



# THE PROFESSIONAL STANDARD

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

- CONTINUOUS FREQUENCY COVERAGE: 100 kHz ~ 2.6 GHz / LSB, USB, CW, AM-Narrow, AM, Wide AM, FM-Narrow, and Wide FM (cellular frequencies are blocked)
- 2000 MEMORY CHANNELS / 100 MEMORY GROUPS
- DUAL RECEIVE
- DIGITAL SIGNAL PROCESSING / BANDPASS FILTER, NOISE REDUCTION, NOTCH FILTER, NARROW CW PEAK FILTER (Optional DSP-1 requires)
- REAL-TIME SPECTRUM SCOPE
- WORLD CLOCK WITH UTC/LOCAL SETTINGS
- PRESET SHORTWAVE BROADCAST STATION MEMORY BANK
- EXTENSIVE SCANNING CAPABILITY/SMART SEARCH™

## ● AND MUCH, MUCH MORE... ●

- "RF Tune" Front-end Preselector (1.89-1000 MHz) ● 20 dB Attenuator for strong signal environments ● IF Noise Blanker ● DVS-4 Digital Voice Recorder (option) with two memories of up to 8 seconds each ● 10.7 MHz IF Output Jack ● Field Strength Meter ● Audio Tone Control ● All-Mode Squelch Control for silent monitoring ● Password-protected Panel and Dial "Lock" feature ● Display Dimmer/Contrast Control ● Clone Capability for copying memory information from one VR-5000 to another ● Personal Computer Interface Port ● Two Antenna Ports ● Audio Wave Meter provides display of incoming signal's wave characteristics

## COMMUNICATIONS RECEIVER VR-5000

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

Enjoy the wide world of communications monitoring with the action-packed VR-5000, available from your Yaesu Dealer today!



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- Frequency coverage : 0.1-1299.99995 MHz\*\*
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- Convenient "Preset" Operating Mode
- Front-end 20 dB Attenuator

For the latest Yaesu news, visit us on the Internet:  
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Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

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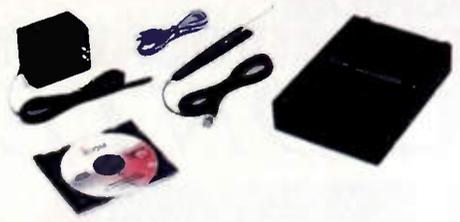
# Universal Radio — Quality equipment since 1942.

## ICOM® R75



Universal Radio is pleased to offer the Icom R75-12 receiver. With full coverage from 30 kHz to 60 MHz; all longwave, medium wave and shortwave frequencies are supported plus extended coverage to include the 6 meter amateur band. Some innovative features of the R75 include: FM Mode Detection (but not the FM broadcast band), Twin Passband Tuning, Two Level Preamp, 99 Alphanumeric Memories, four Scan Modes, Noise Blanker, Selectable AGC (FAST/SLOW/OFF), Clock-Timer, Squelch, Attenuator and backlit LCD display. Tuning may be selected at 1 Hz or 10 Hz steps plus there is a 1 MHz quick tuning step plus tuning Lock. The front-firing speaker provides solid, clear audio. The back panel has a Record Output jack and Tape Recorder Activation jack. The supplied 2.1 kHz SSB filter is suitable for utility, amateur, or broadcast SSB. However, two optional CW/SSB filter positions are available (one per I.F.). The formerly optional UT-106 DSP board is now included and factory installed! A great value.  
Order #0012 Call for price.

## 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 \$699.95

The Icom R2500 is similar to the PCR2500, but includes a controller head for additional operation independent of a PC. #2500 \$859.95

**BONUS**

**ICOM Bonito CS 4.5 Software included!**  
A \$69.00 value included with your R1500/R2500, PCR1500/2500 purchase for a limited time.

**Special Note:** Prices shown for the R1500/PCR1500 and R2500/PCR2500 reflect the \$20 Icom limited time mail-in rebate.



**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** The Icom R20 covers an incredible 150 kHz to 3304.999 MHz (less cellular) with 1250 alphanumeric memories, bandscope and SSB/CW. It has: two VFOs, dual watch, voice scan control, NB, large two line LCD and CTCSS/DTCS/DTMF. A built-in IC audio recorder can record up to 4 hours of reception! With charger, Li-ion battery, belt clip and strap. **Call for price.**



## RX7

The new Icom IC-RX7 is a slim and smart wideband receiver that tunes from 150 kHz to 1300 MHz (less cellular and gaps) in: AM, FM-N and FM-W modes. It has a large, backlit LCD display. It is rain resistant and has CTCSS and DTSC decode is built in. Other features include: keypad, RF Gain, Attenuator, Auto Power save, Voice squelch, AM band ferrite rod antenna and 1650 scannable alphanumeric memories. With BP-224 Li-ion battery, belt clip and charger. List \$364.00 Order #5007 \$299.95



The Icom R9500 clearly raises the bar for professional receivers. Covering 5 kHz to 3335 MHz, this instrument represents the state-of-the-art in receiver technology! Visit the Universal website for complete details.

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Universal Radio is also pleased to carry the complete ICOM amateur radio equipment line. The IC-7800 shown.

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## EDITORIAL

### Tuning In

# It's The Meaning That Counts

by Edith Lennon, N2ZRW

editor@popular-communications.com

# W

While putting this Holiday Season issue together, my thoughts started to drift toward how people throughout the ages may have struggled with gift ideas. I entertained myself with visions of Mrs. Hannibal fretting over what type of semaphore to get the famous general for the Holidays (they were pagan then, of course, and I believe Hannibal actually used signal fires, but hey, it was my fantasy). Should she give the homely but durable woven flax or the top-of-the-line silk just out of Asia? Perhaps the great elephant driver himself grappled with what to give his favorite mahouts.

I followed the obvious path of my mental nonsense back to reality. What was behind the kind Carthaginian lady's semaphore gift? It was a means of communications, naturally. But just what was behind *that*? Surely, it was more than just "the thought."

So, okay, I wondered, what *does* it mean to give the gift of communications?

Well, it may mean "just" giving entertainment, although that's something to be devoutly sought in these stressful times. Luckily, there's a host of cool commercial products out there with hobby applications. For instance, C. Crane's CC Witness, an MP3 recorder-player with built in AM/FM radio, provides more than a dozen hours' worth of high-fidelity full stereo music or as much as 35 hours of radio calls. It's reviewed in this issue's "Tech Showcase" by Gordon West, WB6NOA, who also looks at a small cornucopia of radio-related gifts in our cover story.

But also it may mean giving valuable information. A shortwave radio is nothing less than a window to the world, and what's available runs the gamut from tiny portables for under \$30 to high-end ground-breakers like the Perseus software-defined radio from Microtelecom

(reviewed in our November issue) that covers VLF-LF-MF-HF. A GPS makes the technophile on your holiday list right at home anywhere in the country, and also offers the fun pastime of geocaching (on the downside, it eliminates the excuse of getting lost when one is late for holiday gatherings).

The gift of communications can be one of safety, as well. When you give a pair of FRS handhelds, a NOAA Weather Radio All Hazards alert receiver, or a CB rig, you play a big part in helping to protect the people you care about.

And most important—I think—the gift you're giving can be camaraderie. Really, what says friendship quite like amateur radio, the very essence of which is a vast community built on a shared passion? Off the top of my head, I can't think of anything else that offers so much for such a small expenditure in time and money as helping someone get started as a ham. It truly combines all of the above.

But whenever you reach out to another in a way that fosters communications, in a way that says "let's talk, let's listen," you shrink the world and the distances between people that inhabit it. And it doesn't have to be with something shiny that came in a neatly wrapped package: a hand extended in assistance with a problem, a patient explanation of how something works, an afternoon offered to help pick out some needed accessories may be the best gift someone gets this Holiday Season.

So if you still have a fellow hobbyist on your list, remember that you don't have to break the bank to give something precious—just encourage our shared passion: communications.

That's good advice not just for the hobby, but also for every aspect of life and any time of year. I like to think Mrs. Hannibal would agree. ■

# KENWOOD

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# AIRWAVE SUPERIORITY

Never before has a compact HT offered as many features, and such high powered performance as the TH-F6A. Arm yourself with one today and gain your own airwave superiority.

- Triband (144/220/440 MHz)
- Receives 2 frequencies simultaneously even on the same band
- 0.1-1300MHz high-frequency range RX (B band)<sup>1</sup>
- FM/FM-W/FM-N/AM plus SSB/CW receive
- Bar antenna for receiving AM broadcasts
- Special weather channel RX mode
- 435 memory channels, multiple scan functions
- 7.4V 1550mAh lithium-ion battery (std.) for high output<sup>2</sup> and extended operation
- 16-key pad plus multi-scroll key for easy operation
- Built-in charging circuitry for battery recharge while the unit operates from a DC supply
- Tough construction: meets MIL-STD 810 C/D/E standards for resistance to vibration, shock, humidity and light rain
- Large frequency display for single-band use
- Automatic simplex checker
- Wireless remote control function
- Battery indicator • Internal VOX • MCP software

<sup>1</sup>Note that certain frequencies are unavailable. <sup>2</sup>5W output

## TH-F6A TRIBANDER



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# News, Trends, And Short Takes

by D. Prabakaran

## U.S. Helps Georgian Radio, TV Stations Get Back On Air

The United States stepped in to help Georgia restore key radio and television stations bombed and looted during recent hostilities with Russia. The assistance will help the stations resume broadcasting reliable and unbiased news to residents, according to the U.S. Embassy in Tbilisi, Georgia's capital. Together the stations had been reaching 30 percent of Georgia before the conflict began.

In Abkhazia, one of Georgia's disputed regions, most information has been strictly controlled by the region's authorities. During recent bombing by Russian forces and others, Voice of Abkhazia's broadcast towers in the cities of Gori, near South Ossetia, and Zugdidi, outside Abkhazia, suffered damage. The station had provided an alternative to the media controlled by Abkhaz authorities.

The U.S. Embassy awarded a grant to Voice of Abkhazia allowing it to replace one of its bombed transmitters and replace several other damaged parts. With that assistance, the station was able to go back on the air. Looting of broadcast stations in Georgia left several without equipment needed to reach the public. The grant was one of the embassy's Democracy Commission grants, which award up to \$24,000 to nongovernmental, nonprofit organizations working to pursue democratic development.

Other stations receiving assistance are Radio Atinati in Zugdidi, which broadcasts to about 500,000 listeners, and Radio Trialeti, with facilities in Gori and the only local radio broadcaster in the Shida Kartli region, which has a population of 450,000 residents including 30,000 people newly displaced from their homes in villages near South Ossetia. (Source: US Department of State)

## RNW Ends Shortwave Broadcasts To North America

Radio Netherlands Worldwide has decided to end shortwave broadcasts to North America after a survey indicated a decline in listeners. The programs will still be offered through live streams, podcasts, satellite, and Sirius Radio. Many listeners are unhappy with the decision, saying they don't have the alternatives that others have, or don't want to be tied to a computer.

The distribution for North America, from October 26, is as follows:

- [www.radionetherlands.nl/](http://www.radionetherlands.nl/) offering live streams, on-demand and via podcast;
- 24 hours a day direct to home (DTH) via AMC-4 satellite;
- CBC overnight service daily at 0105 hours AM:

- DTH via Galaxy 25 satellite in WRN stream at 0000, 0800, 1330 and 1800 hours Eastern;
- Sirius Satellite Radio in WRN stream 140 at 0000, 0800, 1330 and 1800 hours Eastern and partner stations

## VOA Audience Numbers Climb In Pakistan

The Voice of America's weekly radio and television audience in Pakistan, scene of recent tumultuous political events, nearly doubled over the past year to more than 11 million, or almost 12 percent of the surveyed population, a new survey showed.

In a June 2008 survey by InterMedia, researchers found a huge jump—to 6.3 percent of the adult population from 2.8 percent—in VOA's Urdu-language radio listenership. The weekly VOA television audience also reached 6 percent, even though the program was shut down for nearly six months after then-Prime Minister Pervez Musharraf suspended the constitution in November 2007. Researchers said political events, including the assassination of former Prime Minister Benazir Bhutto in December 2007 and periodic crackdowns on key local media outlets, may have driven more Pakistanis towards external information sources. (Source: VOA)

## Hong Kong Bans Pirate Radio As "Air Traffic Risk"

A pirate Hong Kong radio station run by democratic activists was ordered to cease broadcasting days before a citywide legislative council election after the broadcasts were deemed a risk to air traffic control. Hong Kong's Telecommunications Authority served a notice to Citizens' Radio to stop all broadcasts after a complaint from the Civil Aviation Department that the station's radio transmissions posed a potential aviation threat. "The interference may pose potential hazard to aircraft operation," the Office of the Telecommunications Authority said in a statement.

The organizers of the radio station, which has a pro-democracy agenda and runs a variety of shows, claimed the muzzle order was political suppression ahead of Sunday's election, in which the pro-democracy camp faces a tough fight to maintain its influence. Analysts say Hong Kong's pan-democracy camp could struggle in the polls, with a surge in post-Olympic Chinese nationalism possibly swelling public support for pro-Beijing candidates.

The telecoms watchdog said it would take "enforcement action" against Citizens' Radio if it failed to get off the air in Hong Kong, a former British colony that returned to Chinese rule in 1997. (Source: Reuters)

# Big Savings on Radio Scanners

# Uniden®

# SCANNERS



## Bearcat® 796DGV Trunk Tracker IV with free scanner headset

Manufacturers suggested list price \$799.95  
CEI Special Price \$519.95

1,000 Channels • 10 banks • CTCSS/DCS • S Meter  
Size: 6<sup>1/16</sup>" Wide x 6<sup>3/16</sup>" Deep x 2<sup>3/8</sup>" High

Frequency Coverage: 25,000-512,000 MHz., 806,000-956,000 MHz. (excluding the cellular & UHF TV band), 1,240,000-1,300,000 MHz.

When you buy your Bearcat 796DGV TrunkTracker package deal from Communications Electronics, you get more. The GV means "Great Value." With your BC796DGV scanner purchase, you also get a free deluxe scanner headphone designed for home or race track use. Headset features independent volume controls and 3.5 mm gold right angle plug. The 1,000 channel Bearcat 796DGV is packed with features to track Motorola Type I/II/III Hybrid, EDACS, LTR Analog Trunk Systems and Motorola APCO 25 Phase I digital scanner including 9,600 Baud C4FM and CQPSK. Also features control channel only mode to allow you to automatically trunk many systems by simply programming the control channel, S.A.M.E. weather alert, full-frequency display and backlit controls, built-in CTCSS/DCS to assign analog and digital subaudible tone codes to a specific frequency in memory, PC Control and programming with RS232C 9 pin port (cable not supplied), Beep Alert, Record function, VFO control, menu-driven design, total channel control and much more. Our CEI package deal includes telescopic antenna, AC adapter, cigarette lighter cord, DC cord, mobile mounting bracket with screws, owner's manual, trunking frequency guide and one-year limited Uniden factory warranty. For maximum scanning enjoyment, order magnetic mount antenna part number ANTMMBNC for \$29.95. For complete details, download the owners manual from the [www.usascan.com](http://www.usascan.com) web site. For fastest delivery, order on-line at [www.usascan.com](http://www.usascan.com).

## Bearcat® BCT8 Trunk Tracker III

Manufacturer suggested list price \$299.95

CEI Special Price \$169.95  
250 Channels • 5 banks • PC Programmable

Size: 7.06" Wide x 6.10" Deep x 2.44" High  
Frequency Coverage: 25,000-54,000 MHz., 108,000-174,000 MHz., 400,000-512,000 MHz., 806,000-823,987.5 MHz., 849,012.5-868,987.5 MHz., 894,012.5-956,000 MHz.

The Bearcat BCT8 scanner, licensed by NASCAR, is a superb preprogrammed 800 MHz trunked highway patrol system scanner. Featuring TrunkTracker III, PC Programming, 250 Channels with unique BearTracker warning system to alert you to activity on highway patrol link frequencies. Preprogrammed service searches makes finding interesting active frequencies even easier and include preprogrammed police, fire and emergency medical, news agency, weather, CB band, air band, railroad, marine band and department of transportation service searches. The BCT8 also has preprogrammed highway patrol alert frequencies by state to help you quickly find frequencies likely to be active when you are driving. The BCT8 includes AC adapter, DC power cable, cigarette lighter adapter plug, telescopic antenna, window mount antenna, owner's manual, one year limited Uniden warranty, frequency guide and free mobile mounting bracket. For maximum scanning enjoyment, also order the following optional accessories: External speaker ESP20 with mounting bracket & 10 feet of cable with plug attached \$19.95. Magnetic Mount mobile antenna ANTMMBNC for \$29.95.



## Bearcat® BCD396T Trunk Tracker IV

Suggested list price \$799.95/CEI price \$519.95

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

### Frequency Coverage:

25,000-512,000 MHz., 764,000-775,987.5 MHz., 794,000-823,987.5 MHz., 849,012.5-868,987.5 MHz., 894,012.5-956,000 MHz., 1,240,000 MHz.-1,300,000 MHz.

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



**Close Call Radio Frequency Capture** - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. Useful for intelligence agencies for use at events where you don't have advance notice or knowledge of the radio communications systems and assets you need to intercept. The BCD396T scanner is designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS, LTR and EDACS® analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. **Dynamically Allocated Channel Memory** - The BCD396T scanner's memory is

organized so that it more closely matches how radio systems actually work. Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 3,000 channels are typical but **over 6,000 channels are possible** depending on the scanner features used. You can also easily determine how much memory you have used and how much memory you have left. **Preprogrammed Systems** - The BCD396T is preprogrammed with over 400 channels covering police, fire and ambulance operations in the 25 most populated counties in the United States, plus the most popular digital systems. **3 AA NIMH or Alkaline battery operation and Charger** - 3 AA battery operation - The BCD396T includes 3 premium 2,300 mAh Nickel Metal Hydride AA batteries to give you the most economical power option available. You may also operate the BCD396D using 3 AA alkaline batteries. **Unique Data Skip** - Allows your scanner to skip unwanted data transmissions and reduces unwanted binaries. **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](http://www.usascan.com) or call 1-800-USA-SCAN.

## More Radio Products

Save even more on radio scanners when purchased directly from CEI. Price includes delivery in the continental USA excluding Alaska.

Bearcat 898T 500 channel TrunkTracker III base/mobile.....	\$209.95
Bearcat 796DGV Digital 1,000 ch. TrunkTracker IV base/mobile.....	\$519.95
Bearcat BCD396T APCO 25 Digital scanner with Fire Tone Out.....	\$519.95
Bearcat 246T up to 2,500 ch. TrunkTracker III handheld scanner.....	\$214.95
Bearcat Sportcat 230 alpha display handheld sports scanner.....	\$184.95
Bearcat 278CLT 100 channel AM/FM/SAME WX alert scanner.....	\$129.95
Bearcat 248CLT 50 channel base AM/FM/weather alert scanner.....	\$104.95
Bearcat 244CLT 30 channel base AM/FM/weather alert scanner.....	\$94.95
Bearcat 92XLT 200 channel handheld scanner.....	\$105.95
Bearcat 72XLT 100 channel handheld scanner.....	\$89.95
Bearcat BR330T handheld shortwave/scanner with Fire Tone out.....	\$274.95
Bearcat BCT8 250 channel information mobile scanner.....	\$169.95
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Deluxe Independent Dual Volume Control Racing Headphone.....	\$29.95
Scantcat Gold For Windows Software.....	\$99.95
Scantcat Gold For Windows Surveillance Edition.....	\$159.95

## Bearcat® BC246T Trunk Tracker III

Suggested list price \$399.95/CEI price \$214.95  
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:

25,000-54,000 MHz., 108,000-174,000 MHz., 216,000-224,980 MHz., 400,000-512,000 MHz., 806,000-823,987.5 MHz., 849,012.5-868,987.5 MHz., 894,012.5-956,000 MHz., 1,240,000 MHz.-1,300,000 MHz.

The handheld BC246T TrunkTracker scanner has so many features, we recommend you visit our web site at [www.usascan.com](http://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 binaries. **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](http://www.usascan.com) or call 1-800-USA-SCAN.

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## Capitol Hill And FCC Actions Affecting Communications

by Richard Fisher, KI6SN

### FCC Considers Nationwide Emergency Communications Plan

The Federal Communications Commission approved a new initiative for the development of a nationwide emergency communications network, according to published reports, amid concerns that a difficult economy may make it hard to attract investors. The Associated Press in September said that it was the Commission's second attempt to create a set of rules for the network, which would use public airwaves and private money. An earlier attempt in 2008 failed to attract a bidder.

"The new framework includes more detail and makes the plan more attractive to private companies in several areas," the AP report said. "The proposed network would be used by police, firefighters and other emergency crews responding to disasters or terrorist attacks."

Under the plan, the FCC would auction a range of frequencies to a private bidder. That spectrum was made available through the transition to digital broadcasting. It would be "combined with a roughly equal portion of airwaves controlled by a public safety trust," the AP said. "The private investor would build a wireless network and lease access to emergency responders while selling wireless service to commercial users for profit." In March 2008, the earlier plan failed to attract a minimum bid of \$1.3 billion, with interested parties saying "the proposal was too vague and too risky to serve as the basis of a multibillion-dollar investment."

Ideally, a new network will help solve the problem of public safety organizations not being able to communicate with one another, the AP report said. "It also would avail emergency personnel of many advances in wireless technology that are accessible to commercial users."

A national network could cost between \$6 billion and \$7 billion, the FCC said, but private sector estimates are more than double that amount. Even with Commission approval, such a network would be years away.

### FCC Chairman Proposes Free Broadband Access To Everyone

Federal Communications Commission Chairman Kevin Martin told *USA Today* that high-speed Internet access is vital to the welfare of U.S. consumers and should be offered free of charge to anyone who wants it. The August 2008 article reported that Martin feels there is a "social obligation in making sure everyone can participate in the next generation of broadband services because, increasingly, that's what people want." *USA Today* went on to say that, in the face of mobile phone provider opposition, Martin hopes to use spectrum set to be auctioned in 2009.

"By attaching a 'free broadband' condition to the sale of the spectrum, known as AWS-3 (for advanced wireless services-3)," the paper reported, "Martin thinks he can help drive broadband adoption in rural areas in particular. Only 25 percent of network capacity would have to be reserved for free broadband. The rest could be used to provide premium broadband services."

### Special Event Station Operated At Pentagon On 9/11

The Pentagon Amateur Radio Club operated a special event station on September 11, commemorating the seventh anniversary of the terrorist attacks at the Pentagon, World Trade Center, and over Shanksville, Pennsylvania in 2001.

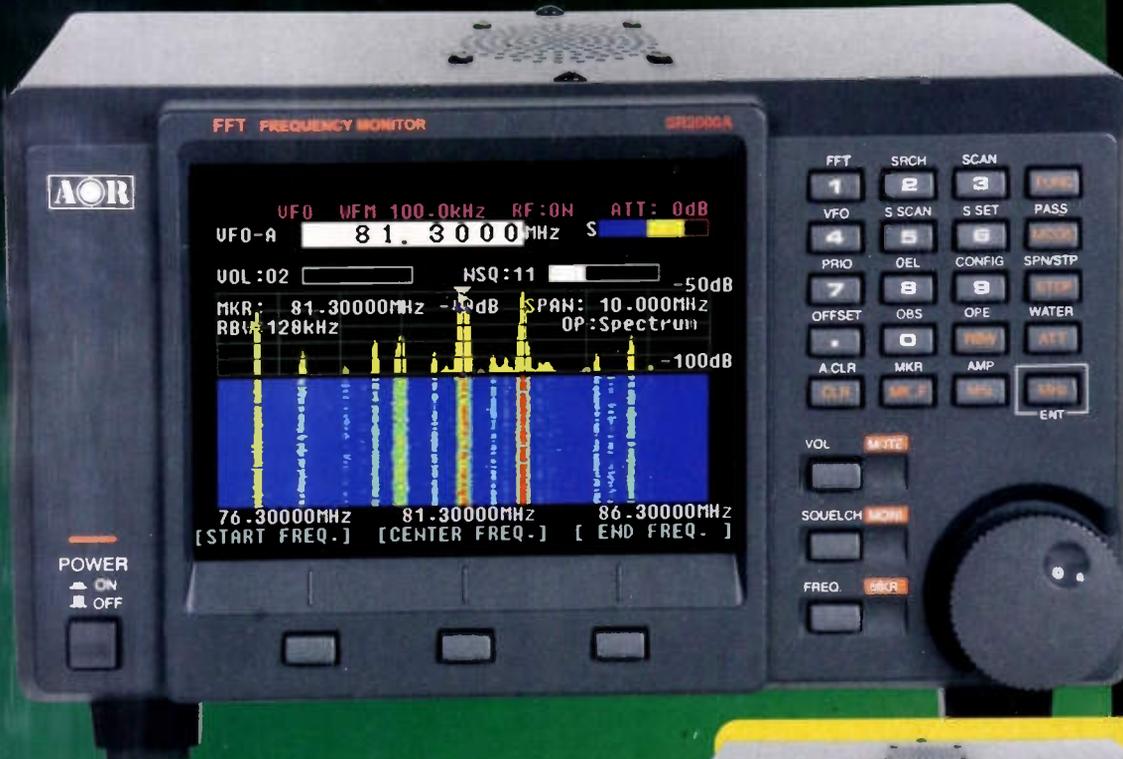
According to the American Radio Relay League, the activity was "held in conjunction with President Bush's visit to the Pentagon to dedicate the new Pentagon Memorial, honoring the 184 people, both at the Pentagon and on American Airlines Flight 77, who lost their lives in the attacks."

Radio amateurs operated on 10, 15, 20, 40, and 80 meters, both phone and CW, on a 12-hour basis (1200-2400 UTC). "There will be a special QSL card available for stations that work K4AF," the ARRL said.

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## Whither HD Radio?

by Rob de Santos  
commhorizons@gmail.com

*“On the positive side, more formats means more variety, although to date that variety has been limited by an agreement of the HD Radio Alliance to not allow competing secondary formats in the same market.”*

Have you listened to HD Radio yet? If your answer is no, you're far from alone. Most residents of the United States have yet to hear it. But if you listen to the AM (mediumwave) or FM bands here you may have heard the promotional spots that are running on over 700 stations nationwide. The HD Radio Alliance has indicated that it expects to spend \$57 million in the current effort to raise awareness and demand for HD Radio. The advertising campaign is designed to build demand for the radios and increase the numbers of listeners to measurable levels. Let's take a look at where HD radio stands right now and where it's going.

What is HD radio? For starters, the HD does not mean “High Definition”; it's merely an advertising takeoff on the TV angle. Some claim it means “Hybrid Digital,” but in reality it's no more than a marketing slogan. The idea of bringing digital audio to the mediumwave and FM bands is a good one, but the concept of “In Band On Channel” or IBOC (where the digital signal is overlaid on the analog signal) was always controversial, especially because of potential interference associated with skywave propagation during the nighttime on AM (more on this later). One company, Ibiquity, has exclusive rights to produce and market the underlying technology. This means that every station that wishes to broadcast in HD must buy Ibiquity-licensed equipment and every radio must have Ibiquity-approved computer chips. (Ibiquity does not allow the decoding to be done via software, which is a major price handicap to the technology.)

Today more than 1,750 U.S. stations (about 13 percent of all stations) have an HD signal on the air with some 83 percent of the population within range of at least one HD channel. Many of the FM stations subdivide their HD signal into multiple “channels,” so the number of channels available is over 2,550. The radios are becoming increasingly available as options on many automobiles (or can be added aftermarket). Desktop radios are also increasing in number and are available in many electronics stores. Prices range from \$99 (half that with a rebate) and up. The average model is in the \$100 to \$200 range. At the 2008 CEDIA (Custom Design & Installation Association) electronics show, held in early September, there was plenty of evidence that HD capability is becoming standard in the mid and upper price ranges of home entertainment equip-

ment. Many mainstream retailers, including Wal-Mart, Best Buy, Target, and Apple stores, now carry HD radios. But even as the digital format is spreading, most stations in the United States are not in HD today and won't be any time soon.

What are the pluses and minuses of HD Radio? We'll start with the negatives.

The further you are from a major city the less likely you are to have access to HD Radio. The effective range of HD stations is often only 50 to 70 percent of their analog counterparts, so if you're at the fringe of the analog signal, your HD radio may not be able to decode the signal. This is partly the result of the very low power levels currently in use for HD broadcasting. The sound quality is a major improvement over analog radio, but it has its limits. The bandwidth for HD in FM is 96 kb/s. If the station offers two or three HD feeds, that bandwidth is divided, so it's possible you'll see only 32 kb/s for a given channel. By comparison, the CD equivalent is about 150 kb/s.

On the positive side, more formats means more variety, although to date that variety has been limited by an agreement of the HD Radio Alliance to not allow competing secondary formats in the same market. (As I write this, the rules on formats have been changed to be “voluntary” rather than “mandatory” among stations using the technology.) Local stations are also reluctant to spend money on alternative formats where the audience is, as yet, very small. There are many unusual formats out there, however, from “gay pride” radio to “mashups” with varied combinations. The situation is slowly improving, but it's still a long way from competing with the variety of music available via the Internet or satellite radio.

If you're reluctant to pay the subscription fees required by satellite radio, you'll like the fact that once you buy the radio the listening is free. Also, many of the secondary HD formats have minimal or no advertising, though recently the HD Radio Alliance relaxed this agreement, too. Another plus is the “iTunes tagging” available in the newest HD radios. If you hear a song you like, you can press the “Tag” button and the song details are saved to the radio. Later, you can sync the radio to your iPod and use the info to download the song. Some radios include decoding of text information, from artist and title to traffic information if the channel includes that information in the digital stream.

*(Continued on page 67)*

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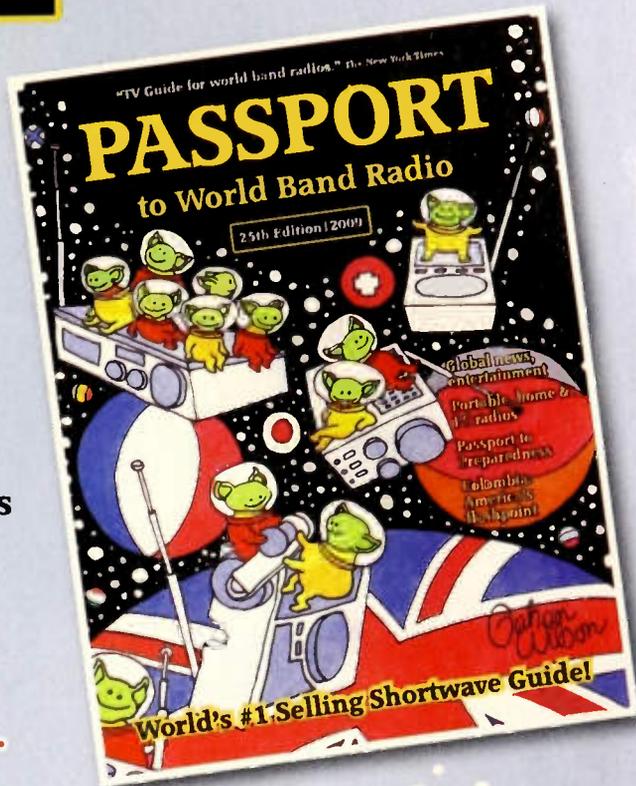
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## Holiday Hobby Gifts

### ***Still Stumped For Ideas? Gordo Offers Some Up—From Free To Generous—Taken From His Store Of Experience***

by Gordon West, WB6NOA

**W**hen I'm out in radioland, doing convention and seminars, I'm frequently asked, "What gear do you use or recommend?" There's so much great stuff out there that runs the gamut from A ("Absolutely free!") to Z ("Zounds, a little steep, but I must have it!") that it's hard to know where to begin. But if you're looking to give yourself (or someone else, of course) a holiday treat, or if you're just in the market for equipment advice to keep in mind for the coming year, here are plenty of goodies to keep on eye (or an ear) out for!

#### **Great Books Make Great Stocking Stuffers**

Each year, at the Dayton Hamvention, I spend some time in the Universal Radio exhibit, listening to the staff's sound advice about scanners and ham gear. The company's *Universal Radio Inc. Communications Catalog* is 100-plus pages of its own well-written product descriptions, and most important, product and

Gordon West, WB6NOA, writes *Pop'Comm's* "Gordon West's Radio Ways" column. A prolific writer and teacher, he is a highly regarded "guru" in many aspects of the radio hobby.

accessory photos along with the selling price. Some catalogs leave you to search for the price in the back of the book; others flatly omit suggested pricing, instead simply giving an Internet address.

Universal's *Communications Catalog* is available—*free*—by calling (800) 431-3939 or visiting [www.universal-radio.com](http://www.universal-radio.com). Tell them Gordon West and Pop'Comm sent you and be sure to say Hi to all the friendly people in the catalog department. Fred Osterman, N8EKU, president of Universal Radio, is always available for one-on-one advice, backed up by Harleigh in Technical Service. Get (or give) your own copy of the catalog—it's the best!

For beginners just getting started in radio, the inimitable Ward Silver has written *Two-Way Radios and Scanners for Dummies*. It's a fun and breezy in-depth look at 20 different types of scanning and two-way radio receivers, but it also offers lots of technical stuff, like precise frequencies for FRS and GMRS, and little-known Web addresses that get you tuned in to specific receiver projects. Ward Silver, who is also the author of *Ham Radio for Dummies*, makes the technical info easy to understand. The book, chock full of illustrations and photos, is

an absolute keeper. *Two-Way Radios and Scanners for Dummies* is published by Wiley Publishing ([www.wiley.com](http://www.wiley.com)), with a cover price of \$22, but is advertised for less on the Web.

Kenwood, so far, remains the leader in Automatic Packet/Position Reporting System (APRS)-ready radios (we're still anxiously awaiting the Yaesu VX-8R APRS handheld that will tie in a GPS engine built in to the remote mic). Kenwood now offers a new book specifically written for its new mobile transceiver, the TM-D710A/E dual bander, which is a quantum leap above the company's earlier D700. The book offers terrific info on APRS operation, written by Bob Bruninga, WB4APR, Mr. GPS himself!

The best part of the book, titled simply *TM-D710A/E* and subtitled "Getting Acquainted with APRS and Echolink," is the generous use of pictorial diagrams and screen shots. Bob did a fabulous job of writing up the APRS capability of the Kenwood D-710, and that's coupled with great information from Don Arnold, W6GPS, describing the easy tie-in with AvMap (see "A Weather, Ham Radio, GPS Trio," *Pop'Comm* October 2007 for more on this). Now add the full descriptive chapter on EchoLink with the Kenwood D710, plus another chapter about running the D710 on a computer, and you have the best 90-page book available—again, free!—by request from your local Kenwood ham radio dealer or by download at [www.kenwood.com/products/info/amateur/pdf/TM-D710AE\\_IDM\\_R1.pdf](http://www.kenwood.com/products/info/amateur/pdf/TM-D710AE_IDM_R1.pdf) (yes, that's a lot to type, but it's worth it!). For even more visuals, you can see a demo of the AvMap/Kenwood combo on YouTube at [www.youtube.com/w6gps](http://www.youtube.com/w6gps).

