

POPULAR

SEPTEMBER 2009

COMMUNICATIONS

Shortwave Listening • Scanning • AM & FM • Radio History

Off The Grid Economical And Reliable Alternative Power

Adapt A Solar Charger
For Emergency Radios, p. 20

Stand-Alone Radio Systems
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PLUS: Shortwave Aviation
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Contest Season • Shannon
Explores A Space Monkey/
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VR-500



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This may be the best shortwave radio offer in our 67 year history! Buy the Grundig G4000A at our special sale price of \$99.99 and we will also include both:

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- ✓ **FREE** Eton FR350 emergency AM-FM-SW radio.

G4000A \$129.95
FR350 59.98
AN200 29.95
Regular Total \$219.88
\$99.99 (+\$7.95 UPS)

AN200 and FR350 are also sold separately.

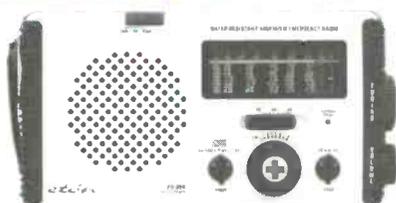
GRUNDIG G4000A

The Grundig G4000A, historically has been our best selling radio here at Universal. We think the reason is value. Dollar for dollar no other radio offers this much performance and so many features. Coverage is complete, including long wave, AM band and shortwave from 1711 to 30000 kHz. FM stereo is provided to the headphone jack. A thumb wheel knob on the side of the radio provides smooth single sideband (SSB) tuning. The illuminated digital display provides tuning resolution at 1 or 5 kHz on shortwave. Two bandwidths are featured (narrow for maximum selectivity, or wide position for best audio fidelity). The keypad will quickly get you to any frequency or store up to 40 of your favorite stations in the presets. The presets may be accessed directly or you can scan through them by using the radio's second set of Up/Down buttons. The G4000A can also frequency search. The dual digital clock is visible while the radio is playing. Other refinements include: snooze and sleep buttons, lock, High/Low tone switch, Local/DX switch, and 9/10 kHz MW scan selection. Jacks for earphone (3.5 mm), antenna (3.5 mm) and 9 VDC input. The G4000A comes with: AC adapter stereo earbuds, wind-up antenna, and *Owners Manual*. Requires six AA cells (not supplied). The cabinet has a stunning titanium colored finish. 8"Wx5"Hx1.5"D. 1 Lb. 5 oz. One year limited warranty.



Grundig G4000A Order #4000 Regular Price \$129.95 **SALE \$99.99**

etón FR350



Be prepared and aware with the etón FR350 emergency radio. This affordable portable receives AM, FM plus 7 shortwave bands: 5800-6350, 6950-7500, 9350-10050, 11550-12200, 13400-14000, 15000-15700, 17400-18050 and 21200-21950 kHz. The FR350 has an analog dial and operates from a wind-up generator, or 4.5 VDC or 3 AA cells (not supplied). The generator charges the supplied, replaceable NiMH battery. Two turns per second for 90 seconds will provide 40 to 60 minutes of operation. There is also a built-in triple LED emergency light source and a siren function. Moisture protected rear panel jacks for: earphone, 4.5 VDC input and phone charger output. The FR350 has the additional capability of recharging certain cell phones with several common cellular power adapters included. With a black canvas carry case, 4.5 VDC 120 VAC adapter, NiMH battery and *Owner's Manual*. Only 8.7 x 4.5 x 2" 1.3 Lbs.

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- FR350 Black** Order #4910 \$58.98
- FR350 Orange** Order #4911 \$58.98
- FR350 Camo.** Order #4913 \$58.98

GRUNDIG Satellit 750

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The Grundig Satellit 750 is an exciting portable that brings you the world of long wave, AM and shortwave reception as well as FM and the VHF aeronautical band. Your complete shortwave coverage includes the S.S.B. mode allowing the reception of ham radio operators, maritime and shortwave aeronautical stations. Tune your favorite stations by the conventional tuning knob, quick keypad entry or via the 1000 memories. Enjoy the fidelity you have come to expect from Grundig enhanced by separate bass and treble controls. Other features include: backlit LCD, wide/narrow selectivity, signal strength meter, rotatable AM ferrite antenna, earphone jack, external antenna jack, line output jack plus a 24 hour clock with dual alarm and sleep feature. 14.65 x 7.24 x 5.75".

Grundig Satellit 750 Order #0750 List Price \$400.00 \$299.95



GRUNDIG AN200

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Grundig AN200 Order #0912 \$29.95

UPS ground: \$1-\$50=\$5.95, \$50-\$100=\$7.95, \$100-\$500=\$9.95.

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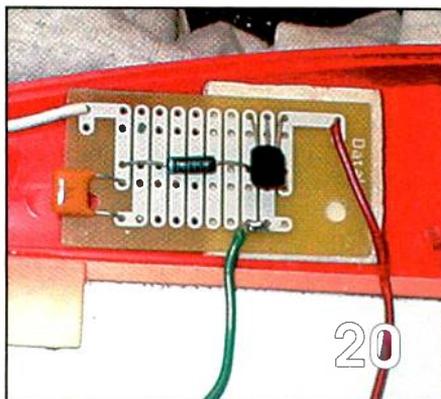
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ON THE COVER

It's always been desirable for radio enthusiasts to have alternate sources of power for when AC is out or otherwise unavailable—and for emergency communications it's critical. Luckily, these days the choices make it easier than ever to go "lean, green, and reliable." See "Power Up, Off The Grid" by Gordon West, WB6NOA, and "A Solar Charger For Emergency Radios" by Gregory Majewski for more. (On the cover is Len Carlson, K4IWL, of Sarasota, Florida, at his solar-powered QRP rig; photo by Larry Mulvehill, WB2ZPI)

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Tap into secret Shortwave Signals

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

MFJ-462B
\$199⁹⁵

Plug this self-contained MFJ Multi-Reader™ into

your shortwave receiver's earphone jack.

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

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

Eavesdrop on the World

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

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

Super Active Antenna

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

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

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

Indoor Active Antenna

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

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

Compact Active Antenna

Plug this compact MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz to 200 MHz including low, medium, shortwave and VHF bands. Detachable 20" telescoping antenna. 9V battery or 110 VAC MFJ-1312B, \$15.95. 3 1/4x1 1/4x4 in.



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

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

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

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High Performance Modem

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Easy to use, tune and read

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

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

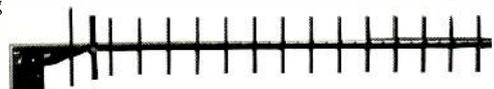
It's easy to read -- front-mounted 2 line 16 character LCD display has contrast adjustment.

Copies most standard shifts and speeds. Has

MFJ AutoTrak™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312D AC adapter, \$15.95. 5 1/4Wx2 1/2Hx5 1/4D inches.

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



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

N-female connector. Tripod screw-mount. Wall and desk/shelf mounts. Use vertically/horizontally. 18Wx2 1/4Hx1 1/4D inches. 2.9 ounces.

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

MFJ-5606TR, \$24.95. Same as MFJ-5606SR but Reverse-TNC male to N-male.



Eliminate power line noise!



MFJ-1026
\$199⁹⁵

Completely eliminate power line noise, lightning crashes and interference before they get into your receiver! Works on all modes -- SSB, AM, CW, FM, data -- and on all shortwave bands. Plugs between main external antenna and receiver. Built-in active antenna picks up power line noise and cancels undesirable noise from main antenna. Also makes excellent active antenna.

MFJ Antenna Matcher

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

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, \$15.95.

High-Gain Preselector

High-gain, high-Q receiver preselector covers 1.8-54 MHz.

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

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MFJ Shortwave Headphones



MFJ-392B
\$24⁹⁵

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

High-Q Passive Preselector

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

Super Passive Preselector

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

MFJ Shortwave Speaker

This MFJ ClearTone™ restores the broadcast quality sound of shortwave listening. Makes copying easier, enhances speech, improves intelligibility, reduces noise, static, hum. 3 in. speaker handles 8 Watts. 8 Ohm impedance. 6 foot cord.



MFJ-281
\$12⁹⁵

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



MFJ-1777
\$59⁹⁵
Ship Code A

MFJ Antenna Switches

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

MFJ-1704
\$79⁹⁵



MFJ-1702C
\$39⁹⁵

Morse Code Reader

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

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MFJ-108B, \$21.95. Dual 24/12 hour clock. Read UTC/local time at-a-glance. High-contrast 5/8" LCD, brushed aluminum frame. Batteries included. 4 1/2Wx1Dx2H inches.



MFJ-108B
\$21.95

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EDITORIAL

Tuning In

So Long, And Thanks For All The Snow

by Edith Lennon, N2ZRW

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Since the earliest days of grainy TV pictures flying from broadcast transmitters to home rooftop antennas, analog television signals were both friend and irritant to a couple of generations.

They seemed like magic in the beginning, and indeed they were, because science certainly has a sublime aspect. But as of June 12, 2009 (mark that date), they entered media history.

It seemed to me that here was something incredibly poignant behind that last flipping off of a transmitter switch. It's rare that the passing of an era is so clearly delineated, a technological Changing of the Guard that we could plan for.

Did you celebrate the occasion, sentimentally marking the shutoff with friends over popcorn and soft drinks (as a subject in a recent "Shannon's Broadcast Classics" had planned to do)? Did you say "farewell and good riddance" after too many losing battles with your rabbit ears? Or were you, like me, too busy with work or family life to even have taken much notice of that occasion?

Because I didn't have that first-hand experience, I was mighty glad to find a couple of Internet sites that captured some moments in time of numerous TV stations signing off with their last analog broadcast. YouTube, of course, offered a plethora of video snippets posted by viewers glued to the original "tube" on sign-off. Another site, www.tv-signoffs.com, in addition to capturing images from the mandated transition date, provides a repository of end-of-day TV sign-offs from the last several decades. It makes for very cool browsing.

There was hoopla. Several stations, such as NBC affiliate WNDU-TV 16 in South Bend, Indiana, rang in the digital conversion with a live ceremonial switch-flipping, instantly followed by

total "snow" on analog viewers' screens. So abrupt!

Another NBC affiliate, WOWT-TV Channel 6 in Omaha, Nebraska, ended its analog era with some nice historical footage of the station's first transmitter being turned on back in 1949, followed by the once-traditional waving flag and the strains of "America The Beautiful" before signing off.

CBS affiliate WKRQ Channel 5 in Mobile, Alabama, invited recently retired station engineer Terry Hammond back to give him the honor of personally turning off the analog TV signal he had valiantly kept on the air since 1968. Talk about poignant!

The following description accompanied a video of the analog sign-off of WGHP FOX 8 (High Point, North Carolina) posted to YouTube by SignOffsGuy. It's typical of the images and the sentiment (with a little tech-geek thrown in), a viewer's log, as it were:

Hands down, this is the best of the analog TV farewells from the Piedmont Triad of North Carolina. Features the final five minutes or so of the FOX 8 10:00 News with Bob Buckley and Julie Luck. There's a trip down Channel 8's memory lane, the National Anthem, and the button-pushing ceremony at the transmitter site in Sophia, NC. This was recorded "over the air" using rabbit ears and a VCR. I've also included at the end a recording from cable of the final moments at the transmitter site, followed by the opening of that night's episode of "Seinfeld."

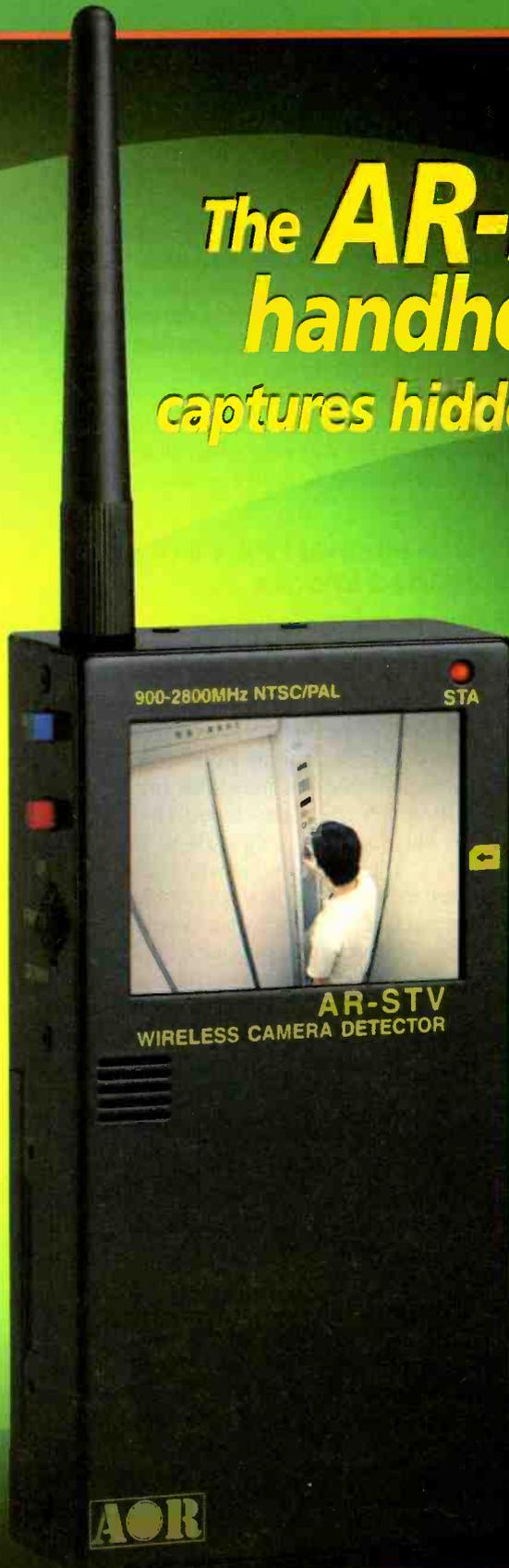
I confess to feeling, if not exactly choked up, at least a little mushy. I guess I'm getting older after all.

So for all those lost antenna fights, the snow, the less-than-lifelike "living color" and everything else that went with the Age Of Analog, thanks—it's been fun.

Goodbye analog snow, hello digital cliff effect.

Want to SEE who is watching you?

The **AR-STV** handheld receiver captures hidden video signals!



Now, with the AR-STV handheld wireless camera receiver from AOR, you can see who is watching you on wireless video surveillance cameras. It's a valuable addition to any security operation. This easy to operate receiver features a large 2.5 inch color LCD display, still picture recorder and sensor that captures video signals in real-time. The USB connector makes it easy to download stored images into a computer. And the AR-STV comes complete with an internal clock that allows captured images to be time-stamped. With an optional 4 GB SD memory card, the AR-STV can be used to store up to nearly 2000 images.

Add to the power of your security force with this pocket-sized video receiver from AOR!

- Receives and displays analog video signals on L-band (1.2 GHz) or S-band (2.4 GHz)
- 2.5 inch color LCD display
- Still picture recorder
- Can be set for continuous search between 900 ~ 2800 MHz
- Detects NTSC or PAL analog video signals in real-time
- Built-in clock allows captured images to be time-stamped
- USB connector makes it easy to download stored images into a computer
- Easy to operate
- Powered by four AA size batteries or external DC power
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- Rubber duck antenna with SMA connector
- Optional 4 GB SD memory card can store nearly 2000 images

Available from your favorite AOR dealer!



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The Weirder Side Of Wireless

by Staff

Track And Driver

The Arizona Legislature is considering a bill that would prohibit the state from embedding Radio Frequency Identification (RFID) chips in their state driver's licenses, according to a report in the *Phoenix Business Journal*. The U.S. has been pushing states since 9/11 to improve their driver's licenses in terms of security and safeguarding against fake IDs, and the U.S. Department of Homeland Security's "Western Hemisphere Travel Initiative" will require travelers to present a new "enhanced" identification card or a passport when crossing the Canadian or Mexican border. These enhanced ID cards or drivers licenses contain an RFID chip similar to those in newer U.S. Passports. RFID chips can be used to track holders' movements, and hackers have demonstrated that the chips' private data can be read wirelessly by unauthorized third parties.

The Arizona Chapter of the ACLU and some conservative legislators, such as State Senators Ron Gould of Lake Havasu City and Jack Harper of Surprise, back the proposed ban out of concern about the increased surveillance and tracking of private citizens.

Tour De France— A Race Sans Radios?

The *New York Times* reported that the French bicycle championship organization Tour de France recently conducted an experimental test race without the ear radios that have been used for more than a decade to link riders with their directors in team cars.

The ear radios were popularized by Lance Armstrong when he won his first Tour in 1999. The official explanation was that the radio ban increased safety. Unofficially, the ban restored some individual decision-making in a sport that many believe is becoming robotic. Speaking for old-timers, Bernard Hinault said of the radios recently, "I am against them. It is only a Game Boy with a gigolo at the end who tells the rider when he must go and urinate at the side of the road." The race seemed unaffected, although more riders spent time in breakaways looking back over their shoulders to see if the pack was nearby.

Introduced by Lance Armstrong's Motorola team in the mid-1990s, the secure ear radio system has been controversial. Sandy Casar, a French rider with Française des Jeux, defended the radios saying, "It's a big help because you know more about

the race." But Laurent Jalabert, the former star French rider, said, "It kills improvisation. It stifles imagination. I'm against the radios, they remove a lot of suspense from a race. It's now the team director who says attack, wait, do this, do that."

The tests without the ear radios in the Tour de France may help expand, if not settle, the argument, the *New York Times* report continued. Some scanner enthusiasts welcome a ban on the secure radios, which cannot be easily monitored.

Chinese Internet Filters Block Unintended Images

Reuters recently posed this puzzler: What do Johnny Depp, Garfield, and roast pork have in common? The answer, in China at least, is new government-mandated Internet filtering software that flags some of their pictures as being bad for your moral health. Beijing has ordered that all personal computers sold in China after July 1 must come with government-developed Green Dam software, which it says is designed to block pornographic and violent images, but which critics fear will be used to expand political censorship. Critics also point out that the software blocks even harmless images of the cartoon cat Garfield, dishes of flesh-colored cooked pork, and a close-up of film star Johnny Depp's face. Beijing has not detailed how it scans images for obscene content, but computer experts said it likely uses color and form recognition to recognize "potential nudity." The orange hue of Garfield's cartoon fur apparently triggers the program's filters. But the software could potentially provide Chinese security officials with a log of suspected political dissidents' Internet usage and allow criminals to hack into users' computers for online banking details and other private information.

"People say the software is not very stable and has many technological problems," said Joerg Wuttke, the president of the European Union Chamber of Commerce in China, which has dubbed the introduction of Green Dam "hasty." China's foreign ministry declined to respond to criticisms of the software, Reuters reported.

Some security-minded people warn that the Green Dam software can be used to remotely control the computers running it, which could allow the Chinese government or other entities to create the world's largest "bot net" for launching massive Internet denial-of-service attacks against the U.S. and other targets.

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Frequency Coverage:

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

Close Call Radio Frequency Capture - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. Useful for intelligence agencies for use at events where you don't have advance notice or knowledge of the radio communications systems and assets you need to intercept. The BCD396T scanner is designed to track Motorola Type I, Type II, Hybrid, SMARTNET, PRIVACY PLUS, LTR and EDACS* analog trunking systems on any band. Now, follow UHF High Band, UHF 800/900 MHz trunked public safety and public service systems just as if conventional two-way communications were used. **Dynamically Allocated Channel Memory** - The BCD396T scanner's memory is organized so that it more closely matches how radio systems actually work. Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 3,000 channels are typical but **over 6,000 channels are possible** depending on the scanner features used. You can also easily determine how much memory you have used and how much memory you have left. **Preprogrammed Systems** - The BCD396T is preprogrammed with over 400 channels covering police, fire and ambulance operations in the 25 most populated counties in the United States, plus the most popular digital systems. **3 AA NIMH or Alkaline battery operation and Charger** - 3 AA battery operation - The BCD396T includes 3 premium 2,300 mAh Nickel Metal Hydride AA batteries to give you the most economical power option available. You may also operate the BCD396T using 3 AA alkaline batteries. Unique Data Skip - Allows your scanner to skip unwanted data transmissions and reduces unwanted birdies. Memory Backup - If the battery completely discharges or if power is disconnected, the frequencies programmed in the BCD396T scanner are retained in memory. Manual Channel Access - Go directly to any channel. LCD Back Light - A blue LCD light remains on when the back light key is pressed. Autolight - Automatically turns the blue LCD backlight on when your scanner stops on a transmission. Battery Save - In manual mode, the BCD396T automatically reduces its power requirements to extend the battery's charge. Attenuator - Reduces the signal strength to help prevent signal overload. The BCD396T also works as a conventional scanner to continuously monitor many radio conversations even though the message is switching frequencies. The BCD396T comes with AC adapter, 3 AA nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, SMA/BNC adapter, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. Not compatible with AGEIS, ASTRO or ESAS systems. Order on-line at www.usascan.com or call 1-800-USA-SCAN.



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Frequency Coverage:

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

The handheld BC246T TrunkTracker scanner has so many features, we recommend you visit our web site at www.usascan.com and download the free owner's manual. Popular features include **Close Call Radio Frequency Capture** - Bearcat exclusive technology locks onto nearby radio transmissions, even if you haven't programmed anything into your scanner. **Dynamically Allocated Channel Memory** - Organize channels any way you want, using Uniden's exclusive dynamic memory management system. 1,600 channels are typical but **over 2,500 channels are possible** depending on the scanner features used. You can also easily determine how much memory is used. **Preprogrammed Service Search (10)** - Makes it easy to find interesting frequencies used by public safety, news media TV broadcast audio, Amateur (ham) radio, CB radio, Family Radio Service, special low power, railroad, aircraft, marine, racing and weather frequencies. **Quick Keys** - allow you to select systems and groups by pressing a single key. **Text Tagging** - Name each system, group, channel, talk group ID, custom search range, and S.A.M.E. group using 16 characters per name. **Memory Backup** - When power is lost or disconnected, your BC246T retains the frequencies that were programmed in memory. **Unique Data Skip** - Allows the BC246T to skip over unwanted data transmissions and birdies. **Attenuator** - You can set the BC246T attenuator to reduce the input strength of strong signals by about 18 dB. **Duplicate Frequency Alert** - Alerts you if you try to enter a duplicate name or frequency already stored in the scanner. **22 Bands** - with aircraft and 800 MHz. The BC246T comes with AC adapter, 2 AA 1,800 mAh nickel metal hydride batteries, belt clip, flexible rubber antenna, wrist strap, RS232C cable, Trunk Tracker frequency guide, owner's manual and one year limited Uniden warranty. For more fun, order our optional deluxe racing headset part #HF24RS for \$29.95. Order now at www.usascan.com or call 1-800-USA-SCAN.



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News, Trends, And Short Takes

by D. Prabakaran

BBG Increases Broadcasts In Persian To Iran

The U.S. Broadcasting Board of Governors has increased television, radio, and Internet transmissions of the Persian language programs of the Voice of America (VOA)'s Persian News Network and Radio Free Europe/Radio Liberty's Radio Farda to fight jamming and signal interference in Iran.

Jamming of satellite television broadcasts increased beginning in May and has included interference with BBG and other broadcasters' satellite uplink and downlink signals. To combat the censorship, VOA's Persian News Network (PNN) television programs are now beamed through five satellites with six different distribution channels.

Shortwave transmissions of Radio Farda were increased beginning June 21 as part of an effort to counteract jamming by the Iranian government. With the recent shortwave additions, the most popular morning and early-to-mid evening hours have at least five simultaneous transmissions and 10 at peak times. The shortwave jamming of international broadcasters began on 14 June.

The Internet has been an information lifeline for many Iranians in the aftermath of the recent disputed elections. The number of visits to both VOA's PNN website and RFE/RL's Radio Farda website during the weekend of June 20 were more than 400 percent greater than at the start of the month.

Iranian government censorship of external news sites has increased. VOA's PNN and RFE/RL's Radio Farda saw a 200-percent growth in the use of proxy servers and Web censorship circumvention software from the day before the Friday election to three days later. Over that weekend, the response to the VOA and RFE/RL Persian-language Web sites was so great that its proxy service reached full capacity, resulting in some visitors not reaching the site. The BBG is adding additional infrastructure to handle this increased traffic.

RFE/RL Radio Farda broadcasts 24 hours a day on shortwave, mediumwave and satellite, and streams online. More than 30 percent of Iranians tune in to BBG broadcasts at least once a week.

(Source: BBG)

VOA Expands Broadcasting To Pakistan Border Region

Deewa Radio, the Voice of America's Pashto service broadcast to the war-torn Pakistan-Afghanistan border region, is expanding to nine hours daily. Created in October 2006, Deewa is aimed at an esti-

mated 40 million Pashto-speaking people in Pakistan and neighboring Afghanistan, including the North-West Frontier Province where some 2.5 million people have been displaced as Pakistani military battle Taliban fighters. Deewa also reaches Pakistan's Federally Administered Tribal Areas and Balochistan.

As of press time, the VOA website had not yet been updated with the expanded schedule. Deewa Radio had been operating at 1200-1800 UTC. According to Dragan Letic via *DX Listening Digest*, the additional three hours are at 0000-0300 UTC on 12015, 11535 and 9380 kHz.

(Source: VOA)

Local Radio Station In Ethiopia Ordered To Drop VOA Programming

The Ethiopian government has ordered the Addis Ababa-based private radio station Sheger FM (102.1) to stop all its re-broadcasts of Voice of America programming effective immediately. Sheger FM had been carrying some of the VOA Amharic programs, mostly music and entertainment, through a contractual arrangement. The order followed the release of a VOA correspondent in Addis Ababa, Meleskachew Amaha, from jail after he was detained for being in possession of radio equipment. A court judge set him free yesterday after ordering him to post bail. He was detained for two weeks.

(Source: Ethiopian Review)

Burmese Junta Clampdown On Radio Listeners

The Democratic Voice of Burma reports that the Burmese junta has clamped down on the rising numbers of unlicensed radio owners in a move that media experts see as restriction on the freedom of media and access to pro-democracy broadcasts. DVB says the ruling junta issued a warning in the *New Light of Myanmar* newspaper that those listening to radio without holding a license could be prosecuted under the Wireless Act. The warning carried no information on why people would be prosecuted nor why numbers of listeners are increasing, but a Burmese journalist on the China-Burma border said the increase was linked to the political crisis. He added that sales of shortwave radios manufactured by China, which are used to listen to broadcasts of exiled Burmese media, were also on the rise.

(Source: Democratic Voice of Burma)

Capitol Hill And FCC Actions Affecting Communications

by Richard Fisher, KI6SN **Genachowski Named FCC Chairman; McDowell Appointed To Second Term**

In sweeping action, the U.S. Senate in late June approved Julius Genachowski as new chairman of the Federal Communications Commission and appointed Robert M. McDowell to a second term. About the same time, the Obama administration also nominated Meredith Attwell Baker to serve on the commission. She joins Mignon L. Clyburn, a South Carolina regulator, whose name had previously been put forward by the White House for nomination to a seat.

If confirmed, Clyburn and Baker would bring the FCC to its full complement of five members for the first time under the new administration. McDowell and Baker are Republicans, while Genachowski and Clyburn are Democrats. Most recently, Baker headed the Commerce Department's National Telecommunications and Information Administration (NTIA).

Genachowski, whose nomination to the chairmanship was put forward in March, fills the seat vacated in January by Kevin Martin, a Republican. McDowell's nomination did not have to go through a background check or financial vetting as he is a sitting commissioner. Michael J. Copps, a Democrat, had served as acting chairman prior to Genachowski's confirmation.

Genachowski attended Harvard Law School with President Obama and helped develop technological initiatives during the 2008 presidential campaign. On the commission since 2006, McDowell was previously an executive with the Washington-based trade organization Comptel. Both Genachowski and McDowell received bipartisan support from the Senate Commerce, Science and Transportation committee before their names were moved to the full Senate for confirmation. Only three FCC commissioners at a time may be members of the same political party, according to published reports.

Sen. John D. Rockefeller (D-WV), the Commerce, Science and Transportation Committee chairman, told Genachowski he wants "an FCC that is transparent, that inspires confidence and that makes our digital infrastructure a model for the world," according to published reports. "Tragically, this has not been the case for some time. Let me be very clear about the challenge before you. Fix this agency or we will fix it for you."

In remarks to Genachowski, Rockefeller said the FCC should be consumer-oriented. "Too often, FCC commissioners have focused on making sure that the policies they advocate serve the needs of the compa-

nies they regulate and their bottom lines," he said. "Time and again, the FCC has shortchanged consumers and the public interest. Show us that the FCC can put consumers first and give them confidence that when they interact with the agency they will get a fair response." Rockefeller pointed out that during Martin's chairmanship, the commission had come under congressional investigation for mismanagement and had been criticized for its lack of transparency and alleged misuse of data.

Genachowski said a major part of his focus will be on wireless services and broadband technology to help spur job growth and service access across the nation. "I'm energized by what is happening around the country in mobile," he said in published reports. "We're seeing incredible innovation. I believe we have an opportunity for America to lead the world in mobile."

"As communications devices and networks become ever-more essential and the media landscape changes dramatically," he said, "the need has never been greater for an FCC that sees the world from the perspective of consumers and families."

FCC: Some Markets Shift To Mop-Up Mode In Wake Of DTV Transition

An FCC spokesman says the commission was in Digital TV transition mop-up mode—not panic mode—when deploying resources to some areas of the country to help with reception and education issues, according to published reports.

In an item by John Eggerton posted on MultiChannel.com, the FCC's Rick Kaplan cited DTV problems encountered in signals reaching some apartments, condominiums, and other buildings in Boston, Philadelphia, and Chicago, where stations had moved from UHF to VHF digital transmission. Boston's WHDH was given permission to simulcast in its pre-transition channel, Kaplan said, while engineers worked to correct reception problems. In addition, the FCC deployed staff members to help Chicago's WLS and Philadelphia's WPVI. According to reports, frequency-sensitive propagation characteristics result in better UHF reception in buildings, while VHF signals travel better in rolling terrain.

Kaplan said the FCC assessed the VHF reception issue after the initial February 17 transition date and there were few reported problems. He acknowledged seeing more problems with VHF stations, "but it has not been a widespread issue," he said. "There are plenty of places that are doing just fine."

Making Money In The Future Communications World

by Rob de Santos
commhorizons@gmail.com

“But if we get our news via our Blackberrys, how is that paid for?...how are newspapers to survive if the print version shrinks or disappears completely?”

