 1957Z; AAM5RH, one of several stations in apparent MARS net, mentioned report of impending thunderstorms in area and noted desire to QRT for safety reasons, in LSB at 2312Z. (JK/NY)

4041.0: NNN0UAN, Navy MARS NCS taking checkins in USB at 2338Z. (RW/TN)

4081.5: FOX calling HOTEL to troubleshoot something. Suspect this is part of the Enterprise CSG training/qualifications. In USB at 0609Z. (GV/CO)

4316.0: NMN (USCG CAMSLANT Chesapeake) marine weather broadcast using new synthesized OM/EE voice in USB at 0412Z. (GV/CO)

4331.0: 4XZ, Israeli Navy, Haifa w/mixed letter and number t/c, CW at 0210Z. (SJ/KY)

4360.0: ECHO WHISKEY in US Navy tactical net, *USS Enterprise* carrier strike group activity with various other stations using single-letter callsigns, conducting an exercise, in USB at 0130Z. (JK/NY)

4470.0: Apparent CAP net just ending, net control securing net, in USB at 2142Z. (RW/TN)

4610.0: GYA, Royal Navy Fleet Weather and Oceanographic Centre, Northwood, England w/temperature and precipitation prognosis chart, //weaker 2618.5 and 8040.0 kHz, FAX at 0035Z. (SJ/KY)

4724.0: ANDREWS HF-GCS with EAM traffic in USB at 2303Z. (JK/NY)

4724.0: EVERGLADE (US Mil) standing by for traffic, in USB at 0358Z. (GV/CO). (*This type of activity, typical of players in the so-called NIGHTWATCH Net, seemed to disappear for awhile but now is being reported frequently again.—JK*)

5450.0: RAF VOLMET, Synth YL/EE, weak/partially readable with aviation weather in USB at 0212Z. (JK/NY)

5505.0: Shannon VOLMET with clear ID repeated twice and aviation weather in USB at 0215Z. (JK/NY)

5550.0: Continental 1946 working New York Radio with position report in USB at 0343Z. (GV/CO)

5696.0: CG 1708 (HC-130, CGAS Clearwater) airborne en route Key West requests guard from CAMSLANT, in USB at 2212Z; SECTOR CORPUS CHRISTI and CAMSLANT taking vessel position reports from CG 2135 (HU-25) in USB at 0025Z. (MC/SC)

5708.0: SENTRY 95 (E-3 AWACS # 76-1604) ALE initiated call to RAYMOND 24 with line code report in ALE and USB at 0419Z. (MC/SC)

5732.0: JULIET 19 (HH-60J, CGAS Clearwater) reporting to CAMSLANT they are conducting rescue swimmer ops at this time, in USB at 0015Z. (MC/SC)

5778.5: R26331 (UH-60L #91-26331) clg B1Z171 (1-171st AVN) in ALE USB at 1913Z. (MC/SC)

5833.5: G23496 (UH-60A #80-23496) clg STPOPS (AASF St. Paul) in ALE USB at 2309Z. (MC/SC)

5851.5: R23313 (UH-60A #79-23313) clg T1Z137 (1-137th AVN, Rickenbacker ANGB) in ALE USB followed by MIL-STD-188-110B transmission at 2150Z. (MC/SC)

6215.0: CAMSLANT taking ops and position report from USCGC ELM (WLB 204) in USB at 2343Z. (MC/SC)

6264.5: KSPH, *VIRGINIAN* (former *STRONG VIRGINIAN*), 21,541-ton US-registered heavy load carrier w/callsign in SITOR-A at 0524Z; H3YE, *VIRGO LEADER*, 20,111-ton Panama-registered vehicle carrier w/MMSI, abbreviated ID "VIRG" and AMVER/PR 100 mi SE of St. John's, Newfoundland, in SITOR-A at 0547Z. (SJ/KY)

6265.5: 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 0213Z; 3EAA6, M/T *SAN FERNANDO*, 48,315-ton Panama-registered chemical tanker w/TEST for Direct Telex in SITOR-A at 0302Z. (SJ/KY)

6694.0: PATHFINDER 20 w/kg TREN-TON MILITARY for WX in USB at 1314Z. (MC/SC)