## Accessories

For the serious hobbyist, an antenna analyzer makes a great gift, and MFJ ([www.MFJEnterprises.com](http://www.MFJEnterprises.com)) offers the largest selection, from 2 MHz all the way up to 470 MHz. But if \$300 to \$400 is out of your budget, check out my favorite MFJ antenna analyzer, the MFJ-207. This sells for under \$99, covers 160 meters up to 10 meters, has a built-in battery, and gives you a dandy analog meter that takes a nosedive when you hit antenna resonance. The MFJ-207 saves you money by not including a fancy LCD screen or frequency readout, but the analog dial gets you in close, and you listen to the analyzer signal spot-on frequency with your HF rig. It's even small enough to put in your back pocket. While it doesn't cover any bands above 10 meters, most of the time the SWR antenna analyzer gets its workout on HF bands, and all frequencies in between.

Another accessory to consider putting on your shopping list is a digital signal processing (DSP) audio-add-on speaker. I've worked nearly all DSP audio-add-on speakers, and I can tell you some amazing stories on what they will, and will not, do. Looking at the "not's" first: DSP add-ons will *not* make an unintelligible SSB voice become sparkling clean; DSP add-ons will *not* make a digital scanner signal sound like HiFi; DSP add-ons will *not* do as well as DSP circuits in the IF stage of the receiver. But, on the other hand, a plug-in add-on amplified DSP speaker *will* take the hiss out of weak-signal scanner reception. The DSP speaker *will* do a much better job in passing extremely weak signals into full intelligibility, the same signals that would otherwise be blocked by most squelch circuits.

From top: Ward Silver's *Two-Way Radios and Scanners for Dummies*; Communications Specialists' pet-tracking receiver; the MFJ-207 antenna analyzer; Universal Radio's *Communications Catalog*; West Mountain Radio's CLRspkr DSP-amplified speaker.



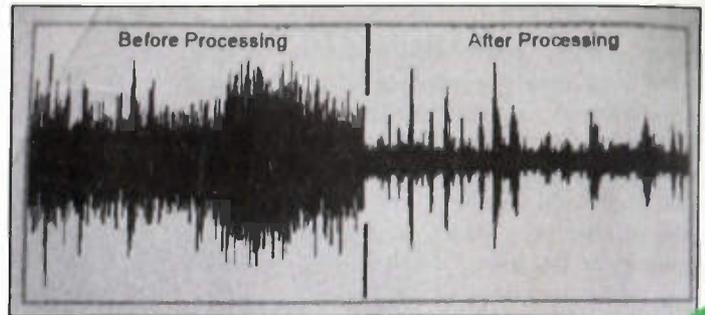


A new—free—book from Kenwood tells you exactly how to use its mobile transceiver, the TM-D710A/E, shown here in combination with AvMap (see text).

My favorite DSP speakers come from West Mountain Radio ([www.westmountainradio.com](http://www.westmountainradio.com)), Gap Antenna Products ([www.gapantenna.com](http://www.gapantenna.com)), and SGC ([www.sgcworld.com](http://www.sgcworld.com)). All offer a built-in, multilevel NCT or BHI Adaptive Speech Filter, a patented algorithm designed to subtract background noise from digital or analog signals you're trying to hear. The circuit locks on to repetitive stationary noise, or hash, subtracting it from the spectral variations characteristic of human speech, Morse code, or data. If the background stationary noise begins to change in amplitude or repetition rate, the internal circuitry automatically continues to track and filter the noise. White noise may be reduced by more than 12 dB, and a steady single tone heterodyne will be suppressed by as much as 70 dB. However, say a single tone (perhaps a ham tuning up on frequency) breaks into continuous wave (Morse code), the DSP recognizes the dots and dashes and passes them directly to the amplified speaker circuit.

The large DSP-amplified speaker from West Mountain Radio, called CLRspkr (MSRP \$220), offers four DSP level settings controlled by a large knob, one bright LED showing speaker activity, and an additional LED warning of clipping due to setting the CB radio, scanner, or ham receiver volume too high. The SGC ADSP<sup>2</sup> speaker (MSRP \$160) with DSP is small, but sounds good, and has a push-button controlling the DSP levels. The same sized "Hear It" DSP speaker from GAP (MSRP \$169) puts its eight levels of DSP control on the rear of the speaker, via micro dip switches.

I've recently been using the CLRspkr. I like to control DSP levels regularly, and its big front panel knob makes the very large speaker cone responsive to the exact settings I've dialed in. The speakers run on 12 volts, come with a simple miniature



A good graphic of noise before DSP (left) and after (right).



It may take you awhile to gather the kind of equipment Gordo has, but the Holidays give you a good excuse to get started.

plug that goes into your receiver's speaker output jack, and the speaker may also have its own output jack, in case you want to drive an even larger audio speaker with the signals cleaned up through DSP.

How well does it work? On the road, I found that I could monitor a CB channel comfortably with squelch off and the CLRspkr system on medium, and there was almost no noise coming out of the speaker until the internal circuit recognized human speech. I had it wired into a Cobra 29 LTD BT, one of the hottest receivers on the market (more on this below), with added automatic noise limiting to take out crackles and pops. The CLRspkr hushes the audio, even when the Cobra squelch is left wide open. The only negative I noticed was when keying the Cobra mic, and then releasing the PTT, the amplified DSP speakers would take about a second (at normal volume) to readjust to silence the background hash. This is a characteristic of the DSP circuit, however, and not the great performing Cobra 29, which really sparkled through the larger West Mountain Radio CLRspkr.

Where's Furball? You won't have to ask this Holiday Season if you have the \$300 pet-tracking system from Communications Specialists ([www.com-spec.com](http://www.com-spec.com)). I've covered this before because of its high "nifty factor," but it's now gone to higher-power, 222-MHz interstitial-channel ham frequencies. Just as many people use these tiny tags to track "Pooch" as seasoned hams use it to hone their skills at T-hunting (short for transmitter-hunting and it's a lot of fun).

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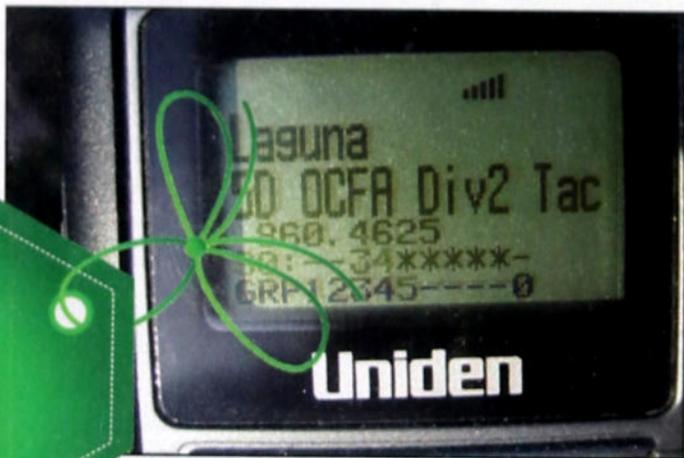
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Uniden's Bearcat BCD396T scans both analog and digital transmissions and always gives me great reception.

While Communications Specialists offers its own superhet SSB/CW receiver for 222 MHz (under \$200) to tune in the tiny tag transmissions, I use the AOR AR8200 Mark III B multimode scanner ([www.aorusa.com](http://www.aorusa.com); list \$843.95, but it can be found for much less) that lets me hear 222-MHz CW beeps loud and clear. And for home use, as a general coverage wideband, multimode receiver *with* band scope, I run the Yaesu VR-5000 ([www.yaesu.com](http://www.yaesu.com); a Google search found it available for \$600) on my desk to keep track of our four-legged pals, plus all other frequencies from 100 kHz to 2.6 GHz—multimode!

Another very cool—and practical—gadget is C. Crane Company's CC Witness MP3 recorder with AM/FM radio. It's described in detail in this month's "Tech Showcase" so give that a read next. It's definitely worth a close look, too.

## Rigs

As more Technician class hams upgrade to General, I regularly receive phone calls from people asking what company makes the least expensive high-frequency transceiver so they can get started on high frequency as soon as they pass the test.

First of all, I inform these Technician class operators that they *already have privileges* on high frequency with the Technician license, with voice on a portion of 10 meters, and CW on 10-, 15-, 40-, and 75-meter subbands! Many Technician

class operators have HF equipment and don't realize the recent rule changes now give them a sampling of HF excitement.

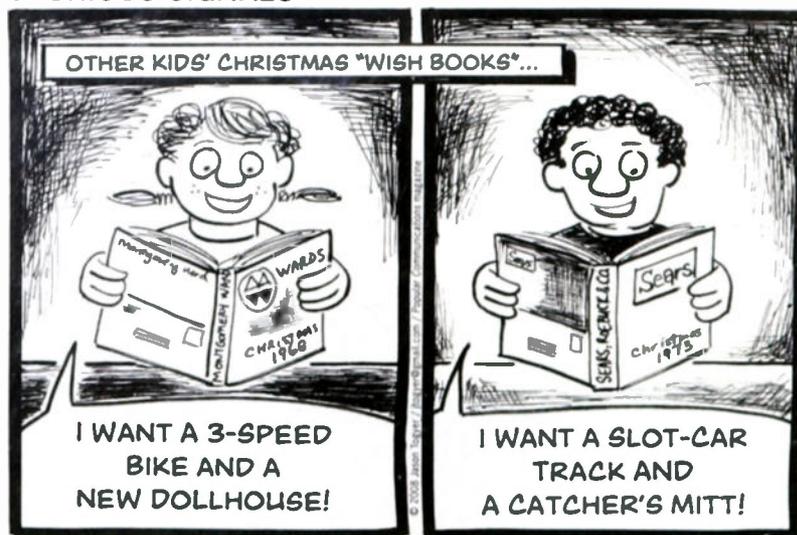
Now that I got that out of the way, the answer to the question of what's the least expensive radio for the beginner is *easy*. It's the ICOM IC-718 ([www.icomamerica.com](http://www.icomamerica.com)), covering 160 meters through 10 meters, 100 solid watts out, 100 memory channels, CW keyer built in, DSP, and IF shift with adjustable noise blanker, and last seen selling for under \$599! A nice 12-VDC power supply for this radio is the Samlex 1223 switching supply ([www.samlexamerica.com](http://www.samlexamerica.com)), which goes for under \$95, offers 23 amps continuous, 13.8 VDC out, with 110 VAC/220VAC AC input, and jumper cable selection on the inside board. Now build a simple dipole out of audio speaker wire, connect up the 50-ohm coax, and I'll work you from the West Coast!

Looking for a scanner? I use Uniden's portable Bearcat BCD396T TrunkTracker IV that I got through Communications Electronics (\$520; [www.usascan.com](http://www.usascan.com)), which by the way, is a great resource for all sorts of hobby needs. The BCD396T scans both analog and digital transmissions, and I like the "close call" frequency memo scheme, capable of programming itself when I'm working a local Red Cross shelter along with a number of other public safety vehicles with radios. It works flawlessly, even after a direct hit with a rain shower and getting dropped on the floor more times than I can remember. I've always had great reception with the Uniden scanner.

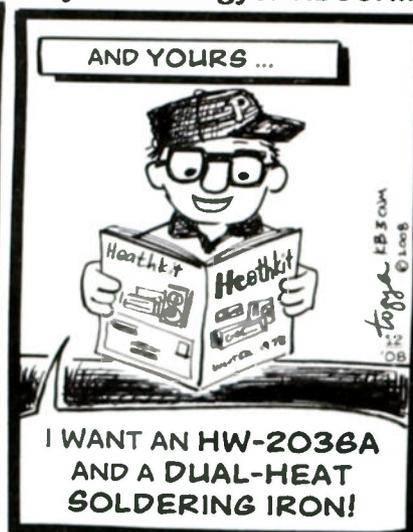
Need more than receive capabilities? The Cobra 29 LTD BT (\$190) is no mere update of the company's classic Cobra 29 LTD—it's the first CB to offer Bluetooth technology (see Jeffrey Reed's "Tech Showcase" in *PopComm's* October 2008 issue for in-depth look). Cobra says the Bluetooth feature gives drivers a better way to have phone conversations while on the road because calls from a mobile phone are synched with the CB radio. And, in his review, Reed pronounced the Cobra 29 LTD BT a winner, inside and out. I concur. Check it out at [www.cobra.com](http://www.cobra.com).

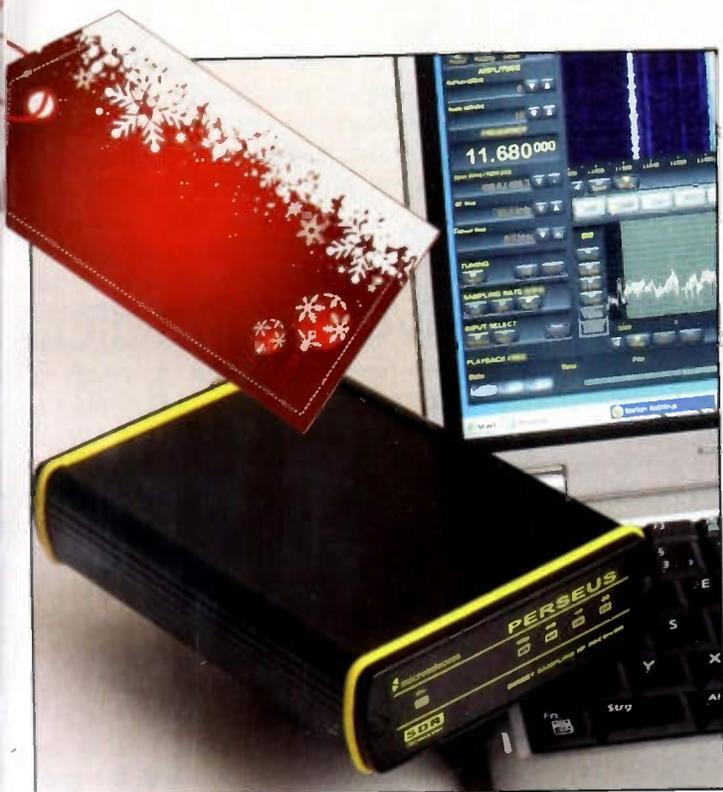
For a taste of the quantum leap forward in radio monitoring enjoyment, check out the amazing sounds of Microtelecom's Perseus software-defined radio (SDR), imported from Italy by SSB Electronic USA ([www.ssbusa.com](http://www.ssbusa.com)), my own favorite store for 10-GHz X-band equipment. At this year's Dayton Hamvention hams and shortwave listeners marveled at the absolutely tiny Perseus that simply plugs into your computer

## SPURIOUS SIGNALS



By Jason Togyer KB3CNM





Microtelecom's Perseus software-defined radio wowed the crowd at this year's Dayton Hamvention—for good reason.

and uses your computer's sound card to output audio. Start by running the driver for the Perseus SDR, and know that both Fred from Universal and Gerry from SSB are always available on the phone to give you help with the setup. Shortwave listeners are likely first to tune in Digital Radio Mondiale (DRM) broadcasts to hear the high-fidelity sounds of digital skywave reception.

"The results were spectacular for high-frequency broadcast...during a listening session of China Radio International via Sackville, Canada," said Dan Srebnick, K2DLS, in his review of the Perseus for *Pop'Comm* ("Tech Showcase," November 2008). Because an SDR is not inhibited by physical preset band pass coils, reception remains hot from the absolute bottom of the very low frequency band to the top of high frequency, thanks to its intuitive preselector filter networks. If you're a fan of "whistlers," aerobeacon reception, or love the sounds of LORAN, Perseus can take you there. There are even integrated databases that will detect the frequency you're tuned to and give you some station assignments for that frequency! The Perseus' band scope covers up to 1600 kHz of RF spectrum, seen in real time, just like looking at a service monitor spectrum analyzer. And this is in color, too, on your own computer's big screen. Best of all, the user can also record up to 1600-kHz spectrum for listening later on! You can hear some snippets at [perseus-sdr.blogspot.com/2008/04/new-perseus-wav-file-from-grayland.html](http://perseus-sdr.blogspot.com/2008/04/new-perseus-wav-file-from-grayland.html).

### Check 'em All Out

This sampling of what's new or just really cool should get your brain cells rolling on gifts for the coming Holiday Season. The equipment I've listed has all undergone personal and classroom demos here on the West coast, plus plenty of trips around the country.

Sunspots for Cycle 24 are finally appearing, so it looks like many great years ahead for playing radio! What's *your* favorite?

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## C. Crane's CC Witness MP3 Recorder With AM/FM Radio

by Gordon West, WB6NOA  
WB6NOA@arri.net

C. Crane Company continues to dazzle radio enthusiasts with gadgets we can't (at least don't want to) live without. At last year's Consumer Electronics Show (CES) in Las Vegas, the C. Crane booth was previewing new products for the end of this year, and they're now delivering.

Jessica Gillette, C. Crane's marketing genius, recently said to me, "Gordo, your ham radio presentations are dynamite, but you gotta up the quality of your recorded radio playback calls, and we have the products to help." I took this sound advice to heart, and I'm glad I did.

Realizing that cassette record and playback equipment may not be available for very much longer, I quickly bought the company's VersaCorder cassette player. It has so much audio output power—and a giant speaker—that I no

Gordon West, WB6NOA, writes *Pop'Comm's* "Gordon West's Radio Ways" column. A prolific writer and teacher, he is a highly regarded "guru" in many aspects of the radio hobby.



C. Crane Company's CC Witness is an MP3 recorder-player with built-in AM/FM radio that offers 2 GB memory for plenty of recording time.

longer needed to demo my audio with an added amplifier! But I *really* needed to step into the digital world for new over-the-air recordings, so I scooped up C. Crane's latest product, the CC Witness, an MP3 recorder-player with built-in AM/FM radio.

### Out Of The Box

The CC Witness was shipped with the standard 2 GB internal flash memory, and it will take up to 16 GB extended memory with an optional SD card. The internal 2 GB was plenty to give me hours of recording and playback time for those exciting ham radio emergency calls I was recording during the recent hurricanes.

The first step in getting up and running is to charge the internal lithium-polymer battery pack, a simple matter of using the included USB cable that plugs into your computer USB cable port. You can also "speed charge" the internal battery by using an optional adapter. The only downside I discovered with the optional AC adapter was the telltale buzz on the AM band. But that needn't be a problem since on a fully charged battery, the little CC Witness will offer up to 14 hours of playback and about eight hours of continuous recording.

Okay, battery charged up? Time to go to the MENU screen and hold the PLAY button for two seconds to turn the power ON. Bingo! You can now keystroke select AM radio, FM full stereo receive and stereo record, view and play files and recordings, view configuration settings, review and set timer settings, and with a single keystroke begin recording radio sounds with the built-in microphone or, for better recordings, using the line/mic input jacks.

For FM radio recording, your headphones become part of the FM antenna. In the unlikely event you wouldn't be using headphones for FM radio station recording, C. Crane includes a small FM receive wire antenna.

I discovered that recordings made on the same day, and from the same source, are automatically stored in a sub-folder representing the day the recordings were made. The recorded files are also automatically named by date, time, and a

sequential number to identify each file. Especially handy for me is the ability to create a "favorite" file, which I use for any radio traffic recorded on ham frequencies that will be of interest for the seminars and classes I give.

In the "record settings" menu, you can also select recording time based on record quality from the internal 2 GB memory. I found 128 kbps gives about 35 hours of full-fidelity radio calls recording. If you want to record high-fidelity full stereo music, you would choose 256 kbps for about 17 hours of total recording time before filling up the internal 2 GB memory.

As with many popular MP3 players, there are myriad additional menus, folders, and settings that put the CC Witness player right up there with the best of the portable music machines, as well as with the best of the portable connected to over-the-air scanner radio, shortwave radio, or ham radio recording devices. And there's plenty of on-screen indexing so you can get back to a specific track *quick* (sure beats a screeching tape, trying to find that really hot emergency QSO!).

## Other Discoveries

When putting the CC Witness MP3 player through its paces, I made some interesting discoveries. For instance, if you accidentally leave the unit turned on while it's idle, selectable auto-shutdown times will cycle it off—a great feature. I also found that while the CC Witness will playback both MP3 and WMA formats, it will only record in the MP3 format. And, yes, the CC Witness works very well with Mac computers.

And I'm very happy to report that I found I could get excellent recording quality from a scanner. First I set the scanner volume to about one third, or medium soft in a quiet room. I then connected the included recording patch cable between the earphone jack on the scanner and the line IN of the CC MP3. Next, I went to the main menu and pressed record. It was that simple. (If you have your headphones plugged in to the CC Witness, you can also hear audio levels, allowing you to further adjust the scanner input level so as not to overdrive the line input circuit.) Any scanner with line-OUTPUT would work even better. This feature on my receiver let me listen to the scanner's local speaker at varying volume levels, so I always

knew my CC Witness was recording at the correct level.

## At The Computer

Hooking up the MP3 player to your PC (or Mac) is easy. Click on "My Computer" and look for the removable disc icon, which I found displayed as Drive E. Double click on the disc icon representing the CC Witness. Files from the computer can now be downloaded onto the CC Witness via drag and drop, copying and pasting. Likewise, files can be uploaded to the computer from the CC Witness using this same method. And I'm also happy to report that the CC Witness ran fine on Windows Vista.

Any type of file can be stored on the CC Witness using your home computer. Only MP3 and WMA files are visible on the 1.85-inch diagonal crystal-clear display, however.

## A Very Neat Device

The suggested retail price for the CC Witness through the C. Crane catalog is \$229.95, and mine was shipped on the next business day. I had the new unit up and running and recording off the high-frequency receiver, with the battery gauge showing nearly full, straight from the factory. It was a snap!

Best of all, C. Crane Company is ultra-selective in who they have on their "Help Lines." If you should have a question, your call will be handled by an experienced radio-type technician. When I needed some assistance, I placed a single phone call and was connected to a technician who knew the exact steps required to get me back into programming this very neat device.

So check out the C. Crane Company and the CC Witness at [www.CCrane.com/radios](http://www.CCrane.com/radios). I think you'll enjoy the experience. ■

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# Winterizing Your Listening Station

*The Time Is Ripe For Protecting "Your Ears" For Winter Radio Enjoyment*

by Chip Margelli, K7JA

**W**e've all been there...it's 0959 UTC, you've been up half the night, but you're excited because it's almost time for the ID from the elusive Voice of Weaksigistan on 49 meters. As the last few seconds tick away on the clock, you hear a gust of wind outside, and then, suddenly, your receiver goes dead. "Aaarrggghh!" Your long-wire antenna just broke in the wind!

Situations like this are largely avoidable, if you take some simple steps to winterize your antenna system. A little preventive maintenance will keep your antenna up through the winter storms, and you'll bag all those juicy loggings that only show up during the winter months. Read on for one antenna guru's (if I do say so myself!) practical tips on winterizing your listening station.

## When To Winterize?

Although late summer would seem like an ideal time to winterize, I always recommend to my non-arctic friends that they wait until the November-December time frame, if at all possible. Why wait?

For starters, the worst winter weather, including below-freezing temperatures, will undoubtedly occur beginning in December. If you do get some water into a connector during a fall rainstorm, it's better to clean everything out before the freezing starts, to avoid damage to cables and connectors caused by expansion and contraction during freezing weather. Secondly, a little autumn rain will wash off wires and insulators for you.

Chip Margelli, K7JA, is an Extra class amateur radio operator licensed for over 45 years and is active in shortwave listening and ham band DXing. He's the vice president for Amateur Sales and Marketing for Heil Sound, Ltd., and may be reached at [Chip@Heilsound.com](mailto:Chip@Heilsound.com).

Photo A. Apply several coats of acrylic spray to all soldered wire joints that are exposed to the air to avoid wire breakage.

making it easier to identify problem areas in need of attention. And, finally, if you're using a tree for a support, it's a lot easier to work through branches once the leaves have fallen!

Your local climate will determine the optimum timing for winterizing, of course, but try to wait as long as is reasonably practicable so your protection work will be as new and robust as possible when the weather really turns rough.

## Protecting Wires And Insulators

Antenna wires, and the insulators that secure them, are the most vulnerable components of a listening station. Let's look at what we need to protect as winter weather approaches.

Antenna wires, themselves, seldom break. The wire types used by most shortwave listeners have excellent resiliency, tolerating the stress of flexing in the wind without much difficulty. However, when we do things like soldering the ends at an insulator, splicing two pieces of wire together to make a longer piece, or soldering multiple wires at a center insulator, we change the metallurgical characteristics of the wire, introducing rigidity where it didn't exist before. Also, the chemistry of a soldered connection, when exposed to air, can significantly increase the risk of breakage as dissimilar metals react with the atmosphere.

Start by inspecting all exposed soldered connections, particularly in mid-span splices in wire. Unless the connection absolutely looks pristine, with no signs of flexing where copper meets solder, you might want to consider cutting out the splice and doing it over again. When the connection has been replaced, take the time to spray the exposed metal with multiple coats of a clear acrylic spray like Krylon or a similar prod-



Photo B. Covering a coaxial cable mid-span splice with a sealing compound like COAX-SEAL ensures a watertight connection.

uct. The clear spray will provide considerable protection against weathering; once done on the initial splice, future maintenance generally is limited to spraying a few more coats on in the spring, and then again during next year's winterizing.

The late, great Don Wallace, W6AM, had a huge antenna farm of rhombic antennas atop the Palos Verdes Peninsula in the Los Angeles area. These massive antennas, some 1,200 feet (366 meters) on each leg, were constantly exposed to ocean breezes rising off the Pacific Ocean. Don told me that any splices not sprayed with acrylic were likely to fail within one year, but all sprayed connections, if properly done otherwise, would almost never fail. Since the corrosive effect of the salt air had turned every copper wire up at Don's Place green, I was always impressed that he found this simple step entirely sufficient to preserve the integrity of the splice in such a wind-swept location.

So be sure to spray all exposed soldered joints with clear acrylic spray, then wait a half hour or so and spray them again. Hit them with as many coats as time allows and you won't have to worry about the joint failing. Just remember, the trick is to do this on a newly soldered connection, one that has not been exposed to air for any length of time. Spraying the joint soon after soldering will place an effective barrier between the joint and the witch's brew of pollutants in our atmosphere, and your connections will stay

clean and strong throughout the winter. See Photo A.

## Coaxial Cable Connectors

Users of "dipole" and other antenna types that utilize coaxial cable for the lead-in to the station receiver undoubtedly are aware of the potential for water to get into the connector. When this happens, the dielectric characteristics of the connector are compromised, the internal connection starts looking more like a short circuit, and the antenna ceases to work. So you need to inspect all coax connectors now, to avoid problems later.

The first step is to remove all previous weather protection (such as black electrical tape) from the connection so that the cable's connector (and the mating jack) may be inspected. Unscrew the plug from the socket and look for signs of water ingress. You may see discoloration of the metal sleeve or center pin of the connector, there may be chalky residue from corrosion inside the connector, or you may even find water inside the connector! If you see the chalky residue or find water inside the connection, you may need to cut off the connector and replace it, because the shield of the coax may be damaged by the water ingress; if you do end up replacing the connector, cut the cable back at least one foot (305 mm) to ensure that you're working with clean, shiny copper as you do your soldering work.

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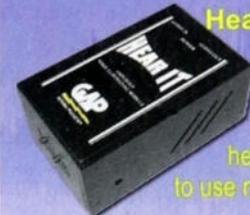
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If things are not so bad, you just need to re-fit the connector, and then take the necessary steps to ensure that water does not get into the fitting. The preferred method depends, to some degree, on the ease of access to the entire connector body; an in-line coaxial cable splice, using a double-female "barrel" connector, is easy to tape up and seal. A coaxial connector affixed to the base of a vertical antenna, on the other hand, may be difficult to tape tightly, so other steps may be necessary.

Before you begin your weatherproofing, though, check the antenna system by listening to your receiver (or check it with an SWR meter, if at all possible), to be sure that you've uncovered and resolved any connection issues. You don't want to discover problems after you've spent a lot of time covering up the connections with tape and goo (see below).

For simple protection of an in-line splice, where you have complete access to the coaxial cable body, do a thorough job of taping the connection. Start at one end, several widths of tape away from the back end of the connector, and begin a moderately tight wrap of tape around the cable; the next turn of tape should be more than 2/3 of the width along the previous wrap to ensure complete coverage. As you approach the back end of the connector, which is a much greater diameter than the cable itself, take several turns of tape on the cable right before the connector begins; this will build up the tape

diameter, making it easier to bridge the difference in diameters on your second pass with the tape. Do not pull so tightly on the tape that it stretches and breaks, but make it snug enough so that it is firmly affixed to the cable and connectors.

Make a continuous wrap from one end to the other of the connection. At the end, take about three turns of tape with much less pressure on the turn; this will serve as a "shock absorber" that will help prevent the end of the tape from coming loose and flapping in the wind.

Now repeat the process in the opposite direction, starting one tape width outside of where your first wrap ended, and continue all the way across the connection, ending one tape width past the point where your first wrap began. Once again, at the very end, use less pull on the tape so the end of the wrap does not come unraveled.

Now, as a final step, I highly recommend that the entire taped joint be covered with a thorough wrap of a moldable plastic or rubber material; the most popular such product in the radio world is COAX-SEAL ([www.coaxseal.com](http://www.coaxseal.com)), available from most all electronics retailers. This material is like a clay substance; you wrap the connection much as you just did with the electrical tape, but then you form it with your hands to yield an airtight seal around your taped connectors (see **Photo B**). It's inexpensive insurance, and its proper use will result in a connection that is virtually impervious to water ingress.



Photo C. Silicone sealant helps protect connectors located in tight areas where effective tape winding isn't possible.

Some coaxial cable receptacles affixed to antenna feedpoints do not lend themselves to tight wrapping with electrical tape. In such situations, after you've inspected and re-fitted the connector, see if you can get at least one good wrap of tape around the connection; you may need to use several short pieces of tape, patting each piece down against the connection point as best you can. Now finish the job with COAX-SEAL to ensure a watertight connection.

Another way to seal the connection is to squeeze a liberal amount of clear silicone sealant (found in the plumbing section of your local home improvement store) so as to cover the cable connection completely (**Photo C**). I've used silicone sealant on dozens of feedpoint connections in the past, and they have all proven to be 100 percent waterproof.

## Support Ropes

Strong ultraviolet (UV) radiation during the summer season's long hours of sunshine can lead to serious deterioration in support and tie-off ropes in your antenna system. The inexpensive polypropylene ropes found at many home improvement stores may be fine for one summer season, but they are quickly and permanently damaged by exposure to UV rays, leaving your support system very susceptible to failure; a corollary to Murphy's Law states: the probability of your support breaking is directly proportional to the rarity of the station you are trying to bag at any moment in time!

Inspect all ropes for signs of wear or weathering, and replace them now before they fail at a critical time. Remember...if it's raining and blowing outside, you're probably going to want to be sitting in front of your receiver, and you'll be disappointed, to say the least, if your antenna is lying on the ground because a rope broke.

When replacing ropes, try to use UV-resistant materials such as Dacron line. It costs a little more than polypropylene rope, but it will last many times longer; this makes the long-term cost actually lower, and it will reduce the maintenance work you have to do next year.

## Supports Attached To Trees

Many of us use trees for supporting our antennas. Those lucky enough to live in the countryside should, of course, inspect all aspects of your tree attachments, including pulleys, counterweights, and the ropes associated with the securing of your

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Photo D. Replace all tie-wraps used to secure a mast to a tree periodically, and be sure not to tighten the tie-wrap to the point where it digs into the tree's bark.

antenna wire to the tree. Repair and/or replace any worn, corroded, or rusted parts now, before something bad happens.

Many city dwellers use short trees in their yards as base supports to secure taller masts so as to raise the end (or center) of the antenna higher than would be possible using the tree alone. The point of securing the mast to the tree trunk is a very important, and often-forgotten, maintenance issue that must be addressed now, at the end of the summer growth spurt that all trees experience.

In Photo D, we see a typical method of securing a mast to the trunk of a small yard tree. The mast is held tight to the tree using plastic cable ties; this is an effective and reasonable means of holding a mast in place, if there isn't much strain on the mast. However, as the trunk of the tree expands as the tree grows, these cable ties can dig into the bark of the tree, and eventually the tree's circulation will be compromised and the tree will die.

So plan on cutting off all cable ties you use to hold the mast against the tree, one by one, and replace them with new cable ties. Make them snug, but don't dig into the bark of the tree; multiple "snug" cable ties are better than just a couple of "cinched down" cable ties that will damage, and eventually kill, your tree. Conduct this inspection every six months at the very least; I recommend making it a point to inspect the ties on the day of every change of seasons, so you're checking the tree four times a year. Use good-quality, wide UV-resistant cable ties for best security and safety, and once gain, don't pull them so tightly that they dig into the tree's bark!

## Mast Hardware

Masts made from aluminum (or aluminium, depending on which part of the English-speaking world manufactured the metal) generally require little maintenance as they're not sub-



Photo E. Apply a coat of primer paint to all exposed hardware, then finish with exterior enamel once the primer coat is dry.

ject to rusting. However, any steel hardware used to secure mating sections of stacked mast (such as the very rugged U.S. military surplus "stackable aluminum mast" available from several sources) should be inspected every six months. I like to give all exposed hardware a quick spraying with bare metal primer paint, followed by a coat of outdoor enamel, to protect the hardware from weathering. See Photo E.

If you're using a steel mast and have not yet taken steps to protect it from the weather, now is the time! Unless your mast is constructed using galvanized steel, it surely will rust over the winter, requiring replacement in the spring. When painting any bare steel structure, always apply a coat of bare metal primer paint first, because enamel applied to bare metal will chip and flake away, leading to rust spots that will compromise the strength of your mast.

Finally, inspect all cable ties that you use to secure your lead-in coaxial cable (if used) to your mast. Replace any that are not UV-resistant with new cable ties so your coax does not come loose in a wind storm, putting undue strain on the connection to your antenna at the feedpoint (most commonly available black cable ties are UV-resistant; check the package label, to be sure).

## Recap

Let's quickly summarize the things you need to address in winterizing your antenna system.

- If it's an exposed wire connection (splice or feedpoint joint), spray it with clear acrylic;
- If it's a coaxial cable connection, take it apart, inspect it, replace it if it's bad, then wrap it with tape and seal it with goo;
- If it's bare metal on a mast or a support point, paint it;
- If it's a cable tie or piece of rope, inspect and replace it as necessary.

These simple steps, if followed diligently and regularly, will keep your antenna system working in trouble-free fashion throughout the winter and into the spring, when you should, of course, inspect it again. Sloshing through mud, or digging through snow, should never be required in order to keep your SWL station operational year-round, and you can save your energy for concentrating on digging The Voice of Weaksigistan out of the noise on 49 meters.