Except for the retired, or the independently wealthy, most readers of this magazine do something for a living. Likewise, almost all organizations, large or small, must make money from their efforts so they can continue to operate, pay employees, make more products, etc. The players in the communications business are no different.

Why state the obvious here? For decades, beginning with the lead-up to World War II, broadcasters around the world filled the shortwave spectrum with broadcasts promulgating a particular point of view or cultural message. If you began listening to radio before 1989, you no doubt heard dozens of these broadcasts every day. At the time, few listeners gave much thought to the tremendous costs involved in keeping that programming on the air. For the staffs of those stations, aside from occasional minor bumps with government funding, there was the broad assurance the pipeline would remain flowing and the stations would continue. The justification for the existence of the programs was not profit or loss but the need to fight the radio side of the Cold War.

The situation changed with the end of that ideological struggle. No longer were governments and their citizens willing to spend huge sums on broadcasting to distant listeners whose numbers were unknown, and for which the financial or political payback was not readily apparent. Now, nearly two decades after the fall of the Berlin Wall we're facing another transformation.

Last month, I discussed the future of news delivery. Inseparable from that future is the growing quandary of how the media organizations will make money from their product.

The very power of shortwave, and the ability of listeners to hear the broadcasts largely undetected, made it perfect for a contentious time. However, the absence of an effective advertising model, the lack of a political justification, and the inability for stations to operate profitably has put a damper on shortwave's prospects. Similarly, there's much debate in radio and Internet circles about how to make money off the new "media." Whether it's Digital Radio or Twitter, many of these current news delivery mechanisms also seem to lack clear profit mechanisms.

News delivery is a particularly difficult area in which to generate revenue. Not too long ago, at least in the U.S., network and local television newscasts were among the most consistent profit-making centers for TV stations because of the high advertising

rates they commanded. Newspapers were revenue generators for major media companies. The change in the distribution systems for news, as discussed last month, has up-ended that apple cart. Cable and satellite TV has eroded ratings and market share for televised news from national networks and local stations. The explosive growth of the Internet has meant the loss of markets and advertising for newspapers.

For the communications hobbyist this has major implications. If we're entering an era of "bite-size" news and "pull" news delivery, as I suggested last month, the former role of news as a profit center is probably gone. But new, as yet unrealized, opportunities may exist.

In the short term we'll likely see "branding" and "sponsorship" as the primary means of advertising. Shortwave, without some way to cover its costs, will fade into the background as a provider of emergency communications and news to remote or underdeveloped parts of the world. Domestic radio and television remain advertising-based. Cable and satellite companies still depend on subscription revenue. You and I pay for CNN, Fox News, MSNBC, and to a lesser degree for our local TV stations.

Newspapers face additional challenges as growing numbers receive more of their news and other content via electronic devices and rarely pay for their news in traditional ways (by purchasing a newspaper). Fewer readers also mean fewer advertisers and less advertising revenue. Migration of classified advertising to outlets such as Craigslist further reduces revenue. Newspapers across the world have closed, reduced publication schedules, or become solely Internet-based in the past year. More will follow. Already bastions like the *Wall Street Journal* are "hybrid" publications, offering some content free on the Web and some to paid subscribers only. It's not clear what model will ultimately succeed.

But if we get our news via our Blackberrys, how is that paid for? Advertising revenue (per user) from the Web version of the *New York Times* is miniscule, far too low to pay for the current news staff and operations. So how are newspapers to survive if the print version shrinks or disappears completely? Ultimately, the old news delivery methods must disappear, find new revenue sources, or become subscription-based. Unless, of course, you have a *new* idea.

Agree or disagree? What do you see as the way news delivery will be paid for in the future? Drop me a line and let me know.



Power Up, Off The Grid

When The AC Fails, Keep Your Radio Equipment On The Air, At Home, On Site, Or Operating Mobile

by Gordon West, WB6NOA

There are a lot of reasons for finding alternate sources of power, but most of us would agree that cost savings, environmental health—and Homeland Security rank way up there. With the economy still dragging, the climate throwing walloping storms at us, and the situation in the oil-producing areas of the world spiraling to who-knows-where, it's definitely time to examine your energy use and make it more efficient. That's true for everyone, but it probably means even more to readers of *Pop'Comm*.

Another crucial reason why our readers would want reliable alternative power is readiness. Serious radio users, and emergency communicators in particular, take great pride in running their radios and radio room lights and accessories from a DC battery source. If a nearby lightning strike zaps their home wiring, they're still on the air!

If you're an emergency communicator—or just someone who never wants to be without power for your radios and other devices—you need a mobile DC power source that won't brown-out your engine starting battery. A mobile “house battery” offers you an effective way of staying on the air, and you'll save your regular starting battery for cranking your vehicle's engine. It can also save you money, and you'll be doing your part in transitioning to cleaner, safer energy.

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.

A big boat, motor home, or small EOC (Emergency Operations Center) may have its own *very expensive* system for staying off the grid. Such a system might include multiple banks of 100-pound D-series batteries connected for 48 volts DC; large battery chargers and multiple roof-top solar panels; wind generation equipment; 48 VDC to 110 VAC automatic switch-over invertors; and a diesel-powered generator with auto start.

OK, so your little mobile emergency command post and the radio room in your house isn't likely to have a huge generator kicking in when the power goes out, but it's easy and relatively inexpensive to have your radio equipment constantly ready for action with a 12 volt DC system, silently replenishing itself from specialized pulse AC chargers and solar- or wind-generated energy.

The serious radio communicator is a prime candidate for a modest, relatively inexpensive 12 volt DC system. A good setup would consist of a sealed automobile-sized battery; an AC trickle charger or small solar panel; 12 volt red and black wiring with power connectors; DC volt meter; and LED lighting.

House Batteries

Your mobile or radio room-dedicated 12 volt “house” battery is a lot different from your vehicle starting battery. Starting batteries are designed with thick plates for short high-current demands, and they may not perform well after several slow discharges.



For a recent outdoor event, this classroom demo gear ran all weekend on solar and gel cell battery power.

The recommended battery for mobile, mobile marine, and radio room power requirements is a maintenance-free and completely sealed gel group 27 battery offering the following features:

- 86 Ah
- 550 cold cranking amps
- 25 amps for 3 hours reserve
- under 70 pounds, with carrying handle
- 3% self-discharge rate per month

This kind of battery can save lives because it vents almost no hydrogen, is submersible, and has great longevity. It also offers a low-cost long-term per-amp-hour capacity, and at RV and marine stores it typically sells for under \$299. While the flooded type of house battery is considerably cheaper, I'd avoid it because it vents hydrogen, needs distilled water, can spill, and is not recommended for parallel multi-battery installations.

The gel battery minimizes something called plate sulfation. A chemical reaction that degrades batteries, sulfation is always a problem if a battery is not regularly exercised to a deep discharge. Cars that get started nearly every day may get up to 10 years on a regular automobile starting battery, but my emergency communication station wagon that gets started only about once a month won't hold a charge after only three years or so. Maintenance charging with high-fre-

quency pulsing, however, reduces naturally occurring battery sulfation and prolongs battery life.

Pulse maintenance charging has worked well for the gel cell batteries I use for the radio station in my house and in my communications van. Various companies offer such chargers, but I'm most

familiar with a company called PulseTech (www.xtremecharge.com), which has developed a five-stage pulse charger ideal for gel or flooded cells. I've tested the PulseTech chargers in my radio room and in the van, and I was on year 10 when I finally needed to change out the van's twin gel batteries in parallel. (See the "Pulse Technology Study Results" sidebar for some recent pulse charging research findings.)

The cost-conscious emergency communicator or hobbyist might want to check out another money-saver from PulseTech: a recovery charger designed for heavily discharged and sulfated batteries that you're ready to throw out. (I need to get one on my wagon's dead starter battery!)

Sun, Wind, And Muscle

These days you have a lot of choices to get more than a tan from the sun, and I love my capability to charge my radios from the sun. Solar chargers come in a huge variety and you'll easily find one to meet your needs. Just remember to *regulate* solar panel output, as you can kill a relatively new battery by driving its terminal voltage well above 14.8 volts.

Also remember that rigid polycrystalline panels offer the greatest efficiency and are designed for rooftop mounting. Flexible solar panels, made of



If your area is blessed with sunshine, solar panels are a great source of alternate energy for the whole house. Just remember to *regulate* solar panel output to levels safe for your radio equipment. Gordo gets 6 amps from these.

“Solar chargers come in a huge variety and you’ll easily find one to meet your needs. Just remember to regulate solar panel output, as you can kill a relatively new battery by driving its terminal voltage well above 14.8 volts.”

copper indium gallium diselenide, are great for vehicle rooftops, but may only yield half the amperage output of a similar size hard panel. For your portable backpack communicators, there are folding solar panels that offer enough current to keep your handheld charged, and you won’t even know you’re wearing them on your backpack!

If you find that life—or at least your neighborhood—is a breeze, you’ll be interested to know that for under \$900 you can get a wind generator to pump out around 8 amps in a moderate 20 mph breeze and up to 18 amps with the wind blasting over 30 mph. The wind generator is more “at home” on an all-powered solar home system, and would likely be overkill on two or three group 27 batteries, tied in parallel. Sure, you could get a charge regulator, but you would simply be wasting electricity from this very powerful humming and vibrating assembly.

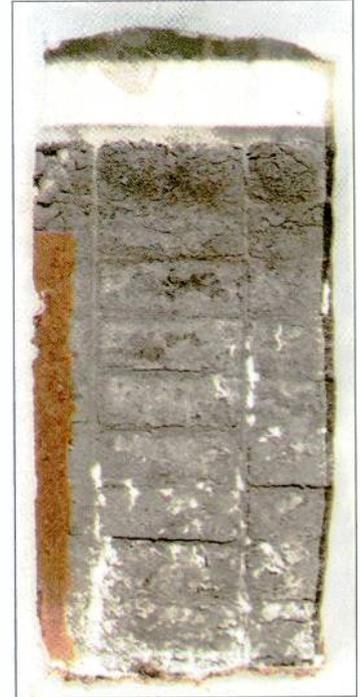
You’ll save money and always be prepared with some terrific products that I’ve been using for years: the dynamo hand-



This sun-seeking solar array is good for 2 amps.

Pulse Technology Study Results

Studies by major universities were conducted in response to a request from the military, scientific, and engineering communities for scientific validation of claims that pulse technology actually improves battery efficiency and lengthens battery life. PulseTech, a manufacturer of battery chargers and related devices located in Southlake, Texas, contracted with Oakland University in Rochester, Michigan, and Ohio State University in Columbus, Ohio, to conduct separate evaluations of the company’s patented pulse technology. These extensive evaluations began in the summer of 1998 and concluded in the fall of 2000.



During these studies, crystalline buildups (sulfation) were regularly investigated by X-ray diffraction methods. The X-ray diffraction data confirmed the positive effects of the application of the pulse technology on the battery plate morphology. It shows a more even distribution of lead sulfate crystals over the surface area of the battery plates (see **Photo**). It also revealed a significant reduction in the size of the lead-sulfate crystals. These microscopic changes, kind of an electro-mechanical “stirring” or “cleaning” action on the plate surface, greatly improve a battery’s ability to accept and store more energy.

During the Oakland University study, testing was also done on stored batteries to determine how the technology would affect military vehicles that sit unused for long periods of time. The batteries were stored at a constant temperature of 25°C (77°F) for 14 weeks.

The final report offered the following results:

There is a distinctive difference in the charge capacity between these two batteries. A battery stored under the influence of pulsation (Pulse Technology) retained its original capacity while the capacity of the battery stored without pulsation lost a considerable amount of charge. The decrease of charge capacity of batteries stored without pulsation decreased linearly with time. After 14 weeks the decrease of charge capacity accounted for about 25% of the battery’s original capacity. In this same period of time, the charge of the battery attached to (a product using pulse technology) slightly increased. This is probably due to a reconditioning (reforming) process of the battery plates by continuous pulsation” or the application of Pulse Technology.

Electron scanning microscopy as well as x-ray spectroscopy clearly underline reasons for the preservation process. During the storage of a battery without pulsation, a formation of large crystallographic domains is observed on the surface of positive electrodes. This is in contrast to the morphology of the battery stored with pulses. A smooth, homogeneous surface with significantly smaller crystals was formed during the storage process due to the pulsation effect.

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With power good to go, Austin Miller, KF6RVK, readies his all-solar Field Day station.

crank AM/shortwave radios offered by C. Crane (www.CCrane.com) and Eton (www.etoncorp.com). The hand-crank charging method means that the radios will always work when you need them, *plus* they can deliver charging output to an included array of cell phone plugs. If you can crank for about five minutes, you can run the radio for about one hour on its internal-battery charge. The dynamo is fairly small and easy to crank, but if you'd rather save yourself that effort, see "A Solar Charger For Emergency Radios," elsewhere in this issue for a cool way to combine sun and (radio) fun.

Analog Volt Meter

To maximize efficiency and savings, your mobile and house batteries need to be monitored for over voltage charging, regular normal voltage, and abnormal dips in working voltage as you're talking over your radio system (resting voltage doesn't mean much). For instance, every day when you get on the 40 meter comm net, as you talk you can watch the analog volt meter deflect down on SSB voice syllables. A good 100 watt transmitter will normally pull a group 27 battery down to 11.5 volts, with a decent charge.

After many years of operation, even with a decent charge on it, you'll notice that each syllable on SSB is now pulling down that older battery to 10 volts, and sometimes lower. This is a good sign that a battery more than six years old will need

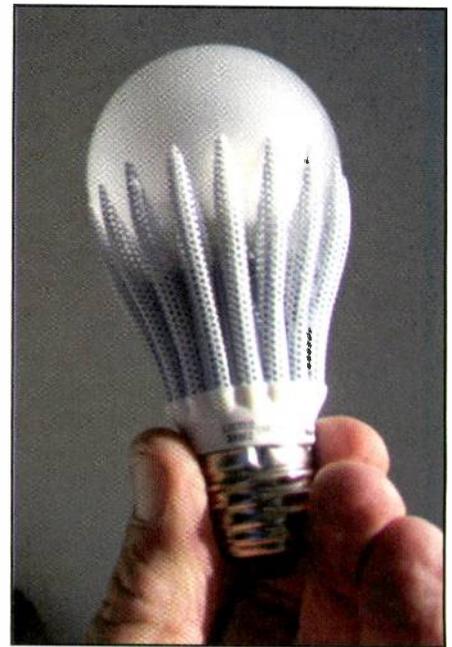
replacing (or maybe it's time to try your friend's pulse battery revitalizer!). Just because a battery reads 13.8 volts DC, it doesn't mean much until you hit it with a relatively strong current demand. Now see what the voltage reads!

Vehicle And Radio Room Lighting

A 12 VDC or 110 VAC light bulb gets hot to the touch, right? You bet it does—and that means you're wasting energy.

To save energy, you can change your vehicle's 12 volt lighting to cool LEDs and LED strips. I like the 12 volt LED strips from West Mountain Radio (www.westmountainradio.com) and C. Crane Company because they are thin and bright. Each high-powered 1 watt LED puts out about 7 watts of incandescent bulb light. The LED strips draw a fraction of an amp, whereas a string of comparable bulbs would draw several amps at 12 volts DC. You can even daisy chain the LED strips for lighting an entire radio room or mobile command post. If the cool blue LED illumination bothers you, you can even get LED clusters that will yield nearly the same warm look as an incandescent bulb.

If you're running several 60 watt and 100 watt bulbs in your radio room, you can save some bucks off your energy bill by switching over to vacuum fluorescents or a warm LED cluster inside a regular-looking light bulb, also available from C.



C. Crane 60-watt illumination warm glow LED GeoBulb (see Table for specs).

Crane. But, after a few evenings with the bluer LED lights, your brain compensates and you quickly get used to this new "cool" conservation of energy.

"If each USA household replaced just one standard 60 watt bulb with an LED light bulb, the energy savings would be greater than the amount of energy produced by one of the largest power plants in the USA," explains Bob Crane, C. Crane's president. "We could save 26,068,180,736 watts, or 26,068 megawatts per day." (For a rundown on the energy savings possible, check out the "Lighting Comparison Tables" with specifications provided courtesy of C. Crane.)

The RV and marine industries have always been energy-conservation "green," because RVs and small boats at anchor have no source of plug-in power. You can be assured that RVers and sailors know the latest tricks to squeeze out every available lumen from any power source, constantly feeling connections to make sure there is no power lost as heat. Radio communicators can benefit from their experience as well. If you'd like to replace bayonet incandescent bulbs with LEDs for your mobile installation, you'll find a wide selection of exchange bulbs at www.westmarine.com and at www.campingworld.com.

And thanks to the automobile stereo installation market, there are plenty of gold-plated fuse assemblies to minimize resistance and provide a safety break in case of any short circuit down the line.

Always provide safety fuses directly on the positive post of the battery, in addition to the natural fuses found in the equipment you're running.

Electroluminescent Tape And Wire

Electroluminescence, sometimes also referred to as "cold cathode," technology is found in the background illumination on some scanner radio frequency panels. It uses a very small current, at a very high voltage, to create a chemical reaction that results in a surprisingly bright, bluish-white light output that can also be dimmed. Limousine builders use it to illuminate the inside of the guest compartments.

Our communications van has an electroluminescent stripe running all around

the outside roofline. It really grabs attention, and surprisingly, this very bright stripe is absolutely cold to the touch. Only 5 milliamps at 12 volts DC is "switched" up to 600 volts to drive the cold cathode strip. At a very dark campsite, the strip helps illuminate a 20-foot circle around the van. You can also spot the vehicle hundreds of yards away thanks to its distinctive glowing blue stripe.

Our electroluminescent tape and its associated 12 volt DC micro power supply come from American International (www.AmericanInternational.net) in 100-foot rolls, minimum. The tape has a sticky back for easy installation. The cold cathode tape is very expensive—about \$4 per foot—but if you can get a bunch of RV command post operators or other folks you know to buy in, the inexpensive power supplies can be had at a low

Lighting Comparison Tables

Light Bulb/LED Comparison

Incandescent Equivalent	#LEDs	LED LUMENS/Color	C.Crane Product
3 watt	18	26/warm	SunDusk Bulb
5 watt	18	31/cool	Vivid
6 watt	36	60/cool	Vivid+
8 watt	36	80/cool	PAR 20 Spot
15 watt	60	150/cool	PAR 36
60 watt	High Intensity	150/Cool	GeoBulb

Light Bulb Comparison

	Incandescent 60 w Bulb	Compact Fluorescent 13 Watt Bulb	C. Crane GeoBulb
Life Span	1000 Hrs	Up to 2500 Hrs	30,000 Hrs
Bulb Cost	\$25.50	\$60.00	\$119.95
Per 30,000 hours	30 bulbs @ \$.85 ea.	12 bulbs @ \$5.00 ea.	1 bulb
Cost of Electricity 30,000 hrs @ 12.1 ¢/kW	\$217.80	\$47.19	\$27.22
Total Cost	\$243.30	\$107.19	\$147.18
Bulb +Electricity			
Hazardous Material	NO	Yes – Mercury	NO
Cost to Run 12 Hrs/day for 1 year	\$31.80	\$6.89	\$3.97

GeoBulb Specifications

	Cool White	Soft White	Warm White
LEDs	8	8	8
Volts	120	120	120
Watts	7.5	7.5	7.5
Incandescent Equivalent	60 watts	50 watts	40 watts
Price	\$119.95	\$119.95	\$119.95
Lumens	446	303	260
Color Temp (Kelvin)	5,223	3,812	2,642
Life Span Expected	30,000 Hrs	30,000 Hrs	30,000 Hrs
Color	Cool	Soft	Warm
Socket	E-26	E-26	E-26
Height	4.75 inches	4.75 inches	4.75 inches
Diameter	2.5 inches	2.5 inches	2.5 inches
Weight (lbs)	0.94	0.94	0.94
Warranty	3 year	3 year	3 year

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Gordo's comm van has pin-striping by day, and an astoundingly bright electroluminescent light strip by night.

cost to drive down the price of the individual strips.

The biggest problem with this type of strip lighting is moisture contamination. I found out the hard way after a good rain. Water seeps in behind the sticky tape and destroys the chemical makeup. If you plan to run this on the outside of your vehicle, you must seal it completely

with clear flexible airplane model tape. Glue the tape in place and the strip will last for years.

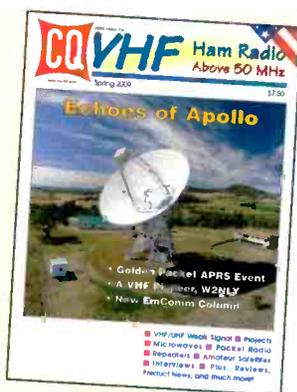
Another type of electroluminescent lighting is the clear round "wire" offered by Edmund Scientifics (www.scientifics.com; item #30824-88, \$150 per 20 feet), among others. Not just a gimmick, this flexible luminescent blue wire runs

for hours on a tiny common 9 volt battery, giving off ample illumination to see what you are doing inside the emergency command post radio room. The wire runs stone cold, and this particular EL cable is waterproof and uses the same micro current high voltage for its instant-on glow (you can even wear it, too!). So consider electroluminescence as one additional way to generate light, at negligible power consumption. They're cool in more than one way.

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And speaking of cool, communication power supplies have all switched from power-hungry power transformers to high speed-switching technology, further reducing AC power consumption. The same thing goes for wall warts. If you have a warm one, it's wasting power. Seek a switcher replacement soon.

Running your radio shack and mobile unit on strictly DC also minimizes the chance of voltage spikes taking out your radio gear. Even with a small charger keeping your battery topped off, any lightning-induced voltage spike would quickly be absorbed by the battery itself, and your gear remains on the air.

And that's really the whole idea behind reliable radio communications—being able to stay up on the air after the local AC power goes down.



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A Solar Charger For Emergency Radios

This Easy Modification Makes A Solar Automotive Charger A Perfect Fit For Popular Emergency Receivers

by Gregory Majewski

I have a C. Crane CC Observer emergency portable radio that I rely on when no AC power is available. The CC Observer is very similar to the emergency radios produced by Eton and other companies, and most *Pop'Comm* readers probably have—or should have!—such a radio for emergencies. It has a pleasant sound and the batteries last for a reasonable length of time. While the CC Observer does have a built-in hand-cranked dynamo generator for charging the internal nickel metal hydride (NiMH) battery pack, it requires some extended physical effort to charge them. And, of course as Murphy's Law dictates, the batteries always seem to need recharging at the most inappropriate times.

As luck would have it, I also have a small solar panel that I'd intended to use for keeping a 12-volt lead-acid battery

charged for emergencies. The panel is typical of the many cheap solar-powered car battery trickle chargers on the market with a 12-volt cigarette lighter plug, but measurements I made showed its maximum current output in bright sunlight to be only 20–30 milliamperes (as opposed to its rated 100 milliamperes) I realized I couldn't use it for that purpose. Since the CC Observer only needs 25 milliamperes to run, however, this was a perfect match.

Still, the solar panel's output voltage can be as high as 23 to 24 VDC. Since this is well above the 5 volts required by the CC Observer, I decided to use a simple three-terminal voltage regulator to control the voltage to the radio.

Solar Charger Components

Figure 1 is the schematic of the configuration; the Parts List box provides a rundown of the components you'll need. The key component is the very common 78L05 three-terminal 5-volt regulator, which can safely supply up to 100 milliamperes of current at its output voltage and also has internal thermal overload protection. (**Figure 2** shows the pin connections of the 78L05.)

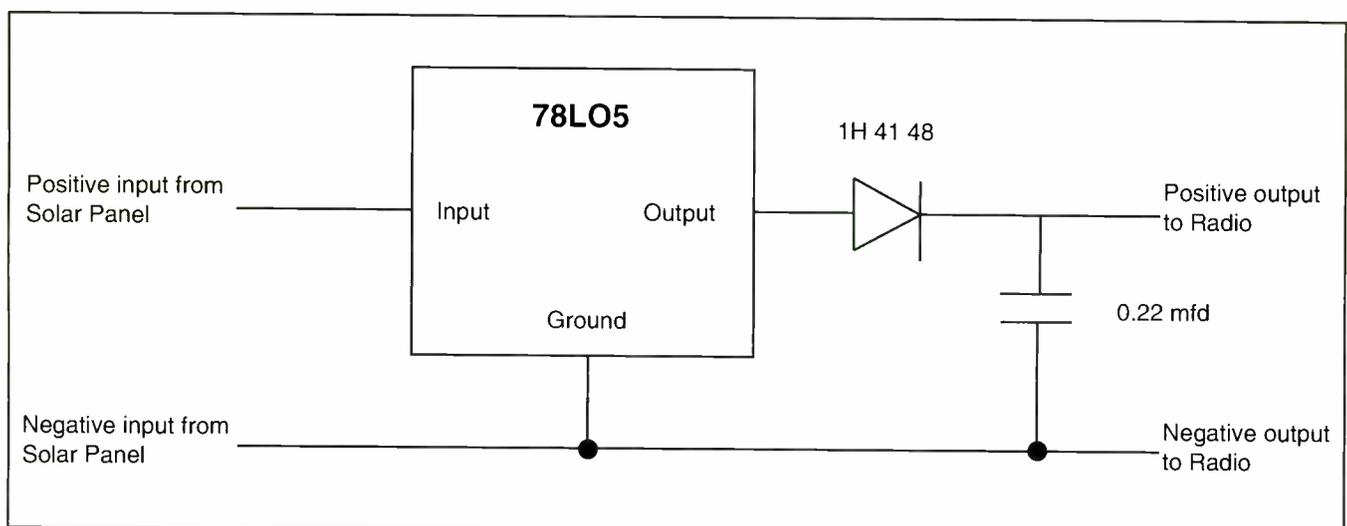


Figure 1. The Solar Charger schematic.

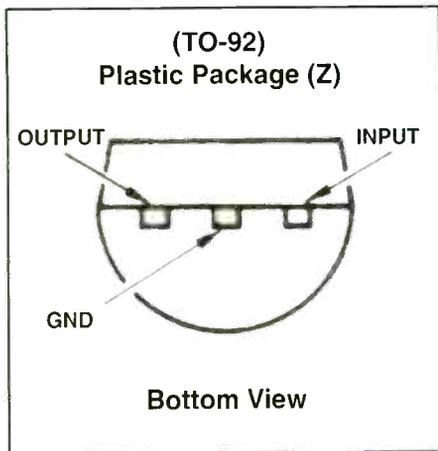


Figure 2. Bottom view of the 78L05 showing pin connections.

This and all the other parts (besides the solar panel) are very inexpensive and are available at RadioShack and from most other local and online electronic parts supply businesses. You may already have all the parts you'll need in your junk box.

While the solar panel provides clean DC power, the ceramic capacitor filters out any stray voltages or currents picked up by the long leads of the solar panel that could affect the voltage regulator's proper operation. Any value between 0.1 to 0.47 microfarads can be used; I used a .22 microfarad capacitor that I happened to have on hand.

Parts List For The Solar Charger

- 78L05 three-terminal 5 volt regulator (RadioShack p/n 276-1770 or equivalent)
- 1.5 watt automotive solar panel (Harbor Freight p/n 44768 or equivalent)
- .1 to .47 microfarad 50 volt ceramic capacitor (RadioShack p/n 272-135 or equivalent)
- 1N4148 or 1N4005 diode (RadioShack 276-1122 or equivalent)
- Prototyping printed-circuit board (RadioShack p/n 276-148 or equivalent)
- Coaxial power plug for radio

Note: The CC Observer radio uses a 2.1 mm inner diameter by 5.5 mm outer diameter plug. (RadioShack 274-1569 or equivalent); the Eton FR200 uses a 1.3 mm inner diameter by 3.5 mm outer diameter plug (RadioShack 274-1571 or equivalent). The DC power plug size for your portable emergency radio may vary!

- Several inches of 24 AWG wire, preferably with Red, White, and Green insulation
- 1/8 inch heat-shrink tubing (RadioShack p/n 278-1611 or equivalent)
- Double-sided adhesive foam tape, approximately 1/8 inch thickness (or equivalent)

The 1N4148 diode is also not critical, so you could substitute a normal power rectifier diode (1N4005, for example) in its place. The original solar panel's cigarette lighter plug has a similar diode on its internal circuit board, which could be removed and reused. This part is necessary to prevent reverse current from flowing though the 78L05 and the solar panel. Without the diode there is a possibility, in

dark conditions, of the radio's battery discharging itself though the solar charger. Additionally, the 78L05 and the solar panel could be damaged, depending on how much current flows in the wrong direction.