6960.0: Two unid. males in casual simplex QSO in Portuguese, laughing, LSB at 2330Z. (SJ/KY)

6982.0: Two weak unid. stations in QSO w/poor handsent CW at 2320Z. (SJ/KY)

6715.0: HUNTER 25 (CP-140, 14 Wing) w/kg HALIFAX MILITARY in USB at 2138Z. (MC/SC)

6718.0: Link-11 data transmission at 2123Z. (MC/SC)

6790.0: Link-11 data transmission at 2044Z. (MC/SC)

7527.0: USCG San Juan, PR working UNID YL/EE readable at first then under thunderstorm static, in USB then switching to FAX, at 1749Z. (RW/TN)

7527.0: 18C w/kg PANTHER to report Customs C-12 is on scene. 18C will depart to

refuel then come back out. In USB at 2253Z. (MC/SC)

7653.0: Link-11 data transmission at 2139Z. (MC/SC)

8009.4: WPCU469, Sailmail, Daytona, FL w/PACTOR-2/3 tfc and CW ID at 2108Z. (SJ/KY)

8023.7: Egyptian Ministry of Foreign Affairs or an embassy w/SITOR-A tfc at 0047Z. (SJ/KY)

8026.7: Egyptian Ministry of Foreign Affairs or an embassy, repeating 55101 YK and 77101 YK, in alternating SITOR-A and SITOR-B at 2115Z. (SJ/KY)

8097.0: Cuban ENIGMA M8a w/major foul-up: two females in several minutes of "happy chat" Spanish language programming at 1905Z, then abruptly switched to MCW machine-sent cut 5-number groups at 1914Z. BC transmitter signal strength. (SJ/KY)

8152.0: Numerous vessels chitchatting in English, including *St. Jude*, also *Hejeira* (tied to dock in Panama City, FL), in USB at 2131Z; *S/V Pioneer* working another vessel regarding medical condition of mutual friend and another vessel discussing alternators, *S/V Naked Lady*, *Shadow*, and *Zephyr* also heard here before QSY to 8146.0, in USB at 2127Z; *S/V Tumbleweed* calling *Pioneer* to discuss troubleshooting electrical problem before *Pioneer* leaves coastal waters, in USB at 2133Z. (RW/TN)

8156.0: CORAL HARBOR BASE (Royal Bahamas SDF) in comms with C6YH, in USB at 1955Z. (MC/SC)

8199.7: COAST GUARD 63 w/kg PJC (Dutch Navy, Curacao) with report of vessel fishing inside exclusive zone, in USB at 2245Z. (MC/SC)

8379.0: WBVZ, *S/R WILMINGTON*, 48,779-ton U.S.-registered oil products tanker w/coded wx OBS and callsign at 1625Z. V2VY, *ATLANTIS*, 2,950-ton Antigua & Barbuda-registered general cargo ship w/MMSI and abbreviated ID "ATLN" at 1734Z. WCC7684, *SEA VENTURE*, U.S.-registered tug w/MMSI and callsign at 2222Z. V7BP8, *SENTINEL*, 104,623-ton Marshall Islands-registered crude oil tanker w/MMSI and abbreviated ID "SENT" at 0927Z. All stations in SITOR-A at times shown (SJ/KY)

8381.0: H3VR, *CARNIVAL VALOR*, 13,294-ton Panama-registered passenger/cruise ship w/5-digit SELCAL 42109 and callsign at 1515Z. CBAB, *ALAMO*, 25,438-ton Chile-registered bulk carrier w/AMVER/PR, en route to Tampico, Mexico, to arrive in 2 days, at 1832Z; same vessel heard 5 days later w/AMVER/PR 400 mi NE of Tampico en route to Tampa, FL, to arrive in 2 days, at 1725Z. V7BP7, *CONSTITUTION*, 104,700-ton Marshall Islands-registered crude oil tanker w/MMSI and abbreviated ID "CONS" at 2157Z, all in SITOR-A heard at times shown. (SJ/KY)