Good luck with your winterizing and happy listening! ■

# Up Close: The ICOM IC-PCR2500 Part II—Managing Frequency Information

by Ken Reiss  
radioken@earthlink.net

Last month we took a look at the IC-PCR2500 computer-controlled receiver from ICOM. This month, we'll concentrate on the frequency management capabilities built into both the software and hardware of the system.

You may remember that the PCR2500 is really two receivers in one: a completely computer controlled black box receiver and a standalone receiver that's controlled by a head that plugs into the black box. This control head is perfect for mobile use, and features a nice long cable for remote operation, allowing the box to be installed almost anywhere in a vehicle. Unfortunately, the control head doesn't quite have the same capabilities or memory storage capacity as the software when the unit is under computer control. We'll look at that later.



Figure 1.

## Computer Control

Under computer control, there is a fairly impressive database built into the software. Keeping track of frequency data, or to be more precise, what user is on what

frequency and for what purpose, is about half the game in the scanning hobby. The PC software from ICOM features 25 banks of 100 channels each for standard scan memories, and an additional 100 memories used for setting scan edges. This set of memories can be saved as an mch (memory channel file) on your hard drive. There is no limit to how many of these files can be saved other than how much hard drive space you have.

Selecting the third button on the left of the control panel (see Figure 1) will bring you to the memory editor. It looks and works pretty much like a spreadsheet with lists of frequencies and other related information.

The first thing to do is select a bank and give it a label. You do this from the numerical selector just below the view menu (Figure 2) and the name is assigned to the right of that. You can now use the name list to select banks as well, making it very easy to maneuver around once you have a completed list. It's also worth naming your banks because the name shows up in the receiver screen as well, just above the frequency (Figure 3).

Now we're ready to begin to enter the actual data on the memory channel editor screen (Figure 4). Down the left column is a numbered list representing the 100 channels in this bank (note that it starts with 0). Columns of information follow for the Name, Sub Name, Frequency, and other information you'd expect to find in control software for a receiver. The Name can be as long as

File View Option						
Bank 01		HF Radio		RX Entry		MW
DUPLEX						
CH	Name	Sub Name	Frequency	DUP	Offset	Mode
0	Radio Nepal	Nepal	5.005000		0.000000	AM
1	Radio Tashkent	Uzbeki	5.060000		0.000000	AM
2	Radio Slovakia Int'l	Slovak	5.915000		0.000000	AM
3	Radio Tainai Int'l	Tainai-1	5.950000		0.000000	AM

Figure 2.



Figure 3.

64 characters and is used for display on the computer-generated screens of the software, while the Sub Name is a six-character abbreviation used for display on the external hardware controller of the PCR2500 or PCR1500 (more about that next month). Double clicking on the cell you wish to change will put you in edit mode.

One nice feature is the ability to choose a font size for the layout of the spreadsheet (Figure 5). Using the larger size (Figure 6) makes it easy for even us old-

timers to read without eyestrain on today's crowded monitors.

It's unfortunate that there's no easy way to navigate through the cells, making manual entry more challenging than it should be. You can copy and paste memory channels that are similar, eliminating some of the tedium of entering all the data, but it's still not fun. A right click on a memory line will allow you to copy that line, or paste a previously copied line into that spot. There's also an option to clear a particular cell.

*"The PCR2500 features both CTCSS and DCS tone squelch settings, which is unusual on a scanner and not very common on a communications receiver."*

Further along, we come to the Duplex function. This control, normally found only on a transceiver, is used in much the same way as a transceiver would use it. For stations that use a repeater, the output of the repeater is what we're normally interested in listening to, but sometimes if the repeater is malfunctioning, or just to see what's local, you might want to monitor the input frequency (that is, the frequency that the mobile units actually transmit on). Entering a - or + duplex setting, and then the amount of the shift, will allow you to use the MONI function in the receiver control to listen to that input frequency. For example, a common 2-meter ham repeater frequency is 146.940. That's the frequency the repeater outputs its signal on, while the mobiles transmit 600 kHz below that on 146.340. This is often referred to as the 34/94 repeater

CH	Name	Sub Name	Frequency	DUPLEX		Mode	Filter	ATT	TS	SEL	SKIP	TSQ/DTCS			DV	P25						
				DUP	Offset							TONE	TSQ Freq	DTCS		DTCS Polarity	DSQL	Call Sign	Code	SQL Type	NAC	TGID (Dec)
0	Radio Nepal	Nepal	5.005000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
1	Radio Tashkent	Uzbeki	5.060000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
2	Radio Slovakia Int'l	Slovak	5.915000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
3	Radio Taipei Int'l	Taiw-1	5.950000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
4	Radio Netherlands	Neth-3	5.965000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
5	Radio Auterica	Columb	5.975000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
6	Radio Havana	Cuba-1	6.000000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
7	Voice of Turkey	Turkey	6.020000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
8	Voice of America	VDA-1	6.035000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
9	Radio Canada Int'l/Deutsche Welle	Can/Ge	6.040000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
10	Radio Exterior de Espana	Spa-1	6.050000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
11	Georgian Radio	Georgi	6.060000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
12	Radio Angalia	Angali	6.090000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
13	Radio Japan	Japan-1	6.110000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
14	Radio Tirana/RTE	TURTE	6.115000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
15	Radio Japan	Japan-2	6.145000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
16	Radio Singapore Int'l	Singap	6.150000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
17	Radio Netherlands	Neth-1	6.165000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
18	Radio Vinas/Voice of Vietnam	Vin/Vie	6.175000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
19	Voice of Russia	Rus-1	7.125000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
20	Radio Tirana	Tirana	7.160000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
21	Bangla Betar	Bangla	7.185000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
22	Radio Yugoslavia	Yugosl	7.230000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
23	Radio Polonia	Poland	7.290000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
24	Vatican Radio	Vatica	7.350000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
25	Radio Austria Int'l	Austri	7.350000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
26	Radio Ukraine Int'l	Ukr-1	7.375000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
27	Radio Prague Int'l	Cree-1	7.385000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
28	Radio Bulgaria	Bulg-1	7.400000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
29	Radio Prague Int'l/Vireal Radio Int'l	Cz/Int	9.425000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
30	Radio Cairo	Egypt	9.475000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
31	Radio Japan	Japan-3	9.505000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
32	YLE Radio Finland FF/Radio Romani	Fin/Ro	9.510000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
33	BBC relay	SFUK	9.525000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
34	Voice of America	VDA-2	9.530000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
35	Radio Havana/Radio Romania Int'l	Cu/Rom	9.550000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
36	Radio Tupi/Deutsche Welle	Bra/Ge	9.565000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
37	Radio Canada Int'l/Radio Netherland	Can/Nl	9.580000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
38	Deutsche Welle	Deem-1	9.640000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
39	Radio Korea Int'l	SK	9.650000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
40	Radio Mexico Int'l	Mexico	8.705000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
41	Voice of Vietnam	Vietna	9.700000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1
42	HCIB	Ecuador	9.780000	0.000000	AM	Gk		1k				88.5	023	Normal				0	000	0	0000	1

Figure 4.



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Figure 5. →

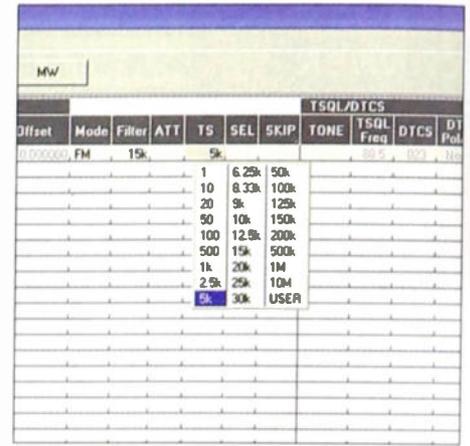
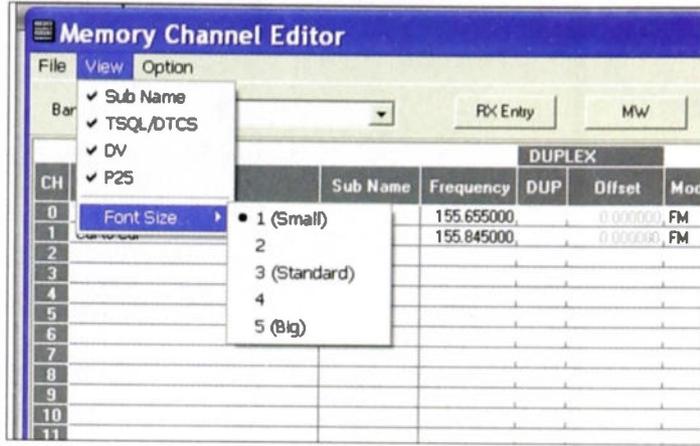


Figure 7.

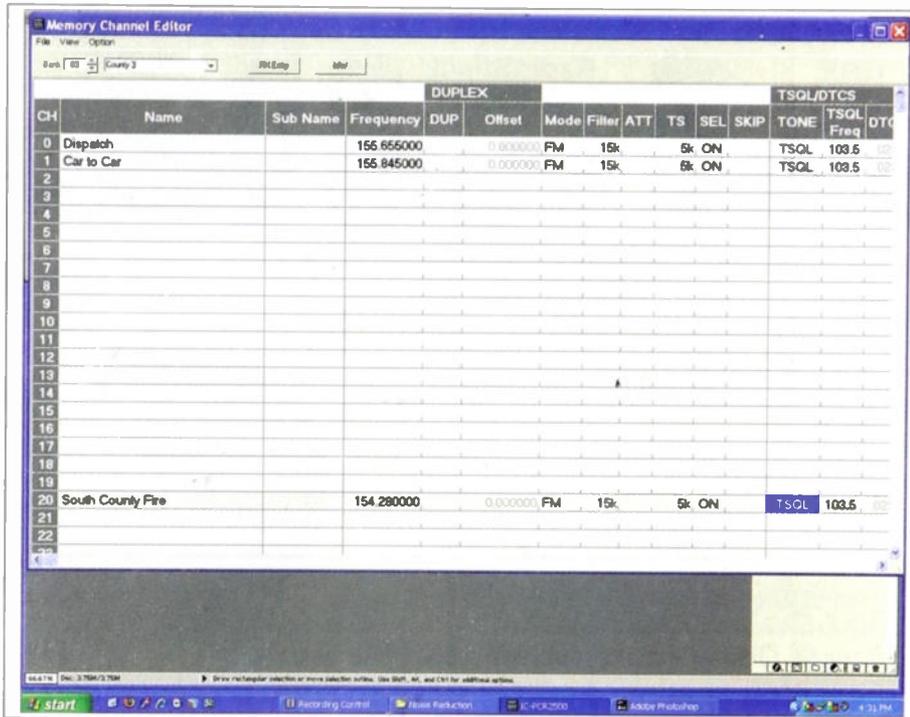


Figure 6.

(transmit on 34, listen on 94). Entering a duplex with a 600 kHz offset would allow us to switch to monitor the input frequency. For most scanning applications, it's more trouble than it's worth, but it can be a handy feature in certain cases.

Following Duplex, we come to the more typical receiver controls: Mode, Bandwidth Filter (15 kHz for most current FM signals), Attenuation Off or On, and Tuning Step. Tuning Step (Figure 7) includes a wide range of useful selections. Depending on what you're programming, you may find one or another helpful in a given situation, and it may take some practice to pick the correct ones. For most scanning applications, you'll want 15 kHz on VHF and 12.5 kHz on UHF. However, these are being cut in half by

new regulations that have been coming for some time, and you may want to set the half steps of 6.25 for the UHF frequencies so you can access some of those in-between channels.

Next comes Selected and Skip. These are used in the various scanning modes, which we'll cover in a bit. They're basically on and off switches to cause the scanner to behave differently depending on options.

Then we get to Tone, one of the very cool features of this receiver. The PCR2500 features both CTCSS and DCS tone squelch settings, which is unusual on a scanner and not very common on a communications receiver. The first column of this group shows whether or not tone squelch is in use; the default setting is off.

There are options for CTCSS and DCS here as well. Then you set the actual tone (CTCSS shown) in the TSQ freq column (Figure 8).

There's also an option to reverse the tone operation, effectively allowing all signals through, except the one you've selected the tone for. So if the pizza guys are on the same channel as something you want to listen to, you could tell the receiver to ignore the pizza guy's tone while allowing all other traffic through. That's a very cool feature that I've never seen on a consumer receiver without expensive third-party software.

Rounding out the spreadsheet are columns related to Digital Receive (DV) and Apco 25 reception. There are a few other options in the software that need to be set for using these, and the receiver needs to have the optional boards installed for these modes.

## Scanning

There are six scanning modes in the PCR2500. Some are really what we'd consider search modes, but most communications receivers call them scan modes. Program scan is the most common of these, and it simply scans from one frequency to another (using those extra 100 memories we mentioned earlier, which are 50 pairs of start and stop frequencies). There's also a mode called Auto Memory Write scan which saves anything it finds into a bank for you. Memory Scan scans all the memories that are programmed within a particular bank.

The rest of the scanning modes are grouped into a screen called the Versatile Memory Scan. Right clicking the MEMO button on most of the receiver control screens will bring up this dialog

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Figure 5. →

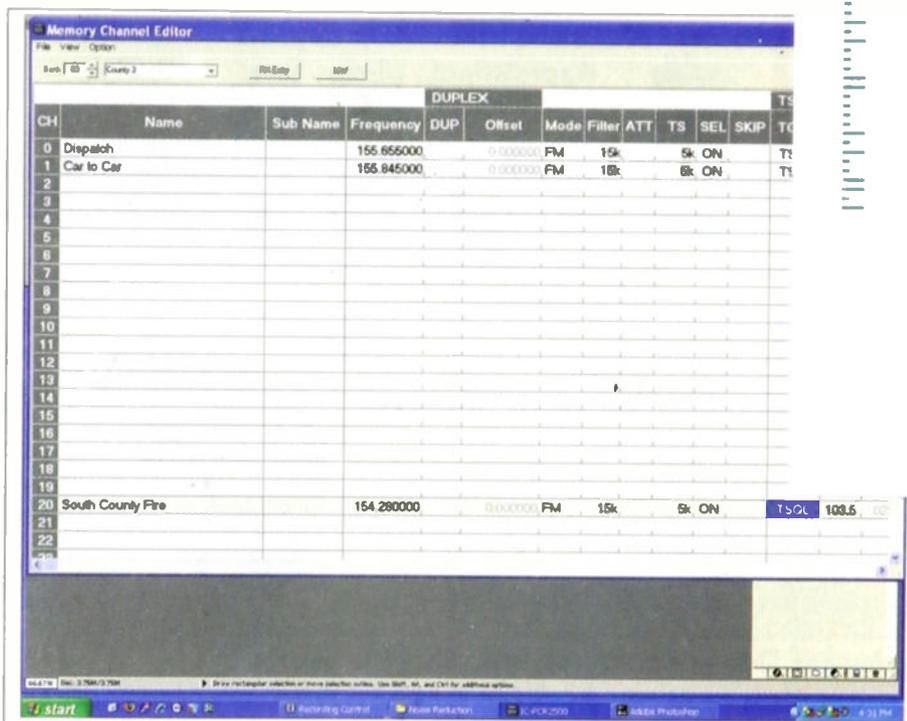
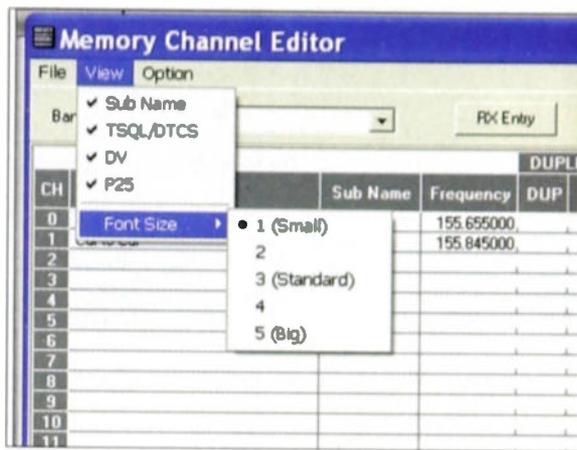


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TSQ/DTCS					DV		P25					
KIP	TSQ	DTCS	DTCS Polarity	DSQ	Call Sign	Code	SQL Type	NAC	TGID (Dec)	TGID (Hex)	Unit ID (Dec)	U
	TSQ	88.5	023	Normal				000	0	0000		1
		67.0	100.0	156.7	196.6							
		69.3	103.5	159.8	199.5							
		71.0	107.2	162.2	203.5							
		71.9	110.9	165.5	206.5							
		74.4	114.8	167.9	210.7							
		77.0	118.8	171.3	218.1							
		79.7	123.0	173.8	225.7							
		82.5	127.3	177.3	229.1							
		85.4	131.8	179.9	233.6							
		88.5	136.5	183.5	241.8							
		91.5	141.3	186.2	250.3							
		94.8	146.2	189.9	254.1							
		97.4	151.4	192.8								

Figure 8.



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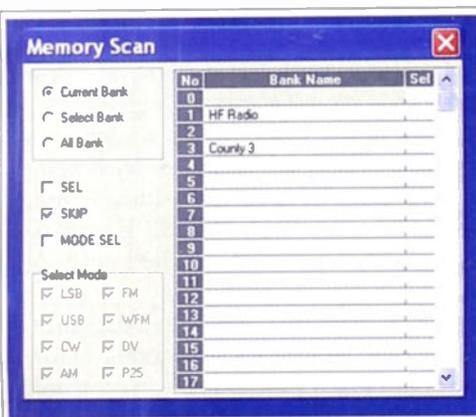


Figure 9.

banks, or all banks. Within those memory channels, you can choose whether you want all channels, only Selected channels, or Skipped channels, or you can scan based on mode. It takes some experimenting (particularly if you're trying to scan on HF), but you can get some amazing results. Turning on Selected banks (and selecting some, of course) and Selected memory channels would provide the closest thing to traditional scanner operation.

### More To Come

Have fun! That should be enough info to get you started if you have a PCR2500 or 1500, and enough to make you lust after one if you don't. Next time, we'll wrap things up and take a look at the hardware controller and using the receiver away from the computer.

Then look forward to more "UpClose" looks at some other equipment from other manufacturers in upcoming columns.

Until next month, Good Listeninging! ■

box, allowing you to customize your scan preferences (Figure 9). This provides a flexibility that is virtually unseen in communications receivers without computer control.

The Memory Scan control provides you with a list of banks that can be Selected or not. Then you choose to scan either just the current bank, selected

### Frequency Of The Month

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

Our most recent winner is **Bill Rickrode** of **Richlands, North Carolina**. Congratulations, Bill!

Let's check out **119.2** this month, since we haven't been down to the aviation bands for a while. Let me know what you hear (or don't) and we'll enter your name for a one-year subscription to *Pop'Comm*. Please mark your email or envelope with the frequency for correct routing. Send your entries and all other correspondence to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126, or via email to radioken@earthlink.net.

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## Double Dipping In The Sunspot Cycle

by Tomas Hood, NW7US,  
nw7uw@arrl.net

**I**n past editions of this column, we saw that Solar Cycle 23 had two peaks of activity as seen in the plots of monthly smoothed sunspot counts (Figure 1). The first peak occurred in April 2000 with a smooth sunspot count of 120.8, and the second peak of 115.5 occurred in November 2001. Such double peaks have been seen during other solar cycles.

Is it possible that there could be two solar minimums as well? As we watch the progress of the sun's activity between Cycles 23 and 24, we see one minimum occurring for October 2007 with a monthly observed sunspot count of 0.9 and a second for July and August 2008, with the monthly observed count each of 0.5 (Figure 2). This double minimum has been observed during other solar minimum periods in the past as well.

As scientists speculate with various mathematical formulas trying to fit past patterns into possible prediction models for Solar Cycle 24's likely curves, some are still holding to the prediction that Cycle 24 will be as strong as Cycle 23, if not stronger.

Interestingly, this "double dipping" may lend support to the earlier prediction that Cycle 24 will be an intense cycle. The most prominent forecast was based on the model created by Mausumi Dikpati of the National Center for Atmospheric Research's High Altitude Observatory in Boulder, Colorado. This model was used retrospectively to "forecast" the last eight solar cycles, and it did so perfectly. Since then, the consensus moved away from this and broke into two camps. Both camps feel that the next cycle is going to be moderate or weak. A new forecast is pending, as scientists wait for the sun to begin demonstrating renewed and increasing activity. However, I still hold with Dikpati's model, as do a few leading solar scientists. Solar Cycle 24 is beginning and may well hold a powerful punch. Stay tuned to this column each month as we plot out the progress of Solar Cycle 24.

### HF Propagation

The autumn DX season is in full swing! Listeners throughout the Northern Hemisphere

are actively chasing mediumwave DX of AM broadcast stations from all over North, Central, and South America, and from Europe and Asia (more on this below). It's easier to catch such difficult signals this season because conditions now are most favorable to propagation of this spectrum of the radio frequencies. Shortwave DX is hot, too, especially on the mid- to low-HF bands from early evening until late at night, and then again from early morning through high noon.

December 21 marks the start of winter, with the sun sitting at its yearly southern-most point in the sky. This, of course, is the Winter Solstice, the day with the shortest daylight period of the year for observers situated north of the equator.

Long hours of darkness make for a less-energized ionosphere. Since the *D* layer of the ionosphere is less ionized during the winter, mediumwave and the lower shortwave frequencies are generally less absorbed by the *D* layer than during the summer season. Because of this, mediumwave frequencies are propagated by the *E* and *F* layers better during the winter than during the summer. Additionally, the seasonal decrease in weather-related noise makes it easier to hear the weaker DX signals on the lower frequencies. With thunderstorms few and far between, storm-related static and noise is greatly reduced.

Seasonally, the geomagnetic activity tends to quiet down during the winter months. The most active geomagnetic seasons are centered on the two equinoxes, in the spring and autumn. We are also in the very bottom of the current solar cycle, and that means very few flares occur, and therefore, very few if any shortwave fadeouts. This results in more stable and reliable propagation on the shortwave spectrum, especially on the lower frequencies.

December is well enough past the autumnal equinox and the associated peak auroral activity to support transpolar propagation. With this overall reduction of geomagnetic activity and the decrease of radio signal absorption comes more stable high-latitude propagation. Mediumwave DXers enjoy catching broadcast

station transmissions from over the North Pole. Shortwave DXing over high-latitude paths becomes exciting, even if the higher frequency bands might be dead. See Figure 3 and 4 for examples of how

well a PSK-31 digital radio signal may propagate from my location in Montana. I created these maps in ACE-HF Pro version 2.05 (<http://hfradio.org/ace-hf>) using the smoothed sunspot count of 13

for the month of December and a transmitting power of 60 watts into an isotropic antenna. These footprints are calculated for 30 percent of the month (a 30-percent reliability). It's clear that even during the solar minimum, HF is very usable.

Fairly good DX openings are expected on 19 and 16 meters, remaining open toward the west during the early evening. Nineteen meters will be the hottest daytime band, while 22 and 25 meters will become a close second. These start with early morning openings in all directions until about an hour or two after sunrise, and then remain open into one area or another through the day until early evening. When conditions are good (days with low geomagnetic activity, and higher solar sunspot activity), 22 through 16 meters are likely to remain open towards the south and west from early evening until about midnight.

The best bands for around-the-clock DX will be 31 and 25 meters. Twenty-five meters continues to be an excellent band for medium distance (500 to 1,500 miles) reception during the daylight hours, and longer-distance reception (up to 2,000 to 3,000 miles) should be possible for an hour or two after local sunrise, and again during the late afternoon and early evening.

From midnight to sunrise, 41 and 31 meters promise some of the hottest nighttime DX during December. The first DX openings should be toward Europe and the east during the late afternoon, then move across the south through the hours of darkness, while remaining open into most parts of the world. Just after sunrise, openings will take a more westerly direction. Low seasonal noise will make DXing a pleasure.

For short-skip openings during December, try 90 through 41 meters during the day for paths less than 250 miles, and 90 down to 120 meters at night for these distances. For openings between 250 and 750 miles, try 41 meters during the day, and both 90 and 120 at night. For distances between 750 and 1,300 miles, 22 through 31 should provide daytime openings, while 41 down to 90 will be open for these distances from sunset to midnight. After midnight, 90 meters will remain open out to 1,300 miles until sunrise. Try 31 and 41 meters again for about an hour or so after sunrise. Openings between 1,300 and 2,300 miles will occur on 22 through 16 meters (fewer on higher bands) during the daylight hours.

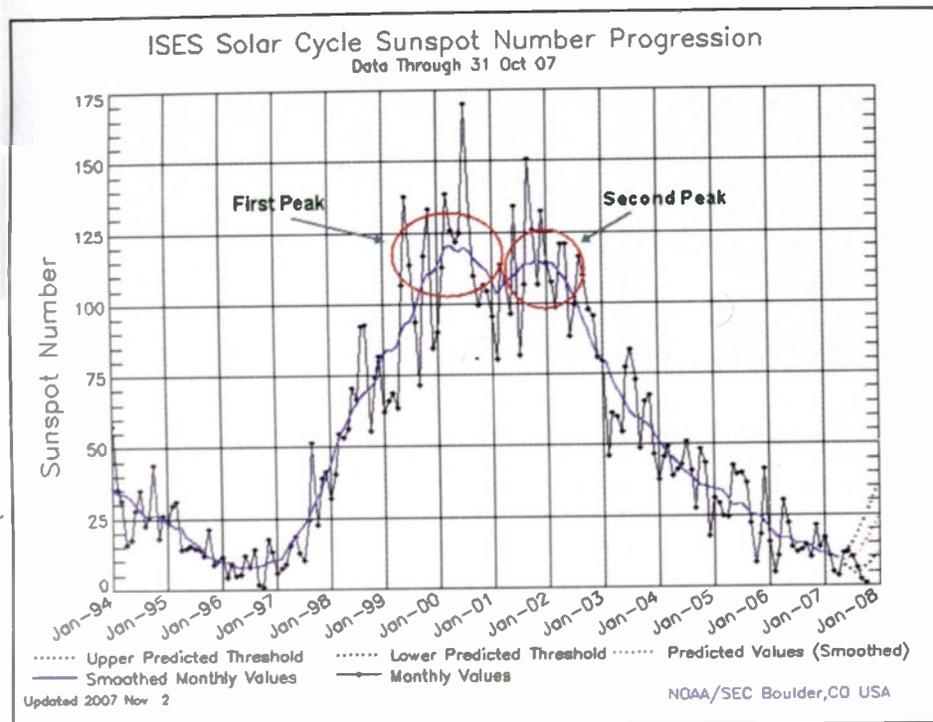


Figure 1. A plot of Solar Cycle 23 clearly shows the two peaks of the cycle's years of maximum activity. The first monthly smoothed sunspot count maximum occurred in April 2000, while the second occurred in November 2001 (see text). (Source: NASA/SEC, Boulder, CO)

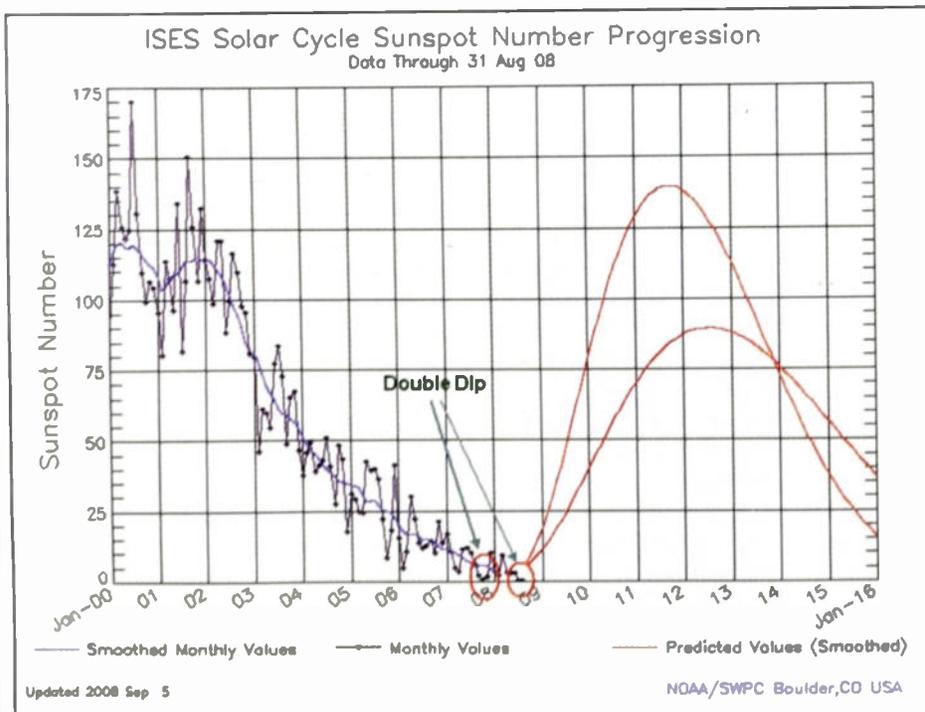


Figure 2. A plot of the solar cycle minimum during the ending of Solar Cycle 23 reveals a double dipping. The first dip occurred in October 2007, while a second occurred in July 2008. (Source: NASA/SEC, Boulder, CO)

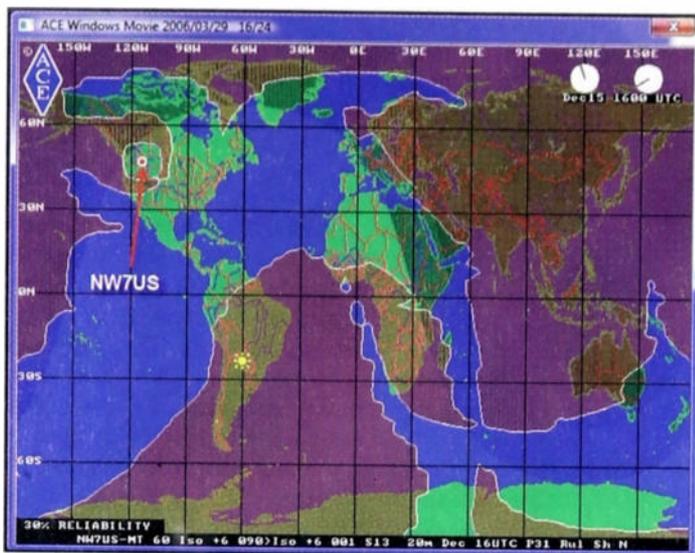


Figure 3. Where may a PSK-31 digital signal originating in Montana be heard on 20 meters, for 30 percent of December 2008 (see text)? This map plots, in blue, the footprint of a 60-watt transmission at 1600 UTC. Clearly, radio still works on the high frequencies even during the solar cycle minimum. (Source: NW7US using the ACE-HF Pro, version 2.05, propagation modeling software)

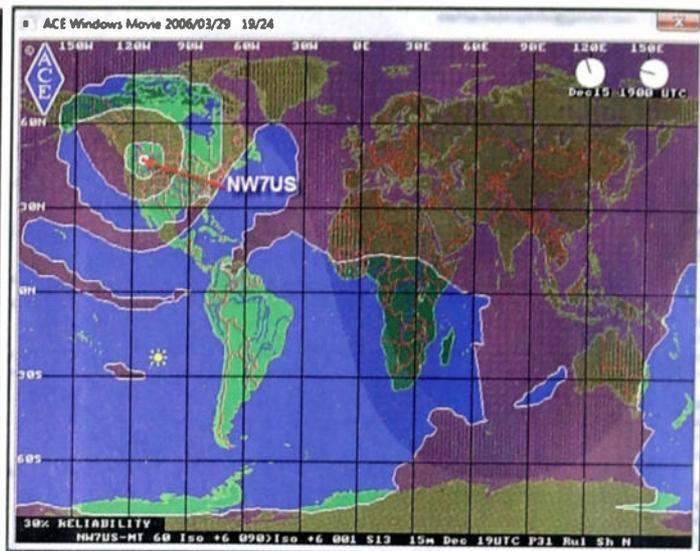


Figure 4. A plot of a PSK-31 digital signal originating in Montana on 15 meters, for 30 percent of December 2008. The footprint (blue region) reveals the reach of a 60-watt transmission at 1900 UTC. Even during the solar cycle minimum, the higher shortwave frequencies are usable. "You can't work it if you're not on it" is the time-tested radio adage. (Source: NW7US using ACE-HF Pro, version 2.05, propagation modeling software)

During sundown to midnight, check 22 through 41 meters for these long-distance openings, and then check 41 down to 90 meters after midnight until sunrise. Try 41 and 31 meters again for an hour or so after sunrise.

DX openings on 120 and 90 meters during the hours of darkness and into the sunrise period, with considerably decreased static levels, are a sure bet during the longer hours of darkness in the northern latitudes. Look for openings toward Europe and the south from the eastern half of the United States and towards the south, the Far East, Australasia, and the South Pacific from the western half of the country. Ninety meters should peak towards Europe and in a generally easterly direction around midnight, and then open in a generally westerly direction with a peak just after sunrise. The band should remain open towards the south throughout most of the night.

## Mediumwave DX Season

As we said, this time of year is also when we experience an improvement of radio wave propagation above 500 kHz and the mediumwave broadcast band. The mediumwave broadcast band refers to the frequencies between 530 kHz and 1750 kHz. The low frequency (LF) range

is the band of frequencies between 30 kHz and 300 kHz. Very low frequencies (VLF) are those ranging between 3 kHz and 30 kHz, though the practical lower edge of the VLF band starts at 10 kHz. Medium frequencies (MF) range from 300 kHz to 3000 kHz. Radio waves in the LF and VLF spectrum propagate differently than MF and above. Between 300 kHz and 520 kHz, the lowest part of the MF range and just below the mediumwave broadcast band, the characteristics of propagation are a mix between those of the lower HF spectrum and those of LF. The VLF and LF bands are usually referred to as the longwave (one word) bands. The VLF band ranges from 10 to 30 kHz, and the LF from 30 to 300 kHz. During the winter season, mediumwave transmissions can be heard over much greater distances than during the summer season.

When is the best time to look for mediumwave DX? The general rule is to start in the early evening, and to continue through the night and into the early daylight hours. As sunset approaches, the ionosphere starts to change. The *D* layer recombines and signals begin to punch through to the *E* and *F* layers, and distant propagation is more likely. Most broadcast stations in the United States change from high power to low power after their local sunset. If you listen just prior to their

local sunset time, their higher power will propagate well because of the characteristics of nighttime ionization. Thus, the idea is to maximize the degree of darkness at the station (and consequently, along the signal path from them to you) while they're on day power and pattern. The exception to this would be those cases where the power difference is small or none, but the nighttime pattern actually is more favorable to you.

At the same time, any station to the west that has a favorable nighttime signal in your direction (in other words, they have significant night power and no deep null antenna pattern aimed at you) is a potential sunrise target. *D*-layer absorption increases rapidly in direct sunlight, and east of you begins to ionize, while west of you is still dark and free of *D*-layer ionization. For some time around your local sunrise, the relative strength of stations to the west of you increases, while eastern stations start to fade, allowing the western stations to emerge from underneath. On rare and exciting occasions, this period will last long enough for some western stations to go to their higher power and daytime pattern. Here, as with sunset, the time of month can also be critical, as the more darkness on the path, the better. As sunrise times become later in the fall, the end of the month is preferable. In the spring,

the beginning of the month is better. The longest hours of darkness fall toward the end of December on the 21st.