Pop'Comm's knowledgeable and attentive readers will note that the diode's forward voltage drop reduces the output voltage. With the diode, the voltage from

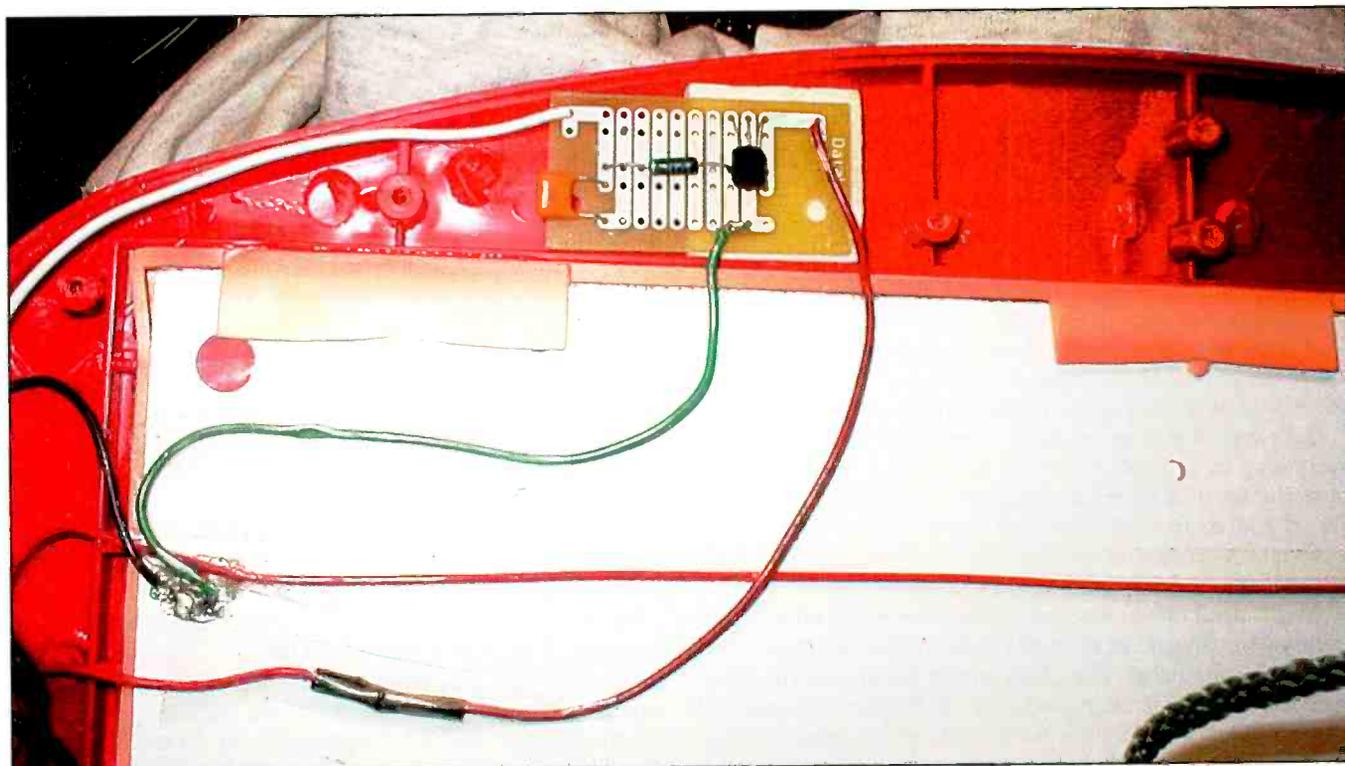


Figure 3. A view of the circuit board installation prior to back panel's replacement.



The completed Solar Charger is now ready for action.

the solar charger ranges from 4.3 to 4.7 volts, depending on how much current flows through the diode. This difference is not significant and is, in fact, better for the internal NiMH battery.

The radio's internal battery pack has three cells for a nominal voltage of 3.6 volts. The recommended charging voltage is 4.2 to 4.8 volts, so constant use with a 5 volt charger would probably result in "overcharging" damage to the internal battery. Luckily, the 78L05 voltage regulator with the diode is very close to the recommended charging voltage range.

Assembly

The three components—the 78L05, the diode, and the capacitor—will all be mounted on the same piece of generic perf-board (see **Figure 3**). For the board to fit into the empty space inside the top of the solar panel, you'll need to cut it down to about 1-11/16 inches with a hacksaw or Dremel tool.

Take care in placing the three components on the board. For everything to fit inside the solar panel's case, the 78L05 and capacitor must be folded down against the board, so mount the 78L05 with its flat side facing the board (again, refer to **Figure 3**). Carefully solder the components to ensure there are no "cold" solder joints.

You'll need three pieces of AWG 24 wire of different colors to connect your circuit board to the photovoltaic cell array inside the solar panel. The green wire is the ground (negative) lead; the red wire is the input to the 78L05 from the solar cell array; and the white wire is the output, which connects to the zip cord conductor with the white stripe. These three wires will be connected to the solar panel after the board is mounted inside the panel.

To protect the solar panel from damage, place it face down on a folded towel or other soft cloth while working on it. Remove all the screws from the back of the solar panel, and carefully pry off the back of the case because there's adhesive holding the halves together. After removing the back of the solar panel case, mounting the assembled circuit board inside is easy. Use double-sided adhesive foam tape (the type used to hold pictures and small message boards to walls) to mount your circuit board inside the solar panel's case.

Place the foam tape on your circuit board. Make sure it's properly positioned first, *then* remove the paper from the other side and stick the circuit board into the unused space inside the solar panel's case on the side with output connections. (The adhesive tape *really* sticks to both the board and case, and once it's in place, it's very hard to remove. I found this out the hard way—consider yourself warned.)

Now make the final connections between the circuit board and the solar panel. First, cut a piece of red wire long enough to run between the solar cell array and the zip cord conductor with the white stripe. Strip both ends to expose about 1/4 inch of bare wire. Then cut and connect the negative wire (green in **Figure 3**) to the negative terminal (black wire) of the solar cell array using a low-wattage (around 25 watts) soldering iron. Take care not to apply too much heat to the solar cells as they can crack or be otherwise damaged. The white output wire is next: cut it to the right length to connect it between your circuit board and the white-striped conductor of the zip cord. Place a piece of 1/8 inch heat-shrink tubing over one of the wires before soldering the connection to keep it from touching the other wires. The last is the red input wire, which connects to the red wire inside the solar panel. Again, place a piece of heat-shrink tub-

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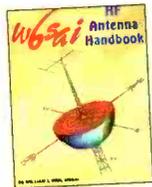
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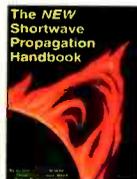


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ing over one end before soldering the two red wires together, then shrink it over your connection.

I used the same approach as the original manufacturer to hold the wires in place: clear tape. Try to route the wires so they're not pinched when the case is put back together.

After reassembling the case and tightening the screws, remove the original cigarette lighter plug and replace it with a coaxial DC power plug connector. You'll have to use the correct power plug size to fit your radio.

On this solar panel, the wire with the white stripe is the positive lead and the wire without a stripe is the negative lead. For the C. Crane and Eton radios, the negative lead goes to the center pin of the DC power plug. For Kaito radios, it is the *opposite*, with the positive lead going to the center pin. You only need about 1/8-inch of bare wire for the connection to the plug. After splitting the zip cord apart tie a knot in the zip cord about 3 inches from the end to keep the split from traveling up the cord. Before soldering, place the plastic DC power plug cover on the cord. First solder the negative (unstriped) conductor to the center (shorter) pin of the DC power connector. Solder the other wire with the white stripe to the outer (longer) pin of the DC power connector. Then screw the DC power plug's plastic cover into place.

Check your completed solar charger with a multimeter or voltmeter to verify proper voltage or polarity before plugging it into your radio. Expose the panel to direct sunlight or hold it up to a 4-foot or larger fluorescent light tube when measuring the voltage at the DC power plug. It should be about 4.7 volts. If the voltage or polarity is not correct, recheck your connections.

Now Have A Listen

Your new solar charger is actually more of a battery *maintainer*. With only 25 milliamperes of current output, it takes about 26 hours of bright sunlight to completely charge a discharged battery. So the best practice is to initially charge the battery using the hand-cranked dynamo generator for at least 100 seconds. On a sunny day the solar charger should keep the battery charged all day, without your having to hand-crank the dynamo generator. The panel should also be able to power the radio in bright sunlight without the internal battery connected.

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Buying A Scanner: The Big Three Questions

by Ken Reiss
radioken@earthlink.net

"The following three questions may dictate which radio(s) you can or should choose more than any other considerations. Carefully thought-out answers here will also determine how happy you'll be with your choice in your area of the country."

The dramatic events the county's suffered over the past near-decade have led to the adoption of some pretty dramatic changes. One of the things that came out of 9/11, for instance, was the reorganization of many federal agencies into the new Department of Homeland Security. More recently, the hurricanes in the south (Katrina, in particular) underscored the need for communications systems that work between agencies.

As a result, lots of money has been floating around to upgrade/update communications systems at the state and local level. The recent economic downturn may have put some of those plans on hold, but it's been just long enough that some of the changed systems are starting to come online. And the result for you is that you may suddenly find that your old scanner doesn't quite work any longer.

Trunking and digital are the two biggest factors that will outdate your radio in a hurry, but there's also new frequencies in use as a result of rearming and re-allocation of spectrum. The recent transition to Digital TV may also open additional frequencies and opportunities for many

public safety agencies as the spectrum becomes available. (Assuming everything stays on schedule, it may have actually happened by the time you read this, but I'm not a betting person.)

If you're looking for a handheld, you've got plenty of choices. At one time, buying a handheld meant making a lot of compromises, but that's no longer the case. Today's handhelds are every bit as capable as many of the base/mobile counterparts. A quick look through the catalogs reveals that the pure base/mobile receiver is getting a bit harder to find since the handhelds are so versatile.

Yet, there are still some advantages to having a true base or mobile unit. They're easier to mount in a permanent way in the car if you're doing a mobile installation. There's nothing like a permanent (or semi-permanent) installation for convenience.

The same is true at home. While a handheld certainly will work, many people prefer the larger controls and display that a bigger radio affords. You can also make a more permanent power and antenna connection with a bit more ease, although today all but the most expensive communications receivers use the standard wall wart supply, regardless of whether they're handheld or base.

While I can't give you a concrete answer to the question about which radio to buy, hopefully we can ask some questions to get you thinking about what you might need. You may have some homework to do in your local area to see what's coming out with upgrades before you make a final decision.

Buying That First Scanner

If this is your first scanner and you're just beginning, there are a number of special features you should look out for. The first couple of considerations are pretty critical; after that it really comes down to how serious you are.

First-time scanner listeners are often advised to buy handheld radios because they're portable and you can listen anywhere. This is probably good advice for most people, but not for every-



The ability to alpha tag channels can be very helpful, especially if you have 500 or 1000 channels to keep track of. Getting the alpha information in, however, is best done by computer entry.



A base unit is likely to have more connections than a handheld, and they'll be easier to get to, because of its additional panel space. This AOR receiver features dual antenna connections; one for lower frequencies and one for VHF and above.

one (but do think about it carefully). If you know that you're going to put the radio in one spot and not move it again, or if you want the convenience of larger keys that many (but not all) base stations offer, don't let me persuade you otherwise. If you're not sure how you'll be listening, I'd probably recommend a handheld and you can always buy a base or upgrade your radio later. Scanners, after all, are a lot like the popular snack food...you can't have just one.

The following three questions may dictate which radio(s) you can or should choose more than any other considerations. Carefully thought-out answers here will also determine how happy you'll be with your choice in your area of the country. So let's get the big three out of the way first and then look at some other factors.

Question #1: Do You Need Or Want Trunking?

The absolute first thing you have to determine, whether this is your first radio or not, is if you need trunking capabilities, and if so what kind. Trunking refers to a particular type of radio system that is very popular around the country with two-way radio users because it offers a lot of convenience without much fuss for the users of the two-way system. Since its establishment after 9/11 the Department of Homeland Security has made upgrading radio systems a priority. The recent hurricane seasons reinvigorated this debate since a lot of agencies couldn't talk to each other in New Orleans during the Katrina recovery. As a result, new systems are being installed on an accelerated schedule, and many of them are trunked.

How can you find out what you have in your area? Well, the best way is to ask a friend who's into scanning. Anyone who's been scanning in a particular area for any length of time will know whether or not the system he or she is listening to is trunked.

If you don't have a friend who can tell you, you may have to do a little more legwork. The next thing I'd suggest is a visit a local scanner store. Often they have a list of frequencies available for scanner buyers. Sometimes, you'll get lucky and find a knowledgeable salesman who can really fill you in. Count your blessings if you do, but don't despair if you don't get that lucky.



Trunking is important enough that most receivers that feature it will have it on the label someplace. Alas, none of the high-end "communications receivers" have added trunking to their list of capabilities as of yet.

Look over that list for frequencies in the 800 MHz range; 700 and 900 MHz trunked systems are starting to show up, too. It won't be very long before the 450-512 MHz band can be trunked as well. If you find that the agency you're interested in has a bunch in these ranges (usually in groups of five to about 30), there's a good chance its system is trunked, and you'll need a trunking-capable scanner. These days, that's a pretty reliable indicator, but there are a couple of issues you should also be aware of.

First, trunking is likely the way of the future. There are too many advantages, and unless someone comes up with compelling evidence (like agencies that can't talk to each other after a hurricane, but don't pay any attention to that minor detail...), there are likely to be more and more trunked systems.

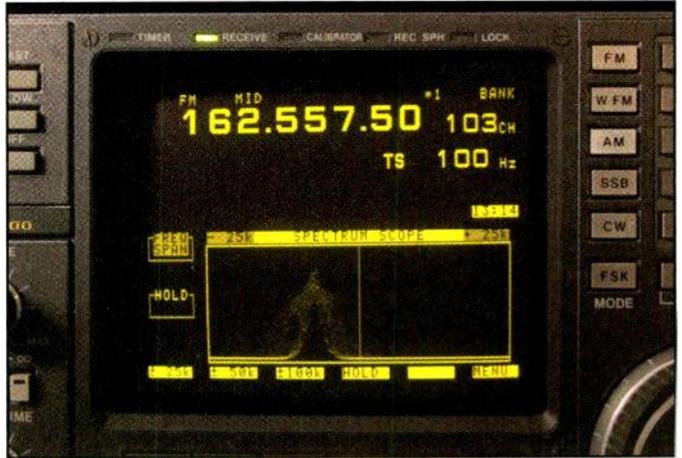
Second, even with a trunking scanner, there are a few trunking systems that cannot be scanned. Most of them involve digital techniques or scrambling of speech deliberately for security purposes, but in any event those types of systems will not be scannable with any currently available receivers. Time may change this, too; after all, it wasn't that long ago that trunking scanners didn't exist.

Third—and perhaps this is a bit worrisome—is that more communications are moving to the public common carrier system: cell phones. Almost all the police cars and many of the fire department supervisors in my area carry cell phones for things that are best not discussed on the radio, or where the radio may not be an option. If they don't have one for official business, many officers carry their own personal phones, just like you and I do. As more traffic moves to the cell phone, there will be less need for talk-around and detective channels.

As long as the network remains up and functioning, it's a viable and cheap alternative for many agencies, which enjoy special rates from the cell carriers. But, when a big enough disaster strikes and that the network fails, many of those same agencies are going to be in for a bit of a shock.

Question #2: Do You Need Or Want Digital?

It hasn't been that long that we can ask this question, but it sure can eliminate some of your choices in a hurry. If you live



While even a handheld can have a bar graph signal meter, there's nothing like an analog S-meter to give you information about the signal. This receiver can also use the meter to show the center frequency to assist in tuning.

A spectrum scope can show other signals that are nearby. While a few manufacturers have tried to imitate this feature in handhelds with an LCD panel, it's simply not as useful. This is an all-mode communications receiver with mode selections down the right side of the screen. On lower frequencies like shortwave, this spectrum scope is very useful.

in an area that uses a trunked system, there's a chance that the system is also digital. Digital is a double-edged sword: The good news is that we can now find scanners that will receive the APCO-25 digital standard; the bad news is that not all digital systems are APCO-25. Here's another case where you'll have to do some homework to get an answer about your area, but if you get any hint of the word digital be sure to proceed with caution: You can wind up with an expensive radio that doesn't receive what you thought it would.

Another consideration here is that going forward, most systems will be digital. Virtually all trunking systems are switching to APCO-25 (or one of the proprietary systems) as they're replaced, and even simplex and non-trunked repeater systems will be going digital as they get updated. It's difficult to recommend that you purchase a non-digital scanner if you plan to keep it for a while.

Question #3: What Frequency Coverage Do You Need Or Want?

The last of our big three considerations involved in buying a new radio is frequency coverage. In the United States, all receivers will have the cellular frequencies in the 800 MHz range blocked, so that's not an option. Don't panic when you see restricted coverage in the 800 MHz region; it's just cellular telephones that are restricted out of the receiver. The public safety portion of the 800 MHz band is intact if the radio lists 800 MHz

ranges as part of its coverage. While there are a few that don't cover anything in the 800 range, those tend to be lower cost units.

More important to look at are the high and low bands, as well as other gaps that are common in scanner models. Many of the more economical receivers, in order to cut costs, will leave out the VHF-Lo band (30 to 50 MHz), still used by many state police agencies and fire departments. Others will have the Lo band, but not include 800 MHz coverage at all. Both are perfectly acceptable *if* you don't need those ranges.

It's also worth noting that many receivers don't yet include the 700 MHz

frequencies, since many of those frequencies are not available as of yet. Even the plans for the entire band have been somewhat nebulous as the FCC auctions the spectrum and we get the TV users out of the space. In areas of heavy frequency congestion (the East Coast and Southern California, in particular) there's likely to be a pent up demand for those frequencies, and as soon as they're available, public safety agencies will make the switch. If a radio you buy today includes 700 MHz at all, it will list that as a feature. Those 700 MHz frequencies were among the first allocated and will likely not change, but there could be more to come.

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*. Remember to include your address in case it's your name that's drawn! Good luck!

Our frequency this month is **44.800**. Check it out and see what you hear, or don't. Let me know and we'll enter your name into the monthly drawing. Send your entries, as well as suggestions and questions, to radioken@earthlink.net or via more traditional methods to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Please note frequency of the month entries with the frequency on the envelope or subject line for correct routing. And don't forget that address!

The most recent winner of our drawing is **Steve Rock of Ludington, Michigan**. Steve writes to tell us what he heard on a recent FOTM:

"467.5625 (one channel from FRS) has action on it once in a while, mainly kids. I live near a campground and hear it in the summer, some of it interesting, some not."

Congratulations, Steve, and thanks for sending in your entry!



Base units can also feature larger displays and provide functions that are simply not practical on a handheld. This AOR SR2000 Spectrum Receiver includes a full-featured spectrum scope as well as a very capable receiver in a single base unit.

The larger buttons and display of a base unit make it more comfortable for many users who don't need the portability of a handheld.

Common bands for “middle-of-the-line” scanners include the VHF-Lo band, VHF-Hi band (roughly 144–174 MHz), UHF (roughly 430–512 MHz) and “800” (I say roughly here because some manufacturers start and stop at slightly different places, or some of them consider each little portion of that frequency range a “band” so that they can claim a 12- or 14-band scanner).

A very good example of this is the amateur radio band between 144 and 148 MHz. There are also some military and government frequencies between 148 and 152 MHz before the “real” VHF-Hi band starts and runs from 152 to 162. Another range that's broken up with many users is 162 to 174, but it's primarily for federal government use. There are four bands right there, if you choose to count that way—and since it sounds better to have a 14-band scanner than a two- or three-band one, that's exactly what manufacturers do!

The civil aviation band of frequencies is also fairly common on most “mid-line” scanners and up. This is AM (as opposed to FM used for most public safety operations) and runs from 108 to 137 MHz. Of course, if you have an interest in airplanes, this is an essential band so check to make sure the scanners you're considering do include it!

One range that's commonly left out on all but the top-of-the-line models is 200 to 420 MHz. This range is loosely called the military air band, and certainly there are many military users here as well as other federal agencies. If you're interested, make you'd better sure the radio includes this range. Most do not!

And while you're at it, make sure that

you can select between AM and FM modes in this range if you want to hear the federal agencies in the upper portion. Many scanners will switch for you but allow you to override that automatic selection. That's probably the best for maximum versatility.

Finally, be aware that it's difficult to “have it all.” If you have trunking on your radio, for instance, you likely won't have the military aviation band. If you have continuous coverage—some even down into the AM broadcast band all the way through 1200 MHz—you likely won't have trunking and you may not have many of the common scanner features, either. Be prepared to pick and choose, or to have more than one radio. See... I told you that you couldn't have just one.

Other Considerations

Now that we've gotten the big three out of the way, we've probably narrowed your selection of radios down quite a bit. Let's take a look at some other factors you'll want to consider as you evaluate the remaining contenders.

Probably the next most important factor after you determine the type of radio is the price level. It's easy to spend thousands of dollars on high-end receivers, but if that's not what you had in mind (or in your wallet!), there's not much sense in throwing those receivers into your selection mix. It's simply not fair to compare receivers in the \$1000-dollar area with high-end scanners in the \$400 or \$500 range. It's a different class of radio, and the feature sets are completely different. And if it doesn't make sense to you that

someone would spend that much on a receiver like that, you certainly shouldn't.

Number Of Channels

The next feature most people look for is a large numbers of channels. Somewhere around 1,000 seems to be about the right number for most folks, but 500 or so may be fine. In reality, most people with 1000-channel radios don't fill up all that space. In fact, I'd guess there are a lot of 400-channel units that aren't full, either. Don't get too wrapped up in the number of channels, as long as it's a big enough increase over what you have to make a difference, or if you're buying your first radio, look for something in the few hundred range.

For most beginners, though not all, 200 to 500 is acceptable, but it all depends on how much activity is around you that you want to concentrate on.

Number Of Banks

This is probably a much more important consideration. The whole idea of banks is to let you organize and switch in and out channels that are of interest at a given time. By having large numbers of small banks, you can divide things up pretty well so you only have to scan what's of interest at the moment. The best radios in this regard have at least 10 banks, but 20 banks is better. Only a few of the high-end Uniden radios have this many banks, as far as I'm aware.

Computer control, another consideration, can eliminate both the banks and number of channels barrier, so that's also something to think about (more on this in a moment). Some newer radios let you

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HF SWL receiver, 5 kHz – 30 MHz. IF stage DSP. Sync AM/selectable sideband, SAM, AM, SSB, ISB, CW, FM. Over 90 bandwidth filters, programmable AGC, built-in high stability TCVCXO. Completely remote controllable via RS-232 interface. DRM ready, no modification needed (user supplies decoding software). 90-264 VAC operation. **\$4,250**

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RX-320D



RX-340



1254



program the number of channels in a bank, and the newest from Uniden don't really deal with banks at all (they call a bank a system, like a trunked system, and you add frequencies to it as needed offering tremendous versatility).

Computer Control

We should draw a line between computer memory management (the uploading and downloading of frequency sets into the existing scanner memories) and computer control (the actual giving the scanning process over to an external computer). Both are good options and a lot of fun. Memory management is very useful as a convenience feature, but if you're setting up a base unit, a computer to control the scanning might open up all kinds of possibilities for you.

Alpha Tags

Scanning is becoming more complicated as we go forward. Keeping track of what's where and who uses which talk-group can be quite a memory exercise. If you don't have a good memory (no, I don't either) the next best thing to have is the ability to assign each channel an alphanumeric label. This feature is found

only in the higher-end of the models, but it can be a lot of help. It will also be very helpful to have computer memory management so you can program the alpha tags on such a scanner.

CTCSS

CTCSS (Continuous Tone Code Squelch System), also known by the Motorola trade name Private Line, is becoming available on more units. If you're in a metropolitan area, this is a worthwhile option. We've discussed this in past columns, and no doubt will do so again when I get enough emails requesting I revisit the topic.

S-Meter

A signal strength meter is something that most shortwave listeners would not be without. It allows you to see at a glance the incoming signal strength and to make comparisons between antennas, time of day, frequencies that are on at the same time, etc. For some reason, this feature has been lost from all but the high-end communications receivers and scanners. The first consumer-grade radios to offer this feature in literally years are the Uniden BC-895XLT (also a TrunkTracker) base

radio and the Regency HS-200 and AOR AR-8000 handhelds. It's really a convenient feature in a handheld so you can check antennas, location, etc.

Still More To Think About

There are lots of other features available from model to model. Some folks would not own a scanner without search lockouts; others never search. Auto search and store is a handy feature, too, if you do any searching.

Selectable attenuation, delay function, priority operations, service search, weather scanning or alert functions, selectable modes, and tuning dials are features with varying degrees of importance depending on whom you talk to. If none of these terms makes sense, relax. We'll take a look at defining a lot of these in a future "ScanTech."

In the meantime, look around, collect some catalogs, and dive in. Once you've narrowed the field a bit, start asking around to find folks who've used the receivers you're interested in. Check the Internet and back issues of *Pop'Comm*. But, ultimately, only you will have to live with your final decision—take your time and make it a good one! ■

Radio Hargeisa Toots Its Horn, A Possible Return Of Sierra Leone, And Radio Vatican Goes Commercial

by Gerry L. Dexter
gdex@wi.rr.com

“Apparently a rebuilding has occurred and [Radio Hargeisa, Somaliland] has come back to life. It has been reported by some using 7145.”

DRadio Hargeisa, the government station in Somaliland, is supposedly active again. Up until 1970 the station (or at least one using that name) was active from the then British Somaliland, which gained independence in late June 1960 and then merged with Somalia less than a week later. Sometime during the ensuing years it was destroyed in one of its many domestic conflicts and was silent for years. Apparently a rebuilding has occurred and the station has come back to life. It has been reported by some using 7145. The schedule has them in action from 0330 to 0600, 0900 to 1200, and 1500 to 2000. Only the first of these three time periods would offer any chance of success for us. I’ve no idea as to the power used, but I would expect it would take a superior opening to the Horn of Africa to bring in a signal.

Apparently there has been a cutback in the services of Radio Belarus, which now reportedly only operates from 1430 or so until 2100, as opposed to its former 0400 to 2200. That’s not conducive for reception at locations much to the west of you ESTers.

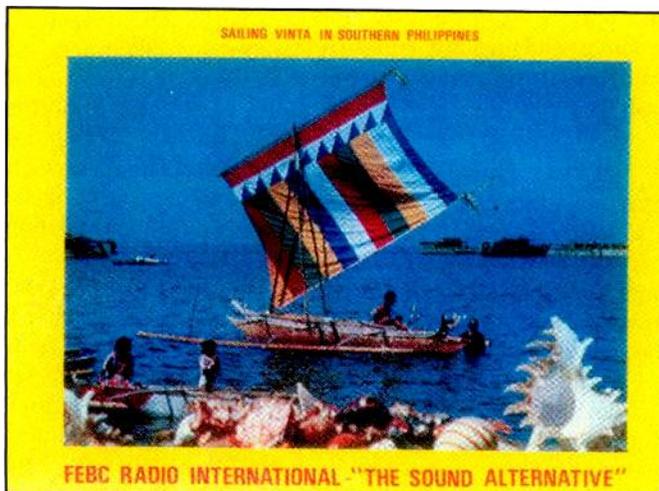
The little known and seldom heard Radio Mallku in Uyuni, Bolivia, now goes by the name Radio Lipez.

An organization called Jewels of God International says it has received a shortwave

operating license for Sierra Leone and is seeking help in the form of money or equipment to put up a station there. If all this is for real it would put this inactive country back on the air.

Can you imagine commercials on Vatican Radio? “Not hardly,” you say? Well, Vatican Radio says it is actually considering going commercial as a way of bringing in additional income and blowing some life into its budget. So what can we expect to hear? Pitches for prayer books, commercials for Antonio’s Pizza, or announcements on behalf of the Rome Area Fiat Dealers Association? But, please, no lawyers offering to get you out of debt—and, for heaven’s sake, nothing that includes the phrase “call now and we’ll double your order!” Let’s hope the idea goes no further!

Almost since its inception Radio Marti has been surrounded by controversy over its effectiveness, its poor management, the way it spends money, or the content of its programming. All the sporadic brouhahas haven’t done any real damage, but now Radio-TV Marti is being downsized due to budget cuts. There’ll be a switch to an all-news format and a reduction in staff size. The downsizing, in addition to saving some money, should also please the Castro Brothers, with whom the administration is trying to “make nice.”



Rich D'Angelo's recent QSL from FEBC, Philippines on 5990.

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 its home (base) 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 where, oh where, is that photo of you at your listening post? It's your turn to grace these pages!

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

Help Wanted

We believe the "Global Information Guide" offers more logs than any other monthly SW publication (460* 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@wi.rr.com. Please note that attachment files do not always go through, and please check your items to be sure that frequencies, times, and sites are clearly indicated. See the column text for formatting suggestions.

**Not all logs get used. There are usually a few which are obviously inaccurate, unclear, or lack a time or frequency. Also discounted are unidentifieds, duplicate items (same broadcaster, same frequency, same site), and questionable logs.*

ALASKA—KNLS, 6890 about a radio museum at 1015. (Ng, Malaysia)

ALBANIA—Radio Tirana, 6110 at 0335 with music, weather in Tirana. (Maxant, WV) 7425 with domestic folk music at 0252. (Brossell, WI) 9915 at 0100 with ME music. (Linonis, PA)

ARGENTINA—Radio Argentina al Exterior, 11710 at 0202 with opening anmts, music, and news at 0210. Also 15345 with IS at 1955, opening ID and into FF at 2000. (Strawman, IA) 11710 at 0225 with music, ID. (Maxant, WV) In FF at 0327, ID over time pips at 0330. (D'Angelo, PA) 1045 in JJ with domestic music. (Alexander, PA)

ASCENSION ISLAND—BBC Atlantic Relay, 15400 at 1929 with ID for BBC world

A Guide To "GIG-Speak"

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

(l)	listed
(p)	presumed
(t)	tentative
*	sign on/off time
//	parallel frequency
AA	Arabic
ABC	Australian Broadcasting Commission
AFN	Armed Forces Network
AFRTS	Armed Forces Radio TV Service
AJR	All India Radio
am	amplitude modulation
ancr	announcer
anmt(s)	announcement(s)
AWR	Adventist World Radio
BBCWS	BBC World Service
BSKSA	Broadcasting Service of the Kingdom of Saudi Arabia
CBC	Canadian Broadcasting Corp.
CC	Chinese
CNR	China National Radio
co-chan	co-channel (same) frequency
comml	commercial
CPBS	China People's Broadcasting Station
CRI	China Radio International
DD	Dutch
DJ	disc jockey
DW	Deutsche Welle/Voice of Germany
EE	English
f/by	followed by
FEBA	Far East Broadcasting Association
FEBC	Far East Broadcasting Company
FF	French
GBC	Ghana Broadcasting Corp.
GG	German
HH	Hebrew; Hungarian
HOA	Horn of Africa
ID	identification
II	Italian; Indonesian
Intl	International
IRIB	Islamic Republic of Iran Broadcasting
IRRS	Italian Radio Relay Service
IS	interval signal
JJ	Japanese
KBS	Korean Broadcasting System

KK	Korean
Lang	language
LSB	lower sideband
LV	La Voz; La Voix
M	man
NBC	National Broadcasting Corporation (Papua New Guinea)
nf	new frequency
ORTB	Office de Radiodiffusion et Television du Benin
PBS	People's Broadcasting Station
PP	Portuguese
PSA	public service announcement
QQ	Quechua
RAE	Radiodifusion Argentina al Exterior
RCI	Radio Canada International
Rdf	Radiodifusora, Radiodiffusion
REE	Radio Exterior de Espana
RFA	Radio Free Asia
RFE/RL	Radio Free Europe/Radio Liberty
RFI	Radio France International
RHC	Radio Havana Cuba
RNZI	Radio New Zealand International
RR	Russian
RRI	Radio Republik Indonesia; Radio Romania International
RTBF	RTV Belge de la Communaute Francaise
s/off	sign off
s/on	sign on
SIBS	Solomon Is. Broadcasting Corp.
sked	schedule(d)
SLBC	Sri Lanka Broadcasting Corp.
SS	Spanish
TC	time check
TOH	top of the hour
TT	Turkish; Thai
TWR	Trans World Radio
unid	unidentified
USB	upper sideband
UTC	Coordinated Universal Time (= GMT)
UTE, Ute	utility station
v	variable
vern	vernacular (local language)
VOA	Voice of America
VOIRI	Voice of Islamic Republic of Iran
VOR	Voice of Russia
W	woman
ZBC	Zambian Broadcasting Corp.