8386.0: Unid. vessel w/SELCAL QVYV (2070) for IAR, Rome R., Italy, no contact, at 2315Z; PDAN, *ZAANDAM*, 6,150-ton Netherlands-registered passenger/cruise ship

w/garbled AMVER/PR, same vessel heard here w/same 5 days later; published company schedule lists a 15-day trip from San Diego, CA to Hawaii and back, heard in SITOR-A at 0138Z. (SJ/KY)

8388.0: 3FMZ7, *EVER DAINTY*, 55,604-ton Panama-registered container ship w/wx OBS and MMSI in SITOR-A 1145Z. ONBZ, *CARLI BAY* 20,613-ton Belgium-registered LPG tanker w/MMSI and callsign in SITOR-A at 2130Z; VRBM8, *DARYA NOOR*, 71,062-ton Hong Kong-registered bulk carrier w/garbled AMVER/PR in SITOR-A at 0120Z. (SJ/KY)

8389.5: 9VCM8, *IKARUGA*, 24,382-ton Singapore-registered container ship w/AMVER/SP for departure from Honolulu, HI, en route to Long Beach, CA, to arrive in 5 days, in SITOR-A at 1212Z; 3FVN4, *CENTURY HIGHWAY NO. 5*, 15,380-ton Panama-registered vehicles carrier w/AMVER/PR 1,860 mi ESE of Tokyo en route to Tomogashima Pilot Station, Osaka Bay, Japan, to arrive in 4 days, in SITOR-A at 1225Z. (SJ/KY)

8392.0: XCIU, *NUEVO PEMEXI*, 45,202-ton Mexico-registered oil products tanker w/telex regarding departure from port of Lazaro Cardenas, cargo manifest, in SITOR-A at 1430Z. (SJ/KY)

8912.0: JULIET 33 (HH-60J) w/kg CAMSLANT, reporting departure from Great Inagua, in USB at 1534Z. (MC/SC)

8971.0: TRIDENT 43 (P-3C, VP-26) clg GOLDENHAWK, in USB at 2120Z. (MC/SC)

8983.0: CAMSLANT working USCG vessel leaving scene of rescue with a vessel in tow, in USB at 2124Z. (RW/TN)

8983.0: USCG "CAMSLANT-Chesapeake" w/kg "B9W" for flight following (ops normal msg), in USB at 1349Z. (AS/FL)

8983.0: CG 2128 (HU-25, CGAS Miami) reporting disabled 37-foot white sailboat, in USB at 2043Z; SECTOR NEW ORLEANS and CAMSLANT trying to make contact with CG 6042, in USB at 2340Z. (MC/SC)

9007.0: Two OM/EE in simplex QSO phone patch casually discussing military matters including people, bases, mentioned "that place is a disease" and other colorful language, in USB at 2053Z. (SJ/KY)

10045.0: USAF C-17s conducting comms troubleshooting, SELCAL CSFL at 0152Z. (MC/SC)

10051.0: Gander VOLMET with aviation weather in USB at 2222Z. (JK/NY)

10242.0: ALE bursts followed by YL/EE (possibly CAMSLANT/CAMSPAC) asking an unheard aircraft for flight ops and position; possibly an ALE-initiated call. Presumed USCG activity on known COTHEN "scan" frequency, in USB at 2352Z. (JK/NY)

10588.0: WGY916 (FEMA, Denton, TX) and WGY908 (FEMA, Denver, CO) in voice comms in USB at 1652Z. (MC/SC)

11175.0: ANDREWS HF-GCS running phone patch for REACH 3995 to McCollough AFB despite UNID station providing malicious interference, in USB at 1839Z:

ANDREWS HF-GCS calling JEWEL 34 with no joy, after termination of a phone patch, in USB at 1845Z. (RW/TN)

11175.0: TOPCAT 04, possibly McGuire KC135, calling MAINSAIL with no joy, in USB at 0034Z. (JK/NY)

11175.0: SUMIT 15 (C-130H, 302 AW) p/p via McClellan HF-GCS to 25 OWS for WX at Willow Grove, in USB at 1818Z. (MC/SC)