However, the shortest day of the year is not the day when the sunrise is latest and the sunset earliest. The latest sunrise times at mid-latitudes are right around December 30, while the earliest sunset times are usually between December 5 and 10. This means that December can be viewed as an "autumn" month in terms of sunrise DX, but should be considered more like January for sunset DX.

## The Winter Anomaly

Two winter anomalies have been observed. The less known is a small winter anomaly that appears in connection with ionization at relatively low latitudes in the bottom of the *D* layer of the ionosphere. There, the electron densities in the winter happen to be less than should be expected. Second, the better-known classic winter anomaly is present when the *F* layer has more ionization than would be expected during the winter, resulting in a higher *F*<sub>2</sub> frequency (the maximum frequency which can be supported by the *F*<sub>2</sub> layer when a wave is vertically incident upon the layer) during the winter than during the summer.

Both of these effects are due to the slant compression of the geomagnetic field produced by the solar wind in the winter season. The standard winter anomaly is caused by the influx of a super solar wind that penetrates into the Earth's polar atmosphere down to *E* layer heights. There, it is concentrated through a funneling action at the winter pole of the distorted geomagnetic field, slowing down the winter polar vortex. An equator-ward motion of the polar air with its content of nitric oxide brings about the excess of ionization in the upper *D* layer at lower latitudes. The end result of this winter anomaly is that mediumwave and lower frequency shortwave bands are attenuated much as you would expect during the summer season.

This winter anomaly also appears to happen in relationship with sudden stratospheric warming events (see [www.albany.edu/faculty/rkg/atm101/weather.htm](http://www.albany.edu/faculty/rkg/atm101/weather.htm) for more). The Space Weather reports provided by WWV and NOAA (and also found at <http://prop.hfradio.org>) list stratospheric warming events. On those days with stratospheric warming alerts, it's possible that the winter anomaly condition exists, causing a degradation of mediumwave and low HF band propaga-

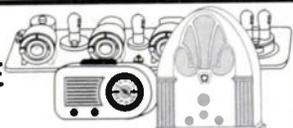
tion. (I'd love to hear real-world reports from you, if you can correlate such stratospheric warming events with a change in mediumwave DXing. Drop me a letter or an email with your observations, please.)

## Propagation On VHF And Above

Quite a bit of meteor shower activity is expected this month, which should result in improved conditions for meteor-

scatter openings on the VHF bands for distances up to about 1,000 miles. When a meteor burns up in the atmosphere, its intense heat creates an ionized trail, making it possible for radio signals to propagate off the ionized trail much like they would off the ionosphere. The annual Geminids meteor shower, which will appear from December 7 to December 17, will peak on December 13. The maximum hourly rate typically reaches 80. However, this year, we're expecting a meager 23 per hour.

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Optimum Working Frequencies (MHz) - For December 2008- Flux = 70, Created by NW7US

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

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

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

The Geminids is a great shower for those trying the meteor-scatter mode of propagation, since one doesn't have to wait until after midnight to catch this shower. The radiant rises early, but the best operating time will be after midnight local time. This shower also boasts a broad maximum, lasting nearly a day, so no matter where you live, you stand a decent chance of working some VHF/UHF signals off a meteor trail. For a complete list of meteor showers in December, visit [www.imo.net/calendar/2008](http://www.imo.net/calendar/2008).

A secondary seasonal peak in sporadic-E ionization should also result in some short-skip openings on low VHF between distances of about 800 and 1,300 miles. A rare occurrence of aurora during days of stormy geomagnetic activity is possible, providing some unusual short-skip openings on low VHF.

There is considerably less likelihood for transequatorial VHF openings during December, but look for a possible opening between the southern states and locations deep in South America. The best time to look for these is between about 8 and 11 p.m. local time.

### Current Solar Cycle 23 Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 66.4 for August 2008, up slightly from July's 65.8. The 12-month smoothed 10.7-cm flux centered on February 2008 is 69.6. The predicted smoothed 10.7-cm solar flux for December 2008 is 70, give or take about 5 points.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for August 2008 is 0.5. The lowest daily sunspot value recorded was zero (0), on August 1-20, and August 23-31. The highest daily sunspot count was 8 on August 22, the only day with spots during all of August. The 12-month running smoothed sunspot number centered on February 2008 is 3.6. A smoothed sunspot count of 14, give or take about 3 points, is expected for December 2008.

The observed monthly mean planetary A-Index ( $A_p$ ) for August 2008 is 5. The 12-month smoothed  $A_p$  index centered on February 2008 is 7.6. Expect overall geomagnetic activity to vary greatly between quiet to disturbed during December. Refer to the Last Minute Forecast published in *CQ Magazine*, or at <http://hfradio.org/>

[lastminute\\_propagation.html](http://lastminute_propagation.html) for the outlook on conditions during December. The days indicated as "Low Normal," "Below Normal," and "Disturbed" are those days when the geomagnetic conditions range between disturbed and stormy.

### I'd Like To Hear From You

Please take a look at what's new at my propagation Web site, <http://propagation.hfradio.org/>. Included on the site is an up-

to-the-day Last Minute Forecast that you may use to access the latest forecast for the month. In addition, if you have a cell phone with Internet capabilities, try <http://wap.hfradio.org/>.

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

Until next month, 73 de NW7US.

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# BROADCASTING

## World Band Tuning Tips

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

This listing is designed to help you hear more shortwave broadcasting stations. The list covers a variety of stations, including international broadcasters beaming programs to North America, others to 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	11700	Radio Bulgaria	BB	0230	6035	La Voz del Guaviare, Colombia	SS
0000	11815	Radio Brazil Central	PP	0300	6150	Radio Romania International	
0000	9845	Radio Nederland Relay, Bonaire		0300	4915	Radio Difusora Macapa, Brazil	PP
0000	7345	Radio Prague, Czech Republic		0300	4755	Radio Imaculada Conceicao, Brazil	PP
0000	5910	Marfil Estereo, Colombia	SS	0300	6080	Radio Prague, Czech Republic	
0000	9870	All India Radio	Hindi	0300	4780	Radio Djibouti	AA
0000	6145	Radio Japan, via Canada		0300	3279	La Voz del Napo, Ecuador	QQ/SS
0000	7440	Radio Ukraine International		0300	7270	Radio Cairo, Egypt	
0000	6190	Radio Serbia International		0300	7110	Radio Ethiopia	Amharic
0030	9390	Radio Tirana, Albania		0300	9420	Voice of Greece	Greek
0030	4717	Radio Yura, Bolivia	SS	0300	7140	BBC, Cyprus Relay	AA
0030	6100	Radio Canada International		0300	4800	Radio Transcontinental, Mexico	SS
0030	7225	Far East Broadcasting Assn., England, via UAE	Tamil	0300	4790	Radio Vision, Peru	SS
0030	9490	Democratic Voice of Burma, via Germany	BB	0300	11895	Radio Romania International	
0030	9650	Vatican Radio		0300	6175	Voice of Vietnam, via Canada	
0030	11790	Radio Romania International		0300	7200	Republic of Sudan Radio	AA
0030	12120	Radio Thailand		0400	6070	CFRX, Canada	
0100	9570	China Radio International, via Albania		0400	6110	Radio Fana, Ethiopia	Amharic
0100	5025	Radio Rebelde, Cuba	SS	0400	4909	Radio Chaskis, Ecuador	SS
0100	5940	Magyar Radio, Hungary	HH	0400	9805	Radio France International	
0100	3396	Zimbabwe Broadcasting Corp.		0400	7175	Voice of the Broad Masses, Eritrea	Tigrinya
0100	7250	Voice of Russia, via Armenia		0400	3340	Radio Misiones Intercional, Honduras	SS
0100	9440	Radio Slovakia International		0400	9895	Voice of the People, via Madagascar to Zimbabwe	EE/vernacular
0100	12085	Trans World Radio, via Russia		0430	5975	Radio Nederland, Bonaire Relay	DD
0100	9770	Sri Lanka Broadcasting Corp		0430	4905	Radio Nacional Tchadienne, Chad	FF
0100	9535	Radio Exterior de Espana, Spain	SS	0430	4770	Radio Nigeria	
0100	5920	WBOH, North Carolina		0430	7325	Voice of Turkey	
0100	6000	Radio Havana Cuba		0500	4930	Voice of America Relay, Botswana	
0100	9625	CBC Northern Quebec Service, Canada	Inuit	0500	4052.5	Radio Verdad, Guatemala	
0130	9870	Austrian Radio International	GG	0500	7120	BBC via South Africa	
0130	4905	Radio Anhanguera, Brazil	PP	0500	4777	RTV Gabonaise, Gabon	FF
0130	7235	Voice of the Islamic Republic of Iran		0500	9615	Radio New Zealand International	
0200	4885	Radio Clube do Para, Brazil	PP	0500	7275	RT Tunisienne, Tunisia	AA
0200	11970	CVC-La Voz, Chile		0500	7230	Channel Africa, South Africa	
0200	6973	Galei Zahal, Israel	Hebrew	0500	4960	Voice of America Relay, Sao Tome	
0200	9575	Radio Medi Un, Morocco	AA	0530	7260	Radio Algerienne, Algeria	AA
0200	12025	Radio Pilipinas, Philippines		0530	5030	Radio Burkina, Burkina Faso	FF
0200	5015	Radio Altura, Peru	SS	0530	5005	Radio Nacional Bata, Equatorial Guinea	SS
0200	5950	Radio Taiwan international, via Florida		0530	6250	Radio Nacional Malabo, Equatorial Guinea	SS
0230	13760	Radio Havana Cuba	SS	0600	5995	Radiodifusion du Mali, Mali	FF
0230	9780	Republic of Yemen Radio		0730	5020	Solomon Islands Broadcasting Corp.	
0230	4939	Radio Amazonas, Venezuela	SS; irregular	0800	9710	Radio Australia	
0230	6010	Radio Sweden International, via Canada		0800	4785	Radio Brazil	PP

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0800	6010	La Voz de su Concencia, Colombia	SS	1500	13775	Austrian Radio International	
0900	2485	ABC Northern Territories Service, Katherine		1500	17630	Africa Number One, Gabon	FF
0930	3220	HCJB, Ecuador	QQ	1500	15650	Miraya 101 FM, Sudan, via Slovakia	AA
1000	5990	Radio Senado, Brazil	PP	1530	15435	Broadcasting Service of Kingdom of Saudi Arabia	AA
1000	6135	Radio Santa Cruz, Bolivia	SS	1600	11890	Radio Okapi, Congo, via South Africa	FF
1000	7145	Radio New Zealand International		1600	12070	Voice of Russia	FF
1000	4775	Radio Tarma, Peru	SS	1700	15245	BBC via Germany	RR
1000	10320	AFN/AFRTS, Hawaii	USB	1700	11915	Adventist World Radio, via South Africa	Swahili
1015	4835	Radio Maranon, Peru	SS	1700	9725	Voice of Vietnam, via Austria	
1030	15380	KFBS, Northern Marianas	Indonesian	1730	15300	Radio France International	FF
1100	9580	Radio Australia		1800	15190	Radio Africa, Equatorial Guinea	
1100	5996	Radio Loyola, Bolivia	SS	1800	17830	BBC Relay, Ascension Island	
1100	3925	Radio Nikkei, Japan	JJ	1800	9835	Radio Japan	JJ
1100	4450	Korean Central Broadcasting Station, North Korea	KK	1800	11990	Radio Kuwait	
1100	6010	Radio Marti, USA to Cuba	SS	1800	15360	KBS World Radio, South Korea	RR
1100	13635	Voice of Turkey		1800	15385	KJES, New Mexico	
1130	13775	CVC International, Australia	CC	1800	17850	Radio Exterior de Espana, Spain, Costa Rica Relay	SS
1200	15220	Radio Romania International		1830	15400	BBC Relay, Ascension Island	
1200	6160	CKZN, (Newfoundland), Canada		1830	9785	Voice of Turkey	SS
1200	4830	China Huayi Broadcasting Corp.	CC	1830	15410	Voice of America	
1200	9475	Radio Australia		1830	11785	WHRI, South Carolina	
1200	12000	Radio Havana Cuba	SS	1900	15345	RTV Marocaine, Morocco	AA
1200	9440	China Radio International	CC	1930	15476	Radio Nacional Archangel, Antarctica	SS
1200	9525	Voice of Indonesia	I	1930	15120	Voice of Nigeria	
1200	6055	Radio Nikkei, Japan	JJ	1930	13590	CVC International, Zambia	
1200	11700	Radio Liberty, USA	RR	2000	11710	Radio Nacional, Argentina	SS
1200	9430	Far East Broadcasting Assn., Philippines	CC	2000	15205	Deutsche Welle, Germany, Rwanda Relay	
1200	12010	Voice of America, Philippines Relay		2000	9330	WBCQ, Maine	
1200	7330	Polish Radio, via Germany		2000	11735	Radio Tanzania, Zanzibar	Swahili
1200	4900	Voice of the Strait, China	CC	2030	15280	Radio Biafra International, via WHRI	
1230	15540	HCJB, Australia		2030	9700	Radio Bulgaria	FF
1230	7335	KNLS, Alaska		2030	15235	Radio Canada International	
1230	9740	BBC Relay, Singapore		2030	9830	Voice of America, Sao Tome Relay	
1230	11750	BBC, Thailand Relay		2100	7105	Belarusian Radio	
1230	9320	Radio Free Asia	Burmese	2130	9330	Radio Damascus, Syria	
1230	12030	Voice of Russia	RR	2200	11620	All India Radio	
1230	15560	RDP International, Portugal	PP	2200	11775	University Network, Anguilla	
1230	11785	Voice of America, Thailand Relay	CC	2200	9385	WWRB, Tennessee	
1230	9570	KBS World Radio, South Korea	Korean	2200	15590	WRNO, Louisiana	
1300	5860	Voice of Jinling, China	CC	2200	6195	Voice of Turkey	
1300	7430	BBC, via Tajikistan	unid	2200	9630	Radio Aparecida, Brazil	PP
1300	9335	Voice of Korea, North Korea		2230	15265	Radio Japan, via Bonaire	JJ
1300	11850	Radio Veritas Asia, Philippines	VV	2230	4845	Radio Maruitanie, Mauritania	AA
1300	11605	Voice of America Relay, Northern Marianas	Tibetan	2300	11780	Radio Nacional Amazonia, Brazil	PP
1330	17630	Radio France International, French Guiana Relay	FF	2300	9925	Voice of Croatia, via Germany	Croatian
1330	21655	RDP International, Portugal	PP	2300	7475	Voice of Greece	Greek
1400	15140	Radio Sultanate of Oman	AA	2300	11665	Deutsche Welle, Germany, Portugal Relay	GG
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1400	11960	HCJB, Ecuador	SS	2300	9855	Radio Kuwait	AA
1400	9930	KWHR, Hawaii		2300	9525	Radio Nederland, via Canada	DD
1400	21695	Radio Jamahirya/Voice of Africa, Libya		2300	6300	Radio Nacional de la RASD, Algeria to Morocco	AA
1400	11930	Radio Marti, USA to Cuba	SS	2300	13680	Radio Nacional, Venezuela, via Cuba	SS
1400	11990	Voice of America, via Russia	Mandarin	2300	11820	Broadcasting Service of Kingdom of Saudi Arabia	AA
1400	11875	Radio Nacional, Venezuela, via Cuba	SS	2300	9955	WRMI, Florida	SS/EE
1400	13710	China Radio International		2300	13650	China Radio International	SS
1430	13640	Radio Tirana, Albania		2330	9875	Radio Vilnius, Lithuania	
1430	15240	Radio Sweden International					

## New, Interesting, And Useful Communications Products

by Staff

### ICOM's IC-RX7 Scanner

Brand new from ICOM is the IC-RX7, a slim (less than an inch wide) wideband receiver that tunes from 150 kHz to 1300 MHz (cellular blocked in the U.S.) in AM, FM and FM Wide modes. Designed with racecar fans in mind, it is capable of storing the entire race field in an easy-to-access way and is ICOM's first scanner with an IPX4 water resistant rating. It features a menu-driven user interface; four-way cursor buttons on the front panel; one-touch search button and one-touch scan button; and 1,600 memory channels in a three-level memory management system (classifiable by Category, Group, or Memory Name). Optional PC programming software is available. The IC-RX7 comes with a lithium ion battery, built-in ferrite rod antenna, and AC adapter. It weighs just over 7 ounces when fitted with antenna and battery.

MSRP on the IC-RX7 is \$369.99, but it is available through dealers for less. For more information, visit [www.icomamerica.com](http://www.icomamerica.com).

The ICOM IC-RX7 was designed with race fans in mind, but its 150 kHz to 1300 MHz frequency coverage range will pick up activity from public safety to shortwave and more.

### Sony XDR-F1HD

Radio hobbyists now have an HD radio choice that comes in at under \$100 with the Sony XDR-F1HD, which receives all AM and FM HD Radio modes, including multicasts as well as analog AM and FM. The XDR-F1HD tuner transforms an existing audio system with an auxiliary input into an HD Radio receiver. Its high-fidelity HD Radio



The Sony XDR-F1HD offers all AM and FM HD Radio modes, including multicasts, as well as analog AM and FM for under \$100.

technology provides clear digital radio reception without monthly subscription fees, and a backlit full dot matrix LCD display provides music information, including artist names and song titles plus radio station names and genres, where available. It offers 20 station presets, audio out jack, FM dipole antenna, AM loop antenna, and a wireless remote for full access to all features. Dimensions (approx.): 7 1/8 x 2 3/8 x 6 3/8 inches not including projecting parts and controls; weight (approx.): 2 pounds, 6.8 ounces.

MSRP is \$99.99, but it is available through dealers for less. For more information, visit [www.sonystyle.com](http://www.sonystyle.com).

### S & G Engineering's Eagle One Portable Vertical Antenna

The Eagle One antenna from S & G Engineering is a portable, fiberglass-based vertical. When fully extended, it reaches to 31 feet and retracts to 44 inches when not in use. It is lightweight (under 5 pounds) and comes with a shoulder carrying strap. The Eagle One covers 80 through 10 meters with the use of an antenna tuner (the company recommends the ICOM AH-4, but the antenna will work with a wide variety of automatic or manual tuners). The antenna comes with two clamps to easily attach it to a mounting pole, or you can use the optional tripod mount. The wire element in the fiberglass casing is a special flexweave wire with 160 strands and a heavy coating. A #6 connector on the top of the antenna can be used to extend its length in either a vertical or inverted-L configuration. The bottom of the antenna has a lug for attaching directly to the antenna tuner or coax feed line. The fiberglass pole itself is available in two colors, black for stealth or bright orange for visibility. The pole is





S & G Engineering's Eagle One portable, fiberglass-based vertical antenna reaches 31 feet fully extended and retracts to 44 inches when not in use.

designed to withstand 70-mph plus winds. When extended, the antenna sections are held in place by friction grips for easy portability. If the antenna is meant for a fixed location, the addition of #6 self-tapping screws offers extra security. The antenna is also suitable for use with RVs.

The Eagle One antenna sells for \$95; the tripod sells for \$45. For more information, visit [www.w8afx.com](http://www.w8afx.com).

## Victoria Nostalgic Entertainment Centers From Grace Digital

Grace Digital, Inc., offers nostalgic entertainment centers under its Victoria brand for music lovers who also want to play and preserve their favorite LPs. The Victoria Tunewriter (ITC-TWCDR) is housed in a paprika-colored 1800s-styled wood cabinet with built-in speakers, an LP (vinyl) player, cassette player, AM/FM radio and CD player/recorder. It includes RCA line out jacks if you prefer to listen to your records via your home stereo. This 4-in-1 entertainment center lets you digitally record your LPs and cassette tapes to a CD to preserve your collection.



Grace Digital's stylish Victoria Tunewriter is a 4-in-1 entertainment center that also lets you digitally record LPs and cassette tapes to a CD to preserve your collection.

For those who prefer to store their vinyl LPs to MP3 files directly, the 1950s-style Victoria Classic (ITC-50MP3) is a 3-in-1 entertainment center (LP, CD, and radio) that lets you download your LPs or CDs to a USB or SD card to be saved on your PC or Mac and in iTunes or your favorite music application.

The Victoria Tunewriter has an MSRP of \$299.99 and the Victoria Classic of \$169.99. For more information, visit [www.gracedigitalaudio.com](http://www.gracedigitalaudio.com).

### On The Web...

## Computer Aided Technologies Video Tutorials

Computer Aided Technologies, the makers of Scancat-Lite-Plus, has put together a set of video tutorials that's available on YouTube.com. The tutorials provide step-by-step instructions on several of the most common problems new users call C.A.T.'s tech support line about. Visitors to the site will find short descriptions of each tutorial and a link to access and play the videos on YouTube's site. Videos are about 10 minutes long and cover getting started, other products such as the Mr. Scanner FCC database CDs, and how to access and use Bearcat's free frequency site.

Check out Scancat's video tutorials menu at [www.scancat.com/youtube](http://www.scancat.com/youtube).

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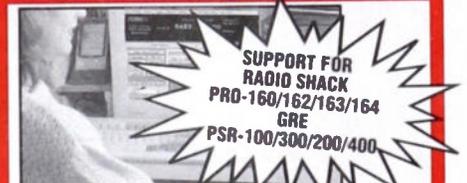
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# The DTV Transition Is Looming— Time To Hit The Panic Button

by Bruce A. Conti  
BAConti@aol.com

Are you ready for DTV? The well-advertised February 17, 2009, deadline is fast approaching, when terrestrial analog television signals in the United States will cease operation in favor of all-digital broadcasting. For many viewers who subscribe to cable, satellite, and other delivery services, the change will be invisible. Subscription television services should continue to provide local broadcast channels without interruption.

But for those who currently receive free analog television broadcasts over the airwaves using rabbit ears or an outdoor antenna, a digital television receiver or digital converter box will be required after February 17 for continued reception of local broadcast TV stations. If you've been contemplating an upgrade from analog to digital, now's the time to get started, because making the switch may not be as simple as just buying a converter box or new TV.

The September 2008 issue of *PopComm* offered a good overview of the DTV transition ("Countdown To Digital Television" by Don Rotolo, N2IRZ) and some easy antenna suggestions (Kent Britain's "The Antenna Room" column), but it's a hot topic and a lot of confusion

remains, so let's take some time to revisit the changeover here, with an eye toward some possible pitfalls (plus some DX catches).

## Terrestrial Transition Troubles

Despite efforts by the FCC and broadcasters to educate the public about the DTV transition, it appears that many consumers, and even consumer electronics retailers, are unprepared for the change. For example, when I inquired about the converter boxes on display in the electronics department of a local Wal-Mart store, a sales associate told me, "A lot of people are returning the boxes because they don't work. They don't realize that the boxes won't work until February 2009." I asked a sales person in home electronics at Target about outdoor antennas and he replied, "Oh, those are seasonal items. We won't have any in stock until spring." Apparently he thought the outdoor antennas would be arriving with the next shipment of patio furniture, barbecues, and sundry outdoor items. I'm not making this up, he really said that!

Nationwide electronics chain stores like Best Buy, Circuit City, and RadioShack were also found to be poorly prepared for the transition. Converter boxes sold at these stores featured a "Smart Antenna" interface, yet none of the sales people knew anything about it. Furthermore no Smart Antennas or outdoor antennas were in stock other than a sole Philips local/short-distance antenna model, and only a limited selection of set-top "rabbit ears" antennas was available. If this is the status quo in stores where digital televisions, converter boxes, and antennas are sold, then free-to-air digital broadcast television is in serious trouble.

After wasting a day searching stores for converter boxes, antennas, and advice, I finally parted with \$10 cash and a \$40 government coupon to purchase a converter box. The government coupon was ordered online at [www.dtv2009.gov](http://www.dtv2009.gov) and arrived in the mail about a month later. I selected a basic converter box that featured analog pass-thru, standard (SD-with small screen) and high definition (HD-wide screen) picture selection, and a Smart Antenna interface.



The digital converter box picks up data contained in each digital signal to compile a live channel listing, one of the many extras from DTV broadcast signals.



A familiar but old-fashioned Yagi-style VHF/UHF outdoor TV antenna wasn't up to the task of DTV reception.



I replaced the old Yagi with a modern-looking DTA-5000 UHF/VHF Smart Antenna for significantly improved DTV reception.

Admittedly, even though I still knew nothing about the Smart Antenna, I wanted to be prepared just in case it became necessary. The analog pass-thru option would allow me to continue to receive analog signals as a back-up position if my current outdoor antenna wasn't adequate for digital reception. Manual selection between SD and HDTV allows for display of the entire 16:9 picture of HDTV on an analog 4:3 TV screen, or full 4:3 screen display of SD programs or those not broadcast in the wide screen HDTV format.

The RCA Digital Converter Box model DTA800B1 was my converter of choice out of numerous models available on store shelves, most offering comparable features. Installation was simple and straightforward. I installed the converter box between the outdoor antenna cable and the TV receiver's antenna input. The converter box remote control was easily programmed to control most of the TV receiver functions so I wouldn't need to continue using the old TV remote. The RF output of the converter box could be sent to Channel 3 or 4, selected by a slide switch on the back of the box. With the box and TV set to Channel 3, I was now ready for action.

Initial reception of DTV signals was by an automated channel scan. Upon completion of the scan, a list of found DTV signals was displayed. The box found 22 channels, including some multicast channels, but not all the previously available analog channels were found. I was able to receive the local ABC, Fox, NBC, PBS, Univision, Telefutera, and Telemundo affiliates, but the local CBS, CW, Daystar, and ION affiliates were missing from the list. In addition, normally received analog signals from outside the local market were not found. I tried reorienting the outdoor antenna followed by a converter box scan for additional channels.

After several repetitions I was only able to add the local CW network affiliate, although reception of this and some of the other channels was choppy. Clearly my outdoor antenna, a RadioShack VHF/UHF 40-mile directional Yagi, was not adequate for reliable DTV reception. Already knowing that none of the local retailers had outdoor antennas in stock, the Internet was the next logical place to go shopping for a new antenna. A Google search for "outdoor TV antenna" and "smart antenna" produced plenty of results to explore.

## The Smart Antenna

Per the RCA Digital Converter Box instructions,

The digital TV signal is different from the analog NTSC signal. A good signal strength is required to successfully receive and decode digital TV broadcasts. Unlike analog broadcasts, which may show a "fuzzy" image with a weak signal, digital TV images may 'break up' or not display at all if the signal is too weak. If your digital TV signal is weak, you may need to purchase a more powerful antenna to improve reception. If you find you are not receiving local stations or the signal is weak, you should switch to a "Smart Antenna" or an outdoor antenna. The Smart Antenna is a new type of steerable antenna without any moving parts and is highly recommended.

"Smart antenna" technology has been around for years, used in radar and direction finding for military applications as well as wireless communications. It's only recently that the smart antenna concept was introduced for HDTV reception applications. A smart antenna is a multiple-element array controlled by an algorithm that tests every combination of elements for the best digital signal. Instead of manually reorienting set-top rabbit ears or rotating an outdoor antenna for best reception every time the channel is changed, the smart antenna automatically finds the strongest antenna direction.

The smart antenna itself is stationary with no moving parts. The directional antenna beam is changed each time the algorithm selects a different combination of elements. The smart antenna interface of a digital TV or converter box should comply with the EIA/CEA-909A standard developed by the Consumer Electronics Association for compatibility.

Among a number of online TV antenna websites, I stumbled upon the UHF/VHF Smart Antenna model DTA-5000 manufactured by DX Antenna Co. of Kobe, Japan, available from Solid Signal at [www.solidsignal.com](http://www.solidsignal.com). The DTA-5000 features adjustable antenna direction for optimal reception in synchronization with a DTV receiver EIA/CEA-909 interface, 16 different element combinations covering 360 degrees of directivity, and a built-in low-noise amplifier with automatic gain control that allows for operation in strong and weak signal areas. The antenna cost \$89.99 not including shipping. The DTA-5000 was delivered within a week by second-day air.

The DTA-5000 was easy to unpack and assemble. The antenna is shaped like a disk or flying saucer, and thus must be cen-

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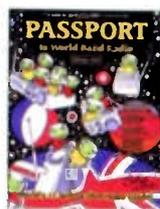


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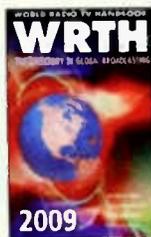
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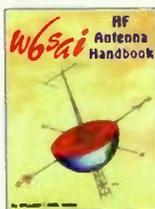


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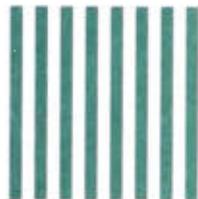
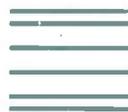
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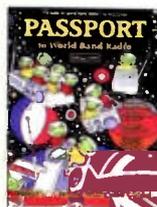


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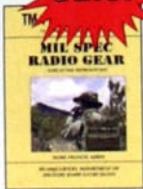
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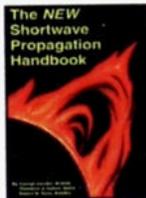


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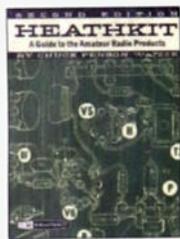
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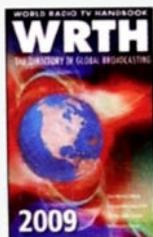
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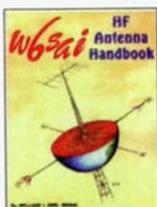


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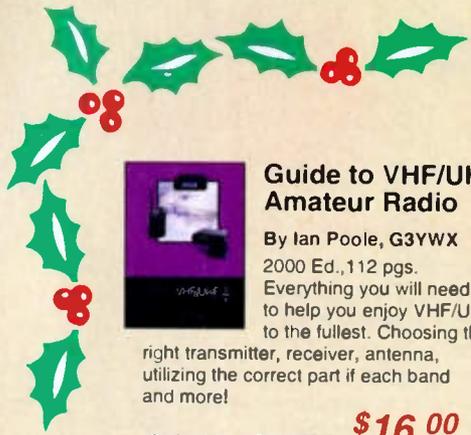
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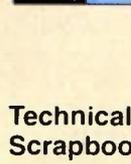
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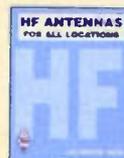
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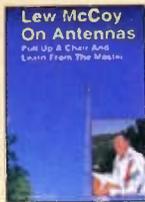
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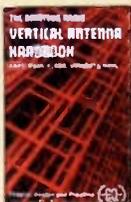
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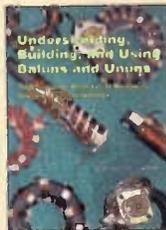


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# Northern Defenders: McChord Air Force Base And Fort Lewis Military Reservation

by Mark Meece, N8ICW  
ohioscan@gmail.com

As we wrap up 2008 with our December issue, perhaps it is fitting that we spend it checking out the military action in northern climes, specifically North America's Pacific Northwest. At the southern tip of Puget Sound, about eight miles south of Tacoma and bordering Interstate 5 we find McChord Air Force Base and Fort Lewis Military Reservation. Let's take a look (and listen) at both.

## History Of McChord

McChord traces its origins back to March 14, 1930, when it began operations as Tacoma Field, located just to the north of the military reservation known at that time as Camp Lewis. Nearly eight years later on February 28, 1938, it was officially transferred over to the United States government. On May 5, 1938, it was renamed McChord Field in honor of Colonel William C. McChord who was Chief of the Training and Operations Division in HQ Army Air Corps. Colonel McChord was killed while trying to land



McChord Main Gate circa 1950. (Public domain photo)



McChord main hangar and control tower, July 2005. (Public domain photo)

his crippled Northrup A-17 attack bomber near Richmond, Virginia, on August 18, 1937. By the time the base was officially dedicated on July 3, 1940, four new hangars were erected along with officer and enlisted housing, various warehouses, a maintenance building, a hospital, a radio transmitter building, and a 300,000-gallon water tank, as well as other structures.

The next 20 years saw McChord Field expand to nearly 3,000 acres covering the northern area of Fort Lewis. After the creation of the United States Air Force in 1947, McChord became an independent entity of Fort Lewis. It officially became McChord Air Force Base a year later. McChord played an important role during World War II as a staging area for equipment and personnel deploying to Alaska and the Pacific Theater of Operations. Right after the attack on Pearl Harbor, squadrons of P-40 and P-43 aircraft were assigned to McChord. Structures and buildings were camouflaged and windows were blacked out in case of a Japanese attack. McChord became a training base for pilots, and by January of 1942 the base population had swelled to 7,400 military personnel.

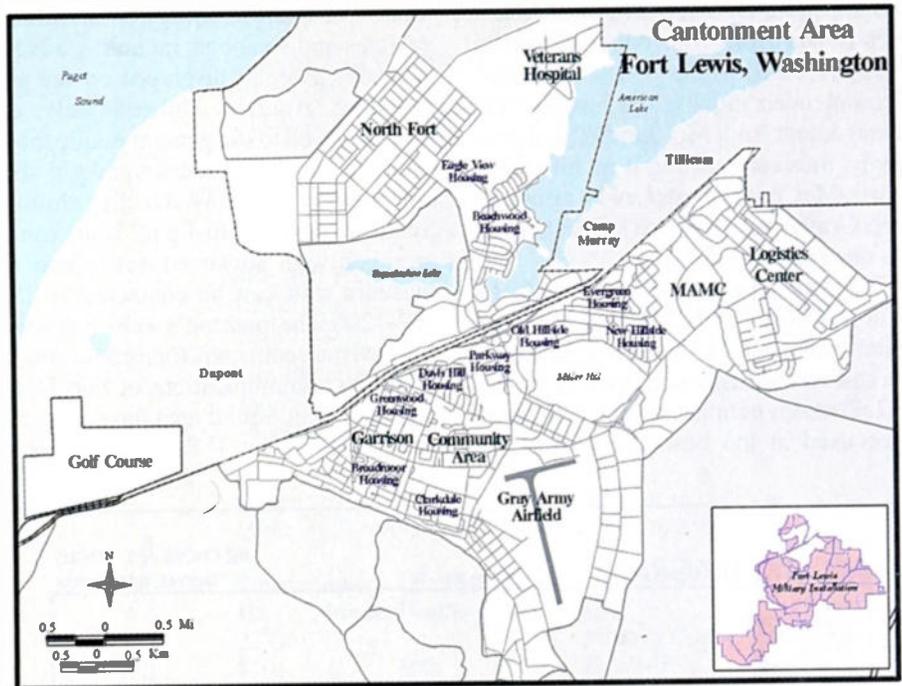
### The Modern McChord

Today McChord covers 4,616 acres with one major runway (16/34) and a smaller adjacent runway (160/340). In 1999 units at McChord began the transition from the aging C-141 Starlifters to the more modern C-17 Globemaster III aircraft. That transition has since been completed. The C-17 is famous for its ability to land and take off from small, rough terrain airfields.