Bob Brossell won this certificate from China Radio International as second prize in its "Charming Sichuan" contest.

service for Africa. (Brossell, WI) 17640 at 1422 to South Africa and 21630 to West and Central Africa in (p) Hausa at 1407. (Parker, PA)

AUSTRALIA—Radio Australia, 5995, 9580, 9590, 9710, and 13630 at 0821 with talk and interviews. (Padazopulos, NJ) 6020 at 1140 on China's economy, 11945 at 1115 with an interview, 12080 at 2120 on Qantas cutting back its flights, 15240 with soccer at 0440 and 17750 discussing economics at 2340. (Maxant, WV) 9580-Shepparton to Pacific at 0818 with rugby news. (Parker, PA) 9590 with news at 1505. (Yohnicki, ON) 11660-Brandon at 2143 with a classical piece, W doing interview, IS and off at 2159. (D'Angelo, PA) 11880-Shepparton at 2041 to close at 2057. (Strawman, IA) 13650 at 2158 with an interview, 15230 at 2217, 15560 at 2219 and 21725 at 0310. (All via Shepparton—gld) (MacKenzie, CA) 15560 with interview pgm at 2350, IS and off on the hour. (Barton, AZ)

Northern Territories SW Service-4910, Tennant Creek, at 0819-0830* with music, f/by M/W talk to close down heard at 0830. (D'Angelo, PA)

BELARUS—Radio Belarus, 7390 heard at 2150 with M in Belorussian. (Maxant, WV)

BOLIVIA—Radio Eco, Reyes, 4409.7 monitored at 0035 in SS with pulsating effect. (Wilkner, FL)

Radio San Miguel, Riberalta, 4699.3 good in SS monitored at 1000. (Wilkner, FL)

Radio Yura, Yura, 4716.7 at 1038 with Bolivian music. Early sign on at 0915. (Wilkner, FL)

Radio Lipez, Uyuni, 4796.4 in SS at 1010. (Wilkner, FL)

Radio Virgen de Remedios, Tupiza 4834.9 in SS at 2300. Not heard in local mornings when the Peruvian dominates. (Wilkner, FL)

Radio San Jose, San Jose de Chiquitos, 5580.2 heard at 0040 with CP music, deep fades. This one seems to be on only half the time. (Wilkner, FL)

Radio Santa Cruz, Santa Cruz, 6134.8 at 0910 with SS talk and ballads. QRM from Aparecida-6135. (Alexander, PA)

Radio Fides, La Paz, 6155.2 at 0100 with SS talk, CP music to 0200 sign off. (Alexander, PA)

BONAIRE—Radio Nederland Relay, 6165 in SS at 0245 and 17605 in DD at 2215. (MacKenzie, CA)

BRAZIL (All in PP)—Radio Municipal Sao Gabriel da Cachoeira, 3375.1 at 0915. (Wilkner, FL)

Radio Difusora do Amazonas, Manaus, 4805 monitored at 0950. (Wilkner, FL)

Radio Clube do Para, Belem, 4885 at 0308 with ID, songs. (Brossell, WI) 0320 with the usual heavy reverb. (Parker, PA)

Radio Difusora, Macapa, 4915 with M with W telephone caller. (Parker, PA)

Radio Brazil Central, Goiania, 4985 with talks at 0242. (Brossell, WI) 0250 with M anc and ranchero ballad. (Parker, PA) 0433 with jingle ID, M anc and Brazil-pops. (D'Angelo, PA)

Radio Senado, Rio, 5990 monitored at 0950 with instrumentals, ID and M talk. (D'Angelo, PA)

Radio Inconfidencica, Belo Horizonte, 6009.8 heard at 0704 with local music and anmts. No sign of the Colombian or Mexican. (Alexander, PA)

Radio Aparecida, Aparecida, 6135 with M anc, domestic music. QRM from Radio Santa Cruz. (Alexander, PA)

Super Radio Dios e Amor, Curitiba, 11765 with preacher, several IDs at 0259 and back to preaching. //9565 was weak. (Alexander, PA)

Radio Nacional Amazonia, Brasilia, 11780 at 0100 with futbol. (Linonis, PA) 0240 M with comments and Brazilian music. (MacKenzie, CA)

CANADA—Radio Canada Intl, 5840 via Sweden at 0207 to ME with talks in AA. (Parker, PA) 7325 in AA at 1110. (Linonis, PA)

CBC Northern Quebec Service, 9625 heard at 0210 with news from CBC. (Maxant, WV)

CFRX, Toronto, 6070 at 0340 advertising lawn care. (Maxant, WV)

CKZN, St. John's (Newfoundland), at 2300 on a North Korean rocket launch. (Maxant, WV)

CHU, Ottawa, 3330 with time signals at 0406. (MacKenzie, CA) 7850 at 1423. (Yohnicki, ON) 14670 at 2250 in FF/EE. (Maxant, WV)

CHAD—Radio Nationale Tchadienne, 4905 with FF talks at 0630. (Brossell, WI) 6165 with highlife vocals. Covered by Netherlands at 0500. (D'Angelo, PA)

CHINA—China Radio International, 6020 via Canada at 0430, 9665 via Brazil in SS at 0318, 9690 via Spain in EE at 0312, 9790 via Canada at 0307 and 13700 via Canada in SS at 2235. (MacKenzie, CA) 7110-Shijiazhuang in CC at 1312, 7250-Urumqi in SS at 2215, 7305-Shijiazhuang in CC at 1211 and 9440-Kunming in CC at 1221. (Brossell, WI) 7210 via Albania in SS at 2248. (D'Angelo, PA) 9790 via Canada at 0132 and 13640-Kashi on British opium traffic in China. (Parker, PA) 15600-Kunming with news in Malay at 1230. (Ng, Malaysia)

Firedrake music jammer, 7330 at 1000. (Barton, AZ)

COLOMBIA—Marfil Estereo, Puerto Lleras, 5910 at 0237 with upbeat SS songs. (Parker, PA)

La Voz de su Concencia, Puerto Lleras at 1020 with SS radio drama, short EE anmt at 1049 with mention of call letters and frequency, SS inspirational music. (Alexander, PA)

CONGO (Dem. Rep.)—Radio Okapi, 11690 via Meyerton heard at 0530 in FF and vernacular, some Afro-pop and "Okapi" jingles. (Alexander, PA)

CROATIA—Voice of Croatia, 3984.9 at 0200 with *Croatia Today* pgm, sports and weather. Poor signal but very good to strong on //7375. (Alexander, PA) 7285 via Germany in Croatian at 0247. (Brossell, WI) 7375 via Germany with SS news at 0005. (Maxant, WV)

CUBA—Radio Havana Cuba, 11690 in SS heard at 0245, 13790 in SS at 2322 and 17705 in SS at 2214. (MacKenzie, CA) 12000//13680 in SS at 1410. (Yohnicki, ON)

Radio Rebelde, 5025 in SS at 0418. (MacKenzie, CA)

CYPRUS—Cyprus Broadcasting Corp., 5930 monitored at 2236 to 2244 close with two M discussion in Greek, brief Greek instl, //9760 was very good but 7210 was buried under China in SS. (D'Angelo, PA)



Pirate Blue Ridge Radio replied to D'Angelo with this strummin' good QSL.

CZECH REPUBLIC—Radio Prague, 7345 at 0314 with Czech rock, (Brossell, WI) 11600 at 2333 wrapping up news, with weather and into pgm on extremism in Europe. (Barton, AZ) 11640 monitored at 1145 on politics in the UK. (Maxant, WV) 13580-Litomyšl with discussion on Freud and psychiatry. (Parker, PA)

DJIBOUTI—Radio Djibouti, 4780 at *0300 sign on with NA, local flute and vocals, f/by Koran. AA talk, HOA music at 0330. (Alexander, PA)

ECUADOR—Radio El Buen Pastor, Saraguro, in SS at 1035 with a discussion. (Wilkner, FL)

HCJB Global, 9745 in SS at 0310, 11920 at 2250 in Kulina, 12000 in SS at 2225 and 12040 in GG at 2230. (MacKenzie, CA; Brossell, WI) 6850 at 2350. (Maxant, WV)

ENGLAND—BBC, 5875-Rampisham to Russia at 0225 with abrupt offs and restarts at 0229 until finally off at 0231 and 13660-Rampisham to North Africa in AA at 1535. (Parker, PA) 9395 via Tajikistan with ID for "BBC Bangla" at 1330 and 15285 Singapore Relay in CC at 1405. (Ng, Malaysia) 9740-Kranji with world service news at 1228. (Strawman, IA) 11765 at 0751 ending EE commentary, and off at 0800. Also, 13675 with news and sports monitored at 1830. (Padazopulos, NJ)

Bible Voice Network, 13590 via Julich with Christian pops to ME at 1320. (Parker, PA)

EQUATORIAL GUINEA—Radio Nacional, Bata, 5005 at 2250 to 2303 close in SS with Afro-pops. Off with NA. (Alexander, PA)

Radio Nacional, Malabo, 6250 at *0531 abrupt sign on with SS religious music and anmts. (Alexander, PA)

ETHIOPIA—Radio Ethiopia, 7110 at 2045-2101* with talk in (I) Amharic, HOA music and off with NA. //9704.2, both weak but readable. (Alexander, PA) 0310 with mix of HOA vocals and Amharic talk, ID at 0330

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@wi.rr.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 Richard Parker of Pennsylvania who receives a 2010 edition of *Passport to World Band Radio*, courtesy of our friends at Universal Radio. Check out Universal's website for whatever you need (or want!) in the line of equipment for your radio hobby—that includes add-ons, antennas—even books. Their URL is www.universal-radio.com. If you'd like a hard copy of their giant, free catalog you can email them at dx@universal-radio.com, or call (614) 866-4267. Postal mail goes to: 6830 Americana Parkway, Reynoldsburg, OH 43068. You can always be sure of helpful, friendly, first-class treatment. Please mention *Pop'Comm* and the "Global Information Guide" when writing.

f/by news. (D'Angelo, PA) 0310 with HOA music and talk in (p) Amharic. (Brossell, WI) 0330. (Strawman, IA)

Amhara Regional State Radio (t), 6090 at 0349 with several HOA numbers, W in (p) Amharic at 0404. Clear signal for a while but slowly losing out to what was possibly the University Network. (D'Angelo, PA)

Voice of the Tigray Revolution, 5980 at *0255 sign on with IS on local flute, talk in vernacular at 0259, HOA music with QRM from possible pulse noise jammer. //5950 was weak under Okeechobee. (Alexander, PA)

FRANCE—Radio France Inter-national 5970//9825 in SS at 1019 in SS. (Padazopulos, NJ) 9805 at 0405. (Maxant, WV)

GERMANY—Deutsche Welle, 7205 via

Russia in CC at 1150 and 17705 Sri Lanka Relay with *Hits in Germany* at 0910. (Ng, Malaysia) 7245 at 0405 and 7430 at 0455. (Maxant, WV) 9825 Sines Relay in GG at 0255. 11605 Rwanda Relay in GG at 2053. 11865 Portugal Relay in GG at 2222 and 17860 Rwanda Relay in AA at 1811. (MacKenzie, CA) 9845 via Rampisham in GG at 0125. 15275 Rwanda Relay in GG at 1810 and 13780-Wooferton in GG heard at 1735. (Parker, PA)

GREECE—Voice of Greece, 7475 at 0130 with Greek vocals and talk. (Maxant, WV) 15630 at 0830 in Greek. (Padazopulos, NJ)

GUATEMALA—Radio Buenas Nuevas, San Sebastian, 4800 at 1200 with SS hymns. (Brossell, WI)

Pop'Comm September 2009 Reader Survey Questions

This month we'd like to find out a little bit about how you use your equipment and how you power it. We'll pick one respondent at random for a free one-year subscription, or extension, to *Pop'Comm*, so don't forget your address. Thanks for participating.

Where do you operate your radio equipment?

- | | |
|---|---|
| Only at home in my shack | 1 |
| I operate from my car or other road vehicle | 2 |
| I operate from a boat or plane | 3 |
| I operate mobile from different sites | 4 |
| My handheld comes with me everywhere | 5 |

How do you power your equipment?

- | | |
|--|---|
| Strictly AC | 6 |
| I have a variety of different battery types | 7 |
| I sometimes use a gas-powered generator | 8 |
| I've incorporated alternative energy sources, such as solar, hand-cranked dynamo generators, or wind | 9 |

When you lose regular AC power do you find that...

- | | |
|---|----|
| I'm dead in the water when it comes to radio, I don't have backup power | 10 |
| I'm OK for a while | 11 |
| I've got a great back-up power system that doesn't fail me | 12 |

How important is reliable power to your radio usage?

- | | |
|---|----|
| It's strictly a hobby for me, so it's not crucial | 13 |
| I'm a volunteer responder—it's absolutely critical | 14 |
| I use it in a professional capacity—it's part of my job to stay connected | 15 |

I'm afraid we're out of space this month for reporting May Reader Survey Highlights—but not for announcing our latest winner of a free subscription or extension to *Pop'Comm*! This month that goes to **Don Hallenbeck of Pittsfield, Maine**. Congratulations, Don.



The broadcast towers of WRNO, outside of New Orleans. (Thanks Charles Maxant)



The WRNO studio control at its headquarters in Ft. Worth, Texas. (Thanks Charles Maxant)

HONDURAS—Radio Misiones Intl. Comayaguela, 3340 in SS at 0757. (Parker, PA)

Radio Luz y Vida, San Luis, heard at 0045 with SS sermon. (Wilkner, FL)

INDIA—All India Radio, 7270-Chennai monitored at 1306 in (p) Hindi. (Brossell, WI) 9705 at 2345 and into their general overseas service. Also 9870 at 2240 discussing European relations and 11620 at 2130 with Indian music. (Maxant, WV) 11585 at 1237 in (p) Hindi. (Brossell, WI) 11620-Bangaluru at 2110. (Linonis, PA) 2140 with Indian film music. (Fraser, ME)

INDONESIA—Voice of Indonesia, 9525v at *0954 with abrupt sign on with talk in listed Korean, local music, theme music at 1001, EE ID and contact info. (Alexander, PA) 1004 with M and EE news. ID at 1010 close of news. (D'Angelo, PA) 1325 mentioning Australia. (Maxant, WV)

IRAN—Voice of the Islamic Republic of Iran, 9495 IDing as the "Voice of Justice." (Maxant, WV) 9905-Kalamabad with news at 0040. Also 15085 to Europe at 1750. (Parker, PA) 1835 in FF. (Padazopulos, NJ) 15600 at 1050 and 17635 with CC talk at 1240. (Ng, Malaysia)

ISRAEL—Galei Zahal, 6973 in HH at 0020. (Maxant, WV) 15785 at 2040 in HH with domestic pops, //6973. (Alexander, PA)

ITALY—IRRS via Slovakia at 2035 with *World of Radio* to 2101 when closing IRRS ID and off with NA. (Alexander, PA)

JAPAN—NHK World Radio Japan, 5960 via Canada at 0427 in JJ, 9835 in JJ at 1817, 11835 in JJ at 0234, 13640 in JJ at 2202, 13650 in CC at 2237, 15265 in JJ at 2227 and 17810 in CC at 2350. (MacKenzie, CA) 6120 in SS at 0612. (Padazopulos, NJ) 13740 via UAE in JJ at 1723. (Parker, PA) 17860-Yamata with JJ lesson in RR at 0550. (Ng, Malaysia)

JORDAN—Radio Jordan, 9830 in AA at 1837. (Brossell, WI)

KUWAIT—Radio Kuwait, 9855 in AA at 1838. (Brossell, WI) 15495 in AA at 1823. (Parker, PA)

LIBERIA—ELWA, Monrovia, 6070 at 2255, weak under CFRX with contemporary Christian music, brief anmt at 2259 and off with NA at 2300. (Alexander, PA)

LIBYA—Radio Jamahiriya, 11860 in listed Hausa at 1922. (Brossell, WI)

MADAGASCAR—Radio Madagaskara, 5010 at 0345 with African chorals, talk. Poor, with low modulation. (Alexander, PA)

MALAYSIA—RT Malaysia, 6050-Kajang in Malay at 1345. (Ng, Malaysia)

MALI—RT Malienne, 5995 at *0800 with opening FF anmts, vernacular talk at 0801. Local rustic guitar at 0810, tribal vocals heard at 0812 and "Radio Mali" IDs. (Alexander, PA)

MAURITANIA—RT Mauritanie, 4845 in vernacular at 0744. (Padazopulos, NJ)

MEXICO—Radio Transcontinental de America, 4800 at 1040 with hip hop in SS. (Wilkner, FL)

Radio Mil, 6010 at 0835 with local SS ballads and anmts, ID at 0900. (Alexander, PA)

Radio Educacion, 6185 at 0440 with SS pops, (MacKenzie, CA) 2240. (Maxant, WV)

MOLDOVA—Radio PMR, 9665 at 2226 with M and EE pgm, several IDs, postal and email addresses and incorrect sked for 6240. Into FF at 2230 and GG heard at 2245. (D'Angelo, PA)

MORROCO—RTV Marocaine, 15345 in AA at 1855. (Brossell, WI)

Radio Medi Un, 9575 with AA vocals, ID at 0330 and more ME vocals. (D'Angelo, PA)

NEW ZEALAND—Radio New Zealand Intl, 6170 at 0738 with sports. (Padazopulos, NJ) 1009 with W and news, pgm promos, ID

In Times Past...

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

Sierra Leone—The Sierra Leone Broadcasting Service, Goderich, 3316 at 0608 (*0600 sign on) in EE on July 18, 1989. (Dexter, WI)

and weather. (D'Angelo, PA) 1310 with Pacific news. (Brossell, WI) 9655 on Fiji elections at 1120. (Linonis, PA) Progressive jazz at 1145. (Fraser, ME) 11725 with South Island weather. (Maxant, WV) 0500 sign on with bird IS and news from national radio. Also 15720 on US newspaper reporting. (Maxant, WV) 13730 with live sports coverage at 0332. Also 15720 at 0035 with M/W comments and pops. (MacKenzie, CA)

NETHERLANDS—Radio Nederland, 6020 with news in DD at 0930. Also 6120 in DD at 0736. (Padazopulos, NJ) 11660 Madagascar Relay at 1930 with EE to West Africa, //15335. (Linonis, PA) 12080 at 0450 on politics there. (Maxant, WV) 17505 via UAE in II at 1120. (Ng, Malaysia)

The Mighty KBC, 6055 via Lithuania at 2135 with rock. (Fraser, ME) 2140 with U.S. pops. Also 6110 via Lithuania with pop vocals at 0230. (Maxant, WV)

NIGERIA—Voice of Nigeria, 7255 at 2215 with talks in (l) Hausa. (Brossell, WI) 15120 monitored at 1854 discussing sickle cell anemia. (Parker, PA)

Radio Nigeria, Kaduna, 4770 at *0432 with NA and M with EE sign on. (D'Angelo, PA) 6090 at 2150 with talk in (l) Hausa. Tribal chants, religious recitations at 2202. (Alexander, PA)

NORTH KOREA—Voice of Korea, 9325 in GG monitored at 1810 and 11810 in FF at 1827. (MacKenzie, CA) 11709.9 at 1240 in KK but mixing with a station in CC. Operatic vocals to 1300 and EE service in progress at 1314. (Strawman, IA) 1310 on mechanical workshops. (Maxant, WV)

NORTHERN MARIANAS—KFBS, 12090 in VV at 2235. (MacKenzie, CA)

OMAN—Radio Sultanate of Oman, 15140 at 1428 with light instl, gongs or chimes at 1430 f/by theme music and EE news at 1431. Into U.S. and Euro-pops at 1440. (Alexander, PA)

OPPOSITION—Shiokaze (to North Korea), 5910 with EE news monitored at 1410. (Ng, Malaysia)

Voice of Biafra Intl, 17520 via WHRI at *1900 to 1959* with African flutes and drums, opening EE anmts, anthem at 1901. Many IDs and talk about the Biafra-Nigeria conflict. (Alexander, PA)

Radio Voice of the People (to Zimbabwe), 9895 heard at *0400-0455* with opening multi-lingual ID anmts, short breaks of African music and many IDs. Mentioned www.radiovop.com and other contact information. Difficult to understand due to heavy accents. (Alexander, PA)

PERU—Ondas del Huallaga, Huanuco, 3329.6 at 1020 with SS, huaynos, yipping, Peru high flutes. Also noted around 0000. (Wilkner, FL)

Radio Huanta 2000, Ayacucho, 4747 at 1030 with man in SS mentioning the date but no time or ID. (Wilkner, FL)

Radio Vision, Chiclayo, 4790 at 0332 with M in long SS sermon to ID at 0401. (D'Angelo, PA) 0343 with sermon over distorted PA. (Parker, PA)

La Voz de la Selva, Iquitos, 4824.5 at 1048 with music and SS chatter. Consistently the strongest Peruvian on 60 meters here. (Wilkner, FL)

Radio Sicuani, Sicuani, 4826.5 in SS at 1030. (Wilkner, FL)

La Voz de los Huarinjas, Huancabamba, 5059.4 at 1045 fading up with ID anmt. (Wilkner, FL)

Radio Bolivar, Ciudad Bolivar, 5460.5 monitored at 0050 in SS. (Wilkner, FL)

Radio Victoria, Lima, 9720 at 0455 with light instl music, SS religious music and NA at 0501. (Alexander, PA)

PHILIPPINES—FEBC Radio International, 9430 at 1221 with talks and hymns in CC. (Brossell, WI)

PIRATES—Wolverine Radio, 6925u noted variously at 0100, 0115, 0125, and 0235 with a variety of rock, older pops, big band jazz, and swing. (Hassig, IL)

WBNY-6924v at 2130 and 2300 with W interview M on history of pirate radio and current state of same, various rock/pop things and discussion of monkeys. (Zeller, OH)

Yellow Rhino Radio, 6925u at *0003, *0004 and 0015 with rock, off with Hawaii 5-0 theme. Reports to: yellowrhinoradio@gmail.com. (Zeller, OH; Alexander, PA)

Thinking Man Radio, 6925u at *0200 with

one rock number, but otherwise “devoted to thinking men and women.” (Zeller, OH) 0205 said they were “dedicated to learning” and QSL via thinkingmanradio@gmail.com. (Hassig, IL)

MAC Radio Shortwave, 6925u at 0004 being QRMed by Josephine Radio. “Ultra Man” with various rock oldies. Gave macshortwave@yahoo.com and macshortwave@gmail.com for reports. (Zeller, OH) 1530 with *The Paul Star Show*, featuring 1960s top 40-type format. (Linonis, PA)

Radio Josephine, 6925u at 0035 with mostly female rock. Said new QSLs are ready, reports to radiojosephine@gmail.com. (Zeller, OH) 0054 with rock/pop. (Alexander, PA) 0154 with cat meowing SFX, ID as “Radio Josephine from the big city.” (Hassig, IL)

Dead Cat Radio, 6925u at 0110 and 0350 with pop/rock. (Alexander, PA)

Blue Ridge Radio, 6925u at 0012 with M giving ID and blueridgeradio@gmail.com for reports given between bluegrass numbers. (D'Angelo, PA) 0015 to 0026 close. (Alexander, PA)

Derby Shortwave, 6925u at 2330 with horse race bugle, “Old Kentucky Home” song, narration from Kentucky Derby. Email to derbyshortwave@yahoo.com. (Hassig, IL)

Radio Pigmeat Intl, 6925 at 0010 with punk and other rock, mentioning “free radio from North America.” (Hassig, IL)

Undercover Radio, 6925u at 0251 with talk, ID mentioning a test transmission, and requesting reports to undercoverradio@gmail.com. (Alexander, PA)

Radio Jamba Intl, 6925u at *2308 with rock, but much of the talk was poorly modulated. (Zeller, OH)

Radio Ga Ga, 6925u at 2351 with theme from *Leave It to Beaver*, Tiny Tim’s “Tiptoe Through the Tulips” mixed with several SSTV streams. Clear ID at 0014* close. (Zeller, OH)

Barnyard Radio, 6925u at 0000 and *0057 with near hour long broadcasts with clucking chickens and other animal noises. Various pop/country tunes about animals. No address noted. (Zeller, OH)

Voice of Kaos, 6925u at 0218 saying “We represent the dark side,” and off with the *Get Smart* theme. (Hassig, IL)

Gray Rhino Radio, 6925u at 0105 with heavy metal. Email to: grayrhinoradio@gmail.com. (Hassig, IL)

Radio Free Euphoria, 6925u monitored at 2234 with drug-related rock and talk. (Alexander, PA)

Swine Flu Radio, 6925u heard at 0119 with hard rock, ID. (Alexander, PA)

First Termer Radio, 6925u at 0130 with 60s and 70s rock and many ad parodies. (Linonis, PA)

POLAND—Radio Polonia, 9525 via Germany at 1208. (Fraser, PA) 13690 monitored at 1310 with M/W in RR talk. (Ng, Malaysia)

PORTUGAL—RDP Intl, 7240 with sports at 0730. (Padazopulos, NJ) 9715 at *2257 with classical music, ID and frequency anmt in PP, W with news and pops from



Peter Ng got this colorful reply from China's Tibet People's Broadcasting Station on 4820.

2320. (D'Angelo, PA) 15560 with sports coverage in PP heard at 1828. (Parker, PA)

ROMANIA—Radio Romania Intl, 7145 at 2100 with ID and presumed news in FF. (Brossell, WI) 9645 at 0345 with gypsy music to sign off. (Maxant, WV) 11735 with *Romanian Musicians* pgm at 1745. (Fraser, ME) 11940 at 2035 with EE news. (Strawman, IA) 15345 at 0550 with *DX Mailbag*. (Ng, Malaysia)

RUSSIA—Voice of Russia, 6240 via Moldova at 0320 on Russian GDP under Putin, 7150-Armavir in RR at 0312 and 7300-Khabarovsk at 1159 with Russian anthem, ID and into CC. (Brossell, WI) 7330 at 1210 with *Russia and the World* pgm. (Ng, Malaysia) 12040-Moscow with news by W at 1200 and 12065-Chita at 1550 with commentary on Obama and Iran's nuclear program. Supposed to be in DRM. Heard again at 2000. (Fraser, ME) 9810 via Montsinery in SS at 0130, 9880-Krasnodar in SS at 0107 and 9890-Moscow with EE news heard at 0103. (Parker, PA)

Kyzyl Radio, 6100 in RR at 1209. (Brossell, WI)

Yakutsk Radio, with talks in RR at 1154. (Brossell, WI)

Magadan Radio, 7320 with talks and songs in RR heard at 1212. (Brossell, WI)

SAUDI ARABIA—BSKSA, 9870 with traditional AA music at 0045. (Linonis, PA) 13710 in AA at 1715 with Koran and 17660 with W in FF, bagpipe music and sound effects at 1428. (Parker, PA) 15225 in AA at 1647. (Brossell, WI)

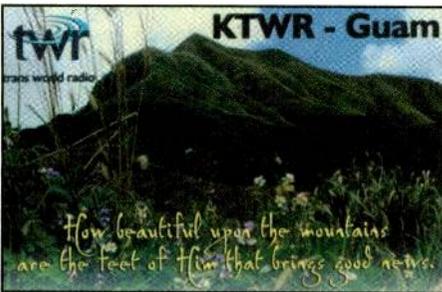
SERBIA—International Radio of Serbia, 6190 at 0225 closing broadcast with “This is Serbia,” then NA and off. (Maxant, WV)



David Shannon in Indiana got this nice QSL for one of the ABC Northern Territory stations.



Radio Slovakia International verified with this attractive photo card for Paul Gager, Austria.



Peter Ng got this card for a Trans World Radio (Guam) broadcast on 11840.