11175.0: HF-GCS "Station McClellan" w/kg "Razor 023" for radio check in USB at 1357Z; HF-GCS "Station Offutt" w/kg Moody AFB C-130 "King 30" for phone patch to Ft. Campbell Base Ops who passed freq 343.3 (UHF) for Ft. Campbell Metro: King 30 to arrive at Ft. Campbell at 1930Z, in USB at 1744Z. (AS/FL)

11175.0: UHAUL 90, phone patch via McClellan HF-GCS to a DSN number, letting CO know training is complete, and receiving report of bad weather near San Antonio and Austin, TX, in USB at 0210Z; OFFUTT HF-GCS working LONGTERM (U.S. Mil) and relaying sports scores in USB at 2249Z. (GV/CO)

11232.0: Vancouver Military (Canadian Forces) working UNID regarding making contact with rescue vessel when in area, UNID reports one hour ETA, in USB at 1836Z; Trenton Military working CANFORCE 86 for radio check and position report, in USB at 1821Z. (RW/TN)

11232.0: RESCUE 42 p/p via TRENTON MILITARY to RCC reporting they have located damaged aircraft on lake with broken ski, in USB at 2153Z; DARKSTAR QUEBEC (E-3 AWACS) p/p via TRENTON MILITARY to NORTHERN LIGHTS (NORAD NEADS) with line code report, in USB at 1813Z. (MC/SC)

11309.0: New York Radio, YL/EE working an Iberian airliner in USB at 1834Z. (RW/TN)

12359.0: Southbound "Herb Net" with Moonraker Six, OM with concerns for Coast Guard, some intentional interference from another station, in USB at 0200Z; Wandering Star calling Moonraker Six in USB at 2032Z; Southbound Two with vessel callup, concern over London Harrier en route Virgin islands, no rudder/engines, in USB at 1954Z. (RW/TN)

12479.0: 3FLB9, *NORD ACE*, 47,000-ton Panama-registered bulk carrier w/MMSI and abbreviated ID "NRDA" in SITOR-A at 1650Z; CBAB, *ALAMO*, 25,438-ton Chile-registered bulk carrier w/AMVER/FR for early arrival at Tampico, Mexico, in SITOR-A at 2210Z. (SJ/KY)

12482.0: Unid. vessel w/SELCAL QVXY (2017) for Guangzhou R., China, no contact, in SITOR-A at 2000Z. (SJ/KY)

12486.5: 9V6485, *TOBA*, 31,396-ton Singapore-registered vehicles carrier w/AMVER/PR, 250 mi SW of San Jose, Costa Rica, and sailing WNW, in SITOR-A at 2247Z. (SJ/KY)

12490.0: 3FGZ3, *PARNASO*, 99,471-ton Panama-registered VENFLEET crude oil

tanker w/AMVER/PR, 100 mi N of Colombia coast en route to Jose Terminal Pilot Station, Venezuela, to arrive in 2 days, at 1640Z; 3EEZ6, *STAR FIRST*, 13,300-ton Panama-registered refrigerated cargo ship w/AMVER/PR, abbreviated ID "FIRS" and 5-digit SELCAL 37197, 30 mi N of Puerto Rico, en route to Antwerp, Belgium, to arrive in 8 days, at 1650Z; S6NI, *KN TRADER*, 69,235-ton Singapore-registered bulk carrier w/AMVER/PR, MMSI and abbreviated ID "KNTR," 180 mi NNE of Miami, FL and sailing W, at 1715Z; VRBR8, *SAGA DISCOVERY*, 46,618-ton Hong Kong-registered general cargo ship w/abbreviated ID "SADI" at 1820Z; ZCBP6, *MISSISSAUGA EXPRESS*, 40,881-ton Bermuda-registered container ship w/AMVER/PR, 910 mi E of St. John's, Newfoundland en route to Montreal, to arrive in 3 days, at 2005Z; H3UM, *SOLENT STAR*, 9,709-ton Panama-registered refrigerated cargo ship w/MMSI, abbreviated ID "SLST" and AMVER/TEST at 2045Z; all heard in SITOR-A at times shown (SJ/KY)

13200.0: OFFUTT HF-GCS with EAM t/c, simulcast on at least 8992.0 and 11175.0, in USB at 2017Z. (JK/NY)

13206.0: Link-11 data transmission at 1911Z. (MC/SC)