Today the base, with its population of just over 4,000, is responsible for rapid deployment of airlifting cargo and military personnel. It is the headquarters of the Western Air Defense Sector of the Air Combat Command (ACC). In 1992, when the Air Mobility Command (AMC) was established, McChord became a primary Air Mobility Base. Current active units are the 62nd Airlift Wing of the AMC and the 446th Airlift Wing, which is part of the Air Force Reserve Command (AFRC).

### Fort Lewis Military Reservation

The Fort Lewis Military Reservation is a vast complex bordering the southern edge of McChord Air Force Base. It covers 87,000 acres in support of over 25,000



Fort Lewis cantonment map. (Photo courtesy U.S. DefenseLink)

soldiers and civilian workers, some 120,000 military retirees, and another 29,000 family members living both on and off the post. Fort Lewis is one of the largest military reservations in the United States and the most modern. Additional training space is provided in the Yakima Training Center directly south of Yakima, Washington, with a training area acreage of 306,057. The Yakima Training Center is located about 80 miles southeast of Fort Lewis.

### It All Started In 1917

In 1917 the citizens of Pierce County, Washington, passed a bond of \$2 million by an eight to one margin in order to purchase 68,721 acres of land south of Puget Sound. They then donated the land to the U.S. government for military use. The one stipulation was that the land be used for a permanent Army post. On Saturday May 26, 1917, Captain David L. Stone and his staff arrived at the camp's site. Just a few days later construction of the base began. In only 90 days Captain Stone had overseen the construction of 757 buildings and 422 other structures all with power and light to support 60,000 men. The camp was open for occupancy one month ahead of schedule.

On September 5, 1917, the first recruits moved in to their new barracks, and training began for the soldiers who would see action in World War I. These

were the men of the 91st Division, and as the majority of them came from the local area, they became known as "Washington's Own." Thousands of troops received their training at Camp Lewis before mobilizing. When the war concluded, activity at the camp came to a halt. After the war the camp changed hands as Pierce County handed it over to the federal government.

The base was designated a fort in 1927. It was named for the famous explorer of the northwest territories Captain Meriwether Lewis of the famed Lewis and Clark Expedition.

### Fort Lewis Today

Since 1981 Fort Lewis has been the home of I Corps. The primary maneuver units are the 1st Brigade, 25th Infantry Division and the 3rd Brigade, 2nd Infantry Division. Fort Lewis is also home to the 593rd Corps Support Group; the 555th Engineer Group; the 1st MP Brigade (Provisional); the I Corps NCO Academy, Headquarters; Fourth ROTC Region; the 1st Personnel Support Group; 1st Special Forces Group (Airborne); 2nd Battalion (Ranger); 75th Infantry; and Headquarters, 5th Army (West). One of the Army's best medical facilities, Madigan Army Medical Center, is here.

In accordance with the BRAC (Base Closure and Realignment) of 2005 the Department of Defense recommended

that the 104th Division (IT) be moved to Fort Lewis from Vancouver Barracks, which is slated to close. The DoD also recommended moving the installation's management from McChord AFB to Fort Lewis, thus establishing it as Joint Base Lewis-McChord. Fort Lewis also supports Gray Army Airfield (KGRF), which has one runway (15/33).

Fort Lewis proudly displays its history at the Fort Lewis Military Museum, which was once the historic Red Shield Inn and can be easily seen from Interstate 5. Collections of uniforms and equipment once used at the base are showcased.

There's also a nice collection of military vehicles and weapons, including a Nike-Hercules Missile, displayed on the surrounding grounds. Unfortunately, the base is closed to the general public; however, the Museum galleries and gift shop are open to all on Wednesday through Sunday from noon to 4 p.m. Tours can be arranged with advanced notice and the museum staff can be contacted at 253-967-7206. The museum's website is [www.fortlewismuseum.com/flm/index.cfm](http://www.fortlewismuseum.com/flm/index.cfm).

Radio communications at Fort Lewis and the Puget Sound area have switched over to the new U.S. Department of

Defense: Project 25 System. There are three separate sites for Fort Lewis as detailed in "Listening In."

## Military Loggings

Doug Bell in Canada once again provides us with a list of his recent military intercepts. We appreciate any loggings you would like to report, whether on HF, VHF, or UHF. You can send them to the email address listed with the column byline. Please try to follow the format you see here and we will include your submissions in a future column.

**5616:** USB 2338Z, REACH 123 (KC135R #57-1437, 77th ARS, AFRC) wkg Gander Radio with a HF radio and SELCAL check.

USB 2340Z, REACH 108 (C17A #06-6165, 436th AW, Dover AFB, DE) wkg Gander Radio and receiving ATC clearance to climb to fl 320.

USB 2351Z, CANFORCE 4169 (CC150/437th SQN, CFB Trenton, ON) wkg Gander Radio with a position report.

USB 0140Z, REACH 271 (C5B #85-0002, 436th AW, Dover AFB) wkg Gander Radio with a position of 48N 040W and fl 290.

**5649:** USB 0134Z, BAF 621 (A310/Quebec City to Brussels) wkg Gander Radio with a position report.

**6755:** USB 2208Z, MASH 62 (KC135R, 74th ARS/434th ARW, AFRC) wkg New York Radio CPDLC with a SELCAL check.

**8918:** USB 2125Z, NOAA 42 (WP-3D Orion/NOAA, MacDill AFB, FL) wkg New York Radio with a position of 25N 87W. Flight on a mission into Hurricane IKE.

USB 2207Z, TEAL 70 (C130J/"Hurricane Hunter" 53rd WRS, Keesler AFB, MS) wkg New York radio with position of 24N 087W and fl 050. Flight on a mission into Hurricane IKE.

USB 0219Z, TEAL 71 (C130J/"Hurricane Hunter," 53rd WRS, Keesler AFB, MS) wkg New York Radio with a position report and fl 100. Flight reported "Ops normal." Flight also on a mission to IKE.

**8864:** USB 1510Z, JESSE 91 (C130H, 139th AW, MO-ANG) wkg Gander Radio and receiving ATC clearance to climb to fl 240.

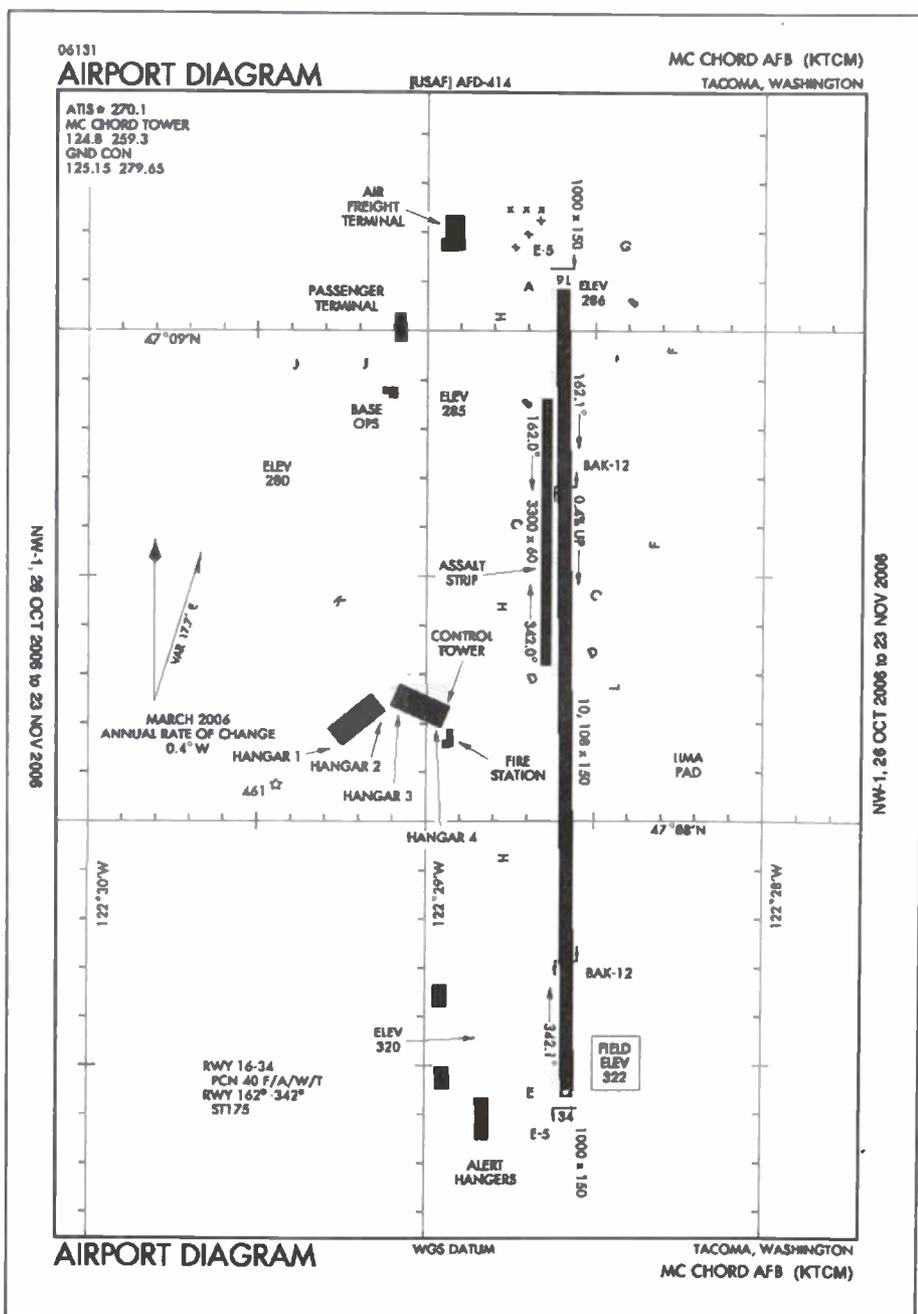
USB 1620Z, SKIER 71 (LC130H #83-0492, 139th AS, NY-ANG) wkg Gander Radio and receiving ATC clearance to climb to fl 230.

USB 1729Z, RAMA 41 (B1B, 7th BW, Dyess AFB, TX) wkg Gander Radio with a position report.

USB 1801Z, SPAR 12 (C40C, 932nd AW, Scott AFB, IL) wkg Gander Radio with position report of 50N 050W and fl 340.

USB 1804Z, SOONER 01 (C20H/76th AS) wkg Gander Radio with a position report of 53N 040W and fl 410.

USB 1848Z, REAPER 11 ((B2A #82-1067, "Spirit of Arizona") 13th BS/509th BW Whiteman AFB, MO) wkg Gander Radio with a position of 58N 040W. Gander requested to relay all to HILDA (Scott AFB, IL).



FAA McChord AFB airport diagram. (Courtesy FAA)

## Listening In

### McChord AFB Units

#### 62nd Airlift Wing (AW)

4th Airlift Squadron "FIGHTING FOURTH"  
7th Airlift Squadron  
8th Airlift Squadron "SCARING STALLIONS"

#### 446th Airlift Wing

97th Airlift Squadron  
313th Airlift Squadron  
728th Airlift Squadron  
446th Aeromedical Evacuation Squadron (AES)

#### 62nd AW CALLSIGNS

AMOR, CADDO, CARP, DANDA, GEORGE, GRUP, HUSKY,  
IMPACT, KITSAP, KOHO, NANCY, RAWLY, SKAGIT, SONIC,  
SWAM, TONG

### McChord Air Force Base (KTCM)

#### Aeronautical Operations

109.600 ATIS  
124.800 Tower  
125.100 Ground  
126.500 Seattle Approach/Departure  
134.100 AMC Command Post  
259.300 Tower  
253.400 105th Air Control Squadron (WAANG) Ops  
270.100 ATIS  
279.650 Ground  
290.900 Ground Controlled Approach  
337.400 105th ACS Operations  
342.500 Metro  
349.400 AMC Command Post  
372.200 Dispatcher  
375.700 AMC Operations

#### Support Operations

138.165 OSI  
138.175 OSI  
149.175 Maintenance  
165.1125 Command Net  
173.4375 Medical Net  
173.5375 Fire/Crash  
407.325 Civil Engineers  
407.425 AMC Operations  
407.450 Base Operations  
409.300 Ramp Operations  
409.500 Transportation  
413.000 Security Ch. 1  
413.075 Ramp Operations  
413.125 Security  
413.450 Base Operations  
413.825 Security

### Fort Lewis Primary Units

1st Brigade, 25th Infantry Division  
3rd Brigade, 2nd Infantry Division  
1st Special Forces Groups (Airborne)  
1st Corps Headquarters  
3rd Ordinance Battalion  
2nd Battalion (Ranger), 75th Infantry

**SYSTEM:** U.S. Department of Defense: Project 25  
**TYPE:** Project 25 Standard  
**VOICE:** APCO-25 Common Air Interface Exclusive  
**SYSID:** 14C

### Site 101: Fort Lewis Main

380.07500c	380.17500	380.27500
380.38750a	380.42500	380.53750
380.57500	380.87500	380.98750
381.08750	381.17500	381.23750
381.31250	381.42500	381.62500
381.82500	381.85000	

### Site 102: Fort Lewis West

380.21250c	380.55000a	380.83750
381.01250	381.28750	

### Site 103: Fort Lewis East

380.72500c	380.93750a	381.73750
381.92500		

c - denotes Control Channel

a - denotes Alternate Control Channel

Mode A = Analog, D = Digital, E = Encrypted

### Talkgroups

ID	Mode	Display	Use
23793	D		Military Operations
8104	D	MPs	Base MP'S
8107	D	MP TAC1	MP Primary TAC 1
8108	D	MP TAC2	MP Secondary TAC 2
8212	D	GRAY AAF	Gray AAF Airfield Maintenance
8520	D	DETENTION	Detention Center
8530	D		Unknown Military Use
8597	D	ROTC	Reserve Officer's Training Corp
8616	D	RANGE	Range Control
8224	D	FT L PD T1	MP Field Training
8612	D	FT L PD T2	MP Field Training
8106	D	FT L Cam Alm	Camera And Alarm Techs
23536	D		Military Operations
23198	D		Military Operations
23047	D		Military Operations
23303	D		Military Operations
23042	D		Military Operations
23625	D		Military Operations
23794	D		Military Operations
23272	D		Military Operations
8819	D	FT L Trans	Base Transportation

### Gray Army Airfield (KGRF)

#### Aeronautical Operations

32.300	Base Operations (FM)
32.600	Air National Guard Operations
34.600	Bullseye Radio (FM)
36.100	Army Operations (FM)
38.900	Metro
41.500	Gray Tower (FM)
120.100	Seattle Approach/Departure
121.900	Ground
123.075	National Guard Operations
124.650	ATIS
128.200	Ground Controlled Approach
134.100	Metro
139.700	Gray Tower
141.500	Bullseye Radio
239.000	Ground Controlled Approach
253.400	National Guard Operations
256.800	Gray Tower
276.400	Gray Tower
290.200	Ground
306.200	ATIS
317.400	Ground Controlled Approach
379.100	Bullseye Radio



62nd AW C-17s unload in Mississippi, August 2005. (Photo courtesy U.S. DefenseLink)

USB 2259Z, NAVY JW-313 (C130T "Nor'easters" NAS Brunswick, ME) calling "mainsail" for a HF radio check. (Flight thought it was on HF-GCS) Gander responds with "we have you 5X5."

8879: USB 2057Z, REACH 186 (C130H/180th AS, MO-ANG) wkg Gander Radio and estimating 55N 050W. Flight instructed to call Gander Center on VHF 127.37 at 2013.

8891: USB 1710Z, REACH 4130 (C17A/6th AS, McGuire AFB, NJ) wkg Gander Radio with a position of 49N 050W and fl 340 at 1710.

USB 1736Z, RICAN 74 (C130E, 198th AS, PR-ANG) wkg Gander with request to turn

back and reverse direction of flight. Mechanical problem, but no emergency declared.

8906: USB 1929Z, NAVY LL 313 (P3C, "The Pro's Nest," NAS Jacksonville, FL) wkg New York Radio with a confirmation of fl 280.

8992: USB 1434Z, SHADOW 74 (MC130H, 58th SOW, Kirtland AFB, NM) wkg HF-GCS Station Andrews with a phone patch to WARRIOR. Flight reported that mission a failure due to poor visibility.

USB 2313Z, RAMA 31 (B1B, 7th BW, Dyess AFB, TX) wkg HF-GCS Station Puerto Rico with a phone patch. Refueling cancelled, since Quid 91 (KC135) unable to take off because of thunderstorms. RAMA 31 instructed to turn back.



Aerial view of McChord AFB. (Public domain photo)



Seal of the 446th Airlift Wing. (Public domain image)

USB 0005Z, NAVY LA 052 (P3C/"Mad Foxes," NAS Jacksonville wkg HF-GCS Station SIGONELLA with a phone patch. Short message passed as signal faded.

9007: USB 0052Z, SENTRY 30 (E3 AWACS/Tinker AFB, OK) wkg TRENTON MILITARY with a phone patch to RAYMOND 24. Coded data passed at 0052.

11175: USB 1450Z, TUFF 35 (B52H/11th BS, 2nd BW, Barksdale AFB) repeatedly calling "mainsail" with no response.

USB 1512Z, TUFF 35 (B52H, 11th BS/2nd BW, Barksdale AFB, LA) wkg HF-GCS Station Andrews with a phone patch to McClellan AFB. Flight reported "Ops normal and negative relay."

USB 1523Z, TAZZ 73 (KC135R, 121st ARW, OH-ANG) wkg HF-GCS Station PUERTO RICO with a HF radio check.

USB 1540Z, MUSIC 84 (C130H #89-1184, 105th AS, TEN-ANG) wkg HF-GCS Station OFFUTT with a phone patch to MUSIC OPS. Flight requested customs to be present upon its arrival.

USB 1540Z, MUSIC 84 (C130H, 105th AS, TEN-ANG) wkg HF-GCS Station OFFUTT requesting message traffic.

USB 1915Z, ICER 11 (B52H/5th BW, Minot AFB, N.D.) wkg HF-GCS Station OFFUTT with a phone patch.

USB 0043Z, HOBBY 39 (C130J, 815th AS, AFRC, Keesler AFB) wkg HF-GCS Station ANDREWS with a HF radio check and phone patch.

11232: USB 0108Z, PEACH 66 (E8C JSTARS/Robins AFB, Ga.) wkg TRENTON MILITARY with a phone patch to PEACHTREE OPS at DSN 241-2313. A multi-digit coded message was passed.

USB 0610Z, CANFORCE 2377 (CC130/436th SQN, CFB Trenton, ON) wkg TRENTON MILITARY requesting message traffic. Flight departed Elmendorf AFB at 2200Z destined for CFB Trenton.

11330: USB 2120Z, NOAA 49 (Gulfstream G-IV/NOAA, MacDill AFB, FL) wkg New York Radio with a position of 28N 069W at fl 410. Flight on a mission into Hurricane HANNA. ■

# Radio Nederland Says *Vaarwel* To English To North America, But Rare Catches Of Elusive Stations Gladden Hearts

by Gerry L. Dexter  
gdex@genevaonline.com

*“Radio Nederland announced the end of shortwave to us North Americans, effective at the end of October.”*

**W**e're in dutch! Radio Nederland announced the end of shortwave to us North Americans, effective at the end of October. It feels it is no longer sensible to waste watts on us. Seems we have all the broadcast media we need. For instance, there are all those NPR stations that'll just jump at the chance to carry RN features. Not to mention that RN programs will be available *online*. So all we'll have to do is light up our laptops and “tune in” using our high-speed connection. Easy! Hilversum? Hello? I don't think so!

Believe it or not, there are people who *do not* long to live in California, with its earthquakes, forest fires, mudslides, trend-setting fashions, and foolish fads. I am one of them. But every now and then I am given pause, complete with a double dose of envy, over some of the DX catches those West Coasters enjoy; for instance, the recent receptions of the Bhutan Broadcasting Service (see “Bhutan Broadcasting Service—Voices From The Roof Of The World,” January 2008 *Pop'Comm* for a feature article on this station). This almost-never-reported station has shown up for a few California and other West Coast DXers on 6035 around 1400 hanging in there until close at 1500. In fact, our own Peter Ng in Malaysia reports it in this month's loggings! Well, at the least, we know BBS is active and we can still dream!

Another rare one is ZLXA—The Radio Reading Service from New Zealand (see *Pop'Comm*, August 1999), which is being heard by a select few around 0900/1000 on its usual 3935, albeit with poor audio (you'd think good audio would be important in a service for the vision impaired!).

One more rare one, which shows up now and then, is LRA36—Radio Nacional Arcangel from Antarctica, which occasionally surfaces around 1900 or 2000 on 15476 (and closes just after 2000). That one even makes very occasional Midwest appearances!

We're all prisoners of our location, forced to deal with whatever reception conditions nature throws at us. Sometimes the propagation gods smile at us; more often they frown. Our Department of Glad

Tidings is frequently found with its doors locked and a “Gone Fishin'” sign stuck in the front window. Not today, though. The white-haired, bespeckled senior who runs the place is actually behind the counter today, announcing the good news to one and all: Radio St. Helena will be doing its thing again this November 15. Of course, by the time you read this, it will already have held its near annual broadcast from 2000 straight through to 2330. The plan was to target Japan for the first hour, then Europe at 2100 and North America from 2230, all on the usual 11092.5 frequency, upper sideband. The QSL address is Radio St. Helena, P.O. Box 93, Jamestown, St. Helena, STHL IZZ, South Atlantic Ocean. Be sure to include some dollar bills (or a fiver!) if you want a reply—and be prepared to practice patience because the process takes a while!

You're not going to hear the Canadian time station, CHU in Ottawa, on 7335 for much longer. After it's finished making improvements to its transmitting facilities it's going to move to 7850. That will also let it escape co-channel QRM from the occasional frequency coordinator who heedlessly parks on 7335. While we're on the subject of Canada, CFRX in Toronto returned to 6070 early in September. We should all send them a welcome back note!

Radiodifusion Argentina al Exterior (RAE) has been saddled with equipment problems lately and isn't currently operating on shortwave. And, somewhat ominously, it hasn't yet said when—or if—it expects to be back.

## Reader Logs

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

## Help Wanted

We believe the "Global Information Guide" offers more logs than any other monthly SW publication (465\* shortwave broadcast station logs were processed this month!). Why not join the fun and add your name to the list of "GIG" reporters? Send your logs to "Global Information Guide," 213 Forest St., Lake Geneva, WI 53147. Or you can email them to [gdex@genevaonline.com](mailto:gdex@genevaonline.com). (See the column text for formatting tips).

*\*Not all logs get used; there are usually a few which are obviously inaccurate, unclear, or lack a time or frequency.*

very welcome, too! It's your turn to grace these pages!

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

ALASKA—KNLS, 7335 at 1228 with pop songs interspersed with Bible teachings. (Brossell, WI)

## A Guide To "GIG-Speak"

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

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

Name Adventist World Radio (AWR) Programme

Frequency 5915 (Wertachtal) Time 27.06.08, 03:00-03:30



Signed, Mr. Michael Puetz  
Signature

Date 18.07.08

Thank you for listening!



Media Broadcast confirmed an Adventist World Radio broadcast relayed by the Wertachtal site. Media Broadcast recently took over transmitter operator T-Systems. (Thanks Rich D'Angelo, Pennsylvania)

**ALBANIA**—Radio Tirana, 7425 at 0355 announcing frequencies. Also 9390 at 0035 and 13640 at 1445 with sudden signal loss. (Maxant, WV)

**ALGERIA**—Radio Algerienne, 7260 via England with Koran at 0530. (Brossell, WI)

**ANTACTICA**—Radio Nacional Arcangel San Gabriel/LRA36, 15476 surfaced briefly at 2006 but lasted less than 15 minutes. SS antms and ballads. (Strawman, IA)

**ARGENTINA**—Radio Nacional/Radio Argentina al Exterior, 11710 in EE at 0206 with rancheros and news. (Parker, PA) 1119 tangos, W in SS. (D'Angelo, PA) 1620 with M and SS comments. (MacKenzie, CA) (*temporarily off the air—gld*)

**ASCENSION**—BBC Atlantic Relay, 15400 to Africa at 1833. (Parker, PA) 17830 at 1806. (Mackenzie, CA)

**AUSTRALIA**—Radio Australia (Shepparton site) 5995 at 0910 to PNG in Tok Pisin, 6020 to Oceania at 1150, 9475 to SEA at 1235, 15160 to Pacific at 0525, //15240. Also 15415 in II to Indonesia at 0603. (Parker, PA) 7240 at 1414, 9710 at 1630 and 12080 at 0115. (Strawman, IA) 9580 at 1802, 12080 at 2323, 13690 at 0245 and 15515 at 2210. (MacKenzie, CA) 15240 at 0230 on crime there, //15515. (Linonis, PA) 17715 at 0010 and 21725 at 0205. (Maxant, WV) 9580 at 12055. (Charlton, ON) 9710 at 0746. (D'Angelo, PA) 11660 at 1903. (Brossell, WI) 13775 at 1548. (Yohnicki, ON) 15515 at 0415. (Wood, TN)

ABC Northern Territories Service, 2325, Tennant Creek, very weak at 1010. Also 2485, Katherine, at 1103 with ABC News and 4910 at 0815. (Wilkner, FL) 4835, Alice Springs, at 0810. (Parker, PA)

HCJB-Australia, 15405-Darwin with ID at 0000 and 15540 in EE at 1230. (Ng, Malaysia)

CVC, 13775-Darwin in CC at 1127. (Parker, PA)

**AUSTRIA**—Austrian Radio International, 9870-Moosbrunn in GG

at 0131. (Charlton, ON) 9870 at 0230. (Linonis, PA) 13775 in EE at 1525. (Brossell, WI)

**BELARUS**—Radio Belarus, 7105-Minsk at 2125 with vocals. (Maxant, WV)

**BHUTAN**—Bhutan Broadcasting Station, 6035 at 0654 heard very weakly with traditional songs. (Ng, Malaysia)

**BOLIVIA**—Radio Santa Cruz, 6135.8 at 1000 with SS IDs, music. (Wilkner, FL)

Radio San Miguel, Riberalta, 4699v at 0930. Also at 2216. (Wilkner, FL)

Radio San Jose de Chiquitos, 5580.2 in SS at 0120. (Wilkner, FL)

Radio Lyola, Sucre, 5996.3 at 0145 in SS. (Wilkner, FL)

Radio Pio XII Siglo XX, Llallagua-Siglo XX, 5952.45 at 1045 in SS. Requires narrow filter and use of notch. (Wilkner, FL)

Radio Tacana, Tumpasa, 4781.5 at 1020 during SS news pgm. (Wilkner, FL)

Radio Eco, Reyes, 4409.8 with pops at 0133. (Parker, PA)

Radio Yura, Yura, 4716.7 in presumed SS at 0230. (Parker, PA)

**BONAIRE**—Radio Nederland Relay, 5975 in DD at 0448 and 17605 in SS at 2157. (McKenzie, CA) 9845 at 0010. (Charlton, ON)

**BOTSWANA**—VOA Relay, Mopeng Hill, 4930 at 0445. (Parker, PA) 0502. (Brossell, WI)

**BRAZIL** (All in PP)—Radio Imaculada Conceico, Campo Grande, 4755 at 0403, with some EE phrases mixed in. (Wood, TN)

Radio Brazil, Campinas, 4785 at 0753, M with short bits of music. (Parker, PA)

Radio Anhanguera, Araguaia, 4905 with PP songs at 0145. (Brossell, WI)

Radio Difusora de Macapa, 4915 at 0218 with talks. (Brossell, WI) 0410 with possible call-in pgm. (Wood, TN) 0901. (Parker, PA)

Radio Nacional Amazonia, 11780 heard at 2335 with QRM from WHRA-11785. (MacKenzie, CA)

Radio Clube do Para, Belem, 4885 at 0405 with easy listening pops. (Wood, TN)

Radio Cultura, Araraquara, 3365 at 0503 with M hosting vocals. (D'Angelo, PA)

Radio Senado, Brasilia, 5990 at 0959 with jazz and pops, ID. (Taylor, WI)

Radio Brazil Central, Goiania, 11815 at 2310 with pop vocals, ID, jingles, ad strings. (D'Angelo, PA) Poor at 0135. (Strawman, IA)

Radio Cultura Ondas Tropicais, Manaus, 4845.2 at 1027 with just traces of audio. (Parker, PA)

Radio Educadora 6 de Agosto, Xapuri, (t) 3255 at 0931 sometimes at nearly fair level. (Parker, PA)

**BULGARIA**—Radio Bulgaria, 9700-Plovdiv in FF at 0128 and 11700-Plovdiv in BB at 0000. (Charlton, ON) 9700 in FF at 2032. (Brossell, WI) 11600 in SS at 0120. (Linonis, PA) 11700 with EE news at 0202. (Parker, PA)

**BURKINA FASO**—Radio Burkina, 5030 at 2356 in FF with high-life vocals to 0002 and off. (D'Angelo, PA) Close at 0003 and back at 0531 sign on. (Alexander, PA)

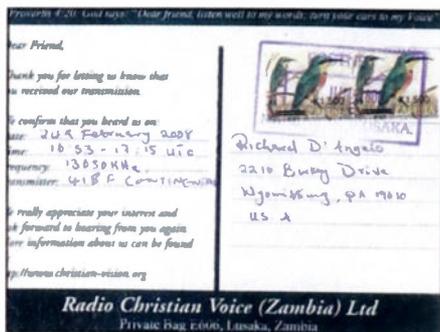
**CANADA**—Radio Canada International, 6145 at 0045 and 11765 with call-in pgm at 1815. (Maxant, WV) 15235-Sackville at 2040. (Charlton, ON)

CKZN, St. John's (Newfoundland) 6160, (t) at 0255 with mentions of Halifax and Canada. (Wood, TN) 1205. (Parker, PA)

**CHAD**—Radio Nationale Tchadienne, 4905 at 0429 sign on with anthem, FF opening and Afropops. (Alexander, PA) 0454 with high-life vocals. (D'Angelo, PA) 0530 into FF music. (Wilkner, FL)

**CHILE**—CVC International, 11970 monitored at 0150. (Barton, AZ) 17680 in SS at 1359. (Charlton, ON) 15410 in SS at 1315. (Linonis, PA)

**CHINA**—China Radio International, 7160-Nanning in Mandarin at 1200. (Strawman, IA) 7190-Jinhua, in CC at 0953, 15120-Beijing in Mandarin at 0515. Also 15245 in GG at 0535 and 15370-Shijazhuang in CC at 0554. (Parker, PA) 9440-Kunming in CC at 1210, 11935-Shijazhuang in RR at 1227, 13660 in RR at 1229 and 13665-Urumqi in RR at 1615. (Brossell, WI) 9570 via Albania at 0120. (Linonis, PA) 11840 via Canada at 2332, 11895 in CC at 1814, 13650



Christian Voice QSLed Rich D'Angelo's reception of its broadcast on 13650.



The Canadian pirate Maple Leaf Radio sent this QSL to D'Angelo for his reception this past summer.