SOLOMON ISLANDS—SIBC, 9541.5 (p). Talk in vernacular, some EE at 0849 and back to Pidgin, local music at 0913, EE religious talk at 0916. (Alexander, PA)

SOUTH KOREA—KBS World Radio, 9650 at 1205 reporting that the South will continue aid to the North. (Maxant, WV)

SOUTH AFRICA—9625 at 1155. (Maxant, WV) 15235 at 1600 with IS, ID and news in FF. (Linonis, OA) 1740 on preparations for the World Cup at Cairo. (Fraser, ME) 15660 in Swahili with W and phone interview, mention of "pirates," bird IS and repeat of ID. (Parker, PA)

SLOVAKIA—Radio Slovakia International, 5930 via Rimavska Sabrata heard at 0247 in SS to South America. (Parker, PA)

SPAIN—Radio Exterior de Espana, 3350 Costa Rica Relay in SS at 0408, 9630 Costa Rica in SS at 0412 and 17850 Costa Rica in SS at 2244. (MacKenzie, CA) 6055 in SS playing song requests at 0015. (Maxant, WV) 1915 with W in EE giving weather report. (Fraser, ME) 11620 in SS at 1900. (Linonis, PA) 17555 in SS at 1858. (Brossell, WI) 17595 in SS at 1417. (Parker, PA)

SRI LANKA—SLBC, 11905 at 0115 with Hindi vocals, some talk in (l) Hindi. Weak but readable; just a threshold signal on 7190. (Alexander, PA)

SUDAN—Sudan Radio Television, 7200 noted with various sign on times, *0235, *0239, *0320 all in AA, with chirping birds, "Huna Omdurman" IDs, sometimes a radio drama, rustic local folk music. (Alexander, PA) 0335 in AA with somewhat muddy audio. (Strawman, IA)

Miraya FM, 15650 via Slovakia at 1502

with M and EE news. Invited visits to their website at mirayfm.org. (D'Angelo, PA) Time pips at 1400, f/by IDs and EE news. (Alexander, PA)

SWAZILAND—Trans World Radio, 4775 with GG sermon, ID at 0429 and into EE program. (D'Angelo, PA)

SWEDEN—Radio Sweden, 6010 via Canada at 0100 in Swedish and into EE at 0130. (Linonis, PA) 9895 via Madagascar with rock at 2047. (Brossell, WI) 13600 at 1538 on the Swedish budget. (Fraser, ME) 15735 at 1335 with ID and beginning half an hour to SEA. (Maxant, WV)

SYRIA—Radio Damascus, 9440 at 2110 with EE news, local music, and commentary, NA at 2159 and into SS at 2200. Also 12085 at 2125 with EE talk, local music, SS at 2200. (Alexander, PA) 12085 at 2000 popping out of the mud. EE service listed but only a few EE words recognized, mixed with AA and fading by 2014. (Strawman, IA)

TAIWAN—Radio Taiwan International, 7185 in CC at 1152. (Brossell, WI) 11715 at 1120 with *Groove Time*. (Ng, Malaysia)

TANZANIA—Radio Tanzania Zanzibar, 11735-Dole at 2052 with songs in (p) Swahili. (Brossell, WI)

THAILAND—Radio Thailand, 7260 at 1104 with news in VV, local folk music prior to ID and change over to (l) Khmer. (D'Angelo, PA) 9680 at 0020. (Maxant, WV) 15275 tune in to EE news heard at 0003, but weak in noisy conditions. (Alexander, PA)

TUNISIA—RT Tunisienne, 12005 in AA at 1846. (Brossell, WI)

TURKEY—Voice of Turkey, 9770-Emirler to Latin America at 0143 with slow ballads. (Parker, PA)

UKRAINE—Radio Ukraine Intl, 7440 in UU heard at 0254. (Brossell, WI)

USA—Voice of America, 7255 Thailand Relay at 1206 with a pop song, 7470 via Mongolia in (l) Tibetan at 1217, 9875 Northern Marianas Relay in CC at 2222, 11790 Northern Marianas in CC at 1844, 12040 Philippines Relay in CC at 1241 and 15290 Philippines in SS at 1927. (Brossell, WI) 9760 Philippines at 1234 with *Jazz America*, following 1300 news. (Strawman, IA) 12080 at 2115 closing with *Yankee Doodle* theme. (Maxant, WV) 15410 at 1802 and 17765 in CC at 0030. (MacKenzie, CA) 15580 Botswana Relay with *Daybreak Africa* at 0310 and 17775 with a CC mailbag pgm at 0850. (Ng, Malaysia)

Radio Free Asia, 9335 via Saipan in CC at 1813 and 11785 via Saipan in Cantonese at 2218. (MacKenzie, CA)

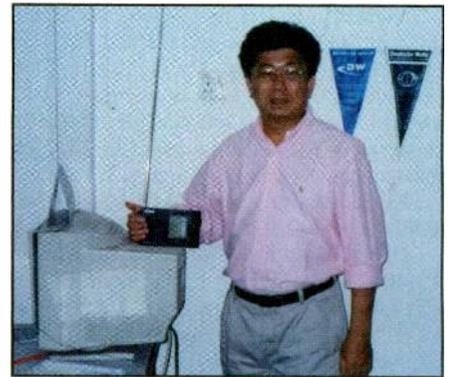
Radio Sawa, (p) 4960 Sao Tome in AA at 0313. (Parker, PA)

Radio Farda, 5860 via Kuwait in Farsi at 0220. (Parker, PA)

Radio Marti, 13820-Grenville in SS with baseball coverage heard at 1749. (Parker, PA)

Family Radio, 9280 via Taiwan in CC at 1220. (Brossell, WI) 12060 via Armavir/Krasnodar with FF service at 2031. (Strawman, IA)

WINB, Red Lion, 9265. (MacKenzie, CA)



Here's "GIG" reporter Peter Ng in Malaysia with one of his portable receivers.

WWCR, Nashville, 5070 with comments, commercial heard at 0420. (MacKenzie, CA)

WEWN, Vandiver, 11640 with Mother Angelica at 1030. Also 15120 with rosary at 0305. (Maxant, WV)

WRNO, New Orleans, 7505 at 0215. (Maxant, WV)

WRMI, Miami, 9955 in SS at 2345. Cuban jamming. (Maxant, WV)

VATICAN—Vatican Radio, 7250 at 0445. (Maxant, WV) 7305 in SS at 0340. (MacKenzie, CA) 7360 in FF at 0250. (Brossell, WI) 11625 at 2005. (Maxant, WV) 13675 at 1530 with coverage of the pope's general audience. (Ng, Malaysia)

VENEZUELA—Radio Nacional, 11670 via Cuba in SS at 2212. (MacKenzie, CA) 13680 via Cuba in SS at 2301. (Barton, AZ) 13750 via Havana in SS at 1728. (Parker, PA)

VIETNAM—Voice of Vietnam, 6175 via Canada, at 0245 with a mailbag type pgm and VV music. (Linonis, PA) 0438 in VV. (MacKenzie, CA)

YEMEN—Republic of Yemen Radio, 9780 at 0345 with W in AA, then M/W ME vocals. (D'Angelo, PA)

ZAMBIA—Christian Voice (The Voice-Africa), 4965 at 2445 with music, sermon. Also 13590 at 1205 with slogan: "One way, One Life, One Africa." (Maxant, WV)

And, once again, order is restored! Hats off and sound the trumpets in salute to the following good folks who checked in this time: George Zeller, OH; William Hassig, Mt. Prospect, IL; Stewart MacKenzie, CA; Rich D'Angelo, Wyomissing, PA; Brian Alexander, Mechanicsburg, PA; Robert Wilkner, Pompano Beach, FL; Robert Brossell, Pewaukee, WI; Robert Fraser, Belfast, ME; Rick Barton, Phoenix, AZ; Peter Ng, Johor Bahru, Malaysia; Jack Linonis, Hermitage, PA; Michael Yohnicki, London, ON; Rich Parker, Pennsburg, PA; Fotios Padazopolus, NJ; Charles Maxant, Hinton, WV; and Jerry Strawman, Des Moines, IA. Thanks to each one of you

Until next month—good listening!

Trivia And Toons

by R.B. Sturtevant, AD7IL

Q. Why is a clandestine radio operator called a “musician”?

A. That comes from the World War II term used by the Nazis to describe British or American radio operators in occupied Europe. An operator who had one key, instead of 88, was called a “pianist” or “musician.” The radio was called a “music box” and the traffic was known as the “music” or “tune.” Thanks to books and movies this has become a generalized term for radio operators in all espionage situations, regardless of the time or place.

Q. What is “carnivore” and what is it used for?

A. Carnivore is an FBI computer program that allows the agency, with appropriate court orders and legal supervision, to capture electronic communications from a specific source that’s the target of an investigation. Other users of the same communications are excluded from the investigation’s scope. It’s like a wiretap on something other than a voice over telephone system.

Q. I saw some advertisements for Shoe Phones. They looked like regular shoes. Do they have any integrated electronics?

A. You’re referring, of course, to the renowned shoe phone from the 1960’s television series *Get Smart*, the most famous television prop in history (umm, would you believe the second most famous TV prop in history?). Maxwell Smart, played by the late Don Adams, was Agent 86 of the super-secret government agency CONTROL, and his shoe phone always seemed to ring at the most inopportune times (shades of the cell phone).

But there is indeed a non-fictional company that’s

marketing a Shoe Phone. Having looked at their stuff on the Internet myself, I can discern no electronics, at least nothing evident to the casual observer—or is that just the point...?

Q. After World War I ended, was there a lot of pressure to reopen the airwaves to radio amateurs?

A. Yes, there was, but it almost didn’t happen anyway. In the U.S., the Navy had been given jurisdiction over wireless and wanted to keep the new science firmly in the hands of the government in general, and the Navy in particular.

In Britain an interdepartmental committee reporting to the Post Master General stated, “We are of the opinion that the number of stations existing in July 1914 was excessive from the point of view of government control in case of emergency and the necessity of preventing interference with government and commercial working; further there was no justification for it from the point of view of the encouragement of research or development of industry.”

Coming to the aid of these early hams, Marconi wrote to *Wireless World*, an amateur publication. “I consider that the existence of a body of independent and often enthusiastic amateurs constitutes a valuable asset towards the further development of wireless telegraphy.”

John Fleming, inventor of the diode, added,

It is a matter of common knowledge that a large part of the important inventions in connection with wireless telegraphy have been the work of amateurs and private research and not the outcome of official brains or the handiwork of military or naval organizations. In fact we may say that wireless telegraphy itself in its inception was an amateur product. Numerous important inventions such as the crystal detector, the oscillating valve, the triode valve—have been due to private or amateur work. If full opportunities for such non-official research work are not restored, the progress of the art of radio telegraphy and radio telephony will be greatly hindered.

A short time later, the Post Office allowed manufacturers of electrical apparatus to again sell buzzers without inquiring what the intended use of the purchase was. In the U.S. the Navy backed off its position as well. This opened the floodgates.

Spurious Signals

By Jason Togyer KB3CNM



New, Interesting, And Useful Communications Products

by Staff

Yaesu VX-8R Handheld

The VX-8R from Yaesu is now in full production. This full-featured handheld amateur radio transceiver provides 5 watts on 50/144/430 MHz, and the U.S. version adds low-power 222-MHz band (1.5 watts). Covering from 500 kHz to 999.990 MHz continuous, it also offers reception for shortwave, FM/AM broadcasts, analog TV stations, audio aircraft, pub-

The Yaesu VX-8R handheld amateur radio transceiver. Covering from 500 kHz to 999.990 MHz continuous, it also receives shortwave FM/AM broadcasts, analog TV stations, audio aircraft, and public service channels.



lic service channels, and more (cellular band blocked). It has a completely independent AM/FM broadcast receiver and an internal bar antenna for better AM broadcast reception. A dual-band AF dual monitor lets users listen to AM or FM radio stations while monitoring two ham frequency channels at the same time.

An optional BU-1 Bluetooth unit provides a variety of Bluetooth capabilities, including hands-free operation with built-in VOX function. The radio also has integrated APRS (Automatic Packet Reporting System) operation. Addition of the optional FGPS-2 unit provides GPS data. Built-in sensors allow the radio to display barometric pressure, altitude, and/or temperature.

The VX-8R's polycarbonate resin front panel with aluminum die-cast chassis makes for a rugged design, and its large main dial plus four independent key buttons on the side permit easy operation, even when wearing gloves. It is compact (3.7 x 2.4 x 0.9 HWD), submersible to 3 feet for 30 minutes (IP7X equivalent) and shockproof.

Approximate street price of the VX-8R is \$400. For additional information, visit www.yaesu.com.

On The Web

RadioReference.com LLC has acquired ScanAmerica.us, the Web's leading provider of online radio communications and public safety scanner audio feeds. This acquisition adds over 500 live public safety scanner feeds to the RadioReference platform and provides a future foundation for growth in listening to public safety communications online. According to a recent announcement by RadioReference.com, the company's goal is to have over 1,000 high-quality feeds online before the end of the year.

ScanAmerica is a provider of online police and fire scanner feeds. Founded in 2008, the site quickly amassed over 550 feeds from all over the United States and receives visits from over 220,000 people per month. Gordon Edwards, the previous owner of Scan America, joins RadioReference.com as Lead Manager of Live Audio.

RadioReference.com is the world's largest radio communications data provider, featuring a complete frequency database, trunked radio system information, and FCC license data. With over 210,000 members, RadioReference provides the most comprehensive collaboration platform for scanner listeners and public safety communications professionals.

For additional information, visit www.radioreference.com.

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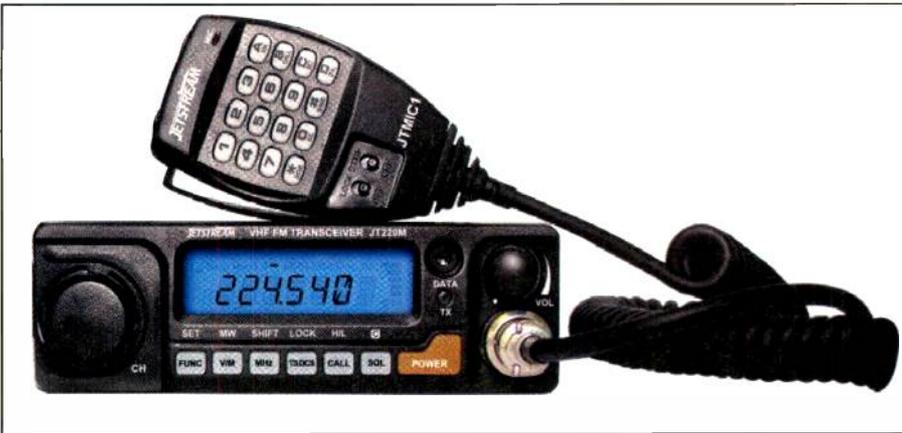


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Jetstream's JT220M is new a 220-MHz FM mobile radio that offers 50 watts and 99 memory channels.

Jetstream JT220M Radio

New from Jetstream is the JT220M, a 220-MHz FM mobile radio that offers 50 watts on high power (25 watts on medium, 10 watts on low). Frequency range is 222.000–224.995 MHz, and it 99 memory channels provide plenty of room for entering frequencies (it is computer programmable with the optional JTPRG1 cable and free downloadable software). Other features include a large LCD display; CTCSS encode and decode; memory and band scan; time-out timer; backlit DTMF mic.

Jetstream's JT220M is priced at \$239. For additional information, visit www.jetstream-usa.com.

Quiet Phone Pro

Heil Sound has introduced the Quiet Phone Pro headset. Utilizing the latest generation of Active Noise Canceling circuitry, the headset will improve the experience of listening to CW or Phone from a ham radio receiver, as well as MP3 players, iPods, and more. The Quiet Phone Pro headset is also ideal for "high noise environments"—users can just unplug the cables, turn on the ANC, and enjoy silence.

The Quiet Phone Pro comes with two cables: a very flexible Heilwire 6-foot straight cable and an extended coil cable. Cables plug into the input jack located on the bottom right side next to the power switch and the on-board volume control; cable connectors are 1/8-inch male (comes with a 1/4- to 1/8-inch adapter).

A small rubber plug located above the ON/OFF switch covers a sturdy brass insert that lets users attach one of four accessory MB-1 Microphone Booms, turning the headset into a high-quality professional ANC boomset. Microphone elements are available to match particular needs, such as various amateur radio transceivers, computer inputs for VOIP, podcasting, or commercial broadcasting.

Soft Replaceable Leatherette cushions with adjustable headband ensure comfortable listening for extended periods of time. Earphone speakers fold into the padded headband for easy carrying. The Quiet Phone Pro provides 60 to 70 hours of use from a single AAA battery located in the right side ear cup.

The Heil Quiet Phone Pro sells for \$170. For additional information, visit www.heilsound.com.



The Heil Quiet Phone Pro headset and accessories.

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

This listing is designed to help you hear more shortwave broadcasting stations. The list covers a variety of stations, including international broadcasters beaming programs to North America, others to different 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	6973	Galei Zahal, Israel	HH	0300	7345	Radio Prague, Czech Republic	
0000	15275	Radio Thailand		0300	4885	Radio Clube do Para, Brazil	PP
0000	9870	Broadcasting Service of the Kingdom, Saudi Arabia	AA	0300	6010	La Voz de su Concencia, Colombia	SS
0000	11815	Radio Brazil Central	PP	0300	7110	Radio Ethiopia	Amharic
0000	12085	Trans World Radio, via Russia		0300	11935	NHK Radio Japan, via Bonaire	JJ
0030	4410	Radio Eco, Bolivia	SS	0300	6290	Radio Cairo, Egypt	AA
0030	6135	Radio Romania International		0300	4780	Radio Djibouti	AA
0100	11780	Radio Nacional Amazonia, Brazil	PP	0300	9575	Radio Medi Un, Morocco	AA
0100	11710	Radio Argentina al Exterior		0300	5010	Radio Madagasikara, Madagascar	Malagasy
0100	9790	China Radio International		0300	4790	Radio Vision, Peru	SS
0100	7450	Voice of Greece	Greek	0300	6240	Voice of Russia, via Moldova	
0100	3250	Radio Luz y Vida, Honduras	SS	0300	4965	Christian Voice, Zambia	
0100	9890	Voice of Russia		0300	9780	Republic of Yemen Radio	AA
0100	11905	Sri Lanka Broadcasting Corp.	Hindi	0300	4828	Zimbabwe Broadcasting Corp	
0100	7335	Vatican Radio	various	0300	4930	Voice of America Relay, Botswana	
0130	6155	Radio Fides, Bolivia	SS	0300	4915	Radio Zambia	vern.
0130	9770	Voice of Turkey		0300	6110	Radio Fana, Ethiopia	Amharic
0130	7215	Radio Liberty, USA, via Germany	various	0300	15180	Voice of Korea, North Korea	FF
0130	9810	Voice of Russia, via French Guiana		0330	9645	Radio Romania International	
0200	5840	Radio Canada Intl, via Sweden		0330	4755	Radio Imaculada Conceicao, Brazil	PP
0200	4985	Radio Brazil Central	PP	0400	6070	CFRX, Canada	
0200	6165	Radio Nederland Bonaire Relay	various	0400	5025	Radio Rebelde, Cuba	SS
0200	5910	Marfil Estereo, Colombia	SS	0400	9745	HCJB Global, Ecuador	SS
0200	7285	Voice of Croatia, via Germany	Croatian	0400	9805	Radio France International	
0200	9625	CBC Northern Quebec Service, Canada	EE/local	0400	6185	Radio Educacion, Mexico	SS
0200	5960	NHK Radio Japan, via Canada	JJ	0400	9895	Radio Voice of the People, via Madagascar to Zimbabwe	
0200	5860	Radio Farda, USA	Farsi	0400	4775	Trans World Radio, Swaziland	GG/EE
0200	3220	Radio Sondergrense, South Africa	Afrikaans	0400	4976	UBC/Radio Uganda	
0200	4915	Radio Nacional Macapa, Brazil	PP	0400	7295	RT Algerienne, Algeria, via France	AA
0200	9430	BBC Relay, Oman	Azeri	0400	9485	Adventist World Radio, via Germany	AA
0200	11590	Radio Cairo, Egypt		0430	6165	RN Tchadienne, Chad	FF
0200	3340	Radio Misiones International, Honduras	SS	0430	4770	Radio Nigeria	
0230	7425	Radio Tirana, Albania		0430	7250	Vatican Radio	
0230	9825	Deutsche Welle, Germany, via Portugal	GG	0430	7335	RT Tunisienne, Tunisia	AA
0230	6110	The Mighty KBC, Netherlands, via Lithuania		0500	5005	Radio Nacional, Equatorial Guinea	SS
0230	7440	Radio Ukraine International	UU	0500	4810	Radio Transcontinental, Mexico	SS
0230	6175	Voice of Vietnam, via Canada		0500	11725	Radio New Zealand International	
0230	7200	Sudan RT Corporation	AA	0500	7255	Voice of Nigeria	
0230	5930	Radio Slovakia International	SS	0500	9720	Radio Victoria, Peru	SS
0230	6190	International Radio of Serbia		0500	9420	Voice of Greece	Greek
0300	5446.5	AFRTS,FL	USB	0530	11690	Radio Okapi, Congo, via South Africa	FF/EE/vern.
0300	6110	Radio Tirana, Albania					

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0530	6250	Radio Nacional, Equatorial Guinea	SS	1500	15650	Miraya FM, Sudan, via Slovakia	EE/AA
0600	8580	Africa Number One, Gabon	FF	1530	13765	Vatican Radio	
0600	7125	Radio Conakry, Guinea	FF	1530	13600	Radio Sweden	
0600	6105	Candella FM, Mexico	SS	1530	15560	Channel Africa, South Africa	Swahili
0700	6010	Radio Inconfidencia, Brazil	PP	1630	11995	Trans World Radio, via Austria	Farsi
0700	5995	RTV Malienne, Mali	FF	1630	11995	Voice of Turkey, via Canada	
0800	6010	Radio Mil, Mexico	SS	1700	13820	Radio Marti, USA	SS
0800	9635	RTV Malienne, Mali	FF	1700	15235	Channel Africa, South Africa	
0800	9690	Voice of Nigeria		1700	13710	Broadcasting Service of the Kingdom, Saudi Arabia	AA
0830	9541	Solomon Islands Broadcasting Corp.	EE/Pidgin	1800	13675	BBC	
0900	6135	Radio Santa Cruz, Bolivia		1800	9830	Radio Jordan	AA
0900	3925	Radio Nikkei, Japan	JJ	1800	15085	Islamic Republic of Iran Broadcasting	FF
0900	4805	Radio Difusora do Amazonas, Brazil	PP	1800	15275	Deutsche Welle, Germany, via Rwanda	GG
0900	3220	HCJB Global, Ecuador	Quechua	1800	9855	Radio Kuwait	AA
1000	6890	KNLS, Alaska		1800	15495	Radio Kuwait	AA
1000	4815	Radio El Buen Pastor, Ecuador	SS	1800	15345	RTV Marocaine, Morocco	AA
1000	9825	Radio France Internacional	SS	1800	15560	RDP International, Portugal	PP
1000	3280	La Voz del Napo, Ecuador	SS	1800	12005	RT Tunisienne, Tunisia	AA
1030	4747	Radio Huanta 2000, Peru	SS	1800	11990	Radio Kuwait	
1030	4825	La Voz de la Selva, Peru	SS	1900	15400	BBC South Atlantic Relay, Ascension Is.	
1100	11945	Radio Australia		1900	15190	Radio Africa, Equatorial Guinea	
1100	7205	Deutsche Welle, Germany, via Russia	CC	1900	11860	Radio Jamahiriya, Libya	Hausa
1100	9655	Radio New Zealand International		1900	15120	Voice of Nigeria	
1100	11715	Radio Taiwan International		1900	15290	Voice of America, Philippines Relay	SS
1100	9580	Radio Australia		1900	15345	Radio Argentina al Exterior	GG
1130	2485	ABC Northern Territories SW Service, Australia		1900	17520	Voice of Biafra, via WHRI	
1130	7200	Yakutsk Radio, Russia	RR	1930	11660	Radio Nederland, Madagascar Relay	
1200	17635	Islamic Republic of Iran Broadcasting	CC	1930	11835	Bible Voice, England, via Germany	FF
1200	9525	Voice of Indonesia	various	2000	11940	Radio Romania International	
1200	4800	Radio Buenas Nuevas, Guatemala	SS	2000	11735	Radio Tanzania, Zanzibar	Swahili
1200	9525	Radio Polonia, Poland, via Germany		2000	12985	Radio Damascus, Syria	EE/AA
1200	9430	Far East Broadcasting Co., Philippines	CC	2030	9690	Radio Romania International	
1200	7470	Radio Free Asia, USA, via Mongolia	Tibetan	2100	11660	Radio Australia	
1200	7255	Voice of America, Thailand Relay		2100	9330	Radio Damascus, Syria	various
1200	13590	Christian Voice, Zambia		2100	9490	Radio Canada International, via Vatican	FF
1200	7365	Radio Thailand	CC	2100	9505	Radio Farda, USA, via Germany	
1200	9650	KBS World Radio, South Korea		2100	15785	Galei Zahal, Israel	HH
1200	4430	Radio Bougainville, Papua New Guinea	Pidgin	2130	7390	Radio Belarus	Byelorussian
1200	9910	Trans World Radio, Guam	unid	2130	11620	All India Radio	
1200	11775	KSDA, Guam	Mandarin	2200	9665	Radio PMR, Moldavia	various
1230	15600	China Radio International	Malay	2200	12090	KFBS, Northern Marianas	VV
1230	9740	BBC, Singapore Relay		2200	9265	WINB, PA	
1230	3235	Radio West New Britain, Papua New Guinea		2200	17850	Radio Exterior de Espana, Spain, via Costa Rica	SS
1300	7330	Voice of Russia		2200	7210	China Radio International, via Albania	SS
1300	13580	Radio Prague, Czech Republic		2230	5930	Cyprus Broadcasting Corp.	Greek; wknds
1300	13590	Bible Voice Network, England, via Germany		2300	6160	CKZN, Canada	
1300	11710	Voice of Korea, North Korea		2300	6850	Radio Cairo, Egypt	
1300	15735	Radio Sweden		2300	2230	Radio Mauritanie, Mauritania	AA
1300	13760	Voice of Korea, North Korea		2300	9715	RDP International, Portugal	PP
1300	9795	KNLS, Alaska	EE/Mandarin	2300	13680	Radio Nacional Venezuela, via Cuba	SS
1330	11715	KJES, NM		2300	9700	Radio Bulgaria	
1400	12000	Radio Havana Cuba	SS	2300	11840	China Radio International, via Canada	
1400	15140	Radio Sultanate of Oman	AA	2300	15410	CVC, Chile	PP
1400	17595	Radio Exterior de Espana, Spain	SS	2300	9545	Radio Republica, via England	SS to Cuba
1400	5910	Shiokaze, Japan	JJ	2330	11600	Radio Prague, Czech Republic	
1430	9425	All India Radio		2330	9955	WRMI, FL	EE/SS
1500	13640	China Radio International					
1500	12040	Voice of Russia					

Antenna Topic Tidbits

by Kent Britain, WA5VJB
wa5vjb@cq-amateur-
radio.com

Don't you just hate it when work interferes with the important things in life? The latest victim of the time shortage was my AM broadcast and shortwave noise reduction antenna (**Photo A**), and I'm afraid the month just got away from me. But hopefully I'll get a good chance to heat up the soldering iron before the next column.

The idea of this low-noise approach is to rotate a magnetic rod antenna horizontally and vertically. The radio wave is not only coming in on a compass heading, but because it bounces off the ionosphere, it's also coming in at a steep angle. If you want to listen to one station, but null out a second station, then you point the end of the rod antenna

at that second station. Pointing will be both at the station and angled up at its current skip angle. Tweak it just so, and you can reduce that second station 5 or 6 S-units. But more on this when I get the kit finished.

Antenna Miscellany

So, what has kept me away from the more important things in life, you ask. Well, how's the U.S. Navy for a good reason to get briefly distracted? **Photo B** show a monopulse radar decoy, which the Navy in showing some interest in. Monopulse seekers are very difficult to jam: Not



Photo A. Active noise reduction antenna for AM and shortwave listening.



Photo B. Monopulse radar decoy.

only do they quickly zero in on the target, but if the target turns on a jammer, the signal-to-noise levels in the monopulse radar actually get better. Monopulse seekers just love jammers and home right in on them.

For the readers working in the Electronic Warfare industry (and I'm sure we have *some*), yes, there is Cross-Eye and some other similar jammers for monopulse, but they work best when on big planes like B-52s, not small planes like the A6. This decoy is attached to the back of a plane with a *long* rope and elec-

tronically looks like a 747 on radar. The goal here is for the monopulse guided missile to go after the decoy rather than...*you*. It's supposed to work sort of like that old scuba diving trick where you always have a diving buddy when swimming in shark infested waters: you don't have to outswim the shark, you just have to out swim your buddy.

The antennas in **Photo C** might become a future technical topic, but I have yet to find a practical use for the Archimedean Spiral outside of electronic warfare (I'm open to ideas). The anten-

"Monopulse seekers are very difficult to jam: Not only do they quickly zero in on the target, but if the target turns on a jammer, the signal-to-noise levels in the monopulse radar actually get better."



Photo C. Electronic warfare antennas.

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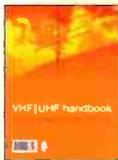
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Photo D. Commercial tower with lighting dissipater.

na works well from 2 GHz to 20 GHz, but with about -6 dBi gain there is usually a better antenna for listening.

Recently we talked about lighting protection and I want to apologize that the only photo of a lighting dissipater I had was on hand was of one on a 1,840-foot tower. Well, in case you're itching for a closer look, the lighting dissipater in **Photo D** is a lot closer to the ground. Notice how each of the blades in the ball has a sharp point. As you'll remember, you can't have a high-voltage electric charge on something with sharp points. (Now you know why high-voltage systems like Van der Graaf generators have that large smooth ball on top.) These hundreds of sharp points dissipate the static charge for quite a distance around the tower and antennas. Dissipating this charge doesn't guarantee you'll never get hit by lightning, but it does lower the chances of a lightning strike by 90 percent or so.

Send In Your Own Miscellany

Again we welcome your questions, suggested construction projects, and possible topics for future columns. Just drop me an email at wa5vjb@cq-vhf.com or you can visit www.wa5vjb.com for other antennas projects. We always look forward to hearing from our readers.

Broadcast Technology Goes Back To School

by Bruce A. Conti
BAConti@aol.com

“Focal Press specializes in textbooks covering film, photography, and broadcast topics for professionals and students...here are some recommended titles with my spin on the three Rs: reading, recording, and regulations.”

September means back to school, and no matter what the field of work, continuing education is important for professional development and personal growth. Focal Press specializes in textbooks covering film, photography, and broadcast topics for professionals and students. The nice folks there graciously provided several books of interest for “Broadcast Technology” to review, so here are some recommended titles with my spin on the three Rs: reading, recording, and regulations.

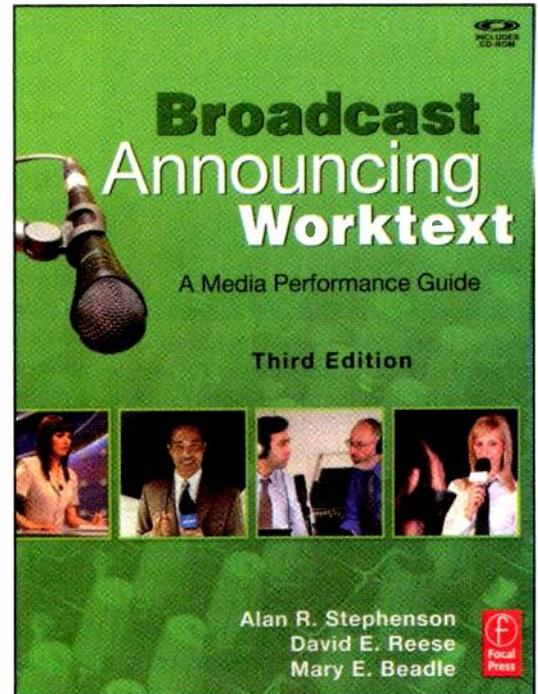
Reading: A Script For Better Broadcasts

The *Broadcast Announcing Worktext: A Media Performance Guide* (3rd edition), by Alan R. Stephenson, David E. Reese, and Mary E. Beadle, provides aspiring broadcast talent with the skills, techniques, and procedures to enter a highly competitive field. It’s packed with valuable information, including expert recommendations and tips from broadcast professionals. Insider tips vary from how to find an internship, selecting a microphone, preparing a script, how to be an effective radio music announcer, play-by-play sports calling, and getting your first job in broadcasting. University professors, broadcast executives, plus radio and TV personalities all offer their unique insights.