13927.1: VADER 01 (C-130H, 910 AW) comms troubleshooting with AFA6PF, in USB at 1636Z. (MC/SC)

13927.1: AFA2HF (USAF MARS) w/unsuccesful pp attempt for REACH 5618, in USB at 1504Z. (JK/NY)

13993.0: AFA2FC as net control for USAF MARS Transcontinental Net, no traffic, placed net on free time, in USB at 1907Z. (JK/NY)

14362.0: JACKAL 84 clg KOKOMO (JIATF-South), in USB at 2144Z. (MC/SC)

15016.0: NAU, US Naval base at Roosevelt Roads, Puerto Rico handling phone patch for aircraft KING 87 requesting landing wx at Gander, Newfoundland, in USB at 2049Z. (SJ/KY)

16685.5: VRWE4, *MARITIME DIAMOND*, 47,574-ton Hong Kong-registered bulk carrier w/MMSI and abbreviated ID "MDIA" in SITOR-A at 1550Z. (SJ/KY)

16697.0: Unid. vessel to IAR, Rome R., Italy on paired frequency 16820.0 kHz w/garbled SELCAL 24752, abbreviated ID "ELPA" and commands OPR+?, HELP+? and COM-MAND+? in SITOR-A at 1923Z. (SJ/KY)

16699.5: UCUC, *OLEG NAYDENOV*, 3,372-ton Russian-registered trawler w/call-sign and traffic to UDK, Murmansk R., Russia, in SITOR-A at 1820Z. (SJ/KY)

Many thanks to those who contributed this month's logs: Glenn Valenta, Lakewood, Colorado (GV/CO); Steven Jones, Lexington, Kentucky (SJ/KY); Mark Cleary, Charleston, South Carolina (MC/SC); Richard Webb, Memphis, Tennessee (RW/TN); Allan Stern, Satellite Beach, Florida (AS/FL); and your columnist, here in Tonawanda, New York (JK/NY). ■

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“GRONKI!”

I open with that one-word tribute to Johnny Hart, creator of the B.C. comic strip—it was what his dinosaurs said when they spoke. Many of you readers know me to be a dinosaur for reasons ranging from my love of R-390 receivers, to my enjoyment of the smell of dust burning off of hot components, to listening to AM mobile broadcast DXing (am I the only one?), and the one thing that sets all of us dinosaurs apart: a true enjoyment of Morse code. I could have put the word “GRONK” up there in dots and dashes, but in my way of thinking, only a person who would steal sheep would write words in dots and dashes.

There is a beauty in the sound of a nice, pure sine wave, adjusted to your favorite pitch, coming through a good audio section of a good receiver that contributes to making Morse code enjoyable. There are also hums and chirps and clicks that take away from the enjoyment of the art as well, but many of us have learned to ignore such things as QRN10 static bursts lasting five seconds while listening to a QRPP station from somewhere in East Armpit Atoll.

All that beauty and nostalgia aside, there are modern civilian and military shipboard communication methods that boggle the mind with their reliability and (apparent) simplicity...so long as their increasingly complex equipment continues to function reliably. I may sound a little too serious here, but I hope that ships—particularly military ships—carry some simple CW transmitters and receivers and “a few good men” who can operate them in a time of need. (Bill steps off soapbox here).

So, returning to my normal lunacy, I have looked around for some new things to try with CW that might spur some new interest in the mode, other than the standard alpha-numeric communication. One thing I noticed was that all the pictures which we send each other in JPG format—all the jokes, all the phonied-up pictures of a locomotive precariously resting on someone’s dining room table or an elk bathing in someone’s 50-gallon aquarium—do not travel over the wires in “picture” format.

There are no red or blue or green pulses traveling down the DSL or dial-up lines from the joke-forwarder to your computer. No siree, those pictures will be converted to digits, ones and zeros, or off-and-on pulses, or high-and low tones—just like the text I’m typing now to be sent off to our fearless editor, who will then send it to the massive data processing room at *Pop’Comm* World Headquarters, where computer technicians man the climate-controlled clean-rooms 24/7/365 awaiting important communiqués such as this one, tearing it from the printer and whisking it off via pneumatic tubes to the appropriate desk without delay. Either that, or there’s an inkjet printer with a dried-out cartridge in the broom closet by the deep sink.