This nice card confirms Bob Combs' reception of Radio Misiones Internacional on 3340. (Thanks Bob Combs, New Mexico)

via Cuba in SS at 2312, and 13700 via Canada in SS at 2220. (MacKenzie, CA) 9535-Kunming in CC at 1350. (Ng, Malaysia) 9570 via Albania at 0120 and 15260 via Canada at 1347. (Charlton, ON) 15785-Xi'an at 0339 with Olympic interview. (Wood, TN)

CPBS/China National Radio: China Huayi BC Corp., 4830 in CC at 1202 with fast-paced news like summary. Also Voice of the Strait, 4900-Fuzhou at 1204 with M in CC with jingles and anmts. (Strawman, IA) Voice of Jinling, 5860 at 1305 and 15710-Beijing in Haaka at 0830. (Ng, Malaysia)

Firedrake Music Jammer, 6180 at 1206 covering VOA Philippines, 11590 at 1221 vs. RFA-Kuwait and 11710 at 1227 against Radio Taiwan. Also 12040 targeting VOA-Philippines and 15795 at 1239 on All India Radio. (Brossell, WI) 9335 at 1754, 11540 at 1515 and 11980 at 2235 against BBC-Thailand. (MacKenzie, CA) 11590 against RFA at 1135, 11665 vs. VOA-Tinian at 1020, 15130 also against Tinian at 0520, 15265 against VOA-Thailand at 0542 and 15270 badgering Radio Taiwan at 0550. (Parker, PA)

CROATIA—Voice of Croatia, 9925 via Germany with news at 2308 in Croatian. (MacKenzie, CA) 2310. (Maxant, WV) 0045 in Croatian. (Linonis, PA) 0134 in Croatian. (Charlton, ON)

COLOMBIA—La Voz de su Concencia, Puerto Lleras, 6010 in SS at 0005 with tropical music. (Paszkiwicz, WI) 0811 with SS religious talk. (D'Angelo, PA)

Marfil Estereo, Puerto Lleras, 5910 with romantic pop ballads at 0232. (Strawman, IA)

CONGO—Radio Okapi, 11690 via South Africa with pops in FF at 0515 and 11890 via South Africa in FF at 1608. (Brossell, WI)

CUBA—Radio Havana Cuba, 9600 in SS at 0125. (Charlton, ON) 13760 in SS at 2300. (Mackenzie, CA) 12000 at 1220, //6000 and 6180. (Yohnicki, ON)

Radio Rebelde, 5025 in SS at 0158. (Charlton, ON) 1222. (Yohnicki, ON)

CZECH REPUBLIC—Radio Prague, 6080 at 0350 on a train bridge collapse. (Maxant, WV) 7345-Litmosyil at 0007. (Charlton, ON) 0315 on outdoor cinemas in Prague. (Wood, TN) 2227. (Parker, PA)

DJIBOUTI—Radio Djibouti, 4780 at 0300 sign on with anthem, AA talk, short bits of ME music, more AA talk. (Alexander, PA) 0324 with local music, M with ID, news in AA. (D'Angelo, PA)

ECUADOR—HCJB, 3220 at 0910 in (p) listed Quechua. (Parker, PA) 6050 at 1043 in Guarani to 1100 when it switched to another language, possibly Cofan. (Taylor, WI) 11960 in SS at 1416. (Charlton, ON) 1200 in SS at 2237. (MacKenzie, CA)

Radio Chaskis (p) 4909.3 at 0418 with chorale, man preaching in SS before an audience. (D'Angelo, PA)

La Voz del Napo, Tena, 3279 in presumed QQ at 0940. (Parker, PA)

EGYPT—Radio Cairo, 7270 at 0230 with something about Syria and Lebanon. Low audio. (Maxant, WV) 0300. (Linonis, PA)

ENGLAND—BBC, 7120 via South Africa at 0505 with "The World Today," 7140 Cyprus Relay in AA at 0312, 9740 Singapore Relay with sports news at 1247 and 11750 Thailand Relay with news at 1230. (Brossell, WI) 7430 via Tajikistan in unid Asian lang at 1330. (Linonis, PA) 11945 to Africa at 0330. (Maxant, WV) 15245 via

Wertachtal in RR at 1745 and 15380-Rampisham in Somali at 1812, 15285 Singapore Relay in CC with EE lesson at 1345. (Ng, Malaysia)

Far East Broadcasting Assn., 7225 via Dhabbaya at 0040 in Tamil to 0059 close. (D'Angelo, PA) 9550 via Rwanda in AA at 2024. (Brossell, WI)

EQUATORIAL GUINEA—Radio Nacional, Bata, 5005, to 2258 close in SS and also at 0532 apparent sign on. (Alexander, PA)

Radio Nacional, Malabo, 6250, opening at 0535 in SS with variety of Europops, Afropops and highlife. Irregular. (Alexander, PA)

Radio Africa, 15190 at 1925 with US-produced religious pgms but also some local EE religious pgms. ID and addresses at 2000. Covered by WYFR at 2159. (Alexander, PA)

ERITREA—Voice of the Broad Masses, 7100 at 0355 opening but covered by noise jammer at 0400. Both were gone at 0400. Also 7175 at 0356 opening mixing with unid station, covered by a noise jammer at 0359 causing a move to 7165, but then back to 7175 at 0346 check. Also, tentative on 8000 at 0359 open. HoA music. (Alexander, PA)

ETHIOPIA—Radio Fana, 6110 at 0402 with M and news in Amharic, several IDs. (D'Angelo, PA)

Radio Ethiopia, 7110 at 0259 sign on, chimes and Amharic talk with very weak parallels on 5990/9704. (Alexander, PA) 7110 at 0306 with smooth jazz blended with domestic instruments. (Strawman, IA)

FRANCE—Radio France International, 9805 suffering severe QRM at 0405. (Maxant, WV) 15300-Issoudun in FF to central Africa at 1752. (Parker, PA) 17630 via French Guiana in FF at 1355. (Charlton, WV)

GABON—RTV Gabonaise, 4777 in FF at 0513. (Brossell, WI)

Africa Number One, 9580 in FF at 1758. (MacKenzie, CA) 17630 in FF at 1530. (Linonis, PA) 1555. (Brossell, WI)

GERMANY—Deutsche Welle, 7245 Rwanda Relay at 0435, 11665 Portugal Relay in GG at 2330, 11865 Rwanda in GG at 2230. (MacKenzie, CA) 9700 Rwanda at 0522 and 11865 Rwanda at 2102. (Brossell, WI) 5905 via Ascension in GG at 1041, 13780 via Woolferton in GG at 1120, 15410 Rwanda in Swahili at 1051 and 21840 Portugal Relay in GG at 1137. (Parker, PA) 15205 Rwanda at 2030. (Wood, TN) 15640 Sri Lanka Relay with CC news at 1035. (Ng, Malaysia) 17630 Rwanda in AA at 1937. (Charlton, ON)

GREECE—Voice of Greece, 7475 in Greek at 2345 and 9420 in Greek at 0350. (Maxant, WV) 15630 in Greek at 1847. (Brossell, WI)

GUAM—Adventist World Radio/KSDA, 11880 in Khmer at 1335 and 15510 in Burmese at 0010. (Ng, Malaysia)

GUATEMALA—Radio Verdad, Chiquimula, 4052.5 in SS at 0125. (Parker, PA) 0439 in SS. (D'Angelo, PA) 0530 with SS religious pgm. (Wilker, FL)

HAWAII—KWHR, 9930 with "Finding Hope" at 1400. (Ng, Malaysia)

HONDURAS—Radio Misiones Intl, 3340 at 0410 with M/W in SS talks and brief instl segments, ID at 0431 and into choir. (D'Angelo, PA)

HUNGARY—Magyar Radio, 5940 with fanfare open at 0057, ID in HH with news and numerous remote reports. (D'Angelo, PA)

INDIA—All India Radio, 4920-Chennai at 1211 with Hindi vocals at threshold levels. (Strawman, IA) 7410-Khampur in EE at 2206. (Parker, PA) 9870 in presumed Hindi at 0000. (Linonis, PA) 9910-

Aligarh in Tamil at 0035. (Ng, Malaysia) 11620 at 2105 with news, ID. (Maxant, WV) 2140 with pops. Suffered from fading until 2230 close. (Strawman, IA) 11620-Bangaluru at 2210. (Charlton, ON)

**INDONESIA**—Voice of Indonesia, 9525 at 1213 with W talks in II. (Brossell, WI)

Radio Republik Indonesia, 4870-Wamena at 0830 very weak with just rases of audio. (Parker, PA) 9680-Jakarta in II at 0825. (Ng, Malaysia)

**IRAN**—VOIRI/Voice of Justice, 7235 at 0157. (Brossell, WI) 0105. Also 9495 at 0145. (Maxant, WV)

**ISRAEL**—Galei Zahal (p) 6973 at 0215 in Hebrew with HH versions of U.S. pop. (Linonis, PA) 0230 in HH with pop/rock (Taylor, WI)

**JAPAN**—Radio Japan/NHK, 5975 via Rampisham at 0529. (Taylor, WI) 6145 via Canada at 0005 on Tokyo department stores. (Maxant, WV) 6145 at 0005 and 11705 via Canada at 1400. (Charlton, ON) 6190 in CC at 1322. (Strawman, IA) 9835 in JJ at 1834, 13680 in JJ at 2226, 13640 in JJ at 2224 and 15265 in JJ at 2228. (MacKenzie, CA) 11815-Yamata at 0920. (Ng, Malaysia) 11895 with IS at 1108, overwhelmed by Firedrake on 11990. (Barton, ON)

Radio Nikkei, Sapporo, (p) 3925 at 0922. (Parker, PA) JJ at 1108. (Taylor, WI) 3925 with lengthy JJ talk, classical music at 1154. Also 6055 with semi-classical organ mx at 1240. (Strawman, IA) 6055 in JJ heard at 1240. (Ng, Malaysia)

**KUWAIT**—Radio Kuwait, 9855 in AA at 1952 and 11990 in EE at 2012. (Wood, TN) 11990 in EE at 1820. (MacKenzie, CA) 1920. (Charlton, ON) 1935. (Maxant, WV) 2354 in AA. Off at 0000. (D'Angelo, PA)

**LIBYA**—Radio Jamahiriya, 21695-Sabratha in SSB at 1150. (Parker, PA) 1400 open in EE, long stream of drumming and IDs at ToH, //17725, fair. (Wood, TN)

**LITHUANIA**—Radio Vilnius, 9875 at 2340 on alcoholism in the Baltics. Also 11690 at 0050 discussing the Internet. (Maxant, WV) 0050 in EE until 0100 close. (D'Angelo, PA)

**MALAYSIA**—Voice of Malaysia, 15295-Kajang at 0750 with "Learn Bahasa Malaysia." (Ng, Malaysia)

**MAURITANIA**—Radio Mauritanie, 4845 in AA at 0140. (Brossell, WI)

**MEXICO**—XERTA/Radio Transcontinental, 4800 at 0900 with just a strong carrier, no audio. (Strawman, IA)

**MOLDOVA**—Radio DMR-Grigoriopol, 6040 at 2311 with station address and info. (Parker, PA)

**MOROCCO**—RTV Marocaine, 15345-Nador in AA monitored at 1759. (Parker, PA) 1905. (Charlton, ON) 2045 with ME music. (Wood, TN)

Radio Medi Un, 9575 in AA at 0518. (Brossell, WI)

**NETHERLANDS**—Radio Nederland, 9525 via Canada in DD with M/W conversation at 2318. (MacKenzie, CA) 13700 in DD at 1046. (Parker, PA)

**NEW ZEALAND**—Radio New Zealand Intl, 6170 in EE at 1319. (Strawman, IA) 7145 at 1000 with Pacific Island news. (Linonis, PA) 1034 with news items. (Barton, AZ) 1035. (Ng, Malaysia) 9615 at 0520 on mysticism in religion. (Brossell, WI) 9655 at 1215 with DJ playing vocals. Also 15720 on health insurance at 0250. (Maxant, WV) 0342 with "Music 101" and news at TOH. (Wood, TN) 2203 with news items. (MacKenzie, CA)

**NIGERIA**—Radio Nigeria, Kaduna, 4770 at 0432 sign on with drums IS, choral anthem, M with ID and anmts. (D'Angelo, PA) 0511. (Brossell, WI)

Voice of Nigeria, 15120-Ikorodu, at 1720 with news and interviews. (Parker, PA) 1921. (Charlton, ON) 1945 with music and several IDs. (Wood, TN)

**NORTH KOREA**—Voice of Korea, 9335 to North America at 1325, //11710. (Parker, PA) 11710-Kujang at 1000 with EE news to Central and South America. Also 15180 at 1055. (Parker, PA)

Korean Central Broadcasting Station, 2850 in KK at 1050 to TOH and ID by a very unhappy sounding anncr. (Barton, AZ) 4450 with martial opera at 1015. (Parker, PA) 9345 at 1010 with W in KK. (Ng, Malaysia) 1200 with IS, KK ID and into presumed news. (Brossell, WI)

**NORTHERN MARINAS**—KFBS, Saipan, 15380 in II with ID heard at 1030 in II. (Ng, Malaysia)

**OPPOSITION**—Radio Voice of the People (to Zimbabwe), 9895 at 0416 with interview in vernacular from a London studio; brief music interludes between pgm segments. (D'Angelo, PA) 0420 with African music, vernacular talks. (Alexander, PA)

Radio National de la RASD (to Morocco), 6300-Rabuni (Algeria) at 0615 with Koran, talks and music bridges. (Parker, PA)

Furusato no Kaze (to North Korea), 9585 with M/W in JJ at 1331. (Ng, Malaysia)

Radio Free Asia, 9320 via Sri Lanka in listed Burmese at 1235. (Brossell, WI) 15430 via Tinian in Mandarin at 2305. (Ng, Malaysia)

Voice of the People (to South Korea), 3912 in KK at 1150 with patriotic vocals and impassioned chatter. Soon faded. (Strawman, IA) 6600 at 1145 with KK talk. Jammed. (Ng, Malaysia)

Radio Marti (to Cuba), 6010 in SS at 1100. (Parker, PA) 11930-Greenville in SS at 1409. (Charlton, ON)

Democratic Voice of Burma, 9490-Wertachtal at \*0028 with local music, W with ID in Burmese, opening anmts. Pgm featured telephone interviews and brief Burmese mx segments. (D'Angelo, PA)

Voice of the Wilderness, (t) 11540 via Irkutsk (to North Korea) in KK at 1319 with what sounded like a radio drama or dramatic reading. (Taylor, WI)

Radio Liberty, 9615-Lampertheim at 0302 with Kazakh pgm. (D'Angelo, PA) 11700 via Philippines in RR at 1223. (Brossell, WI)

**PERU** (All in SS)—Radio Municipal, Pano, 3174.5 at 1100. (Wilkner, FL)

Radio Vision, Chiclayo, 4790 at 0533. (Wilkner, FL) 0805. (Parker, PA)

Radio Victoria, Lima, 9720 at 0004 with M/W talks, brief interludes. (D'Angelo, PA)

Radio Libertad, Junin, 5039.2 at 1050 with excellent music. Quite consistent. (Wilkner, FL)

Radio Altura, Cerro de Pasco, 5014.5 at 0240 with live-sounding carnival music. (Wilkner, FL)

Radio Tarma, Junin, 4775 at 1021, taking a CODAR beating. (Parker, PA)

Radio Santa Rosa, Lima, 6047.2 at 1100 with only a little audio. (Wilkner, FL)

Radio Madre de Dios, Puerto Maldonado, (p) 4949.9 weak at 1130. (Wilkner, FL)

Radio Tawantinsuyo, Cusco, 6173.9 at 0300 with OA music. Nearly killed by co-channel QRM. (Wilkner, FL)

Radio Melodia, Arequipa, 5939.3 at 0949 with carrier and weak audio. (Wilkner, FL)

Radio Huanta 2000, Huanta, 4755 at 0237. (Parker, PA)

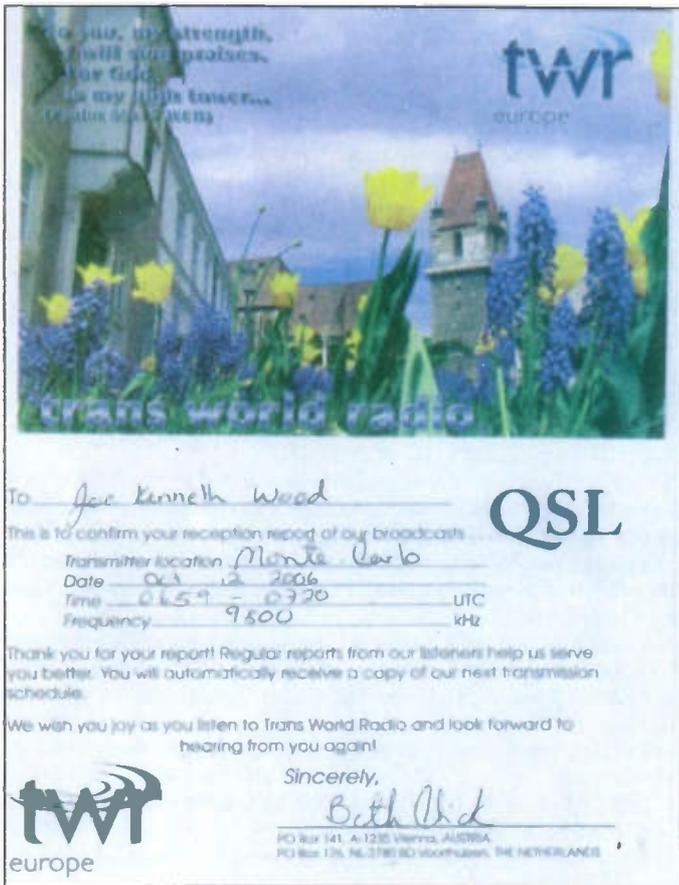
Radio Maranon, Jaen, 4835.4 at 1015. (Parker, PA)

**PHILIPPINES**—Far East Broadcasting Corp., 9430 in CC at

## This Month's Winner

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

This month's prize winner is **Charles Maxant of Hinton, West Virginia**, who now has a 2009 edition of *Passport to World Band Radio* next to his receiver, courtesy of our friends at Universal Radio (4820 Americana Parkway, Reynoldsburg, OH 43068, and on the Web at [www.universal-radio.com](http://www.universal-radio.com). You can't go wrong with these folks. Please mention *Pop'Comm* and "GIG" when writing.



Joe Wood confirmed reception of Trans World Radio, Monaco. (Thanks Joe Wood, Tennessee)

1204. (Brossell, WI) 1219 in CC. (Strawman, IA) 15525 in CC at 0700. (Ng, Malaysia)

Radio Veritas Asia, 9615 in Mandarin at 1140, IS and full EE ID at 1155. Carrier cut at 1156. (D'Angelo, PA) 11850 with EE ID and into VV at 1300. (Ng, Malaysia)

Radio Pilipinas, 12025 discussing Afghanistan at 0210. (Maxant, WV)

**PIRATES**—WBNY, 6925u noted at \*2145 and 1247 with Commander Bunny talking about the Bunny-Kraker "presidential" ticket. \$3 to the Belfast address for a Bunny-Kraker bumper sticker. That address is also good for reports. (Zeller, OH) 2311 to 2321 sign off. (Wood, TN)

Sycko Radio, 6925u at 0155 with pop/rock, talk about pirate radio. Some production problems (skipping music, two selections airing at once, etc.). Poor. (Gavaras, MN) 0243 with ID and a bit on "Old McDonald Had a Farm." (Wood, TN)

Artificial Intelligence Radio and International Shortwave, 6925u at 2350 with brief talk about presidential race, a therapist who doesn't care about his patient, about 15 rapid fire IDs for International Shortwave and another 15 or so for Artificial Intelligence Radio. No address. (Zeller, OH)

International Shortwave, 6925u heard at 0016 with rock, multiple IDs but none for Artificial Intelligence Radio. No address ancd. (Zeller, OH)

Real Pirate Radio, 6925u at 2334 signing on with a classical piece, then mostly rock. A parody on numbers stations. No address, but asked for reports via FRN. (Zeller, OH)

Random Radio, 6925u heard at 0312 anncd as a paid pgm from some preacher in Louisiana. Some rock but mostly a bunch of fake ads. No address but asked for reports via FRN. (Zeller, OH)

WTCR, 6925u at \*0141 with usual drums and fanfare, classic rock. Several phony Fireside Theater ads for a Volkswagen dealer in Pasadena. Belfast address at 0254 close. (Zeller, OH)

Radio Jamba International, 6925u at \*2006 with mostly rock and

## In Times Past...

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

Voice of the People (clandestine to Thailand) 12102 at 1302 on 4/10/72. Operated by the Thai Communist Party. (Dexter-WI)

novelty songs. Paul Harvey news bit. Clear ID at 2015 then soon faded. (Zeller, OH)

The Wave, 6925u at 2313 with rock oldies, some clear IDs. Belfast address. (Zeller, OH)

Radio Rag, (t) 6925u at \*2030, \*2031, 2034 on/off. After 2032 mentions of "international shortwave," semi-new age instls, cover versions of guitar rock standards. Appears to be a new one. No address ancd. (Zeller, OH)

Red Radio, 6925u at 2332 with W anner and funk, rock, and soul. I think this was a joint effort with Syco Radio. (Wood, TN)

Radio Appalachia, 6924.8 (USB plus carrier) with tinny audio, many Johnny Cash gospel tunes. Said they were broadcasting "from high above Moundsville, Virginia." Drifted slightly, off in mid-song at 0103. (Hassig, IL)

**PORTUGAL**—RDP Intl, 15560 in PP at 1239. (Brossell, WI) 1352. (Charlton, ON) 21655 at 1345 in PP with pops, f/by news. (Wood, TN)

**ROMANIA**—Radio Romania Intl, 6150-Galbeni, at 0311 with ID, talk about agriculture and UN food programs. (Wood, TN) 9790 at 2214. (Charlton, ON) 11790 at 0043 with "Network Europe" pgm. (D'Angelo, PA) 11895 at 0300. (Ng, Malaysia)

**RUSSIA**—Voice of Russia, 5900-Krasnodar at 0122 in RR. Also 7260-Krasnodar at 0237 and 9860 via Vatican at 0240. (Strawman, IA) 7250 via Armenia at 0110 with ID, news and features. (Taylor, WI) Charlton, ON) 7330 in CC at 1356, off at 1359. (Ng, Malaysia) 12030-Irkutsk in RR at 1240 and 12070-Moscow in FF at 1610. (Brossell, WI) 13635-Petropavlovsk-Kamchatsky at 0234 with commentary. (MacKenzie, CA) 0420 with history features. (Wood, TN)

**SAO TOME**—VOA Relay, 4960 at 0415. (Wood, TN) 0501 in Hausa. (Parker, PA) 0516 in listed Hausa. Also 9830 at 2055 in French. (Brossell, WI)

**SAUDI ARABIA**—BSKSA, 11820 at 2115 with Holy Koran service. (Gavaras, MN) 15225 in AA at 1735 and 15435 at 1214. (Parker, PA) 15435 in AA at 1530. (Linonis, PA)

**SERBIA**—International Radio of Serbia, 6190 at 0015 with vocal music until sudden signal loss. (Maxant, WV)

**SIERRA LEONE**—Cotton Tree News, 9525 via Ascension at \*0729 with drums. ID, news. (D'Angelo, PA)

**SLOVAKIA**—Radio Slovakia Intl, 9440-Sabota at 0117. (Charlton, ON)

**SOUTH AFRICA**—Channel Africa, 7230 with highlife music at 0527. (Brossell, WI)

**SOUTH KOREA**—KBS World Radio, 9570 at 1235 with Koran lesson. (Ng, Malaysia) 9650 via Canada at 1205. (Maxant, WV) 15360 via Rampisham in RR at 1807. (Parker, PA) 15365 via Rampisham in AA at 1914. (Charlton, ON)

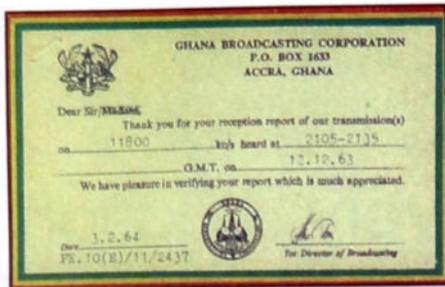
**SPAIN**—Radio Exterior de Espana, 6055 in SS at 0445, 9765 in SS at 1837 and 17850-Costa Rica Relay in SS at 1804. (Mackenzie, CA) 9535 in SS at 0115. (Linonis, PA) 21610 in SS at 1151, //21570. (Parker, PA) 1355. (Wood, TN) 9620-Noblejas in SS at 0102 and 15170-Costa Rica in SS at 1345. (Charlton, ON) 11680 in SS at 2345. (Maxant, WV)

**SRI LANKA**—Sri Lanka Broadcasting Corp., 9770 at 0103 with news, f/by old pop hits and swing music. ID at 0128, time pips at 0130. (D'Angelo, PA)

**SUDAN**—Miraya 101 FM, 15650 via Slovakia with EE news at 1500, ID at 1511 and 1515 and into AA. (Alexander, PA)

Republic of Sudan Radio, 7200 at 0245, Koran recitation, M talk, 0300 fanfare and probable ID. (Taylor, WI)

**SWEDEN**—Radio Sweden Intl, 6010 via Canada at 0125. (Charlton, ON) 0235. (Maxant, WV) 15240 on Western democracy at 1450. (Maxant, WV)



From his golden oldies collection, Mike Adams, Florida, sends this 1964 QSL from Ghana. Remember when they operated on 11800? I don't!

**TAIWAN**—Radio Taiwan Intl., 5950 via Florida at 0105. (Charlton, ON) 9735 in JJ at 1330. (Strawman, IA) 11605 in JJ at 0800. (Ng, Malaysia) 15600 via Florida at 2208. (Mackenzie, CA)

**TANZANIA**—Radio Tanzania, 11735-Zanzibar in Swahili at 2050. (Strawman, IA)

**THAILAND**—Radio Thailand Intl, 12120 at 0040 with press review. (Ng, Malaysia)

**TUNISIA**—RT Tunisienne, 7275 in AA at 0510. (Brossell, WI)

**TURKEY**—Voice of Turkey, 7325 at 0320 on electrical power there. (Wood, TN) 0340 with Turkish music. Also 9785 at 1830 ending EE and going into SS. (Maxant, WV) 13760-Emirler in GG at 2232. (Parker, PA) 15390-Emirler at 1025 with Turkish songs. (Ng, Malaysia)

**UKRAINE**—Radio Ukraine Intl, 7440-L'vov at 0001. (Charlton, ON) 0020. (Maxant, WV) 0326. (Wood, TN) 0328. (Brossell, WI)

**UNITED STATES**—Voice of America, 6060 Philippines Relay in VV at 2310. (Ng, Malaysia) 9575 via Madagascar at 0510. (Parker, PA) 9760 Philippines at 1256 ending news. Into EE at 1300. 9885 via Madagascar at 1414 and 11605 Northern Marianas Relay in listed Tibetan at 1303. Also 11785 Thailand Relay at 1235 and 15150 Thailand in CC at 0115. (Strawman, IA) 9820 at 0150. (Maxant, WV) 9890 Philippines at 1220, 11785 Thailand in CC at 1230 and 12010 Philippines at 1225. (Brossell, WI) 11990 via Novosibirsk in Mandarin at 1426. (Taylor, WI) 15410-Greenville to Africa at 1838, 15380 via Madagascar in Kurdish to 0600 sign off. (Parker, Pa) 15410 in EE heard at 1853. (Charlton, ON)

University Network, 6090-Anguilla, at 2220 with EE religion and U.S. address. Maybe overran 2200 sign off time on 11775. 11775-Anguilla (p) at 2212 with religious pgms. Abruptly off at 2215. (Gavaras, MN)

Trans World Radio, 12085 via Novosibirsk at 0045 in listed Dzongkha. (Strawman, IA)

WHRI, 11785-Cypress Creek at 1843. (Charlton, ON)

Family Radio/WYFR, 11875 via Ascension at 2155 with "Bible Class of the Air." (Gavaras, MN) 11895 via Irkutsk in VV at 1234. (Brossell, WI)

Adventist World Radio, 11915 via South Africa in possible Swahili at 1715. (Linonis, PA) WRNO, (t) 15590-Metairie with C/W songs until 0000 when they went non-stop Latin music. Off at 0030 w/out anmts. (D'Angelo, PA)

AFN/AFRTS, 5446.5-Puerto Rico and 7811/12133.5-Key West at 2350. (Maxant, WV) 10320u-Pearl Harbor at 0505. (Parker, PA)

KJES, Vado, 15385 at 1820. (Parker, PA) WBCQ, Monticello, (p) 9330 at 2006 with fundamentalist religious pgm. (Wood, TN)

**VATICAN**—Vatican Radio, 7250 at 0527 with interview, IS, ID and into II at 0530. (Brossell, WI) 7305 at 0250 on the Pope in Australia and 9650 on a new American cardinal. (Maxant, WV) 9650 at 0145. (Ng, Malaysia)

**VENEZUELA**—Radio Nacional 11875 via Cuba in SS at 1410. (Charlton, ON) 13680 via Cuba on Russia setting up bases in Venezuela. Into SS at 2308. (MacKenzie, CA)

Radio Amazonas, Puerto Ayacucho, 4940v at 0403 with Manner and techno things. Poor. (Wood, TN) (p) at 2320, but very distorted. (Alexander, PA)

**VIETNAM**—Voice of Vietnam, 6175 via Canada in EE at 0100. (Charlton, ON) 0335. (Maxant, WV) 9725 via Moosbrunn at 1713. (Parker, PA)

Son La Radio, 4740 in VV at 1350. (Ng, Malaysia)

**YEMEN**—Republic of Yemen Radio, 9780 at 0355 with regional vocals to 0400 ID

and anmt by M in AA, seeming news, f/by M/W hosting more music. (D'Angelo, PA)

**ZAMBIA**—CVC Intl, 13590 at 1913. (Charlton, ON) 1950. (Maxant, WV)

**ZIMBABWE**—Zimbabwe Broadcasting Corp., 3396 at 0050 with Afropops. No sign of 4828 at that time, although it was noted with an early fade in at 2230. (Wilkner, FL)

And, once again, order is restored! Endless thanks to the following who did the good thing this time: Joe Wood, Greenback, TN; Peter Ng, Johor, Malaysia; George Zeller, Cleveland, OH; Charles Maxant, Hinton, WV; Richard Parker, Pennsburg, PA; Mark Taylor, Madison, WI; Tom Gavaras, Minnetonka, MN; Jerry Strawman, Des Moines, IA; Robert Wilkner, Pompano Beach, FL; Robert Charlton, Windsor, ON; Stewart MacKenzie, Huntington Beach, CA; Robert Brossell, Pewaukee, WI; Michael Yohniki, London, ON; Brian Alexander, Mechanicsburg, TN; Rich D'Angelo, Wyomissing, PA; Rick Barton, Phoenix, AZ; William Hassig, Mt. Prospect, IL; Sheryl Paszkiewicz, Manitowoc, WI and Jack Linonis, Hermitage, PA. Tremendous thanks to each one of you.

Until next month, good listening! ■

## Horizons (from page 12)

From the standpoint of the radio industry, growth of the audience has been slow. By most estimates, there are fewer than 600,000 HD radios across the United States. That translates to fewer than 4,000 radios in a city of two million. Thus there are often only a few hundred listeners, at most, tuned into a particular channel at any time. Even if industry predictions of another million radios sold are met in 2008, those numbers are probably still well short of what it will take for digital radio to succeed financially.

On AM radio, there remain serious issues with nighttime use of digital signals causing interference to stations far from the primary coverage area due to skywave propagation. You can't regulate the laws of physics. As a result, some AM stations have turned off their HD signal and many others are taking a wait-and-see approach toward the technology.

So, what are my predictions for HD Radio? Here goes:

- Existing HD radio on AM will eventually be replaced by a more appropriate technology, but only after the radio industry and the FCC accept that it has failed commercially.

- HD radio on FM will survive for the next few years; its ultimate fate remains unclear but it may well depend on whether the technology can be made economical enough for public interest to build.

- The broadcast industry will get HD technology into more car radios, home entertainment systems, and handheld devices. (Note: as a side effect of the Sirius-XM merger, the FCC is conducting a rule-making exercise to see if HD technology should be included in future satellite radio products. I don't believe this will happen by regulatory dictate, but integrated devices point the way to consumer acceptance.)

- Consumer acceptance will depend not just on hardware but also on compelling content. Listeners have to want HD Radio because it offers something they can't get as easily and cheaply another way. The radio industry hasn't done a good job of telling listeners what is offered on the HD2 and HD3 channels to date. Each station must promote what they already have out there if they want more listeners.

Let me know what you think. For more information on HD Radio, check out <http://hdradio.com>. See you next month.

# Antenna Tuners For Every Situation

by Kirk Kleinschmidt, NT0Z  
kirk@cloudnet.com

Few amateur radio topics are more perennial than antenna tuners. And, unfortunately, few topics are more confusing for ham radio newcomers. When to use them, how to use them, and which type to use in any given situation are often just as confusing to those who mentor new hams, too! There's *a lot* of misleading information floating around out there, and a lot of wives' tales, myths, and legends—even *urban* legends for hams who live in town!

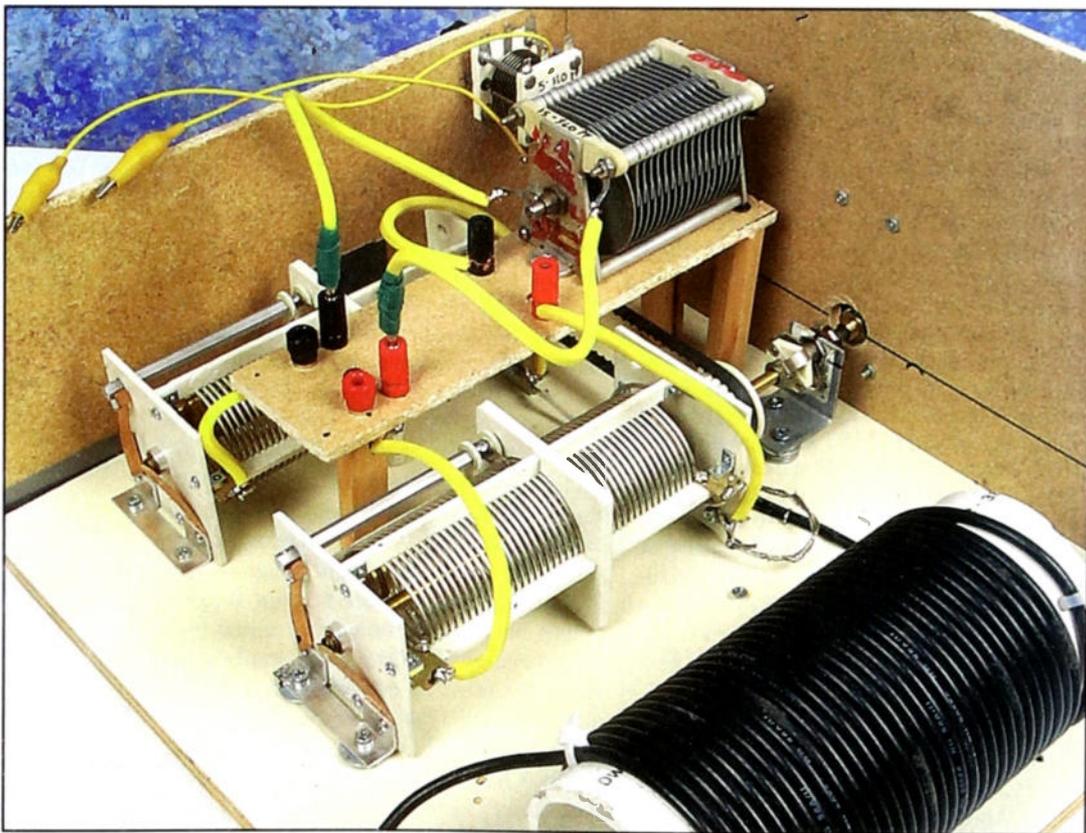
So, try to remember the stuff we're discussing this month the next time you find yourself in a conversation about antenna tuners, their acces-

sories, feed lines, and any magical properties a particular device is reported to have.

We don't have nearly enough space to cover all the angles of this expansive topic, but here we go with the basics...

## Antennas And Feed Lines

Before we can intelligently discuss antenna tuners we need to consider an antenna's feed line. Most beginners have simple antennas such as dipoles or inverted vees fed with 50-ohm coax, and that's mostly the configuration we're assum-



You can't buy this balanced tuner in any store, but you can build it yourself, and it will likely outperform most/any/all commercial tuners in its power class. This is an "interior" shot of my experimental balanced tuner. The two rotary inductors are synchronized to maintain circuit balance (a turns-counting dial on the front panel keeps track). The two variable capacitors (top center) are required to tune all the HF bands. I couldn't find one that would cover the entire range! Another component that's not likely to be found in a commercial unit is the *huge* coaxial cable input balun (lower right). It offers spectacular performance over a wide range of frequencies...but it's anything but petite. Actually, the tuner itself is rather chunky: You could store a half-dozen of today's compact transceivers in its interior space.

*“If you want wider coverage from the same antenna you can insert an antenna tuner between your rig and your antenna. This is where the magic happens—and where things can get complicated!”*

ing here. Some antennas are fed with 450-ohm open-wire line, ladder line or 300-ohm TV twin lead (generally superior), which I’ve covered in previous columns and will touch on again further in this one.

Keeping with our simplified model, when you installed that dipole antenna in the backyard, you probably used a length of 50-ohm coaxial cable to connect the antenna to your radio, which is located somewhere in your house.

Again, in the simplest terms, your transceiver is designed to transmit into an antenna that has a feed point impedance of 50 ohms. When your antenna is properly matched to your transmitter (meaning that the antenna is *resonant* or nearly so), most of the power sent through the transmission line reaches the antenna and is radiated into space, which is what you want. If the antenna isn’t properly matched, some of the energy in the transmission line is wasted (as heat) and isn’t radiated. Severe mismatches can *greatly* reduce your transmitted signal and might even damage or destroy your transmitter or transmission line! The greater the mismatch, the less power your antenna radiates.

The term for measuring the quality of the match (or mismatch) is called SWR (standing wave ratio), and it’s measured with an SWR meter. Simply, a ratio of 1:1 (or close to it) is best; 2:1 is usable; and 3:1 or greater probably indicates a serious mismatch, for antennas fed with 50-ohm coax, anyway.

If you’re using an antenna on only one frequency band, trimming a wire, or adjusting the element lengths of a beam antenna, so it presents a 50-ohm load to your transmitter is the easy part. If you want wider coverage from the same antenna you can insert an antenna tuner between your rig and your antenna. This is where the magic happens—and where things can get complicated!