Here’s an example of the “sound” advice found throughout, a performance tip by Al Pawlowski, play-by-play (PBP) announcer for ESPN, Major League Soccer, and Cleveland State University Basketball:

In radio you’re using action verbs and descriptive adjectives to paint the best picture you can, but on TV the audience can see it all. If a beginning TV PBP person has the discipline (because your natural urge is to talk) just say the names of the players, and nothing else at first. You will sound polished and get the idea. Instead of, “Daniel Gibson passes the ball to LeBron James. James dribbles in and shoots the 15-footer...Good!” it could be as simple as, “Gibson...LeBron...Good!” Of course more words can be added here and there as you progress, but learning how to back off first will give you the feel for a TV PBP game versus a radio call.”

Broadcast Announcing Worktext is accompanied by a CD-ROM that features audio and visual examples by broadcasters. For instance, one audio clip by the late Paul Harvey demonstrates inflection, pace, and dramatic pauses. The book

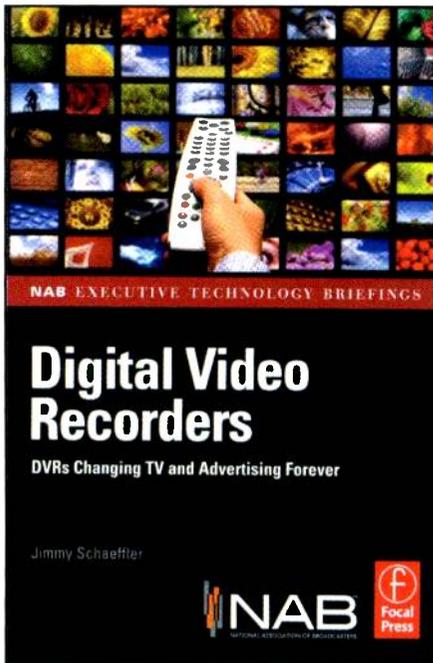


Broadcast Announcing Worktext: A Media Performance Guide is the first of three books published by Focal Press that “Broadcast Technology” highlights this month. It offers aspiring broadcasters a wealth of tips and useful advice.

is written in a college textbook format, complete with self-study exams and projects at the end of each chapter, rounded out with an appendix of practice news copy and terminology. The companion, *Audio Production Worktext: Concepts, Techniques, and Equipment* by David E. Reese, Lynne S. Gross, and Brian Gross, explores behind the scenes in the same information-packed textbook format. (332 pages, softcover, \$54.95.)

Recording: TV Viewer Time-Shifting

The advent of the digital video recorder (DVR), including devices like the popular TiVo as well as on-demand cable and satellite TV subscription boxes, has forever changed how people watch TV. No longer are viewers tied down en masse to a broadcast schedule. Prime time is whenever convenient for the individual viewer. *Digital Video Recorders: DVRs Changing TV and*



Digital Video Recorders: DVRs Changing TV and Advertising Forever is written primarily for broadcast executives, but videophiles will also appreciate its analysis of current trends and provider comparisons.

Advertising Forever, by Jimmy Schaeffler, is part of an on-going series of Executive Technology Briefings from the National Association of Broadcasters that investigates current trends and the impact on a rapidly developing industry. This is an in-depth analysis of DVR models, applications, and usage, past, present, and future.

While written primarily for broadcast executives, the briefing is an educational and insightful review of developing DVR technology and industry strategies. Of particular interest to the videophile is a comparison of DVR providers, monthly fees, and types of DVRs with “due diligence checklists.” Schaeffler applies 20 case studies to support findings, supplemented by data obtained from Arbitron research, Nielsen ratings, and subscription TV providers.

“It is this author’s strong conviction that remote storage DVRs (RS-DVRs) and DVR-like devices will have a significant place among television consumers and multichannel pay TV operators in the future,” writes Schaeffler. A review of international DVR growth by Schaeffler is an especially strong indicator of a sustainable future for DVR technology worldwide, unlike that of the short-lived video tape recorder. LiquidTV TiVo coupled with laptop computers in Germany, multiple hard drive storage via USB con-

nection to Canal Plus satellite TV in France, and the Foxtel iQ2 HD DVR featuring 320 GB capacity in Australia are examples of the most recent innovations. Even gaming boxes like the Microsoft Xbox 360 and Sony Playstation are becoming more and more like mainstream multimedia devices as they adapt to RS-DVR applications. Schaeffler predicts that by 2020 the DVR will be as common as the color TV in United States households, despite the potential for ongoing conflicts with copyright protection. After all, it’s already common to hear someone say, “I Tivo’d it!” 289 pages, softcover, \$39.95.)

Regulation: Antenna Zoning

NIMBY (“Not In My Back Yard”) is an all too familiar term when it comes to antennas. *Antenna Zoning: Broadcast, Cellular & Mobile Radio, Wireless Internet—Laws, Permits & Leases*, by Fred Hopengarten, K1VR, is a practical guide to the ever-increasing legal challenges of commercial antenna construction. The author was prompted by the Society of Broadcast Engineers to write the book after his 2001 ARRL publication of *Antenna Zoning for the Radio Amateur* (www.antennazoning.com). Hopengarten is a lawyer specializing in communications law and serves as volunteer counsel on zoning matters for the ARRL. “I have written this book to try to give you a guide on how to navigate the difficult and dangerous shoals of getting an antenna permit in today’s contentious and sometimes litigious environment,” writes Hopengarten.

In *Antenna Zoning*, the author provides step-by-step analysis of the entire antenna permitting process, from basic preparations to examples of detailed legal documents. Various strategies are presented to help the reader deal with the many people that might be encountered, from a spiteful neighbor to suspicious government authorities. Specific legal documents and online references are cited to support analysis. Of particular interest to the DTV viewer is the FCC Over The Air Reception Devices (OTARD) rule that preempts local regulation of outdoor antennas, which the author cites among applicable laws in developing a baseline for most situations. A full-length FCC document granting modification of antennas at 1380 KRKO is most interesting.

Although the book is necessarily thick with legal jargon in the form of documents, regulations, and rulings, the

accompanying commentaries attempt to reduce text into simplest terms. The writing is enhanced by black & white photos throughout. Photos of the fallen KFI AM radio tower and its replacement with a top hat design, the fallen KSON AM radio tower, the KinStar low-profile AM broadcast antenna, tower reinforcements, and various safety improvements accentuate discussions about potential safety objections. An extensive bibliography lists specific regulations, court cases, articles, and Internet sources for quick reference, and an included CD contains sample legal forms, permit applications, and related documents. Though specifically written for those contemplating the construction of a transmission facility, *Antenna Zoning* is a fascinating read for anyone with an interest in antenna installations. (440 pages, hardcover, \$129.95.)

These are just a few of the impressive broadcast technology titles available from Focal Press (www.focalpress.com), an imprint of Elsevier (www.elsevier.com). All are available through your local bookseller or Amazon.com. Check out the websites to learn more about Focal Press publications.

For the career-oriented, the Society of Broadcast Engineers (SBE) offers a variety of services for those who wish to enter the field. Go to www.sbe.org to learn about SBE certified schools, scholarships, and local chapter events. The SBE also provides publications and “SBE University” online on-demand courses to keep engineers up to date with technology and certifications.

Broadcast Loggings

This month’s selected summertime logs are evidence that mediumwave DXing can indeed be a year-round pursuit, but first a popular longwave broadcast target. All times are UTC.

171 Medi Un, Nador, Morocco, at 0330 an eclectic mix of Arabic selections, ranging from Algerian *rai* to Egyptian plaintive vocals. News at 0400 followed by music that included some Western stuff and alternating French and Arabic short newscasts. Heard on subsequent evenings, always with long and clear peaks while the parallel 9575 shortwave outlet was extremely poor and noisy with deep rapid fading! (Chiochiu-QC) At 2352 Arabic talk by a woman, then an Arabic vocal; good, the best longwave transatlantic signal. (Connelly-MA)

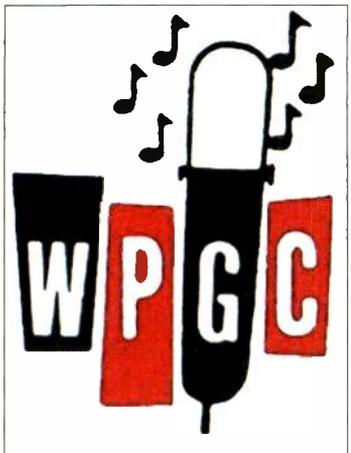
540 GBN Klassic AM, St. George’s, Grenada, at 0059 a soft-voiced British-accented male announcer said, “Now it’s time for Klassic radio in our broadcast to listen to

This Month In Broadcast History

75 Years Ago (1934)—The Mutual Broadcasting System was formed by a network of four radio stations: WOR New Jersey, WGN Chicago, WLW Cincinnati, and WXYZ Detroit.

50 Years Ago (1959)—The classic TV western *Bonanza* switched from black & white to living color on NBC. "The Three Doorbells" by the Browns was the number one song on 1580 WPGC Prince Georges County (Washington, D.C. area).

25 Years Ago (1984)—The FCC increased nationwide ownership limits from seven AM and seven FM radio stations to 12 of each.



the news from the BBC"; poor, but briefly through usual co-channel CBGA-1 and CBT. (Connelly-MA)

600 WYEL Mayagüez, Puerto Rico, at 0115 parallel 580 WKAQ with Spanish sportstalk, adverts; mixed with CBNA and an unidentified religious station. (Connelly-MA) I would guess the unidentified station was WFST Maine.

640 Radio Guadeloupe, Pointe-à-Pitre, Guadeloupe, at 0759 excellent s9+20; repeating "Radio Guadeloupe" IDs and reggae music. Audio uploaded to www.bamlog.com in the DXpeditions section, Maine 2009 log. (Conti-ME)

675 Radio Maria, Lopik, Netherlands, at 0100 a religious vocal in a somewhat Celtic style, then Radio Maria ID followed by talk; poor in 680 WRKO slop. (Connelly-MA)

720 YVQE Oriente 720, Porlamar, Venezuela, at 0030 good; theme song with voiceover, "Música, entretenimiento, opinión, información...Desde Porlamar, estado Nueva Esparta, transmite la nueva Venezuela Oriente 720 AM musical..." into promo/ad string. (Conti-ME)

740 ZYH446 Radio Sociedad da Bahia, Salvador, Brazil, at 0009 Portuguese sportstalk, mentions of futebol, Bahia, and Salvador, then typical "Close Encounters" instrumental theme music interlude; good. 0050 sports coverage in Portuguese; very good, now way over CHCM. (Connelly-MA)

770 CX12 Radio Oriental, Montevideo, Uruguay, at 0031 very tentative: a couple of "uruguayano" mentions in Spanish newstalk briefly over fading antenna-nulled WABC. Greyline placement was supporting numerous other deep South America receptions at the time. (Connelly-MA)

790 YVXM Radio Minuto, Barquisimeto, Venezuela, at 0030 fair, over an ID Latin American; ray gun sound effect with ID, clock sound effect with time check, "Ocho en punto." (Conti-ME)

864 France Bleu, Villebon-sur-Yvette, France, at 0115 France Bleu jingle, spoken ID, then an amped-up dance-mix version of the 1977 Boney M hit "Ma Baker"; good. (Connelly-MA)

880 XEPNK Los Mochis, Mexico, at 0603, ID with Canal 88 slogan and numerous repetitions of "Los Mochis," so I knew before I could get to my references that it must be Los Mochis I was hearing. (Barton-AZ)

880 YVYM Radio Venezuela, Puerto Ordaz, Venezuela, at 0032 heard an ID while momentarily over WCBS. (Connelly-MA)

895 Voice of Nevis, Bath Village, St. Kitts & Nevis, at 0116 a reggae vocal, ID, "Powerhouse of the eastern Caribbean, Von Radio"; fair. (Connelly-MA)

910 CMAF Radio Cadena Agramonte, Camagüey, Cuba, at 0434 "Radio Cadena Agramonte" mentioned in talk rising above co-channel WLAT. Then at 0520 rising above a strong WLAT and a weak WABI with a fair signal for a few seconds, playing Cuban cha-cha-cha music; flute-based, old-fashioned tropical music. (Chiochiu-QC)

1000 KOMO Seattle, Washington, at 1125, "It's 4:25 on KOMO News Radio," into "KOMO Money News." This one should be a regular here with 50 kW, but often either not heard or way out in the weeds. (Barton-AZ) KOMO covers the Pacific coast with a north-south beam that protects co-channel WMVP Chicago and Mexico from interference.

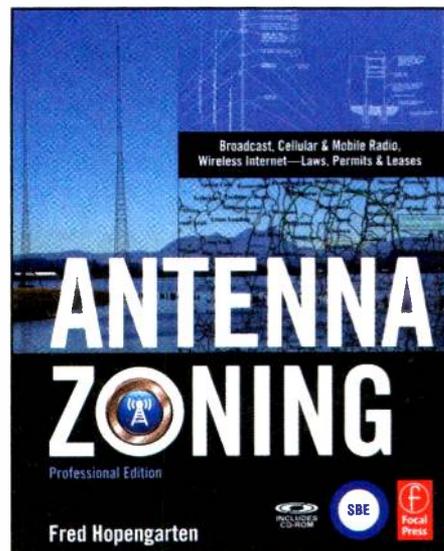
1088 Radio Nacional, Mulenvos, Angola, at 0025 a man in Portuguese; fair. No sign of 1089 TalkSport at the time! (Connelly-MA)

1100 ZYK694 Radio Globo, São Paulo, Brazil, at 0008 fast Portuguese talk; peaking over WHLI. Then at 0033 several "futebol" promos in excited talk; to good peak over WTAM and others. (Connelly-MA)

1150 CMKX Radio Bayamo, Entronque Buycito, Cuba, at 0200 fair; "Esta es CMKX Radio Bayamo, cadena provincial de Granma, transmitiendo desde la cuna de la ciudad Pilon," chimes and time check. (Conti-ME)

1160 Caribbean Radio Lighthouse, St. John's, Antigua, at 0159 good, over VSB3 Bermuda; Christian hymns, "To learn more about the Creator and his marvelous creations, keep listening to the Caribbean Radio Lighthouse in Antigua, 1160 AM." (Conti-ME)

1200 WMIR Atlantic Beach, South



Antenna Zoning: Broadcast, Cellular & Mobile Radio, Wireless Internet—Laws, Permits & Leases examines the entire antenna permitting process and is a fascinating read for anyone interested in antenna installations.

Carolina, at 2336 "Rejoice-WMIR 1200," and urban contemporary gospel music on a weak signal with fades. (New-GA)

1206 France Info, Bordeaux, France, at 0054 French talk about the economy in a program produced in cooperation with Radio Canada; good. (Connelly-MA)

1330 WMLT Dublin, Georgia, at 2302 Atlanta Braves baseball with a decent, steady signal despite splatter from adjacent 1340 WGAU just up the road in Athens. "This is your home for Atlanta Braves baseball, AM 1330 WMLT Dublin." (New-GA)

1710 Radio Soleil International, Brockton, Massachusetts, at 0630 playing kompas music with occasional over-modulated kreyol DJ voiceovers. First pirate logged here in years! Mixing with an unidentified Spanish station with romantic music and seemingly religious talk that was hard to follow in heavy co-channel and man-made interference, almost certainly a pirate as well! (Chiochiu-QC)

Thanks to Rick Barton, Bogdan Chiochiu, Mark Connelly, and Bert New.

Send A Log, Win A Prize

Now here's your chance to win the *Broadcast Announcing Worktext* through this column, courtesy the Focal Press. One lucky winner will be randomly selected from all who submit broadcast DX loggings during the month of September for publication in "Broadcast Technology." To enter, just send your logs along with your name and postal address to BAConti@aol.com. Entries must be received by September 30, 2009.

Until next time, 73 and Good DX!

Shortwave Aviation Monitoring

by Tom Swisher, WA8PYR
airscan65@gmail.com

“There are three major users of the shortwave bands for aviation to start off with, and all are relatively easy to catch on even a basic shortwave receiver: The U.S. Federal Aviation Administration; Aeronautical Radio, Inc. (ARINC); and the U.S military.”

It's a beautiful day in the neighborhood, and you're monitoring the VHF and UHF air bands. There's lots of chatter and you're happily soaking it all in...or are you?

Actually, the radio chatter is the same old thing, and you're bored to tears. Is there anything else to listen to out there? Yes, there is indeed. So fire up the old shortwave receiver and listen to aviation traffic from a whole new perspective.

Shortwave is still heavily used by the international aviation community. The long-distance propagation characteristics make it ideal for voice communications by aircraft out of range of normal VHF or UHF aviation communications systems, especially in international over-ocean flights.

There are three major users of the shortwave bands for aviation to start off with, and all are relatively easy to catch on even a basic shortwave receiver: The U.S. Federal Aviation Administration; Aeronautical Radio, Inc. (ARINC); and the U.S military.

Federal Aviation Administration

The first of these users, the FAA, uses HF for VOLMET and SIGMET weather broadcasts. VOLMET is a contraction of the French “VOLume METeorological,” which translated means more or less “weather broadcast”; SIGMET is a contraction of SIGNificant METeorological information. VOLMET broadcasts take the form of weather updates for specific areas on a fixed schedule, while SIGMET broadcasts update aviators on specific safety of flight weather information. For example, starting at the top of the hour until five past, you'll hear airfield conditions for Detroit, Chicago, Cleveland, and other cities; from five to 10 past, you'll hear reports for Bangor, Pittsburgh, Charlotte, and others; 10 to 15 past, New York, Newark, Boston, and others; and so on. SIGMET updates, usually good for four hours, are made during the VOLMET broadcasts.

Check out the following frequencies for FAA VOLMET broadcasts from New York Radio:

- 3485 FAA New York VOLMET (night primary)
- 6604 FAA New York VOLMET
- 10051 FAA New York VOLMET
- 13270 FAA New York VOLMET (day primary)

Of course, you'll find VOLMET broadcasts from other nations out there as well, not only those

from the FAA. Check out www.dxinfocentre.com/volmet.htm for a listing of international VOLMET broadcasts.

Aeronautical Radio, Inc.

Started in 1929 to provide communications services to the aviation community, ARINC is today the top provider of communications and data transmission services to the transportation industry, with the largest focus to this day on aviation.

While you may be familiar with the ARINC VHF voice radio services and VHF ACARS data services, you may not be familiar with their Aeronautical Operational Control services. These services, operating on shortwave frequencies, are intended to aid aircraft on overseas flights with Long Distance Operational Control communications to their airline headquarters, as well as air traffic control communications, when out of range of land-based VHF radio.

ARINC has two LDOC centers, one in New York and the other in San Francisco; these centers control locally based transmitter and receiver stations, as well as remote-based transmitter and receiver stations located in other countries. Listed below are frequencies both for LDOC use as well as ATC use; on these frequencies you'll hear communications between aircraft in flight and their airlines as well as ARINC personnel relaying air traffic control instructions to aircraft from controllers, as well as position and status reports from aircraft back to ATC. While many airlines are now using satellite for company communications, not everyone uses it and you'll still hear phone patches on the LDOC channels.

ARINC LDOC

3494	Long Distance Operational Control
6640	Long Distance Operational Control
8933	Long Distance Operational Control
11342	Long Distance Operational Control
13348	Long Distance Operational Control
17925	Long Distance Operational Control
21964	Long Distance Operational Control

ARINC Regional Networks

3016	North/Central Atlantic Net A
5598	North/Central Atlantic Net A
8906	North/Central Atlantic Net A
13306	North/Central Atlantic Net A
17946	North/Central Atlantic Net A
21964	North/Central Atlantic Net A

2962	Central Atlantic Net E
6628	Central Atlantic Net E
8825	Central Atlantic Net E
11309	Central Atlantic Net E
13354	Central Atlantic Net E
17952	Central Atlantic Net E
2887	Caribbean Net A
3455	Caribbean Net A
5550	Caribbean Net A
6577	Caribbean Net A
8846	Caribbean Net A
11396	Caribbean Net A
5520	Caribbean Net B
6586	Caribbean Net B
8918	Caribbean Net B
11330	Caribbean Net B
13297	Caribbean Net B
17907	Caribbean Net B
3413	Central East Pacific Net 1
3452	Central East Pacific Net 1
5574	Central East Pacific Net 1
6673	Central East Pacific Net 1
8843	Central East Pacific Net 1
10057	Central East Pacific Net 1
13354	Central East Pacific Net 1
2869	Central East Pacific Net 2
5547	Central East Pacific Net 2
11282	Central East Pacific Net 2
13288	Central East Pacific Net 2
21964	Central East Pacific Net 2
2998	Central West Pacific Net
4666	Central West Pacific Net
6532	Central West Pacific Net
8903	Central West Pacific Net
11384	Central West Pacific Net
13300	Central West Pacific Net
17904	Central West Pacific Net
21985	Central West Pacific Net
3467	South Pacific Net
5643	South Pacific Net
8867	South Pacific Net
13261	South Pacific Net
17904	South Pacific Net
2932	North Pacific Net
5628	North Pacific Net
5667	North Pacific Net
6655	North Pacific Net
8915	North Pacific Net
8951	North Pacific Net
10048	North Pacific Net
11330	North Pacific Net
13273	North Pacific Net
13339	North Pacific Net
17946	North Pacific Net
21925	North Pacific Net

High-Frequency Global Communications System

Finally (and with my apologies to Mark Meece for treading on his turf), we come to one of the favorite targets of the mili-

tary monitor: The U.S. Air Force's High-Frequency Global Communications System.

This system was implemented in its earliest form by General Curtis LeMay, head of Strategic Air Command and an active ham radio operator. In the 1950s, LeMay realized that the new innovation of single sideband HF radio would be a highly effective means of command and control communications compared to the amplitude modulation systems then in use.

Originally an Air Force-only network, it has evolved over the years to the network we know today, which serves not only the various commands of the U.S. Air Force, but the White House Communications Agency, the Joint Chiefs of Staff and some U.S. Navy and NASA assets as well. In fact, it's not uncommon for aircraft from other agencies—and even other nations—to be heard.

The system is comprised of transmitter/receiver facilities and control stations located all over the world, including USAF bases at Andrews, Anderson, Offut, McClellan, Elmendorf, and Yokota, as well as some naval bases and stations, including Diego Garcia, Keflavik, and Sigonella.

The best frequency to tune in is 11175 kHz. This is the daytime primary frequency, and you'll hear aircraft calling a control station and requesting phone patches or unit-to-unit communications on discrete channels. However, if you're a night owl, try the night primary frequency of 8992 kHz. Listed below are the most common HF-GCS frequencies; while there are other discrete frequencies, these are the ones you'll hear traffic on most often.

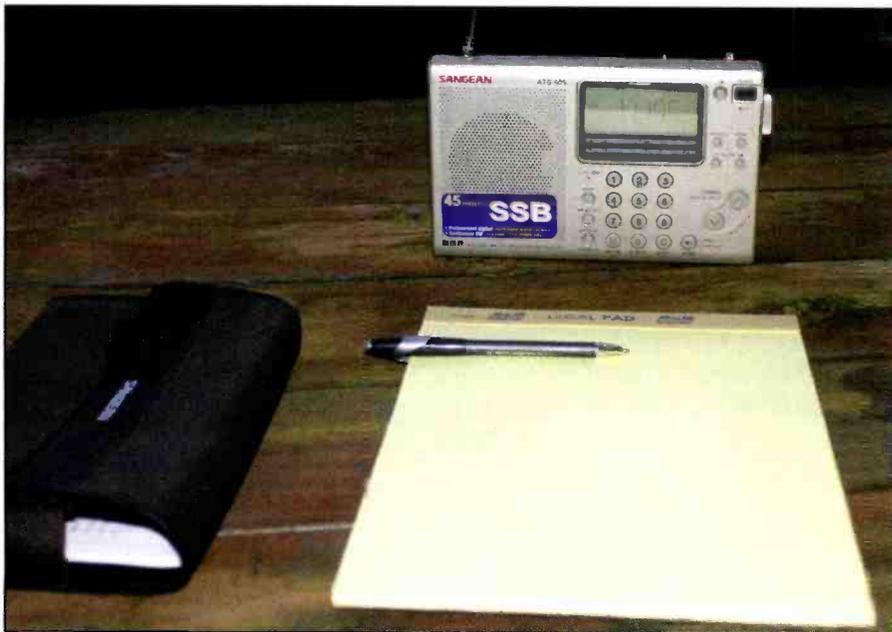
4724	HF-GCS night alternate
6739	HF-GCS night alternate
8992	HF-GCS night primary
11175	HF-GCS day primary
13200	HF-GCS day alternate
15016	HF-GCS day alternate

Aircraft commonly make contact by calling the specific control station needed, or by calling "Mainsail," which is a call for any ground station to answer. In addition to individual aircraft, you'll also hear Emergency Action Messages, which are coded messages aired for units all over the world. These consist of long strings of seeming gibberish in a format like "alpha, alpha, three, bravo, x-ray, four, seven, juliet" and so on.

A very special type of EAM you'll hear is the "Skyking" message. Starting off with the preamble "Skyking, Skyking, do not answer," these messages have long been rumored to be emergency action messages being sent to nuclear-armed units around the world. If you grew up during the Cold War, as I did, times of tension always made one wonder if the Skyking broadcast you were hearing wasn't a command for the real thing. It was pretty chilling, and sometimes still is.

Setting Up

Getting started is pretty simple. You'll need a reasonably decent shortwave radio for starters, and it need not be a base model; a portable will do the trick quite nicely to get your feet wet. Minimum requirements include a digital display (since you'll need to be selecting specific frequencies, which is tough to do with a slide rule dial). Also necessary at a minimum is a beat frequency oscillator (BFO); since these transmissions nearly all use upper sideband, the BFO is needed so you can hear them clearly. Also preferred would be a radio with separate



The author's Sangean ATS-505, set up on the back patio for an evening of SW listening. A shortwave monitoring setup need not be elaborate...

lower and upper sideband filters for easier use and improved performance, although this is not necessary if you have a BFO.

You'll also need an antenna. While the built-in telescoping antenna on a portable

is acceptable and will enable you to hear the stronger stations, an antenna up as high and in the clear as possible is preferred. The simplest method is to get a long hunk of wire (30 to 40 feet is a good start), fling one end up in a tree, and hook

the other end to the external antenna jack on your radio. If you don't have an external antenna jack, clip the end of the wire to the telescoping antenna of the radio.

Also useful are headphones, a pad of paper, and ciphering stick (pen or pencil) for logging, and if you're so inclined, a way to record what you're hearing for later analysis. Don't forget a cool drink and a couple of cookies or an apple to snack on...

Challenges And Rewards

While shortwave monitoring is a lot of fun, once you get started you'll notice that there are some challenges as well. Shortwave transmissions are subject to fading and atmospheric conditions, which can adversely affect the signals you're hearing. Distant lightning storms can also make listening a challenge, with their occasional crackling blasts of sound from the speaker. There's even the sunspot cycle, which can really drive experienced hams and monitors bananas, but we won't even get into that here. However, the challenges just add to the fun.

So what are you waiting for? Haul out that shortwave portable and fire it up. Many new loggings await you! ■



...but elaborate isn't necessarily a bad thing. This is the author's home station, with a Drake TR-7 monitoring the 40-meter ham band, and a Drake R-8 receiver tuned to 11175 USB. A variety of other useful radios is also visible.

On Keeping A Logbook

by Dan Srebnick, K2DLS
k2dls@arrl.net

 Since ships have been traveling the seas and the skies, the ship's captain has kept a log of the journey. Classic *Star Trek* episodes began with a reading from Captain Kirk's log. Many of us keep a log of our radio activity. Whether we listen, transmit, or do both, a log allows us to look back upon our radio experiences. It offers insight into which stations or countries are workable depending upon time of year, band, or solar activity. It can tell us when a new public safety system was first noticed or when an AM broadcast station in Canada left the air for the last time. It can memorialize the first report of a civil war or a natural catastrophe. All of this makes logging an intensely personal experience.

How I Log

I have three primary logbooks. The oldest is a logbook of my listening activities on longwave, mediumwave, and shortwave going back to 1979. Sometime in the early part of the this decade, I decided to computerize my surviving paper logbook pages. I had learned how to use MySQL, the SQL database that runs under Linux, and I created an online SWL logbook using a MySQL backend on my main Linux server.

Hint: MySQL is free and available from <http://mysql.org>.

The user interface for my homebrew system was originally Microsoft Access. I made use of the link tables feature, which lets you access a remote SQL database, as opposed to creating a table within the Access database itself. This approach is still in use, except I've ditched Microsoft Access as the user interface and now use the freely available Open Office suite. This is a drop-in replacement for the Microsoft Office suite, minus the cost. You can download Open Office from the openoffice.org website. Using Open Office I can browse, update, and add logbook entries. I can also print out a paper report of my loggings.

Hint: Open Office is free, does most of what the Microsoft Office suite can do, and runs on Windows, Linux, Solaris, and Mac OS X.

"At a glance, I can now see which DXCC entities I have worked, verified, and in which mode. This is what I had been looking for."

My ham logging for the past couple of years has been done using Ham Radio Deluxe (HRD). This is the "kitchen sink" of all radio control/logging programs and is very flexible. Contact info is populated from data provided by the radio, such as frequency and mode, along with data resulting from a qrz.com callsign lookup. If you use eqsl.cc for online QSLing (see May's "RF Bits"), the QSL upload can be automatic and instantaneous. For digital contacts, I use the DM780 module of HRD, which has its own logbook for digital contacts. HRD has a function to merge contacts from the DM780 logbook into the HRD logbook, in case you want everything together in one place.

Hint: Ham Radio Deluxe is also free and is available at www.ham-radio-deluxe.com/.

While mostly satisfied with HRD—especially for the price—there are some limitations that I sought to get around. HRD has an analysis feature that does not work well for me. It's supposed to allow users to analyze their standings in the great country/band hunt in which we hardened DXers engage. However, it sometimes misreports a country as not verified if it first encounters a record for which no QSL has been received from that entity. HRD integrates well with eQSL, but I wanted the ability to be able to download my Logbook of the World (LOTW) ADIF application and match it up with existing QSOs in the log (more on this later).