I have some picture-viewing software that allows me to “view” a JPG or other format picture in its hexadecimal code format. As if I didn’t have enough trouble with base-10 math, this stuff is base 16, which for the uninitiated, has the digits 1234567890abcdef. And, yes, I *know* that abcde and f are not digits, but to these crazy hex people, they are. So I think the number 17 is written as either 1f or f1. I’m not sure. Maybe it doesn’t matter. Or maybe it’s like Roman numerals and there’s

“So it is my plan to transmit a color photograph using Morse code. I figure this will be as earthshaking as Alexander Graham Bell and his faithful companion, Tonto Watson, having their first telephone conversation...”

a big difference between VI and IV. (Time will tell; if not, check *Newsweek*.) There are also other digital formats by which pictures and other graphic information can be sent, but it generally breaks down to either letters and numbers, or ones and zeros.

So it is my plan to transmit a color photograph using Morse code. I figure this will be as earthshaking as Alexander Graham Bell and his faithful companion, Tonto Watson, having their first telephone conversation, which consisted of Mr. Bell knocking over a whole lot of expensive laboratory equipment and yelling (among other things) “Mr. Watson! Come here! I need you!” while Watson, being a good assistant, went running to help, and in an attempt to make the boss feel better, told him he distinctly heard his voice through the fax machine that they were working on at the time.

I haven’t yet decided on my transmitter location for this experiment, however I think that Killdevil Hill in Kitty Hawk, North Carolina, should have ideal conditions for my antenna to blow over repeatedly.

The experiment will not be without problems, the main one being accuracy in transmission and reception of the Morse code signals. Proper procedure for sending Morse code requires that if a person makes an error in sending a character (such as a “6” or an “F”) the person stops sending, sends the character “E” eight times, then goes back to the last correctly sent character, repeats that, and continues sending.

The problem here is one of, well, spaces between characters. There aren’t any. The entire picture is made up of many, many, many, many characters, with no spaces between them. In a large, say 8x10 color photograph, there can be about a hundred zillion bits of information (that would be about 100 ziggabytes). I estimate that it will take me about 29 days to send this much information using a J-38 hand key, and as tempting as it might be for me to dust off the old Vibroplex bug, after the first few days, I can see myself getting sloppy with it.

Of course, there are no spaces in this information, so if I were to get to the penultimate (how I’ve waited to use that word! It means “second to the last”) character and make a mistake, I would have to go all the way back to the beginning and start over, meaning I’d have to send for another 29 or so days, and by the end of that time, my chance for error would really be increasing.

So maybe I’ll send a smaller picture. Maybe a postage stamp would be nice. I’ll see if Norm will sharpen up his pencil and be ready to copy. Maybe Norm and I can get on the cover of *Pop’Comm* with this event. Naahhh. Then everyone would get to see what Norm really looks like and he’d have to go into the witness protection program. ■

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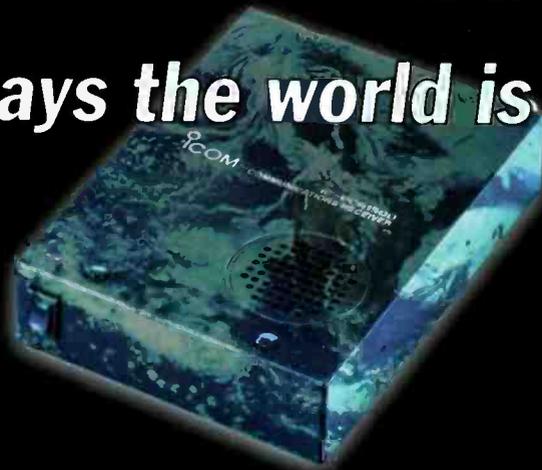
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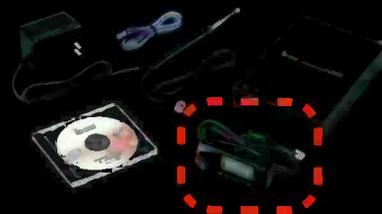
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