## The Handy, Dandy Antenna Tuner

By adjusting the antenna tuner’s controls, you can “trick” your radio into happily putting out full power, even on frequencies where your antenna isn’t anywhere near resonant. When properly adjusted, there’s a nearly perfect match between your rig and the tuner (1:1 SWR). There’s *still* a mismatch between the antenna tuner and the antenna, but if you’re using a high-quality transmission line, most of your precious RF energy makes it to the antenna and is radiated into the ether.

The antenna tuner, then, is a handy, adjustable transformer that, within reason, lets you use a single antenna over a wider range of frequencies (or frequency bands). Most beginning hams have the rig and the antenna tuner in the shack and the antenna in the backyard. With such a setup, a single antenna can be used on multiple bands, with the antenna tuner taking care of any unsightly SWR issues—or so the mythology goes.

This typical arrangement works best on the lower HF bands, as coax losses increase with frequency. For best results, the antenna being “tuned” should be pretty close to being resonant at your intended operating frequencies, meaning that the antenna’s feed point impedance should be close to 50 ohms, which is often a difficult proposition.



Want to install an outdoor-mounted autotuner on your sailboat, in your attic, or in your backyard? This MFJ-926 covers 160 through 6 meters, is reasonably waterproof for hassle-free installs, and handles 10–200 watts. It takes 10 watts or so to enable the unit’s automatic tune feature. That’s handy for most HF ops, but as a QRPer, I’d love to see this thing tune at 1 or 2 watts. The ‘926 has been well received. Under the hood it’s a CG Antennas Model CG-3000. In recent years, CG and MFJ have been competing against SGC, the Washington-based company that popularized amateur radio, marine, and military autotuners.

Using your antenna tuner to adjust the match for a dipole that’s resonant at 3.6 MHz to work at 3.9 MHz is a great idea. So is using an antenna tuner to load a 40-meter dipole on 15 meters, or an 80-meter dipole on 10 meters, because the bands are harmonically related in a way that results in reasonably good feed point impedances when fed with 50-ohm coax. Using your shack-mounted tuner to load an 80-meter dipole on 160 meters, for example, is a *terrible* idea. Although the SWR between your rig and your tuner might be 1:1, the SWR on the coax that runs between your tuner and your antenna will be extremely high, which can result in *staggering* losses.

This is where most of us get smacked. We think that because the antenna tuner presents a 1:1 match to our rig, which is now happily putting out full power and working like a charm, that plenty of RF is getting to the antenna and out into space. If your antenna’s feed point impedance is noticeably higher or lower than the expected 50 ohms at your operating frequency, you may be using your rig mostly as a space heater! Your transmitter may be pumping 100 watts into your antenna tuner, but because of SWR losses in your coax (plus internal losses in your antenna tuner), you may actually be radiating only 40, 20, 10, or even 5 watts or less!

## Antenna Tuner Secrets Exposed

To avoid the punishing SWR losses that result from high feed line SWRs you’ll have to do a bit of re-engineering. It’s a hassle, perhaps, but it will pay off big time on the air. Your choices are:

1. Use a shack-mounted tuner with 50-ohm coax *only* for minor adjustments to antennas that are already “mostly reso-

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nant." If you try to go too far afield with impedance, your results will suffer dramatically. (Disregard this admonition if your coaxial feed line is only a few feet long. If you're feeding an antenna that's in the same room as your transceiver, or just outside your bedroom window, etc., the feed line losses will be minimal no matter what. (RFI may not be minimal, but that's another topic entirely.)

2. Keep the antenna tuner in your shack, but change your feed line to 450-ohm ladder line or open-wire line. Compared to coax, 450-ohm line is essentially lossless. It takes more care to install, however, which is why coax became so popular in the first place. This stuff mops the floor with coax when it comes to SWR losses. In settings where coax losses might reach 3 to 30 dB, ladder-line losses might be 0.3 to 3 dB.

There's no free lunch, of course, and ladder line has a few caveats. Conventional antenna tuner designs, intended primarily for coax-fed antennas, rarely handle ladder line effectively. The problem is with the balun transformer required to accommodate ladder line feeds and keep them electrically "balanced," which is critical to overall performance, lack of

RFI, etc. If you're making the move to ladder line feeds (one of my favorite "secret weapons"), be sure to build or buy a tuner designed expressly for balanced lines. Not surprisingly, these are often called "balanced tuners." MFJ's Model MFJ-974HB is popular and affordable.

3. Put the antenna tuner at the feed point of the antenna. Doh! Why didn't I think of that? The need to have an antenna tuner in the shack is driven mostly by convenience and tradition—because it's completely the *wrong* place to have it for performance! Remember, an antenna tuner tweaks the impedance match between your radio and the tuner itself, and if the tuner is located *at the antenna*, the entire run of coax between the two is matched, which results in the lowest possible SWR losses even when the antenna is being used on a variety of bands.

If your arms aren't long enough to reach from your shack to the antenna feed point in your backyard, you'll have to use an antenna tuner that adjusts itself. Thankfully, these special autotuners, often called autotuners to differentiate them from the autotuner that might be built into your transceiver, already exist. They're wide-range antenna tuners built



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into weatherproof (or weather-resistant) enclosures. When you transmit, an internal circuit measures the SWR and automatically configures capacitors and inductors inside the coupler to maximize the power transfer to the antenna (minimize the SWR between the coupler and the antenna feed point, which are one and the same).

Aside from mounting the coupler in the first place, you don't have to do anything but transmit! Hop from band to band as fast as you can. Autocouplers typically take a quarter of a second to five seconds to match impedances. Some remember multiple "tuning solutions," which eliminates tuning time entirely. Autocouplers used to be big-time expensive, but for installations that can benefit from them, they now cost only a bit more than conventional units and are probably the best way to use a single antenna on multiple bands. Remote-mounted autocouplers are available from several manufacturers, including MFJ (Models MFJ-926 and MFJ-927), CG Antenna (Models CG-2000 and CG-3000), SGC (Models SG-237 and SG-239), and others.

## The "Other" Efficiency

When considering antenna tuners it's easy to focus excessively on SWR losses, which is exactly what an antenna tuner is supposed to minimize! The other losses I'm referring to are *internal* losses,

which are often expressed as tuner efficiency.

Even if a particular tuner can effect a match on a certain frequency with a certain antenna, the losses *inside the tuner* can be pretty discouraging. The ratio between tuner input power and tuner output power defines its efficiency (its internal losses). Good tuners usually have losses in the 5 to 15-percent range, but losses can soar to 50 and even 60 percent in certain models under certain conditions. These losses often peak when matching antennas on 160 meters or when matching extreme load impedances. (When I tested one particular antenna tuner on 160 meters, a plastic insulator on the main inductor would burst into flames in time with the transmitter keying at a mere 100 watts! On all other bands, where the efficiency was much better, the tuner worked fine and had reasonable losses. It's something to think about.)

## Final Thoughts

Despite what you may have heard, antenna tuners aren't magical devices that are used by unicorns and transcend the laws of physics. All tuners introduce some loss, so don't use one if it's not necessary. And if it is, use the right tuner for the job, with an appropriate feed line and antenna type. Used in that way... well...there may be a bit of magic after all! Your success on the air will certainly show it. ■

## Tuner Tidbits

- Just as you can never be too rich or too thin, you can never have an antenna tuner that's too beefy. Matching certain loads can produce extreme RF voltages (remember the burning tuner?), so don't be afraid to use a 100-watt tuner for QRP work, a 300-watt tuner for "barefoot" operation, etc. If your tuner works for a particular application, it works—but bigger is usually better in terms of efficiency, component quality, etc.

- The automatic antenna tuner that may be built into your transceiver isn't designed to match wide-ranging loads—and after reading this month's column you know why you wouldn't want to use it that way even if it was!

- Forget about using antenna tuners at VHF/UHF (unless you're using an antenna-mounted autocoupler on 6 meters). Feed line losses increase rapidly at these frequencies and antenna tuners are generally not useful. The only real remedy is to use a high-quality feed line and a properly matched antenna.

- If your SWR is 2:1 or less on the frequencies at which you operate, you don't need an antenna tuner. Most modern rigs will tolerate an SWR of 2:1 or less with no difficulty and still put out full power.

- Antenna tuners don't usually improve typical RFI problems. Many designs reduce *harmonic radiation*, but most RFI is caused by RF overload at the fundamental frequency. Tuners do nothing to reduce this (and may actually make it worse by helping you radiate an even stronger signal!).

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## The Vacation Stations

by Shannon Huniwell  
melodyfm@yahoo.com

**B**ecause I also have a "day job," most of my columns are concocted at night, on weekends, or during an occasional holiday. The long lead time traditionally requested by magazine editors means that a piece written for a winter issue might be submitted in the midst of the previous summer. That's both the case and the focus of this article. Its topic crystallized after I received correspondence from *Pop'Comm* readers who coincidentally communicated about radio station adventures they'd encountered while summer vacationing.

### "Spotted This Rare Corner Of Broadcasting While We Were Getting Breakfast!"

...So exclaimed the letter containing a photo of what was purported to be one WMCI in Bernardston, Massachusetts. Its sender indicated that what he supposed to be a minimalist FM out-

let, or possibly a bold pirate operation, stood silent in a muggy July Sunday morning as he and his wife rumbled their camper into the parking lot of a diner across the road from WMCI's modest concrete block headquarters. His snapshot displayed telltale markings of a Mom & Pop radio station, all right, but none of my directories connected these indicators to an explainable past or present.

I used an early winter 1926 edition of *Stevenson's Bulletin of Radio Broadcasting Stations* to begin my hunt for WMCI's lineage. No such listing. A smattering of late 1920s and '30s call letter rosters came up dry, too. So did the spring 1952 *White's Radio Log* and a long shelf of *Broadcast Yearbooks*. Finally, I thought...pay dirt! Alas, the find in *M Street Journal's Radio Directory* 9th Edition barely panned out after identifying WMCI as an 11,500-watt (with its antenna at 482 feet above average terrain) member of a regional station group in Neoga, Illinois—nowhere near Massachusetts.



Here's what a *Pop'Comm* reader understandably believed to be Bernardston, Massachusetts' very own radio station.

That dead end, plus a mention of the mystery to my Dad, rekindled his station-sleuthing fire during a daytrip from Connecticut to the Bay State. He convinced my mother that they should experience the aforementioned diner in Bernardston. Needless to say, while in its culinary vicinity, he insisted that Mom enjoy a leisurely dessert, and then excused himself for a minute or two to run across the road and say "Hi" to the folks at WMCI. His report concluded that, though the gas station-sized building emblazoned with the letters WMCI and fitted with a radio tower indeed looked like a local broadcast station, the place most certainly housed no such FM or AM service. Instead, this WMCI was an outpost of Western Massachusetts Communications, Inc., a company specializing in two-way radio.

When contacted about my father's nose results, our contributing *Pop'Comm* reader admitting feeling a bit embarrassed for having dragged the Huniwell clan into his misassumption. I assured him, however, that his good intentions were appreciated, and relayed Mom's gratitude for circumstances leading to a wonderful slice of Boston Cream Pie.

## No Sign...No Sound

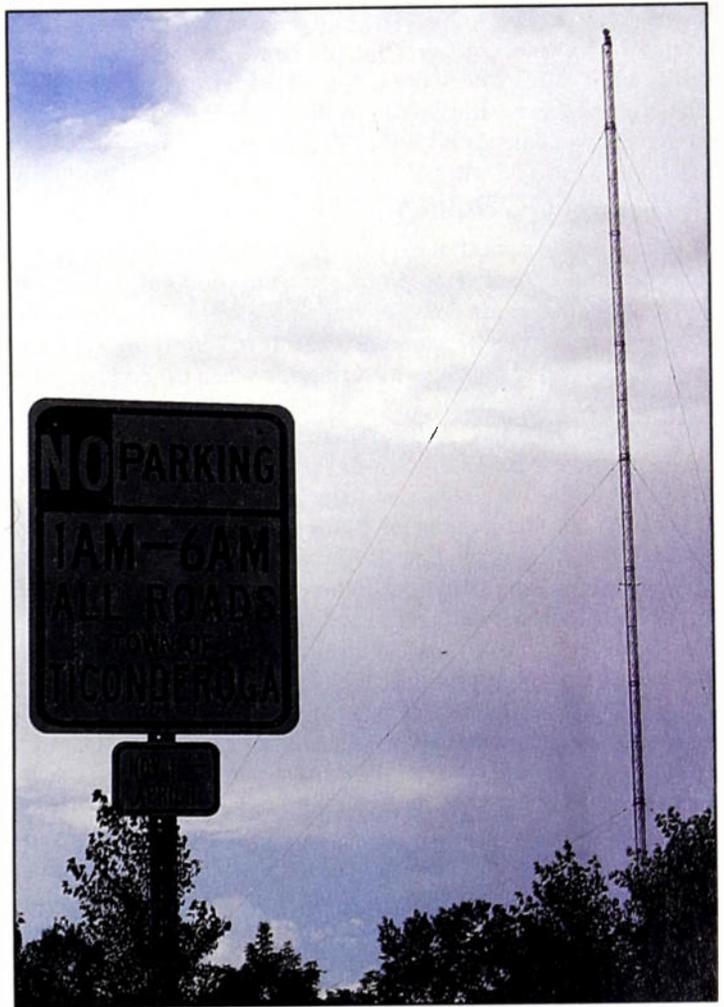
Another vacationing *Pop'Comm* subscriber asked me to investigate what he called "a bona fide mediumwave stick, stuck in a field near an AMTRAK stop, a ferryboat landing, and parking lot on the shore of Lake Champlain." The fellow told how he pulled into a rough swath of overgrown gravel driveway that led about three-quarters of the way to a shed at the base of an insulated red and white tower. "No doubt in my mind that this antenna was designed for AM broadcast work," he noted and then described hitting his GMC pickup's radio seek button up and down the standard band dial. "Had there been any close-by RF," he deduced, my Delco receiver would have blasted it throughout the cab. That stick—and whatever studio had been associated with it—was completely dead!"

Pictures attached to the guy's email made me immediately confident that I wouldn't need my father's assistance in unraveling this mystery. In the foreground of one of the tower shots, a small road sign announced the scene as being in Ticonderoga, New York. Besides playing host to a famous Revolutionary War fort, "Tie," as the Adirondack burgh is called by local folks, is also the community of license for a presently dark AM daytimer that is worthy of at least a few historical pages here.

## The InternationalPaper Station

Reportedly, WIPS took its moniker as a nod to Ticonderoga's long-established pulp mill operated by the International Paper Co. There was no ownership connection to the area's major employer, but it's understandable that for the new AM's founders such a tribute seemed to make sense, if only to win a little status conferral. WIPS hit the airwaves over portions of Lake Champlain, Lake George, Schroon Lake, and several little bodies of Vermont water in July 1955. *Radio Daily's Annual* for that year claims a 1954 debut, but subsequent documents show the mid-'50s correction.

Portage Broadcasting Company, Inc., is noted as the original licensee of the 500-watt non-directional facility at 1250 kHz. A scant entry identifies Martin Karig as Portage's president, with John Glynn assuming program director and chief engineering duties. ABC and Kaiser networks (the latter being an "unwired" organization that offered small, often rural outlets a few dollars for running rather generic but sponsored transcribed



Like a sentinel guarding nearby Fort Ticonderoga, WIPS' now silent stick stands ready for somebody to sound a new charge.

shows) broadened the fledgling station's fare. WIPS' original studio/transmitter home was a modest wooden structure in front of the lonely tower spied by our topic contributor. (Incidentally, the real estate burned in the early 1980s, leaving that phantom driveway to nowhere.) Portage never intended that the start-up 500 watts would be its limit, as an application to double power was tendered to the FCC and granted during the station's first few years.

By the fall of 1959, a 1-kW WIPS changed hands. Ti Broadcasting's Bernard H. Pelzer, Jr., served as president; William Powley was general manager; and Richard Griswold handled the programming. They continued WIPS' operation in the little white building on Fort Ti Road, just a literal stone's throw from Lake Champlain. I would love to hear a WIPS aircheck from this era. My guess is that the station focused on hometown topics and bucolic musical tastes. It's likely that the announcers—probably one hosting a sign-on to lunchtime shift and a second DJ pulling noon until sign-off, with a very green part-timer doing 6 p.m. to sunset in summer—were young broadcasters dreaming of someday working for an Albany, Buffalo, or maybe New York City station.

"Dollar-A-Holler" commercials brought specials at Mom & Pop stores in Ticonderoga, Crown Point, Port Henry, Schroon Lake, and Middlebury, Vermont to the attention of satisfied WIPS listeners. And, during the holiday season when rural people, who prior to the 1970s likely only traveled outside of their

community on rare occasions, might be in the market for an unusual Christmas gift, WIPS could convince some big advertisers up towards Plattsburgh, New York, over in Vergennes, Vermont, and even Burlington to the north and Rutland at the south, to buy some spots on the "Ti Station."

## A Novel FCC Ruling

The happy prospect of easy (or easier than peddling to hard-scrabble Adirondack shop proprietors, anyway) money selling Vermont storeowners radio advertising gave Ti Broadcasting confidence that steady economic growth was in its future. This was an especially reasonable assumption when the comparably upscale and larger (than Ticonderoga) Middlebury, Vermont, was claimed as WIPS' rightful marketing territory. An easy 15 miles northeast of 1250's tower, as the radio waves fly, an Eisenhower-era Middlebury was nicely poised to receive WIPS' daytime signal louder than anything else on the AM dial.

Considering that frequency modulation transmission and FM set penetration was virtually nil there back then, WIPS counted upon Middlebury's captive audience for a lot of its fiscal bread and butter. So, imagine Ti Broadcasting's fear when it learned of a proposed fulltime AM operation for Middlebury!

Admittedly, I'm reporting from memory about a tale my Dad occasionally encountered when, during some circa 1968 Green Mountain camping trips, he talked radio with station personnel he visited along the way. Its gist relates to a long-since deleted FCC rule barring applicants for new broadcast outlets from building in a media market so small and precarious that any new station there would undoubtedly suck the oxygen from an existing local broadcast facility. The story goes that WIPS' owners begged the Commission to keep WFAD (1490) Middlebury from getting airborne. They were successful for a part of 1964 and 1965, until the FCC's stay was lifted (due to shifting winds that blew against any governmental influence that appeared to promote anti-competitiveness) and Middlebury's own broadcasts began.

## Regroup And New Owners

Arguably, half of WIPS' listenership almost instantly abandoned the 1250 spot, leaving the Ti sales force to scavenge audience and ad revenue on its own side of the lake. This home base realignment was evident in the name Ticonderoga Community Broadcasting Service, coined by the outfit that purchased WIPS on October 20, 1967. In fact, this new ownership also ran WCSS, a well-respected 1000-watter serving Amsterdam, New York, a couple hours southwest of Ticonderoga.

Shortly after the acquisition, WCSS' chief engineer, Dave Downing, was offered the news directorship (along with technical responsibilities) at WIPS. Over the next several decades, Downing's authoritative information delivery style boomed through the lower Champlain Valley's airwaves and served as the station's most iconic voice. My father tells me he once managed a brief visit to WIPS after he and Mom took the ferry from Vermont. Dad recalls being fascinated by watching Downing, who, though legally blind, smoothly read news copy practically pressed to the lenses of his eyeglasses. Downing defined the station and is a good example of the type of loyal, long-running air talent (and decent engineer in the bargain) that any local radio company would be fortunate to employ.

During January 1974, Downing announced that WIPS had been sold to Motsinger Communications. Owner John Motsinger labeled his station's format "diversified," including



Vacationers departing the nearby ferry from Vermont or waiting at the train station just a football field away might notice this installation off the main road. Most will never realize the spot was once home to a vibrant source of daily communication for several thousand Champlain Valley residents.

eight hours weekly of farm programming, network offerings from Mutual, and a baker's dozen hours featuring Country & Western music. With WFAD's novelty having worn off a bit after 10 years in Middlebury, WIPS re-established an assertive Vermont sales push with a local telephone number (and de facto office) there, as well as in Ticonderoga.

The \$12 per minute commercial rate Motsinger listed in the 1979 *Broadcasting Yearbook* seems like a worthy goal, but it's probable that \$5 spots were quickly negotiated by most of the 1000-watter's willing prospects. Apparently, by the time the '79 *Yearbook* arrived, Motsinger had his fill of WIPS and was negotiating its sale to Cawley Broadcasting Company, a deal finalized near the end of summer 1979.

That's approximately where I come into this picture. The following July, part of our family vacation included a day at Fort Ticonderoga. After zipping through most of the history exhibits, Dad persuaded Mom and my brother that they should partake in some tasty snack bar repast while he and I popped down the road to tour "electronically historic" WIPS. Though nearly 30

years ago, I can remember running into owner Gus Cawley who was heading out of the front door intending to drive into town to drum up some business. It didn't take Dad long to temporarily reverse Cawley's course and net a look-see into that old wooden studio/transmitter shack.

With a contagious brand of enthusiasm and blarney, Cawley highlighted more of the station's future than its humble present. He spoke to both of us as if we were bank loan officers. Seems to me that his plans included a new headquarters and an FM outlet that—like Ethan Allen's Green Mountain Boys touted at the Fort—would be capable of capturing the lion's share of the Champlain Valley.

"He sure was excited about his station," I remarked to my father as we sped back to Fort Ti. Dad's reply included the term "smoke and mirrors," explaining that one had to believe the impossible and constantly preach it to anyone and everyone when trying to build a skyscraper on the frame of an old mobile home.

## WIPS And FM Sister At Their Absolute Zenith

The shooting star that followed Cawley's prediction included the establishment of a formulaic adult contemporary music and regional New York/Vermont information format on WIPS. Remote broadcasts from various stores and events became commonplace on the daytimer that often succeeded at sounding much bigger and more influential than it actually was. Dad thinks that a fluke ratings book landed the little AM among the top five stations in one of Burlington/Plattsburgh's Arbitron survey periods, allowing for all kinds of subsequent hyperbole.

An equally interesting blaze (related to electrical problems) forced WIPS out of the rickety Fort Ti Road venue and into a nicely refurbished studio complex on Lake George Avenue in Ticonderoga. The former commercial laundry was also home to WIPS' new sister, WXTY-FM 103.9, which commenced operation in the fall of 1982. Cawley quickly parlayed this locally staffed Top-40 outlet and WIPS' local news and ABC features (like Paul Harvey) into a year of impressive revenue figures strip-mined from every nook and cranny of the region's retail density, and then he sold the operation to an Emmy-award winning New York City TV newscaster looking to relax a bit as a proverbial upstate gentleman broadcaster.

This poor gentleman was soon shocked to learn of the existence of all of the recently established competing stations. I know that because one of my father's radio buddies, who owned neighboring WHRC-FM in Port Henry, New York, received a chagrined visit from WIPS' surprised new proprietor. He admitted that, during the courting process, nobody happened to mention the presence of WIPS' and WXTY's closest rival. The illusion of market dominance revealed, that flashy enthusiastic shine started fading off of those Ticonderoga radio apples.

Perhaps feeling shackled by his WIPS and WXTY purchase, the new owner privately dubbed the stations, "whips and chains." He unlinked himself from their signals in 1987, selling to the fast expanding radio group headquartered at 50,000-watt WGY in the Empire State's Capitol Region. Within three years, it sold off the FM to Albany-based public broadcaster WAMC-FM for its expansion plans. As an AM standalone again, this time in an undeniably FM marketplace, WIPS couldn't get much traction beyond Ticonderoga and the few economically challenged communities 15 to 20 miles north and south of its tower.

Throughout the '90s, more than a few small Mom & Pop stores gave way to a Wal-Mart in Ti, slicing potential advertis-



A collection of WIPS/WXTY brochures from the early 1980s.

ers. The station bounced through several owners until landing in the hands of a family-run telephone/Internet company in Crown Point, New York, sometime during 2002. Remembering the station's heyday and long years of community service, the firm's new broadcast division, BisiBlue, LLC, paid \$93,000 for WIPS and operated it primarily as a labor of love. The plug got pulled at noon on the last day of February 2008, and only after Crown Point Network Technologies exhausted a noble attempt to revive the station, first with all local air-talent and finally via satellite programming.

CPNT officials felt "horrible about it," as they told the Plattsburgh *Press-Republican* newspaper, but they just couldn't find ad support for it anymore. The report noted WIPS as costing some \$3,000 monthly to keep on the air. Had there been sufficient ad revenue to break even, the paper indicated, WIPS' owners would have gladly kept its transmitter going. "We know it had listeners," the disappointed broadcasters said.

Maybe if I had the nerve to quit my day job, I might consider buying WIPS and returning the old gal to the airwaves. Kind of like driving an antique car in a 4th of July parade, it'd be just for the fun of running a little analog AM radio station in an increasingly digital world. Perhaps there'd be a nice opportunity to showcase a revived WIPS as a kind of radio museum and attract a bunch of tourists coming through Ticonderoga on their summer vacation...

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

## Shop Talk—Proven Techniques For Cheap And Easy Problem Solving

by Peter J. Bertini  
radioconnection@juno.com

I have a folder with numerous topics I've been meaning to cover in my columns. While useful information, none seemed to generate enough fodder, individually, to fill an entire column. So I've decided to try something new, a recurring theme for "The Wireless Connection" that I'll call "Shop Talk," where I'll share tips, techniques, and general workshop savvy that I hope you'll find useful. In kind, I welcome input and suggestions from you folks—I'm sure many of you have similar tips that other readers will find equally useful! So, grab a cup of coffee, pull a chair up to the workbench, and let's get started.

### Loose Radio Knobs

Many consumer radios use push-on knobs. Instead of setscrews these knobs have a half-moon opening that is designed to fit over flat-shaft (D shaft) controls. The flat shaft ensures that the knobs won't loosen and turn freely, since

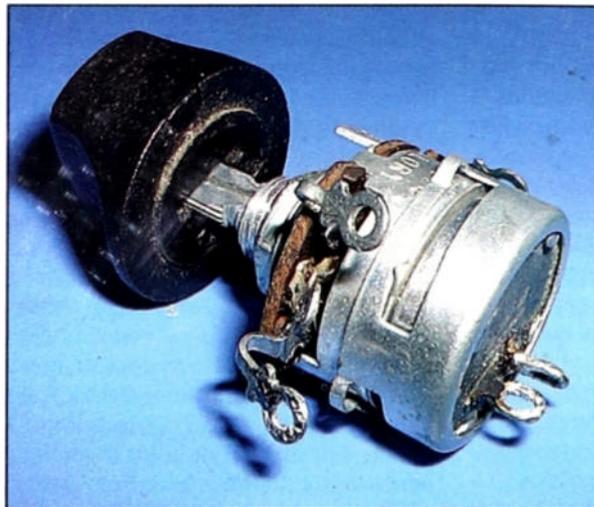


Photo A. Many knobs are designed to mate with flat (D shaft) control shafts as seen in this photo. A tiny flat spring inside the knob provides the friction to keep the knob attached to the shaft. These small flat, spring metal shims are easily lost and so are often missing.

they're "keyed" to the knob. Friction is provided by a uniquely shaped rectangular piece of spring steel with a slight curve. The spring usually mounts on the flat face of the knob's shaft hole, and provides the grip that keeps the knob in place (Photo A).

Unfortunately, the little flat shim-like spring loosens and is easily lost when a knob is removed from a radio. You'll see all sorts of fixes, from gobs of friction or masking tape stuck between the knob opening and the shaft, or pieces of cardboard to serve as shims to sub for those little missing springs. Such quick fixes seldom stand the test of time! Shim brass can be cut to fit as a replacement, it works well, but it lacks the temper of spring steel and can loosen its grip time. Some collectors keep a good assortment of old TV knobs on hand; these knobs provide a good source of replacement springs and are usually priced at give away rates, when you can find them.

Here's a better solution, and one that's probably as near at hand as your desk's junk drawer, or at least the local office supply house. Regardless of origin, this is a good 25-cent solution to a common problem. Before I go much further, I don't claim any originality for this idea; it was passed on to me and now I'm sharing it with you. You'll need one of the large pinch-type document paper clips, known as a binder or banker's paper clip (Photo B).

The only tools you'll need are a good pair of aviation tin snips and perhaps a small set of long nose pliers to help you install the new spring into the knob. Now, just carefully cut a replacement spring from the spring metal of the paper clip. Note that the spring slides into a set of tracks on either side of the flat side of the knob opening, so be sure to make the spring is wide enough to fit that opening, which will help keep the new spring from being lost in the future.

### Radio Chassis Punches

Have you ever wondered how hams and other radio enthusiasts were able to transform blank



Photo B. The spring steel used in this style paper clip is an ideal source of tempered spring steel to make knob shim replacements. The material can be cut to fit using aviation tin snips, and shaped with needle nose pliers. A slight curve is needed.

aluminum chassis into working radios? How did they do the metal work, and so neatly? Imagine all the work involved filing those round tube socket holes!

Well, maybe a few hams had to resort to using elbow grease and files, but most of us old timers have amassed decent sized assortments of Greenlee branch chassis punches over the years! Hams with thinner pockets often made do with more basic radio chassis punch kits from Archer (a RadioShack brand) or from Lafayette Radio. These simple, affordable kits usually provided the four most popular and most needed punch sizes of 1 1/8 inches, 1 inch, 3/4 inch and 1/2 inch. While inexpensive imports, they still did a good job for a fraction of the cost. After many years of use I've occasionally seen some of the steel parts fracture and break, but they'd earned their keep by then.

More experienced builders, and those with deeper pockets, often expanded their Greenlee radio chassis punches to include other sizes that were less commonly needed, or the very large sizes for panel meters; even square punches for IF transformers.

I mention these tools because I want to make you aware that there are two commonly available styles of Greenlee (and other brand) punches. Radio enthusiasts are usually interested in punches that are intended for radio chassis work, but there is another style that's marketed for the electrical trade for use in making "knockouts" for electrical panels, for conduit bushings. Radio, or chassis, punches are sold by the size of the hole they produce. Electricians' punches are sold by the size of the conduit, which is smaller than the bushing hole they produce. For example, I own a few Greenlee

735 knockout punch sets, and the 1/2-inch 121 AV Greenlee punch supplied with the kit actually produces a 7/8-inch hole (Photo C).

Here's the problem: I'm seeing more and more uninformed sellers, and some who know better, selling electricians' knockout punches as radio chassis punches. While there is some utility to having a set, remember that there are differences and know what you want and need before making any deals. There are many more electricians' punch sizes floating around these days than the highly coveted radio punch sizes, so beware and shop wisely.

One other related tip: Add a little cutting oil to the surfaces when using punches. A little bit of care will extend the hone of their cutting surfaces—these tools are expensive to replace!

## Identifying Old Radio Parts

I often have to deal with vintage or surplus parts dealers to find an exotic part that hasn't been produced in the past 50 to 70 years. Alas, the demand for lattice-wound 150-mH RF chokes seems to have dwindled recently. Now, the old timers among us will recognize names like Millen, Miller, Meissner or E.F. Johnson, but what's a newcomer to do when faced with the need to find a .0047- $\mu$ Fd mica capacitor? Is that Sangamo type "C" capacitor being sold by a dealer the right part, or not? What are the voltage ratings?

Well, if you're lucky enough to have copies of the "bibles" that governed the radio and electronics parts industry—the *Radio's Master* or the later *The Radio-Electronic Master Buying Guide*—you have the answer in hand (Photo D). These buying guides were published yearly, and I believe (since the 20th edition is dated 1956) that they were published for many years before and after 1956. I've used mine to identify needed vintage parts according to the parts numbers supplied by vintage radio parts dealers. Early American Radio Relay League *Amateur Radio Handbooks*, those dating back earlier than the 1960s, are also great references. The back section of the *Handbooks* was devoted to advertising, and many parts suppliers are included in those volumes.

## Vacuum Tube Detectives!

How often have you scavenged through your bushel baskets of used parts looking for an elusive tube to get a radio going at three a.m.? Okay, I admit to being a radio nut and have found myself in that exact predicament more times than I'd care to



Photo C. In this photo a Greenlee 7/8-inch radio punch (right) is compared to an electrician's 1-1/2-inch knockout punch. Notice that both punches are identical! Radio punches are marked by the size of the hole they produce, while electricians' punches are marked by conduit size! Beware the difference.

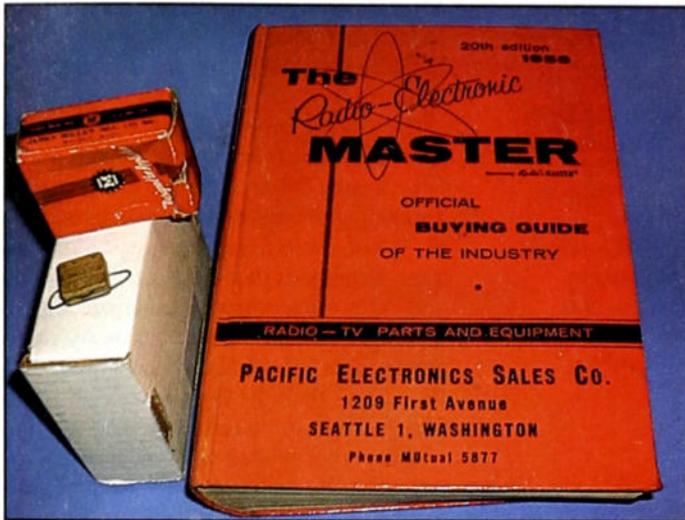


Photo D. Identifying old electronic part parameters by manufacturer part number alone can be a frustrating undertaking. Fortunately, catalog data for many early electronic manufacturers were included in the *Radio's Master* series of buying guides. These were published annually for many years; check old book dealers for availability. The specs for the Millen coil and Sangamo capacitor, shown in the photo, are to be found in this catalog.

admit. All too often I'll find a tube that looks like the right tube; it has the correct number of pins, glass envelope shape, and style and the internal electrodes look correct. But, alas, the tube number stamping has long vanished. What to do?

Well, folks who've handled tubes for years can often identify a tube by carefully examining the internal structure. For example twin-triode nine-pin noval-type tubes like 12AX7s, 12AT7s and 12AU7s have the same base diagrams, but have very different gain characteristics. But the plate structures are unique, and often just by looking at three of these tubes it's possible to correctly identify which is which. But, unfortunately, if you have a 6BH6 and 6BA6 with the last two digits missing, you have a problem indeed! Even worse is an 6AU6 with missing digits; these things all look alike, and will even work to some small extent if accidentally interchanged in many circuits.

But if the task is more daunting, here are a few tricks of the trade to help you ferret out the hidden tube markings! First, try breathing across the tube. Leaving the tube in the freezer for a bit helps this trick work a little better. Your breath will condense on the tube, and often the original tube markings will become visible once that happens.

If the ink looks like it's been completely rubbed off and the breath trick doesn't work, try this: subject the tube to ammonia fumes, which will cause any remaining ink to darken, hopefully enough to be visible. Oils from your fingers or face rubbed

on the tube will often have the same effect. Do you have a better method? Share it with us!

## Visit The Dentist!

Here's something to make that next trip to the dentist a bit more palatable (pun intended).