DXtreme Station Log, Multimedia Edition

This led me to try out Bob Raymond's DXtreme Station Log (DXSL), Multimedia Edition. Bob, NE11, has a different sort of offering, especially from the perspective of an HRD user. After I got past some initial hurdles, it started to work for me. Interestingly, some of what I

perceived as hurdles resulted from sound IT software development practice by the developers of DXSL.

The version I evaluated is 6.1. There's also an SWL station log program version, but it's being revamped as this article is written, so perhaps we'll have an opportunity to take a look at that one in the future.

The Import-Export Game

My initial objective seemed simple. I wanted to populate DXSL with the contents of my current HRD logbook and then perform some analysis. It did not go as simply as hoped. I generated an ADIF logbook format from HRD and used the DXSL "Import Log from ADIF" menu item to begin the process (see **Figure 1**).

Hint: ADIF is a defined standard format used by amateur radio logging programs to facilitate data interchange.

My first attempts at importing my HRD logbook failed at a consistent point during the process, so I contacted Bob. It turned out that I had discovered a bug in the ADIF parsing process of DXSL. Bob asked for a copy of the log file, which I provided, and he was able to duplicate the problem in the lab. I was given a patch and asked to retry, and I'm happy to say the fix worked. The support on this issue was via email and was excellent.

Now the import hummed along, except for the strict edit checking of imported data. Remember what I said about sound IT practices? DXSL edit checks all kinds of data for sanity. IT professionals have a saying—GIGO—which means garbage in, garbage out. DXSL goes through great pains, which you will have to share, to make sure that no garbage gets into your logbook. All the band, mode, state, and country data in my logbook was checked for errors, and with over 4,500 entries in the data being imported, you can bet there were a few. DXSL is structured so you can edit on import, but you can only null out an entry or select a valid value for that data type.

Errors And Modules

A typical example of the type of "error" caught by DXSL was a logbook entry for a station in the District of Columbia. I had entered D.C. into the admittedly freeform "State" field of HRD. HRD allowed it, in fact would have

allowed me to enter "Euphoria" into the state field, had I wished. However, D.C. is not a valid State, according to the "States and Provinces Module." Of course, many hams count D.C. as Maryland, which is what I decided to do. I could also have used the States and Provinces Modules to add in the District of Columbia as a state if I'd wanted to, however, this would not have helped the import in progress.

Another glitch was around a lightwave FM contact made in my driveway during a VHF/UHF contest a while back that did not import because the "Bands Module" did not have a definition for that band. I fudged the frequency to get this record to import, and then later updated the Bands Module.

DXSL sanity checks the DXCC entity by callsign during an import, and sometimes asks whether it has properly deduced the DXCC entity from the callsign prefix. See **Figure 2** for the query on the import of a QSO with SY8WT. One can request less checking around prefixes by unchecking the "Standard Prefixes" and "Cross-Ref Prefixes" options on the import screen, which are found under the "Entity and Zone Options" caption.

There are many other modules in DXSL that, as you can see, function as lookup tables that enforce data integrity. The modules also allow the user to set default values for common items such as antenna or transceiver. The single most important factor to satisfactorily importing an existing station log into DXSL is

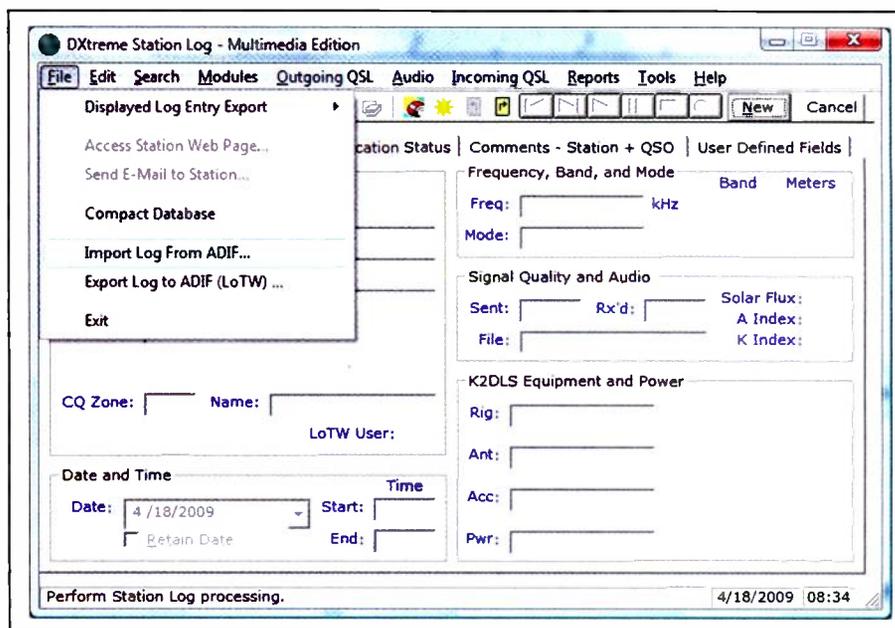


Figure 1. DXtreme Station Log (DXSL) imports existing logbook data through the ADIF format supported by most modern logbook programs.



Figure 2. DXSL wanted to be sure that SY8WT was from Greece and not Mount Athos.

to read and heed the excellent documentation: define your defaults before starting! The default attributes will be used for any field that is not defined in the ADIF file. And, as Bob pointed out during my testing, rig and antenna are not standard ADIF fields and are not imported. A bit of planning will definitely enhance your appreciation of this software approach.

The Report Card

My objective after successfully importing over 4,500 records was to view a report of my overall performance on the HF bands. Make sure that Internet Explorer is set up as your default browser, as this function calls upon IE and an Active X control. I use Firefox as my default browser, which caused me some difficulties. I had to use the Internet Explorer setup function to make IE the default, and then could access the report shown in **Figure 3**. There's a "Tools, Preferences, Internet" tab within the program that allows selection of an alternate Web browser, but Bob advised that it does not address the default browser issue while using the report viewer.

There's a lot of good detail in this report. At a glance, I can now see which DXCC entities I have worked, verified, and in which mode. This is what I had been looking for. There are other variations on reporting, all viewable through a Web browser. There are also archival options and the ability to ftp a report to another computer or Web server. The reporting feature can also be used to scroll through logbook entries using a spreadsheet format, with the ability to sort on a column via a mouse click on the column heading.

I also noticed a neat feature of the Entities Module. Once populated with my data, I could scroll through the list of DXCC

entities and see which ones I had worked and in what mode. The same approach works in the Bands Module. You can see at a glance the count and modes of contacts made on each band.

I did notice some strange navigation tendencies in the Bands Module. After updating the default rigs and antennas for a band, clicking next always seemed to take me back to 80 meters. Another quirk is that the program does not "remember" the last directory in the file system accessed. Every time I want to try a new import, I have to navigate through the file system to find my ADIF file. Many programs will retain the last directory used for file access as a user convenience. Bob informed me that his assumption is that the ADIF file will always be found in the Database subfolder and will add this information to the documentation.

There was also at least one isolated program crash when I attempted to edit the stored frequency in an existing record to a frequency that was not part of any defined band in the Bands Module. This happened only once and I could not reproduce the problem, and no data was lost in the process.

One of the most likable features of the package for me is the ability for DXSL to read my transceiver's current frequency from the CAT control feature of HRD. This requires both programs to be loaded. Another thing I like is how the DX Spot Checker feature checks all spots against my logbook to determine whether I need a particular entity on that band or mode. A pleasant voice then informs me "New Entity" or "Need QSL for Entity." The voice recording can be replaced with a .wav file of your choosing (see **Figure 4**). There's also the option of having the DX Spot Checker tune the radio to needed spots. A nice addition would be to not tune automatically but rather upon operator request by clicking on an entry.

DXtreme Station Log — K2DLS Entities — 22 March 2009

Performance Report | Contacts Summary | Modes Summary | Bands Summary Preferences Help

Total Records: 338 Per Page: 338 Page 1 of 1

Verified — Descending

Prefix	Entity	Contacts	Verified	CW	FAX	FM	ESTV	PacTOR	Phone	PSK31	RTTY	SSB	SSTV	M160	M80	M60	M40	M30	M20	M17	M15	M12	M10	M6	M2	M1.25	M0.75	M0.00001
ZS	Republic of South Africa	2	Y	N	N	N	N	N	N	N	N	V	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
ZP	Paraguay	2	Y	N	N	N	N	N	N	N	W	N	V	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
ZL	New Zealand	4	Y	N	N	N	N	N	N	N	N	N	V	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
ZF	Cayman Is.	6	Y	N	N	N	N	N	N	N	N	V	V	N	N	W	N	V	N	V	N	V	N	N	N	N	N	N
ZD7	St. Helena	1	Y	N	N	N	N	N	N	N	N	N	V	N	N	N	N	N	N	N	V	N	N	N	N	N	N	N
YV	Venezuela	36	Y	N	N	N	N	N	N	N	V	V	V	N	N	W	N	V	N	V	V	N	N	N	N	N	N	N
YU	Serbia	33	Y	N	N	N	N	N	N	N	N	V	V	N	N	W	N	W	N	V	N	N	N	N	N	N	N	N
YO	Romania	6	Y	N	N	N	N	N	N	N	W	V	V	N	N	N	N	N	N	V	N	N	N	N	N	N	N	N
YN	Nicaragua	8	Y	N	N	N	N	N	N	N	N	V	V	N	N	W	N	N	N	N	N	N	N	N	N	N	N	N
YL	Latvia	4	Y	N	N	N	N	N	N	N	N	V	V	N	N	N	N	N	N	V	N	N	N	N	N	N	N	N
XU	Cambodia	1	Y	N	N	N	N	N	N	N	N	N	V	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
XE	Mexico	31	Y	N	N	N	N	N	N	N	N	V	V	N	N	N	N	N	N	V	N	V	N	N	N	N	N	N
VQ9	Chagos Is.	2	Y	V	N	N	N	N	N	N	N	V	N	N	N	N	N	N	N	V	V	N	N	N	N	N	N	N
VP9	Bermuda	2	Y	N	N	N	N	N	N	N	N	V	N	N	N	N	N	N	N	V	N	N	N	N	N	N	N	N
VP6	Pitcairn Is.	1	Y	N	N	N	N	N	N	N	V	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
VP6	Ducie Is.	12	Y	V	N	N	N	N	N	N	N	V	V	N	N	V	N	V	V	V	V	V	N	N	N	N	N	N
VP5	Turks + Caicos Is.	10	Y	N	N	N	N	N	N	N	N	V	N	N	W	N	N	N	V	N	V	N	N	N	N	N	N	N
VP2M	Montserrat	2	Y	N	N	N	N	N	N	N	N	V	N	N	N	V	N	N	N	N	V	N	N	N	N	N	N	N
VP2E	Anguilla	2	Y	N	N	N	N	N	N	N	N	V	N	N	N	N	N	N	N	V	N	V	N	N	N	N	N	N

Computer | Protected Mode: Off 100%

Figure 3. A detailed performance report for my station.

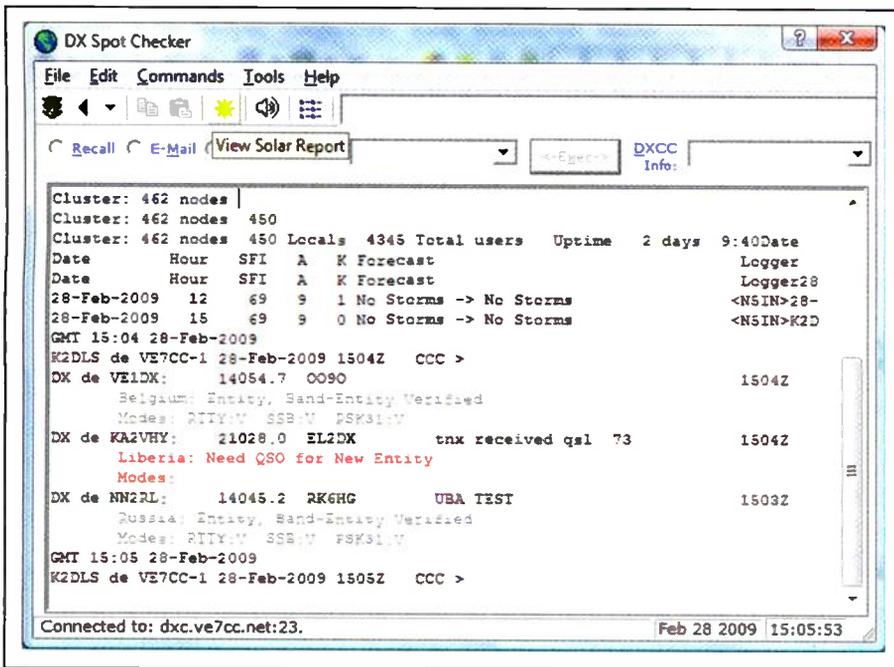


Figure 4. DXSL tells me whom I need to work or QSL by correlating cluster data against the logbook.

Qrz.com is also available at a click, but DXSL does not auto-populate key station data from qrz.com. It does offer the option of hamcall.net for this purpose, which requires a subscription. Qrz.com will occasionally restructure the format of its callsign lookup functionality, rendering software that accesses this lookup unable to access the function until it's updated.

The author of DXSL had decided to avoid using such a moving target, an understandable decision for a commercial product.

LOTW users will love this program. It has a special import-from-LOTW function that lets you import an ADIF previously downloaded from the LOTW site and containing all your station's LOTW matches.

It will then match these QSLs with your logbook entries and automatically update your progress. DXSL also has a LOTW Users Module, listing all the known LOTW users. This is an incredibly valuable tool for LOTW award chasers.

DXSL supports QSL methods other than LOTW. There's support for eQSL, direct email of QSL, and QSL labels for paper QSLs. The program includes a scripting language that allows you to customize the text that appears on your outgoing QSL cards.

There's also a sound recorder function for recording your QSOs onto your computer's hard disk. This is a nice feature, but I had some challenges in getting it to work with Vista. The online help had detailed instructions to remedy the problem and the limitation is with Vista and not DXSL.

Additionally, you have the ability to capture and store the graphics of an eQSL card. However, this is done through a screen capture method, rather than an automated acquisition as is done for the LOTW QSLs. The program will associate QSL images with QSO records and store an audio file of the QSO as well, making it truly multimedia.

The help information included with the program is well organized and detailed. There are local help menus and links to further help information on the Web.

Contesters will find that DXSL lacks a defined field for tracking contest exchange data, although there are user-defined fields that could be easily adapted for this purpose, including predefined list boxes. However, I could not find a way to auto-increment sequence numbers of contest contacts.

Final Analysis

DXtreme Station Log is a capable and structured program. Prepare to get organized before jumping in and using this program, especially if you'll be importing data from an existing electronic logbook. The DXer will like the correlation between the DX cluster and needed logbook entities. The award chaser will enjoy the LOTW import functionality. The QSL imaging and QSO recording functions, as well as the HRD interface for frequency readout, provide a true multimedia experience. If these features appeal to you, so will DXSL.

Further information about DXtreme Station Log can be found at www.dxtreme.com/. An online purchase for a new owner runs \$89.95. 73 de K2DLS

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Stand-Alone Radio Systems Still Tops For Survivability

by John Kasupski, KC2HMZ
kc2hmz@verizon.net

"[The Department of Homeland Security] chose not to consider ham radio when it formulated the National Emergency Communications Plan. Now there is a movement afoot in Congress to advise DHS that this is unacceptable and that DHS must rectify its mistake."

Earlier this year there was an incident in California, which although barely reported in the media, underscored the most dangerous problem with communications infrastructure in America: its reliance on centralized communications centers.

According to an article by Bruce Perens published on the Business Insider website, just after midnight on April 9, persons unknown entered four manholes serving the city of Morgan Hill and cut eight fiber-optic cables. Although there were apparently no crimes committed that specifically took advantage of the resulting situation—leaving authorities able to only speculate about the attackers' motives—the city and

parts of three northern California counties lost 911 service, cellular, and landline telephone, Internet and private networks, fire and burglar alarms, ATMs, and credit card terminals. Utility companies were left without any means of monitoring critical services.

The key point here, however, isn't the list of things that failed—it's what stayed up and running: stand-alone radio systems. The law enforcement and fire departments in the area still had radio communications. The community hospital's internal computer system proved to be dependant on outside resources and failed, leaving area hams to dispatch ambulances and relay critical communications to those outside the



Earthquakes and wildfires like this one aren't the only times California hams are called on to help. A recent event in Morgan Hill led hams to step in after fiber-optic cables were mysteriously cut.

affected area who still had working telephones so that doctors and supplies went where they were needed.

What About The Next Time?

Morgan Hill made it through the incident in reasonably good shape. It was no accident. California does a lot of emergency planning for fires, earthquakes, etc., and disaster plans are practiced religiously. But the bad news is twofold. Number one, that's not necessarily the case everywhere else. Number two, you can rest assured that there *will* be another Morgan Hill, and the next time the perpetrators may take advantage of the chaos by committing acts of terrorism or other crimes. Furthermore, it's possible that it will happen someplace where the affected community isn't quite so prepared to fill the communications void using two-way radio systems and hams.

In the telephone industry, technicians use the term "backhoe fade" to describe what happens when somebody ignores the "call before digging" signs that are typically found where communications cables have been buried underground. Usually, a backhoe fade is an accident caused by someone's failure to contact the utility company and have the location of the cables pointed out before they dig. The problem is that a backhoe fade could also be caused on purpose, and the utility company might even happily point out the location of the cables to attackers! Not that the attackers would necessarily need the help.

Think about it: When was the last time you saw a padlock on a manhole cover? I never have. The weight of the manhole and the general dislike that people have for dark, enclosed spaces is often the only security in place around these access points. Given that terrorists are frequently willing to give up their own lives in order to kill you and me and our families, do you think it's really likely they'll be scared off by the possibility that there might be a few rats down in the manhole? And where the cables are not buried, access is just as easy—all they have to do is climb a pole.

Needless to say, the type of communications infrastructure that's present in the affected area will have a lot of influence on the outcome of an event. Where real, stand-alone radios and repeater systems and pager systems make regional communications possible, these resources will prove critical. Where these systems have been replaced by other methods of communication services that can't be counted on to work during an infrastruc-

ture failure, communities are going to have a tough row to hoe, to say the least. Experienced emergency responders will tell you that during major incidents, communications is the first thing that breaks down, and that's true even where the infrastructure hasn't failed. When the infrastructure does fail...look out.

Where Radio Volunteers Come In

One of the things that really helped a lot at Morgan Hill was that there was already a well-established relationship between the local emergency services and area hams. Ham radio operators have not gained their reputation as a valuable emergency communications resource without good reason. Hams utilize their own equipment, and if something doesn't work, they don't just sit around waiting for someone else to come along and fix things—they'll do whatever it takes to move information from one place to another. To be sure, we hams do have a lot of infrastructure of our own in place, but we aren't dependant on it, and we're able to improvise when the situation calls for it.

I found it interesting to learn of the incident at Morgan Hill just as I was writing about the potential elimination of the Navy's MARS (Military Affiliated Radio Service) program. Here we have an incident in April that underscores the importance of stand-alone radio systems during emergencies, and the very next month some Naval officer is proposing to eliminate just such a radio system, which relies on volunteers who have their own equipment just like the hams who helped out in northern California.

Is there anybody anywhere in the Federal government who learns any lessons from events such as Morgan Hill? In July of 2008, when the Department of Homeland Security released the new National Emergency Communications Plan, I read it and was stunned to discover that ham radio wasn't even mentioned in the 83-page document at all! You'd think DHS, at least, would "get it"; after all, it's their job to "get it" and to encourage civil authorities at other levels of government to develop a good working relationship with hams in their areas. Yet, when the DHS does its own planning, the value of ham radio is, apparently, completely ignored.

Where You Come In

Fortunately, this may soon change, and you can help. On Wednesday, April



Sheila Jackson-Lee (D-TX) wants the Department of Homeland Security to study the role of ham radio in emergencies and disaster relief.

29, Representative Sheila Jackson-Lee (D-TX) introduced a bill titled "Amateur Radio Emergency Communications Enhancement Act of 2009" in the U.S. House of Representatives. This bill, if passed and signed into law, would instruct the Secretary of Homeland Security to undertake a study of the uses of ham radio for emergency and disaster relief communications and report its findings to Congress within 180 days. The study would spell out uses and capabilities of ham radio in emergencies and during disaster relief operations, identify and make recommendations for relief of unnecessary or unreasonable impediments to the deployment of ham radio emergency and disaster relief communications, and expand the uses ham radio communications in Homeland Security planning and response. Several members of the House committee on Homeland Security are co-sponsoring the bill, which has been referred to the Committee on Energy and Commerce.

DHS chose not to consider ham radio when it formulated the National Emergency Communications Plan. Now there is a movement afoot in Congress to advise DHS that this is unacceptable and that DHS must rectify its mistake. There is nothing less at stake here than safety, for yourself, your family members, and your community. I strongly urge you to contact your representatives in Congress and ask them to support this legislation!

It's Contest Season! Work All 50 States Or 100 Countries In A Single Weekend

by Kirk Kleinschmidt, NTØZ
kirk@cloudnet.com

“Don't be afraid to enter the heat of the battle with only a transceiver and a simple antenna—the big-guns need you, and they have to listen for weak signals.”

The heat index was 106 today as I write this—in Minnesota, no less—but in my mind's eye the leaves are turning colors and frost will soon be on the pumpkins. Fall is on its way, and that means good things for hams and SWLs alike. The unrelenting summer static levels are falling as propagation is improving. You just can't beat a double-whammy!

Fall is also a good time to check your antennas and feed lines before winter is upon us—in the northern climes, that is. It's also a good time to get scrappy! In addition to all the other things it is, fall is also the start of ham radio's contest season! Until late spring of next year you have ample opportunity to put your amateur radio training to good work on the honorable field of

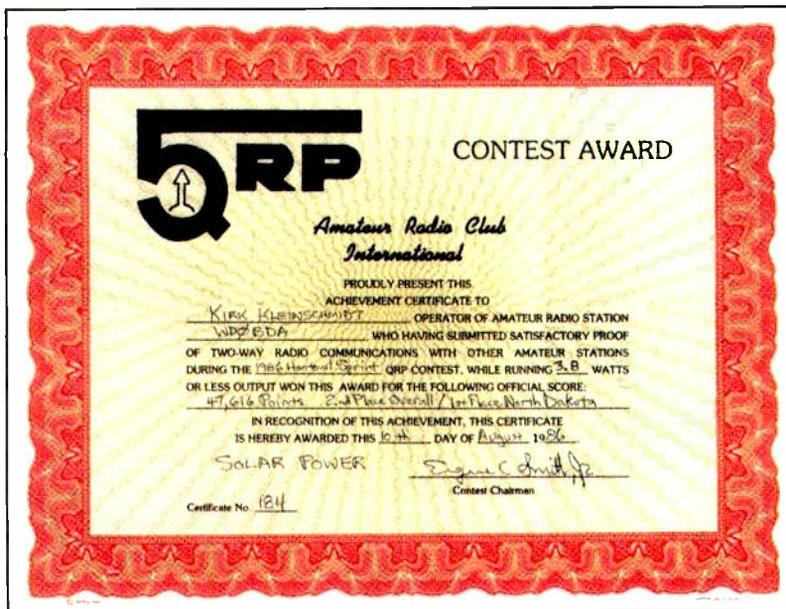
battle. And don't worry. It's not like Fight Club. You *can* talk about it! And you won't get popped in the nose!

If you're not the competitive type, don't worry. Radio contesting is friendly and accommodates all levels of participation. And even if you don't *officially* compete by turning in a log, etc., you will still come away with many benefits (only one of which is mentioned in the column's title).

The radio contests we're discussing are on-air events in which hams work as many different stations as they can in a defined period of time (often a weekend). Depending on the particular contest, a premium is placed on working stations in different geographical regions (states, countries, ARRL Sections, CQ Magazine Zones, grid squares, islands, and so on), or stations with different callsign prefixes (KAØAAA, KBØAAA, KCØAAA, and so on).

The regions or differing prefixes are called “multipliers.” In the simplest sense, contest scores are determined by multiplying the number of two-way contacts (QSOs) by the number of multipliers (subject to the fine points of each particular contest, of course!).

When the dust settles, the contestants with the highest scores (there are usually several categories of competition, such as power level, number of station operators, bands used, and so on) receive certificates or plaques and have their scores listed in ham magazines and on websites. Everyone competes together, but like a large marathon, participants are only competing against others in their own categories (if they're officially competing at all). In ham contests, unlike the Tour de France, you can drive on the course with the race leaders anytime you want!



This contest certificate proves that low-power stations can still earn wallpaper in contests! Armed with my trusty Ten-Tec Argonaut and my old callsign (WDØBDA), I took 2nd place overall/1st place North Dakota in the 1986 QRP ARCI Hoot Owl Sprint QRP Contest. The bonus for solar power helped!

Something For Everyone

In earlier decades, most contest activity came from experienced ops, but that's not necessarily true today. Beginners and relative newcomers are

HF Contests To Investigate

Month	Contest	Activity
Feb/Oct	School Club Roundup	All stations work all others. Beginners!
March	ARRL DX Contest, SSB	W/VE stations work DXCC Countries
March	CQ WPX Contest, SSB	All stations work all others
June	ARRL Field Day	Mostly W/VE
July	IARU HF World Championship	All stations work all others
October	CQ World Wide DX Contest, SSB	All stations work all others
November	ARRL Sweepstakes, SSB	W/VE stations work W/VE only

rolling up their sleeves and getting involved, working new states and countries, trying out new modes and becoming better hams in the process.

Contest operating can be fast and furious. Sometimes, especially at sunspot peaks, thousands of signals from every corner of the globe are crowded into relatively small parts of the bands. A typical SSB contest QSO may only last a few seconds. Ops exchange signal and location reports, and perhaps consecutive serial numbers or power-level identifiers. At first, the whole scene may seem overwhelming, but once you get your feet wet, you'll get the hang of it, especially when you learn to find the parts of the bands where the activity is a bit slower paced (usually the upper ends of the contest "subbands").

There's another benefit to the crazy "signal density" that might not be readily apparent: everybody's on. You could spend days looking for North Dakota or Hawaii to finish your Worked All States (WAS) Award, or you could work them both in one afternoon (several times each) in any of a dozen contests during "the season." The same thing holds true for DX contacts and DX awards. Remember that "everybody's on," and that contest ops regularly work all 50 states and 100 or more DX countries in one weekend (or even a single day) by participating in the right contest! Although you may not finish your certificate's requirements in one sitting, you'll probably be amazed at your progress.

Check out the box called "HF Contests to Investigate" where I've listed a few major contests that bring everyone out of the woodwork. There are *many* more contests spread throughout the year. *CQ* and *QST* feature monthly contesting columns, and many ham radio websites have contest listings, tips, and other useful information (see www.cq-amateur-radio.com/awards.html, www.arrl.org/contests, and www.contesting.com for starters). These are good places to look for up-to-date contest information. *The ARRL Operating Manual* has plenty of detailed information on the fine points of contesting. If you're lucky you can find a copy at your local library. It's a popular subject.

The extreme level of competition has driven some hams to put up gigantic antenna arrays powered by rows of dedicated amplifiers and top-of-the-line transceivers. Fortunately, ham radio contesting is productive and fun even with modest stations. That big-gun station in Aruba can pull your weaker signal through with ease. Don't be afraid to enter the heat of the battle with only a transceiver and a simple antenna—the big-guns need you, and they *have to listen* for weak signals.

SWLs Can Slug It Out, Too

While shortwave fans have similar organized challenges of their own, SWLs can have a lot of fun listening on ham radio contests, too. If you're used to hearing the odd station or two from any particular country, you'll be blown away by all the

signals emanating from so many exotic locations. In a big DX contest you can hear stations from every little nook and cranny of the globe—many you've probably never even heard of! Island countries that have no international broadcast outlets often support furious ham radio contest activity.

Many of these stations will send you a QSL card if you write to them and provide the details of one or more of their contest contacts. During SSB DX contests this season, listen from 14.1 to 14.3 MHz USB during daylight and early evening hours, and 7.05 to 7.25 MHz and 3.60 to 3.85 MHz LSB during late-night hours for contest activity. And make sure you're sitting down!

Handy Tips

Here are several simple tips to help you maximize your efforts:

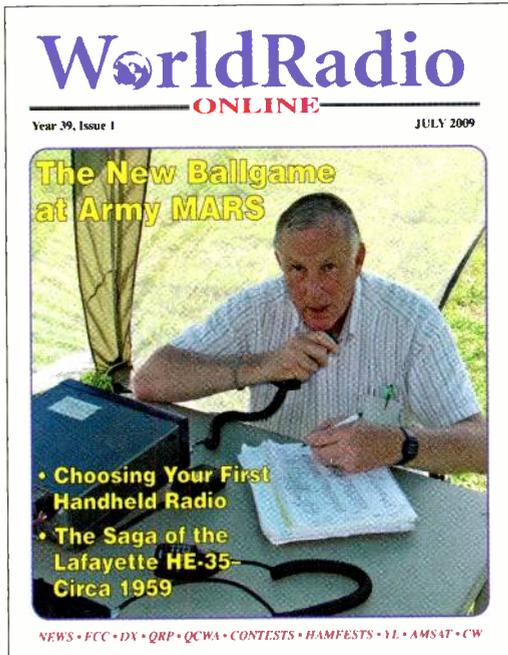
- *You don't have to chat:* Yes, contest QSOs, by their very nature, are quick, quick, quick! Instead of lamenting the loss of a good-natured, rambling exchange, focus on how fast you can rack up juicy contacts! When you can work all 50 states in a day, why, that saved 30 to 50 hours of jawboning right there! Ragchewing is like commuting and contesting is like racing. There's a time and place for both, so enjoy!

- *Move up to slow down:* In most contests the bottom of the contest subbands are crowded with big-gun signals and gazillions of people calling them. If you want to get in on the action but at a more manageable pace, move up in the band—even a bit above the designated contest frequencies. For example, on 20 meter CW, 14.000 to 14.040 MHz will be a rock concert of wild signals, but 14.050 to 14.080 MHz will produce plenty of contacts for Big Guns in Training.