Most dentists discard picks and other dental tools after a certain amount of usage, and these tools are really great for desoldering work where you need to reheat a solder terminal and remove old component wire leads at the same time (Photo E). You can buy tools at electronic supply houses, but the tools your dental hygienist uses are perfect and are often free for the asking! Used medical tools should be autoclaved before being discarded (hopefully removing the "yuck factor" that I suspect some folks will have!). That sanitizes them, removing any chance of spreading disease.

If you own a Dremel tool, ask about the availability of old drill burrs as well. Many dentists are glad to find a home for these items, but others understandably don't want the liability issues that can arise with today's litigious society.

## Extending Pilot Lamp Life

Are the pilot lamps in your communications receiver or transmitter failing too often for your liking? It's no fun wrestling a 50- to 100-pound behemoth out of its cabinet to change a 50-cent lamp every several months! If you're not adverse to a simple and easily reversible modification, try adding a small value resistor in series with each pilot lamp to reduce the operating voltage. Even a 1/2-volt drop will give a substantial boost to the lamp's longevity. The most popular pilot lamp, the #47, draws 150 mA at its 6.3 recommended operating voltage. These lamps *should* have a 3000-hour life, but most of the lamps available today are low-cost Pacific Rim imports intended for the pinball industry. Try a resistor value between 3.9 and 4.7 ohms; a 1-watt device will be more than ample for the 150-mA current drawn by the type 47 lamp.

I'd also check the filament voltage, don't be surprised to find the filament voltage to be higher than the nominal 6.3 volts used by most transformer powered radios. As mentioned in previous columns this is often due to transformers being designed for use on early lower voltage AC lines. If the brilliance is acceptable, button the radio up and enjoy the improved lamp longevity—heck, you may never need to change it again!

## Share Your Tips With Others

Well, that's a wrap for this time! I hope you enjoyed the column, and remember that I'd be pleased to share your shop tips in future columns. Here's wishing a joyous Thanksgiving to you and yours. Until next time, keep those old tubes glowing and those soldering irons warm! ■

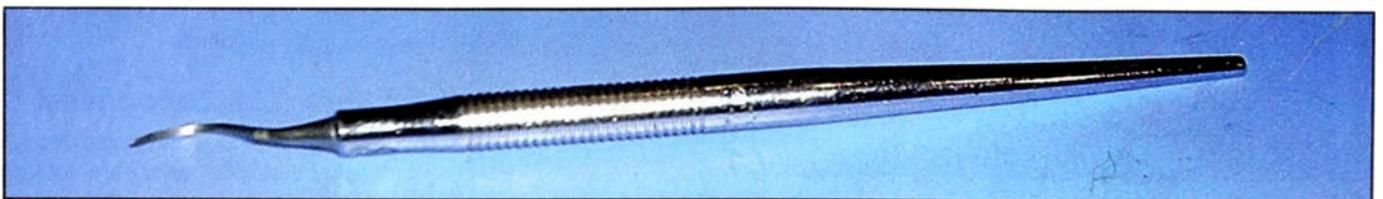


Photo E. A trip to the dentist can be a bit more pleasant if he or she is willing to part with old, worn dental tools! Many dentists save old dental picks, such as this one, for hobbyist patients.

## The "Hurricane Machine" Yields Some New Monitoring Info

by John Kasupski, KC2HMZ  
kc2hmz@verizon.net

This past September, Mother Nature fired up her hurricane machine, took aim at the continental United States, and fired away. At one point during the month the Hurricane Watch Net was sending out email alerts from the National Hurricane Center on four different storms at the same time, keeping my "inbox" in business as the alerts tracked the location and intensity of these four hurricanes. Fortunately they did not all make landfall in the same place...but then again the damage

and hardship for those in the affected areas would certainly be unwelcome no matter where it hit.

If there is a positive note to be found, it's that radio hobbyists provided a wealth of information to *Pop'Comm* on hurricane frequencies. There's enough for a feature article, in fact, but we'll save that for the beginning of the next hurricane season. Nevertheless, some of the frequency information we received deserves to be passed along to our



Photo A. Here's a look at part of Mark Cleary's nicely arranged Charleston, South Carolina, shack.

readers immediately, because emergency nets do not operate *only* during hurricanes—they can be activated at any time for any type of emergency.

## Amateur Radio ALE Emergency Nets

Following on the heels of the discussion in last month's column about Automatic Link Establishment (ALE), we have information this month from Charles Hargrove, N2NOV, who is the New York City ARECS/RACES Citywide Radio Officer and SKYWARN coordinator. Charles provided information on two ham radio ALE nets that were active during the September onslaught of hurricanes, one of which was apparently being used as an SSB voice/ALE calling/working net, and the other for SMS phone texting, HF email, and text relaying.

The first of these, the HFL net, featured open interoperation on seven frequencies: 3845.0, 3996.0, 7185.5, 7296.0, 14346.0, 18117.5, and 28312.5

kHz, all in USB, with bulletins being transmitted on 14346.0 kHz, which was also the "ALLCALL" frequency for the net during disaster relief operations.

The second net, the HFN net, was active with text, data, and sounding and was noted on 3596.0, 7102.0, 10145.5, 14109.0, 18106.0, 21096.0, 24926.0, and 28146.0 kHz, again in the USB mode on all frequencies, with 10145.5 kHz serving as the "ALLCALL" and bulletin frequency.

Charles also passed along several emergency net frequencies that were forwarded to him by a friend in the New Orleans area. While many of them have been mentioned previously in this space, it won't hurt to do so again because disasters can occur at any time of year and you never know when something will happen and these frequencies will light up with emergency comms. I'll list them in MHz this time for variety's sake and to give you some practice in converting from MHz to kHz (and vice versa): 7.255 LSB (Daytime State of Louisiana & neighbor-

ing states, +/- 10 kHz), 3.855 LSB (Nighttime State of Louisiana & neighboring states, also +/- 10 kHz), 7.285 LSB (Daytime State of Louisiana, Mississippi, and East Texas Emergency/Tactical), 3.873 LSB (Nighttime State of Louisiana, Mississippi, East Texas Emergency/Tactical), 14.325 USB (National Hurricane Center/Hurricane Watch Net—when a hurricane is threatening it is worth parking a spare receiver on this frequency and just leaving it there), 7.268 LSB (National Hurricane Center), 14.300 USB (Maritime Mobile Net), 14.265 USB (Salvation Army SATERN net), 7.290 LSB (Daytime Louisiana Health & Welfare, reportedly this net sometimes uses USB as well), 3.935 LSB (Nighttime Louisiana Health & Welfare), and 3.910 LSB (Louisiana Traffic Net).

## Monitoring The DSC Channels

Charles also pointed out in his emails to *Pop'Comm* staff that the latest version of the computer program SeaTTY (a program to receive weather reports and navigational warnings transmitted on long-wave and shortwave bands in RTTY and NAVTEX; version 2.0 was released early in September) has GMDSS decode capability, enabling users to listen for distress calls from vessels at sea by monitoring DSC (digital selective calling) data bursts.

During September this was of interest for listening for distress calls in the Gulf of Mexico where the presence of hurricanes had the potential to endanger shipping, but monitoring DSC for distress calls may interest readers even when there isn't a hurricane out there. DSC is a part of the GMDSS (Global Maritime Distress Safety System; refer to my column in the May 2007 issue of this magazine for a complete explanation of this worldwide maritime communications system) that's used to send short packets of data to a specific recipient. The packets contain, among other things, contain a unique numeric identifier of the originating station, the name of the vessel or shore station originating the traffic, and the destination and nature of the traffic.

Each DSC data frequency (there are six) has a companion voice channel, and when a distress signal is received on one of the data frequencies, the GMDSS operator will listen or make voice calls on the corresponding voice frequency. The frequency pairs follow, with the data chan-



Photo B. Here's the other half of Mark's operating position, a nice mix of HF and VHF/UHF receivers.

nel listed first and then its corresponding voice frequency second: 2187.5/2174.5, 4205.8/4177.5, 6310.3/6268.0, 8412.8/8376.5, 12573.3/12520.0, and 16802.8/16695.0 kHz. The voice channels are all USB and the frequencies shown for the data channels are the "dial" or "tune to" frequencies (as opposed to the listed "assigned" frequencies), so you would monitor these frequencies with your rig tuned to the frequency listed and the radio in the USB mode.

Of course, even if you don't have SeaTTY or some other means of decoding DSC, you can still monitor the six voice frequencies for communications between GMDSS operators and vessels.

## Reader Mailbag

Regular contributor Mark Cleary of Charleston, South Carolina, checked in this month with not just one, but two nifty shack photos, which accompany this month's column. As you can see from Photos A and B, Mark's shack is nicely arranged and includes a well-rounded mix of HF and VHF/UHF equipment. I counted three R-75s and also recognized a RadioShack DX-302, a Uniden BCD-396T (that's the scanner just to the right of the—hopefully not live!—.50-caliber machine gun round in Photo A), and several other pieces, some of which I'm familiar with and some of which I'm not. Rest assured that Mark is familiar with all of them—you can tell that from his logs!

Many thanks and a tip of the columnist's hat to Mark for the double-barreled contribution. We just *love* shack photos here at "Utility Communications Digest," and getting two of them is twice as nice!

## On To Our Readers' Logs

As usual, many thanks and another tip of the "Utility Communications Digest" hat to this month's contributors: Al Stern, Satellite Beach, FL (ALS); Mark Cleary, Charleston, South Carolina (MC/SC); Steven Jones, Lexington, KY (SJ/KY); Glenn Valenta, Lakewood, CO (GV/CO); and Chris Gay, Lexington, Kentucky (CG/KY).

**2872.0:** Gander wkg various airliners including EL AL 001, Air India 140, Continental 94, and SPEEDBIRD 208 for position reports and SELCAL checks, in USB from 0445Z through 0507Z. (ALS)

**2872.0:** Gander Radio wkg Air Maroc 207 for position report; backup freq 5649.0 kHz, in USB at 0421Z. (ALS)

**2899.0:** kHz USB 0431Z: Gander wkg "North American 7006" for position report in

USB at 0431Z: Gander wkg Delta 42 for position report (54 North, 30 West) in USB at 0434Z. (ALS)

**2971.0:** Shanwick wkg American Airlines flight in USB at 0436Z. (ALS)

**3016.0:** Santa Maria wkg REACH 55 for position report in USB at 0542Z; Shanwick also heard here several minutes later. (ALS)

**3016.0:** Santa Maria wkg American 69 for position report in USB at 0513Z; Shanwick wkg Air France 461 for position report in USB at 0517Z. (ALS)

**3150.0:** E10 numbers station, YL/EE with "PCD" then "two messages" then into 5-ltr grps with ITU phonetics, in AM at 1900Z. (CG/KY)

**3319.0:** TADIL Data transmission in LINK-11 at 0012Z. (MC/SC)

**3455.0:** New York Radio wkg TEAL 71 (WC-130J Hurricane Hunter, Keesler AFB 403W 53WRS, on Hurricane Ike mission) in USB at 0434Z: same two stations again later with TEAL 71 advising SATCOM contact with Houston Center and leaving frequency, in USB at 0447Z. (ALS)

**3455.0:** New York wkg SPEEDBIRD 208 for position report in USB at 0415Z. (ALS)

**4003.0:** Tennessee MARS Net in LSB at 0009Z. (MC/SC)

**4038.5:** NNN0GBS and NNN0JKI in USN/USMC MARS net, in USB at 0016Z. (MC/SC)

**4149.0:** WPE (Crowley Marine, Jacksonville FL) wkg tugboats for position/status reports in USB at 0513Z. (ALS)

**4469.0:** CAP net, SOUTHEAST CAP 43 (net control) taking check-ins from GEORGIA CAP 49, GOLDENROD 180, and FLORIDA CAP 44 in USB at 0000Z. (MC/SC)

**4500.0:** USAF MARS 2S1 Thurs night net, AFA2AJ (NCS), AFA2CU, AFA2XD, others in USB at 2310Z. (ALS)

**4500.0:** USAF MARS 2S1 net, AFA2YR (net control) with AFA2DP, AFA2IV, and AFA2MS checking in, in USB at 0013Z. (MC/SC)

**4721.0:** 44192 (USAF KC-10A) clg PLA (Lajes HF-GCS) in USB ALE at 2319Z. (MC/SC)

**4772.0:** TADIL Data transmission, in LINK-11 at 1217Z. (MC/SC)

**5171.0:** TADIL Data transmission, in LINK-11 at 0013Z. (MC/SC)

**5340.0:** TADIL Data transmission, in LINK-11 at 0006Z. (MC/SC)

**5450.0:** RAF VOLMET broadcast with WX at Monaco in USB at 0148Z. (MC/SC)

**5505.0:** Shannon Volmet, reciting WX for Amsterdam-Schiphol, Copenhagen, etc. in USB at 0509Z. (ALS)

**5505.0:** Shannon Volmet, synth OM voice with aviation WX in USB at 2040Z. (CG/KY)

**5541.0:** VDA4374 (Volga-Dnepr Airlines) in QSO with Stockholm Radio, requesting WX info for Leipzig, in USB at 2135Z. (CG/KY)

**5550.0:** New York Radio wkg various airliners for position reports, in USB at 0502Z. (ALS)

**5574.0:** San Francisco Radio wkg airliner,

requests registration number of aircraft for datalink, aircraft advises they are not datalink, in USB at 0444Z; San Francisco wkg a SPEEDBIRD flight for Selcal check in USB at 0446Z. (ALS)

**5598.0:** New York Radio Iberia 401 for routing, climb to FL370, in USB at 0526Z; then working SPEEDBIRD 252 for position report in USB at 0527Z. (ALS)

**5649.0:** Gander Radio wkg SPEEDBIRD 278 for SELCAL check in USB at 0426Z. (ALS)

**5732.0:** RPM (USCGC LEGARE, WMEC-912) sounding in USB ALE at 0047Z. (MC/SC)

**5765.5:** M51 numbers stn with 5-ltr grps, also sends a msg number now and then, in CW at 2035Z. (CG/KY)

**6235.0:** TADIL Data transmission, in LINK-11 at 1157Z. (MC/SC)

**6501.0:** NMN (USCG CAMSLANT) w/YL manually reading WX for Miami and Gulf of Mexico in USB at 0540Z (GV/CO)

**6502.5:** RCH (CH-47D, 1-228 AVN) clg SKYWAT (Soto Cano AB) in ALE USB at 0551Z. (MC/SC)

**6586.0:** New York Radio wkg American 955 for clearance to climb to higher altitude, in USB at 0458Z. (ALS)

**6586.0:** New York wkg American 955 for routing change in USB at 0455Z; NY wkg Continental 31 who is calling San Juan Center; NY passes San Juan's VHF freqs, in USB at 0509Z; NY wkg Air Cubana 956 for routing in USB at 0623Z. (ALS)

**6604.0:** Gander VOLMET broadcast in USB at 0020Z. (MC/SC)

**6640.0:** New York Radio wkg TEAL 71 (WC-130, Keesler AFB 403W 53WRS Hurricane Hunter), on Hurricane Gustav mission, for position report, routing, in USB at 0346Z. (ALS)

**6697.0:** EXTERIOR (US Mil) with EAM broadcast in USB at 0130Z. (MC/SC)

**6721.0:** 440186 (USAF KC-10A, 305 AMW) clg OFF (Offutt HF-GCS) in USB ALE at 0207Z. (MC/SC)

**6754.0:** Canforce (Trenton Military) Volmet reciting aviation WX for Victoria, Comox, Thule, etc., in USB at 530Z. (ALS)

**6795.0:** TADIL data transmission, in LINK-11 at 0015Z. (MC/SC)

**6910.0:** NNN0VDG, St. Cloud, FL net control in SHARES Region 4 and Region 6 Hurricane Net with NNN0RUE, Maryland 0TFH, AAR4LL and NNN0ENS, in USB at 2331Z. (MC/SC)

**6922.7:** Unid numbers stn with 5-ltr (or cut nbr) groups in CW at 2254Z. (CG/KY)

**7038.5:** Single-letter HF beacon "D" in CW at 1752Z. (CG/KY)

**7527.0:** GYS (USCGC KEY BISCAYNE WPB 1339) clg YWL (USCGC THETIS WMEC 910) in USB ALE at 0238Z. (MC/SC)

**8034.0:** TADIL data transmission in LINK-11 at 0126Z. (MC/SC)

**8047.0:** R23555 (UH-60A) clg T3Z238 (3-238 AVN) in USB ALE at 0159Z. (MC/SC)

**8156.0:** CORAL HARBOUR BASE (Royal Bahamas Defence Forces) wkg vessel for fuel state, etc. in USB at 1128Z. (MC/SC)

**8182.0:** KKL with channel marker "CQ DE KKL," good sigs, in CW at 0211Z (GV/CO)

**8301.6:** SECTOR SAN JUAN wkg SWORDFISH 05 (HU-25) in USB at 2337Z. (MC/SC)

**8386.0:** 3FEK8, *TOP RICH*, 46,027-ton Panama-registered bulk carrier w/MMSI and abbreviated ID "TOPR" in SITOR-A at 0446Z. (SJ/KY)

**8389.5:** S6DU4, *PAC ADARA*, 21,143-ton Singapore-registered general cargo ship w/AMVER/PR 1,200 miles west of Balboa, Panama, in SITOR-A at 0646Z; KGTZ, *HORIZON KODIAK*, 20,668-ton U.S.-registered container ship w/MMSI, callsign and TST command, in SITOR-A at 0702Z. (SJ/KY)

**8429.5:** NMC, USCG CAMSPAC, Point Reyes, CA transmitting simultaneously on same frequency w/regular occupant NMO, USCG COMMSTA, Honolulu, Hawaii, NMC not heard on regular 8426.0 kHz, in CW+SITOR-A from 0432Z to past 0921Z. (SJ/KY)

**8438.3:** KSM with CQ DE KSM KSM KSM QSX 500/HF QRU? PSE UP CH3 and bulletin re: Pacific tropical storm prediction, very strong sigs, in CW at 2205Z (GV/CO)

**8776.0:** EXTERIOR (US Mil) with EAM broadcast in USB at 0140Z. (MC/SC)

**8912.0:** JULIET 03 (MH-60J, CGAS Elizabeth City) passing ops normal report to CAMSLANT in USB at 2328Z. (MC/SC)

**8918.0:** New York Radio wkg HUNTER 062 (RAF Nimrod MR2) for clearance to destination EGSS (Stansted, UK), in USB at 0138Z. (ALS)

**8930.0:** EXPO 581 (Boeing 737-800) with p/p to Medlink via Stockholm Radio re: info on medication to be administered to ill 59-year-old female patient with gallstones, in USB at 2230Z. (CG/KY)

**8971.0:** FIDDLE wkg PELICAN 71B (P-3C) followed by ANDVT comms, in USB at 2051Z. (MC/SC)

**8983.0:** USCG CAMSLANT wkg CG 2114 (HU-25D, CGAS Miami) for flight following, POSREP 21.14N 73.53W (eastern Bahamas). Good sigs from both sides, in USB at 1835Z. (ALS)

**8983.0:** CAMSLANT wkg CG 2114 to inform CG District 7 requests CG 2114 divert to SAR at position north of the eastern end of Cuba; CG 2114 reports on final approach to Guantanamo Bay NS, will proceed to SAR site after refueling, in USB at 1850Z. (ALS)

**8983.0:** SWORDFISH 05 (HU-25), airborne from Miami, requests guard from CAMSLANT in USB at 2112Z. (MC/SC)

**8983.0:** USCG CAMSPAC wkg CG 1706 unid cutter in USB at 2009Z. (GV/CO)

**8992.0:** ANDREWS with Skyking msg 6ZZ auth code NB in USB at 1930Z; ANDREWS with a series of EAMs, including two of 32 chars. In USB at 1905Z. (CG/KY)

**8992.0:** SHADO 05 (MC-130, 58 SOW) p/p via Offutt HF-GCS to Kirtland AFB, in USB at 2114Z. (MC/SC)

**9007.0:** RESCUE 05 wkg TRENTON MILITARY in USB at 0109Z. (MC/SC)

**10128.0:** E07 numbers stn, OM/EE, 5-fig grps in AM at 2005Z. (CG/KY)

**10188.0:** TADIL data transmission in LINK-11 at 0016Z. (MC/SC)

**10242.0:** YWL (USCGC THETIS, WMEC-910) sounding in USB ALE at 1132Z. (MC/SC)

**10255.0:** TADIL data transmission in LINK-11 at 2304Z. (MC/SC)

**10320.0:** AFRTS Pearl Harbor with good sigs in USB at 0627Z. (GV/CO)

**10428.0:** Unid encrypted RTTY at 75/850, in RTTY at 0619Z. (GV/CO)

**10780.0:** Cape Radio wkg RICAN 44 (PR ANG Aircraft over Grand Turk in Bahamas), a/c asks for frequency to reach San Juan PR but is too weak for Cape Radio to copy, in USB at 1749Z. (ALS)

**10993.6:** SHARK 10 (USCGC THETIS, WMEC-910) requests SHARK 57 (USCGC SAWFISH, WPB-87357) take station off their starboard quarter within 3 miles, in USB at 0227Z. (MC/SC)

**11175.0:** AIRCRAFT 00535 (C-17A 90-0535, McChord AFB 62AW) calling "Langley Radio" and raising ANDREWS for radio maintenance check in USB at 0136Z. (ALS)

**11175.0:** RICAN 44 contacting HF-GCS Station for phone patch, but signal too weak, in USB at 1755Z; HF-GCS station PUERTO RICO working REACH 243T for phone patch to DSN number at Scott AFB, advises inbound, requests 24K pounds fuel, in USB at 1812Z. (ALS)

**11175.0:** RICAN 44 contacting HF-GCS Station for phone patch, but signal too weak, in USB at 1755Z; HF-GCS station PUERTO RICO working REACH 243T for phone patch to DSN number at Scott AFB, in USB at 1812Z. (ALS)

**11175.0:** HF-GCS Station wkg REACH 83 for radio check in USB at 1325Z; ANDREWS wkg SAM 3336 Andrews AFB 89AW (actf) for radio check in USB at 0253Z. (ALS)

**11175.0:** ANDREWS wkg SAM 204 (C-20A 86-0204, Andrews AFB 89AW) for radio checks on two aircraft radios plus handheld; handheld was weaker but readable here; in USB at 1809Z. (ALS)

**11175.0:** PUERTO RICO wkg TUFF 41 (B-52 Bomber, Barksdale AFB 2BW) for phone patch to DSN number for Barksdale Metro, in USB at 1920Z; ANDREWS wkg "Navy CW 760" (C-130T, New Orleans NAS/JRB VR-54 "Revellers") for radio check in USB at 1456Z. (ALS)

**11175.0:** KING 54 (MC-130P, 129RQW Moffett Field) calling MAINSAIL, no joy, in USB at 0038Z. (ALS)

**11175.0:** ANCREWS with poorly read EAM (37Z2XQ etc.), operator acknowledged several mistakes in each reading; EAM was stated as 32 characters but recited only 31, in USB at 1843Z. (ALS)

**11175.0:** SIGONELLA calling NI with no joy in USB at 1407Z; BOBBI91 via Sigonella, p/p to obtain WX info for ETAD and EGUN (Mildenhall AFB) in USB at 1300Z. (CG/KY)

**11187.0:** TADIL data transmission in LINK-11 at 0015Z. (MC/SC)

**11205.0:** SMASHER taking ops report from SHARK 80 in USB at 0019Z. (MC/SC)

**11222.0:** Unid encrypted RTTY at 50/850, in RTTY at 0605Z (GV/CO)

**11226.0:** OFF (Offutt HF-GCS) clg R23573 (UH-60A) in USB ALE at 0200Z. (MC/SC)

**11330.0:** New York Radio wkg REACH 8810 (C-130H #78-0810) for position report in USB at 1723Z; New York wkg TEAL 70 (WC-130J, Keesler AFB 403W 53WRS Hurricane Hunter, working Hurricane Hannah mission) for position report in USB at 1836Z. (ALS)

**11330.0:** New York wkg Kestrel 760 for SELCAL check in USB at 1509Z; New York wkg Jet Blue 711 for position report, SELCAL check in USB at 1517Z. (ALS)

**11330.0:** New York wkg NOAA 42 (WP-3D, NOAA Hurricane Hunter, MacDill AFB) for position report during Hurricane Ike mission in Caribbean, in USB at 1536Z. (ALS)

**11330.0:** New York wkg NOAA 49 (Gulfstream G-IV-SP, NOAA Hurricane Hunter, MacDill AFB) for position report in USB at 1925Z; same two stations worked again at 1959Z. (ALS)

**11330.0:** New York Radio working Continental 476, North American 667, MEM 4031 (Mediterranean Air Ambulance), Jet Blue 712, N28DM (Cessna 525B out of British Virgin Islands) and Delta 502, in USB during period from 1745Z through 1840Z. (ALS)

**12402.0:** TADIL data transmission in LINK-11 at 0019Z. (MC/SC)

**12482.0:** LAGER6, *ARCTIC PRINCESS*, 74,400-ton Norway-registered LNG tanker w/MMSI and abbreviated ID "LAGE" in SITOR-A at 1810Z; SZIS, BOUBOULINA, 164,600-ton Greece-registered crude oil tanker w/MMSI and abbreviated ID "BBLN" in SITOR-A at 0515Z. (SJ/KY)

**12486.5:** 9VCL, *ATLANTIC FRONTIER*, 28,678-ton Singapore-registered general cargo ship w/MMSI, abbreviated ID "ATFT" and Quick Brown Fox test in SITOR-A at 1612Z. (SJ/KY)

**12557.0:** Unid vessel with SELCAL MKCV (4360) for TAH, Istanbul R., Turkey, good signal here but no joy, in SITOR-A at 2103Z. (SJ/KY)

**12588.6:** NMO, USCG COMMSTA Honolulu, Hawaii w/marker shifted off regular frequency of 12589.0 kHz, in CW+SITOR-A at 0335, same again next night. (SJ/KY)

**13110.0:** WLO Mobile, AL with WX broadcast in USB at 2305Z. (MC/SC)

**13270.0:** NY VOLMET with update on Hurricane Bertha in USB at 0005Z. (MC/SC)

**13927.0:** PITT 13 (C-130H, 758 AS/911 AW) p/p via AFA1MH Ohio and AFA2XD Florida in USB at 1525Z. (MC/SC)

**13927.0:** USAF MARS Operator AFA4DD (Texas) wkg HOBBY 24 (Keesler

AFB 53WRS WC-130J, 40 miles west of Ft Lauderdale) for M&W phone patch to commercial number in Alabama; informs that he will be back in Keesler about 8 p.m. local, in USB at 2145Z. (ALS)

**13927.0:** RICAN 44 (Puerto Rico ANG aircraft over Grand Turk, Bahamas) erroneously calling "Cape Radio" here (wrong freq) in USB at 1748Z. (ALS)

**13927.0:** USAF MARS Operator AFA6PF (Los Angeles) wkg RICAN 44 (self-ID as C-130) for phone patch to San Juan Ops; advises inbound, requests 24k pounds fuel, in USB at 1812Z; AFA6PF working KING 21 (C-130) for M&W patches in USB at 1905Z. (ALS)

**13927.0:** AFA6PF wkg RAZZ 99 (possible E-6B) for phone patch; informs he will be landing at 1600 Local instead of 1500 Local, in USB at 1805Z; AFA6PF wkg HAWK 43 (Dyess AFB 7BW B-1B Bomber) for phone patch to DSN number for Dyess HAWK OPS, in USB at 1826Z. (ALS)

**13927.0:** TEAL 73 (WC-130J Hurricane Hunter, Keesler AFB 403W 53WRS), via USAF MARS operator AFA2HS (Kansas City) for patch to DSN number at National Hurricane Center, advises of technical difficulty, reports outbound to SW quadrant of Hurricane Ike at the 105 DME point and passes formatted report in USB at 2120Z. (ALS)

**13927.0:** USAF MARS Operator "AFA3HS" (Kansas City) wkg RICAN 11 (C-130, PR-ANG, San Juan PR, over Puerto Rico) for radio checks on multiple radios in USB at 0154Z. (ALS)

**13927.0:** KING 54 (MC-130P, 129RQW Moffett Field) via USAF MARS operator AFN2AC (Miami) for patch to commercial number at Moffett, passes Ops Normal msg and ETA, in USB at 0042Z. (ALS)

**14325.0:** WA5NNO (Texas), net control in Hurricane Watch Net, taking report from vessel in Fort Myers area in USB at 0050Z. (MC/SC)

**16811.0:** Valpraiso, Chile Radio with CBV Channel marker, good levels but deep QSB, in ARQ with CW marker at 2307Z. (GV/CO)

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## What Goes Around Comes Around, Maybe...

by Bill Price, N3AVY  
chrodoc@earthlink.net

*“Norm had an ace up his sleeve, though, and it’s a good thing he did because it was a card I don’t think I could have played.”*

I miss Norm. I miss having him living nearby. I miss working with him in the next office. I miss eating lunch at his apartment, walking Chump (that great silent paw spaniel of his) and cooking up ramen noodle soup and PB&J sandwiches—just enough lunch to allow us time (and spare change) to work on whatever the project of the week was.

Working at an amateur radio supplier had its good side. I’m sure it did. I know that because when I got my job there, they *told* me so. Of course, since I was far from what you’d call an *active* ham, my tenure there was a lot like a vegetarian working at a meat market. Working alongside Norm, though, kept my mind—and my interest in the hobby—from atrophying. I’m still not sure if that’s entirely a good thing, but at least my grey cells are still working.

Projects ate up more of our lunch hours than we ate of lunch. We could be at Norm’s apartment in four minutes if we made both traffic lights. I set some water to boil while Norm got Chump ready for a walk. Then while one of us was taken for a walk by Norm’s eager canine, the other would smash up a bunch of ramen noodles, rip open the little packs of “seasoning” (they really stretched the definition of *that* word) and spread PB&J on whatever horrible white bread was on sale that week. Next, the smell of cheap lunches was replaced by that of some 60/40 rosin-core solder.

It would be unfair to blame all the *frugality* on Norm alone. Yes, he was cheap, but so was I. I think he was cheaper, and he was cheap before I was, but once we became friends, it was as if our blood types both became “\$-negative.”

I know that the general quest at hamfest flea markets is *bargain hunting*, but even when compared to other hams, I think we set some kind of standard. We’d take the smallest car (to save gas) with absolutely no regard for how we’d bring home hundreds of pounds of treasures—sometimes shamelessly begging a ride for our boat-anchors from other hams who were “going our way” and meeting them at Norm’s apartment to offload our bounty (with the help of our teamster-friends).

I was always just a little bit embarrassed about negotiating the selling prices down to an almost ridiculous figure, then just before the money changed hands (grudgingly, I might add) Norm would show up with a voltmeter to test our bargain batteries or some other way of lessening the value of what we were about to buy to the point where I’m sure the sellers spent more time talk-

ing *about* us after we left than they did talking *to* us while we were buying.

We would often drive to these events in Norm’s 280-Z—normally considered a real prize of a car—because it got the best gas mileage. This particular “Z-car,” however, had cost Norm about \$600 and had a broken power steering idler pulley. Norm would NOT spring for 10 percent of the car’s purchase price to replace that, so he developed arms like a fiddler crab maneuvering that thing for a good two years before he finally decided to fix it.

On one occasion, a spare (yes, he already had one) 4-foot-tall rack-mount transmitter was just too much for him to pass up, and after we drove the “Z” to the seller’s booth to load the thing, it became obvious to us (and the crowd which had gathered) that there was no way we were going to heft that thing up and into the back hatch, even if Charles Atlas had stopped by to help. Norm had an ace up his sleeve, though, and it’s a good thing he did because it was a card I don’t think I could have played.

Norm could conjure up a look of despair that could have launched a thousand ships, or better yet, could have launched a kind-hearted ham (oh, how I hope he’s not reading this) with a good-sized pickup truck and a few strong friends. Not only did the strong friends load the thing into this really nice person’s pickup, but they followed him (and us) to Norm’s place to offload the treasure, and even helped get it into Norm’s apartment. Of course, Norm did not have any “adult beverage” to offer his new-found friends, and to hear (and watch) Norm offer a few U.S. Pesos for gas and assistance would make you swear there was one of those wind-up strings attached to the money. Of course they wouldn’t accept. Glad to help. You take care, buddy, y’hear?

Somewhere now, in a slightly warmer climate, I just *know* that Norm has an old pickup, and is now clearing years of backdated *karma* by helping hams on mopeds drag their thousands of pounds of flea market purchases across town and helping them carry it inside for them. At least, I’d like to believe that.

*Bill has moved up to the more esoteric flavors of Cup-a-Soup, which he enjoys in the dayroom at the Cowfield County home for the Silly with chunky PB&J (he likes to hear it crunch). Drop him a line at [chrodoc@earthlink.net](mailto:chrodoc@earthlink.net).—Ed.*

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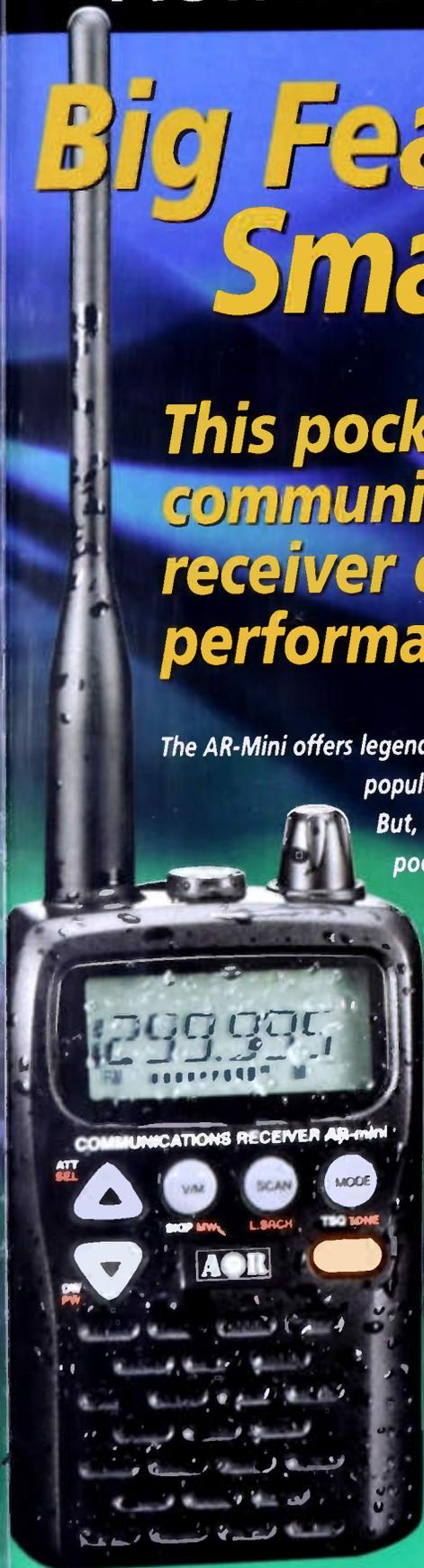
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