- *Everybody's on:* Do you think that there are no hams on from Bolivia, Svalbard, or "Fill-in-the-Blank?" During a major contest, you'll hear at least one—and maybe 17!—ops from that neck of the woods. States, too.

- *Sunday is less frantic:* Big contests usually start on Friday evening (local time) and run through Sunday evening (again, local time). Friday nights can be quite insane. You'll hear the juicy stations, but you may not work them until later in the game because everyone and his brother has the same idea. On Sunday afternoon, though, the Big Juicy stations will be *begging* for your call. You, too, will be thrilled by the decadence of hearing, "Anyone, anywhere, this is Papa Forty Victor calling CQ contest," repeated over and over, until you call him and—boom!—another country is in your logbook!

- *Special opportunities for beginning Morse ops:* Back in the day there was a special contest for beginning Morse ops called the Novice Roundup, where beginners could learn contesting and Morse skills at the same time, and at a meandering pace. That's



Early this year *Pop'Comm's* publisher, CQ Communications, acquired *WorldRadio*, an informative monthly amateur radio magazine published by my old friend Armond Noble, N6WR, of Sacramento, California. Although the print edition no longer exists, CQ has transformed it into a free—and paper-free—online publication. I hope this nifty mag is available for a good long time. All the good stuff is still there. Check it out at www.cq-amateur-radio.com.

not always the case today, which seems somewhat ominous considering that all Morse code requirements have been nixed from U.S. licensing requirements. How can a beginning contester go from 5 wpm to 35 wpm with no “slow-speed” sanctuary? Thankfully, there are organizations like the North American QRP CW Club (NAQCC) that are dedicated to low-speed CW operating and contesting, with an emphasis on providing help to beginning CW ops. NAQCC has monthly contests and on-air events, and they also issue awards in the same vein. They're lots of fun! The club has nearly 4,000 members in all 50 states.

• **CQ's DX Marathon:** If you can't make the contest weekends or don't want to confine yourself to scattered periods of frantic DX contesting, *CQ* magazine sponsors a relatively new “contest” that is aimed at spurring steady DX chasing all year long. It's called the DX Marathon and, like you'd expect, it's a friendly, yet competitive, contest that runs for an entire year at a time. Despite the laid-back premise, participants really do fight over the titles awarded in various categories. And don't worry—you only have to compete with ops who have stations and antennas similar to yours! Use this year's contest season to get prepped and start your DX Marathon fresh on January 1, 2010.

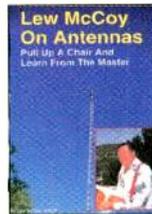
Once Bitten...

As with most things in ham radio, you just need to get started. Don't be afraid to just jump in. Be careful, though: Contesting can be extremely addictive. If you're like many hams, once you get started you won't want to stop! *World of Warcraft* spouses got nothin' on ham radio contest spouses...



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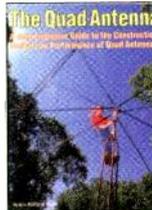


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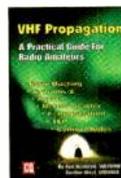


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Making Contact— The Antenna Is The Key, Part I

by Tomas Hood,
NW7US, nw7us@arrl.net

“...antenna gain is a factor we can control, and look at the possibilities...If we change to an antenna with 20 dB more gain, our 100-watt transmitter would operate with the equivalent power of 10,000 watts!”

There are a number of things that make up a radio circuit, between the transmitting and receiving ends. For instance, the transmitter, the receiver, and the ionosphere are just some of the parts of a radio circuit. Some of them, like the ionosphere and the influence of the sun are out of our control. This month, we’re going to look at that part of the radio circuit that is directly in our control and that is a critical component of the radio circuit: antennas. We’re going to look at antennas from the perspective of a ham radio operator, but the principles apply to the shortwave radio listener, too. But since we’re talking about transmitting a signal that we hope reaches a targeted receiver, the amateur radio station is a good example in our discussion.

The basic building block in a radio circuit between two stations is the antenna. All successful radio signal propagation starts at the point where the radio signal “leaves” the transmitting end of the circuit and ends at the receiving end of the circuit. Let’s explore how important an antenna is in radio signal propagation, and how the right antenna during field day operation can make or break you.

How do we make our HF ham stations work more effectively? If you’re new to ham radio—or a Technician class ham planning to venture into HF—you want to talk to as many other stations as you can. If you’re a seasoned operator, you may want a higher score in a contest. Either way, you really don’t want to waste time calling CQ. That’s fun the first time or so, but isn’t it better to know

in advance how you can quickly make your contacts? To develop that confidence, one must understand the radio system in its entirety.

We all know that on the shortwave frequencies, ionospheric propagation is the main variable that permits (or denies) radio communication. The principal HF system factors—propagation, antenna gain and transmit power—are the major factors in system effectiveness, and **Figure 1** shows the relative effect of these variables.

There’s not much we can do about propagation loss, except to use a software program to predict its effect. And we know that we can increase transmit power, within limits, to talk farther. But antenna gain is a factor we *can* control, and look at the possibilities—as much as 20 dB is available to us! And with a cooperative buddy at the receive end of the circuit, that’s as much as 40 dB! Just think what that means: If we change to an antenna with 20 dB more gain, our 100-watt transmitter would operate with the equivalent power of 10,000 watts! Is it any wonder that hams spend a good part of their time selecting and optimizing their antennas? Clearly, having the right antenna is *key* to good station performance.

How Do Antennas Work?

Selecting your antenna is perhaps the most difficult task in constructing a ham station. And yet, antenna type, site, and gain variations can influence station performance more than any other parameter. When we first studied for our ham

Figure 1. HF System Operational Priorities

FACTOR	TYPICAL EFFECT	POWER INCREASE
PROPAGATION LOSS	60 dB	X 1,000,000
ANTENNA GAIN	20 dB	X 100
TRANSMIT POWER	10 dB	X 10

licenses, we learned about isotropic antennas, those imaginary point sources floating out there in free space. Isotropic antennas are wonderful, as they emit equal amounts of radiation in all directions and we can specify their gains. Wow! Just what we need! Unfortunately, they don't exist, and we are constrained by real-world constructs that we erect somewhere near our ham shack. But there are myriad antennas to choose from, and we can examine the ways in which practical antennas really work.

Let's begin by conducting a *gedanken experiment*—a thought experiment, that is. Imagine that we take an isotropic antenna and bring it down to Earth. We see a large sphere resting on the ground with an energy source, our transmitter, at its center point with radiation going out in all directions.

But real antennas don't work that way. They sit on the ground (or on a tower close to the ground) and radiate in directions above ground. (In theory, certain antennas like short verticals form an *image antenna* below ground, but let's skip that refinement for now.) So in our experiment, let's change to a hemisphere resting on the ground with a transmit source at the center, also on the ground. Now imagine our hemisphere is a rubber balloon with gas inside. A giant comes along and pokes his big finger into the side. What happens? The balloon depresses under his finger, and expands everywhere else. The transmit power remains constant, but the radiated power decreases under the giant's finger and increases in other directions.

Let's continue our experiment. Imagine a giant with lots of fingers and maybe many hands. If he is smart, he can poke and squeeze the balloon in ways that will concentrate the radiation in only one direction. Presto! We have a directional antenna! But we see that to get more gain in one direction—the main

beam—we must sacrifice gain in other directions. Sometimes that is an intentional advantage, as in the case of a log periodic antenna that emits most of its energy in the main beam while it suppresses unwanted signals in the backward direction.

What have we learned so far? Well, our unmolested balloon antenna has equal gain in all directions, and it will expand—have greater gain—only if we increase transmitter power. If we want more gain in a given direction, we must poke and squeeze the hemisphere; that is, we must construct a more complex antenna that will concentrate power in one direction at the expense of radiation elsewhere. And it's tough to make a truly omni-directional antenna. There will always be some compromise.

And we haven't yet talked about broadband operation. Most antennas work best over a limited frequency range. If we design a simple antenna, like a horizontal dipole, it is usually cut for the lowest band we wish to use. At higher frequencies it will work, but our giant starts poking his fingers again and the radiation patterns are anything but uniform and omni-directional.

Analyzing Antennas

To make sense out of this mess, we would really like to have a tool that helps us visualize the antenna's performance. Fortunately, such tools exist and usually focus on two parameters: *radiation pattern* and *gain*. Since patterns are seldom omni-directional in all planes, we speak of *directivity*, the direction in which the antenna's radiation is concentrated. And directivity gain usually refers to maximum relative gain, G_{max} , the gain in the direction of maximum radiation valued with respect to that of an isotropic radiator, stated in dBi.

The Ap Index And Understanding Propagation Terminology

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

Classification of A indices is as follows:

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

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

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

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

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

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

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

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

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

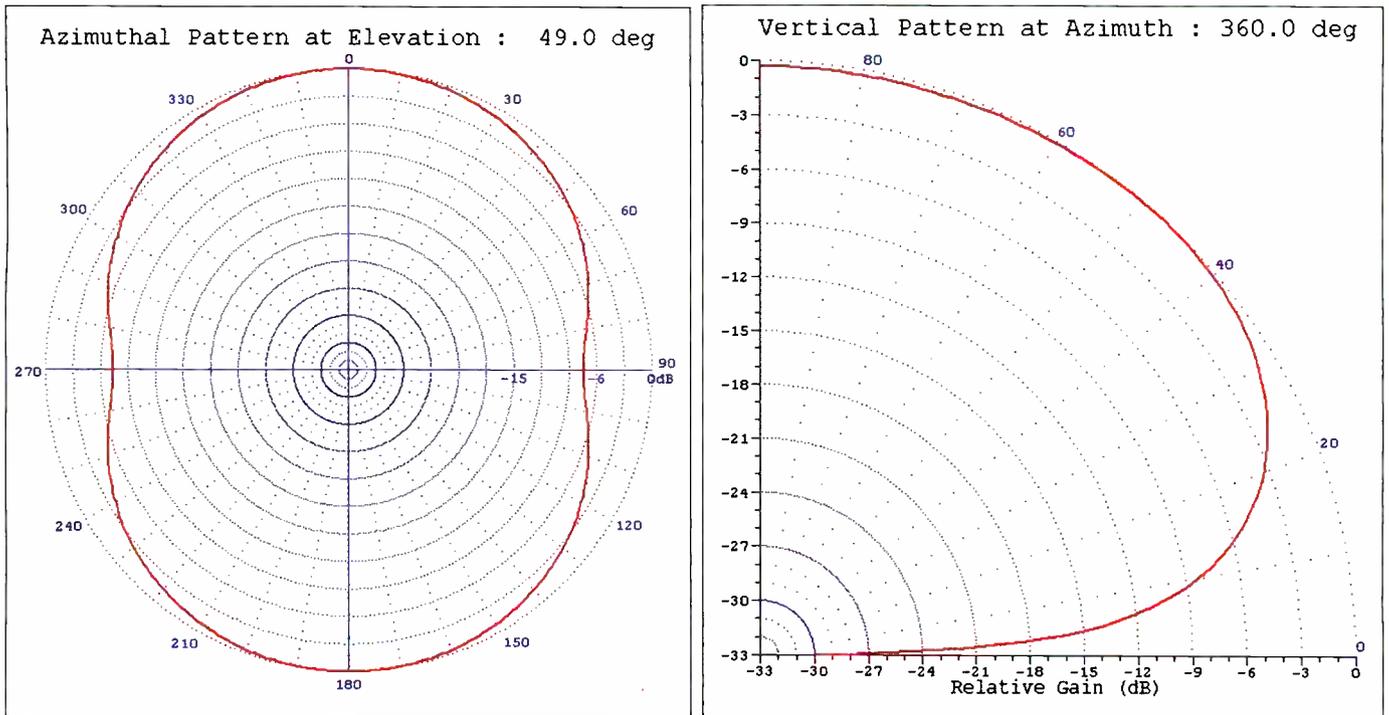


Figure 2. Eighty-meter horizontal dipole antenna at 3.75 MHz. (Source: NW7US, using ACE-HF Pro, v2.05)

I like to use my ACE-HF PRO software to visualize antenna performance. (I've reviewed the ACE-HF PRO Version 2.05 System Simulation and Visualization Software in previous issues. You can read some of my reviews of ACE-HF PRO at <http://hfradio.org/ace-hf/>.)

Over the years, standards have been developed for visualizing antenna patterns and gains. ACE-HF PRO includes an antenna analysis program called HFANT that graphs the antenna's radiation pattern in two views. For example, **Figure 2** shows the azimuthal (horizontal) and elevation (vertical) patterns for a typical half-wave horizontal dipole antenna mounted one-quarter wave above ground. The antenna is 40 meters long, making it resonant in the 80-meter band, and it is mounted about 20 meters above average ground. The antenna has a G_{\max} of 5.7 dBi. (The charts show relative gain patterns drawn with respect to G_{\max} .)

In the dipole example, the azimuthal pattern when viewed from overhead is nearly omni-directional; that is, the radiated energy is nearly the same in all directions. This makes it a good general-purpose antenna for 80-meter operation. Physically, the antenna wire runs between the 90° and 270° angles of the azimuthal chart and the maximum emission is broadside to the antenna. In the end-fire directions, emission is seen to be down about 7.5 dB with respect to the maximum gains at 0° and 180°. The convention is to always draw such charts with their maximum azimuthal gain at 0° (at the top of the graph). Of course, you may erect your dipole antenna at any physical angle, which is usually constrained by available property limits or by the presence of convenient trees!

In the ACE-HF PRO software, the azimuthal angle of maximum emission—at 0° in Figure 2—is assumed to point at a 0° bearing; that is, at true North. Thus, one can think of the azimuthal graph as being laid out at the four compass angles, where 90° is East, etc. But in the software, the user can specify the antenna azimuth at both ends of a circuit. For example if you have a directional antenna like a Yagi antenna, you can rotate the antenna's azimuth in the software just as you would when operating your station. In effect, that points the 0° angle of the azimuthal chart to a specified bearing angle. And to make things easier, there is a *point at* button you can check that automatically points the antenna at the distant station. If you have a

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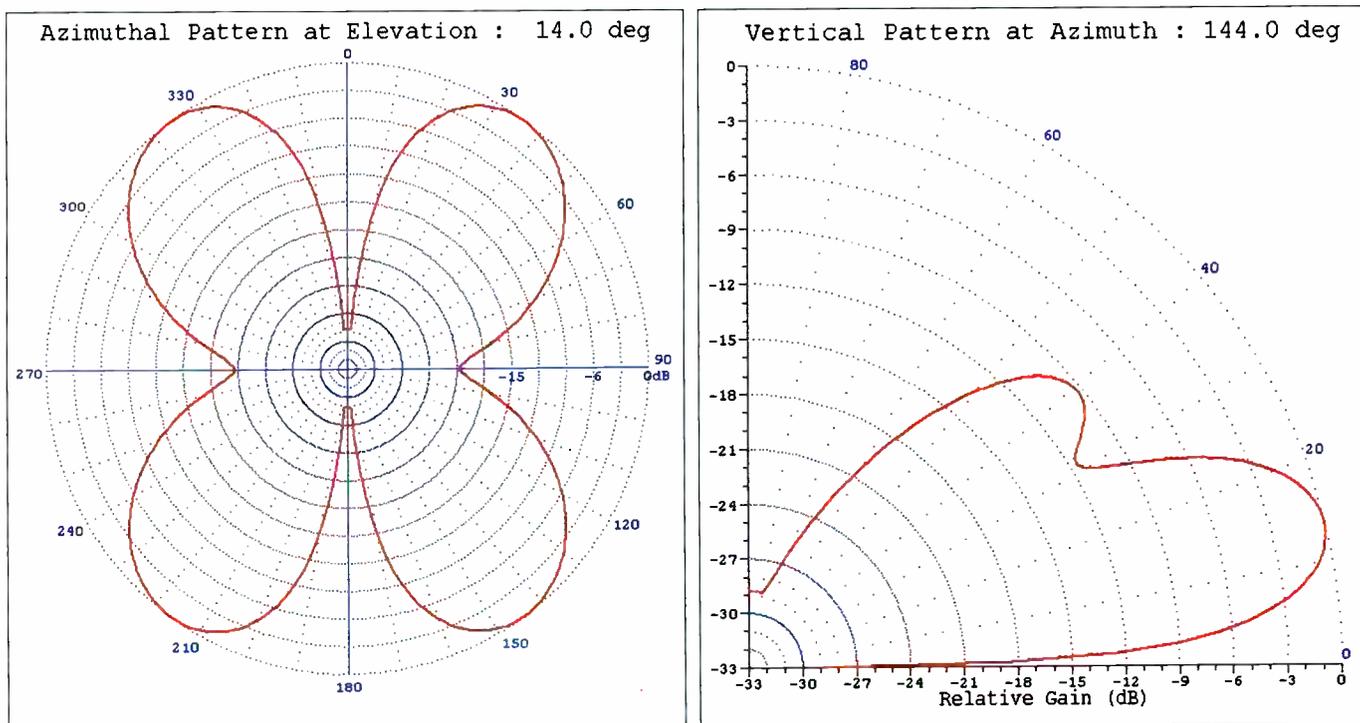


Figure 3. Eighty-meter horizontal dipole antenna at 14.2 MHz. (Source: NW7US, using ACE-HF Pro, v2.05)

fixed antenna, then the software's azimuth angle should be set in the physical direction of maximum emission. For the dipole, that would be the broadside angle.

Let's continue with our antenna analysis. **Figure 3** shows patterns for the same dipole antenna, except that we changed the driving frequency to 14.2 MHz. The antenna still works, but the patterns are rather different, and the maximum gain at this frequency has fallen to -1.2 dBi.

The first things to notice are the deep nulls in the four azimuthal directions. (The G_{max} angle is oriented to the top of the chart at its design frequency, which in this case was 3.75 MHz.) The nulls are an important finding, because they can explain why we might have problems with circuit paths oriented along the null directions. This *multi-lobing*, as it's called, is caused by the multiple wavelengths that can exist on a dipole antenna that is resonant at a lower frequency. All antennas exhib-

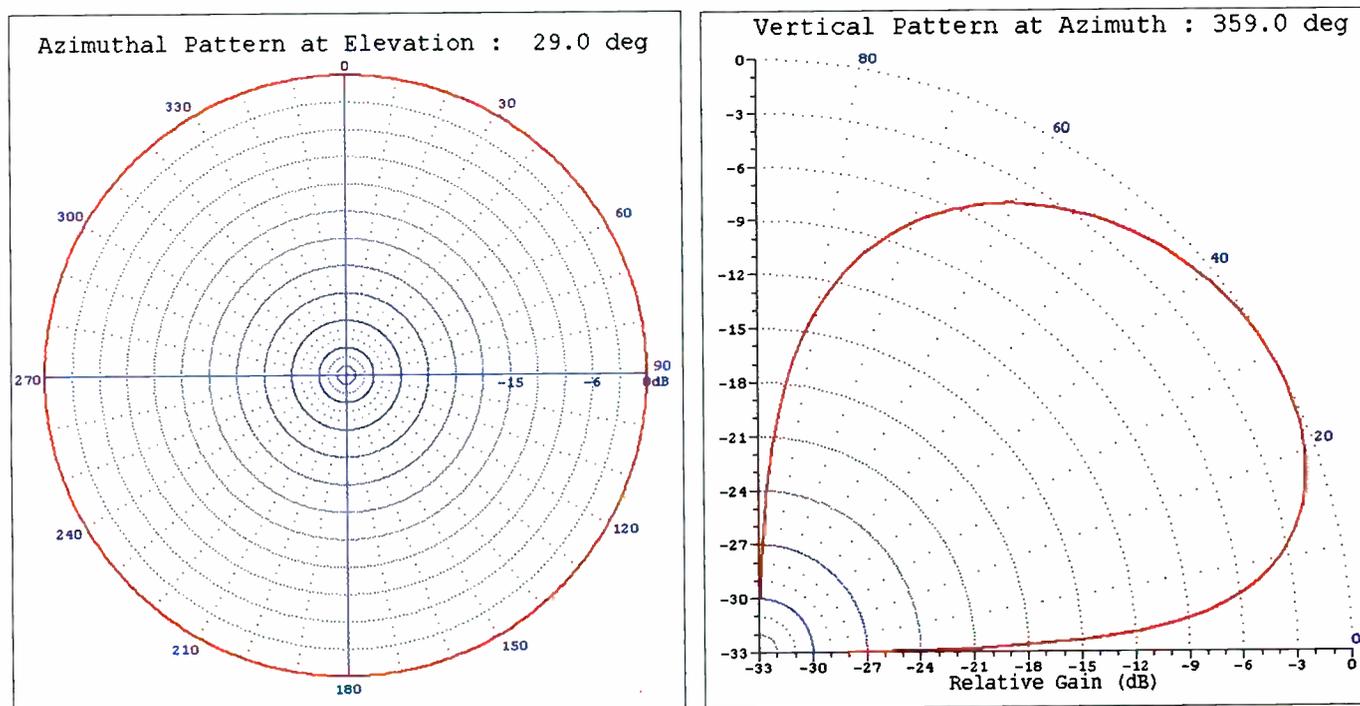


Figure 4. Eighty-meter vertical antenna at 3.75 MHz. (Source: NW7US, using ACE-HF Pro, v2.05)

it variable patterns as frequency changes, which explains why it is so difficult to design a truly wideband antenna.

Now let's look at the right-hand charts of the figures. In Figure 2, the vertical (elevation) pattern shows a slice of the pattern from horizontal (0° on the circular elevation axis) to 90° at the zenith. This chart shows why horizontal dipoles are good choices for NVIS (Near Vertical-Incidence Skywave) circuits where the circuits are very short and the ionospheric reflection angles are close to the zenith. In Figure 3, however, the maximum radiation occurs at a low, 14° angle, so this dipole operated in the 20-meter band would be a poor NVIS antenna.

Analyzing another simple antenna, the vertical monopole, **Figure 4** shows the patterns for a quarter-wave, base-insulated vertical where height depends on the lowest frequency of operation. The lowest practical frequency for such designs usually depends on one's property size, because tall masts must be guyed. In this case we specified a 20-meter height (about 66 feet), which is about right for operation on 80 meters.

As expected, this is an omni-directional antenna. That is, radiation is uniform in all horizontal directions. In this example, G_{\max} is -2.5 dBi at 3.75 MHz when the antenna is installed over poor ground. When erected over wet ground, G_{\max} increases to $+0.9$ dBi, but the antenna is still not very efficient. This is why vertical monopoles are usually equipped with a copper ground plane—a series of copper wires radiating from the base and extending, ideally, to a length equal to the antenna's height. When higher powers are involved, as with AM broadcast antennas, a copper-mesh screen is usually added at the base to further reduce ground losses, and the radial ground wires are brazed to the edge of the ground screen. The need for a good, high-conductivity ground system is common to all vertically polarized antennas. But in this example, the copper ground system is omitted and only the Earth's conductivity and permittivity values were specified.

Note that the vertical pattern shows essentially zero emission at the zenith, indicating that this design would be poorly suited for NVIS communications. The position of G_{\max} at 29° in elevation shows that the vertical would best be used in medium- to long-distance circuits.

Figure 5 repeats the patterns for a 20-meter-high vertical monopole, except that in this case the antenna is driven at 14.2 MHz. The azimuthal pattern is still omni-directional—it could hardly be anything else with a single vertical element. The elevation pattern has changed slightly, but is still essentially the same. The electrical length has increased from quarter-wavelength to nearly a full wavelength at 14.2 MHz, and as a result G_{\max} has risen to 1.9 dBi over poor Earth and 4.5 dBi over wet Earth. However, driving-point impedance and VSWR may oscillate over an excessive range as frequency increases, which is why some proprietary verticals add traps and other lumped-constant components to smooth their wide-band performance.

Verticals that are less than a quarter-wavelength in height at the lowest frequency are termed *electrically short* antennas. Short verticals erected in limited spaces, and the whips we mount on our cars, are usually less efficient. (Remember the old guide: "Antennas that stick out work better!") Their driving-point impedances are also capacitive, so to tune the antennas, series inductors called loading coils are often added at the base. Such coils increase the antenna's effective length, lower the feed-point impedance and thus reduce the high voltages than can exist with such whips. (Nevertheless, touching an energized whip can result in a nasty shock!) Modeling such antennas is more difficult because the model should include the orientation of the antenna (some mobile operators tie the tips down to avoid breaking them off in tunnels), lumped-constant components such as loading coils, and the presence of the vehicle's metallic body.

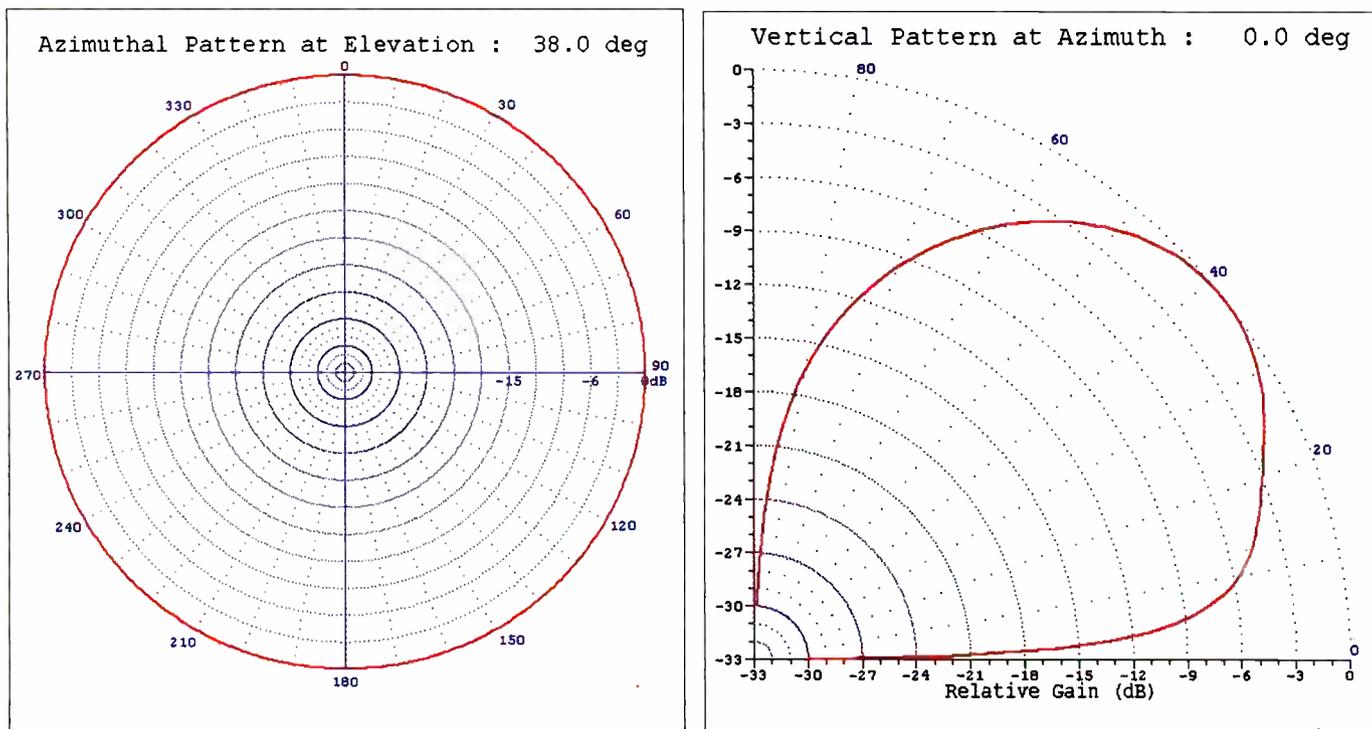


Fig. 5. Eighty-meter vertical antenna at 14.2 MHz. (Source: NW7US, using ACE-HF Pro, v2.05)

Optimum Working Frequencies (MHz) - For September 2009- Flux = 70, Created by NW7US

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

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

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

It's important to understand that the figures provided here show only the *best-case* radiation patterns. Let's go back to our gedanken experiment and look again at our hemisphere of radiation. Imagine that there are 360 planes of radiation emerging at horizontal intervals from the energy center. Assume that these radiate out at 1° intervals and each plane covers angles from zero to 90° in elevation. Along each of these 360 *slices* we can designate 91 incremental points in elevation. We can think of each of the points as the end of an energy vector, and the ends of all those vectors form the extent of radiated energy in three-dimensional space. Thus, there are $360 \times 91 = 32,760$ points of gain along a 3D surface if we limit ourselves to 1° intervals in both dimensions. The surface is an undulating, irregular connection of gain values, the maximum of which is called G_{\max} .

The patterns produced by HFANT show only a single pattern among those that actually exist. The software first finds the G_{\max} value out of 32,760 possibilities. It flags that point and reports that G_{\max} exists at a certain azimuthal and elevation angle. Figure 2 shows that the azimuthal pattern is drawn at a 49° elevation angle, and the vertical pattern is drawn for an azimuth of 360°. This convention of drawing relative gain patterns with respect to G_{\max} is a powerful method for comparing antennas and has become an industry standard. But there are many, many other patterns that could be drawn if we have the right tools.

Next month, we'll continue our exploration of antennas, propagation, and the tools we can use to effectively choose, and use, our antennas.

Current Solar Cycle Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 70.6 for May 2009. The 12-month smoothed 10.7-cm flux centered on November 2008 is 68.3. The predicted smoothed 10.7-cm solar flux for August 2009 is 70.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for May 2009 is 2.9, up from April's 1.2. The lowest daily sunspot value of zero (0) was recorded on May 1-3, 5-12, 20-21, and 24-30. The highest daily sunspot count was 11 on May 31. The 12-month running smoothed sunspot number centered on November 2008 is 1.7. The forecast for August 2009 calls for a smoothed sunspot count of about 10.

The observed monthly mean planetary A-Index (A_p) for May 2009 is 4. The 12-month smoothed A_p index centered on November 2008 is 5.1. Expect the overall geomagnetic activity to be varying greatly between quiet to minor storm levels during August.

September Transitions

At the end of September the sun will be directly over the equator. On the Autumnal Equinox (September 22 at 2118 UTC), everywhere in the world, the hours of daylight are equal to the hours of darkness. This results in an ionosphere of almost similar characteristics over large areas of the world and makes it the best time of the year for long DX openings between the temperate regions of the northern and southern hemispheres on all shortwave bands. Expect a vast improvement on the higher frequencies (22 meters up through 11 meters) with more frequent short-path openings from mid-September through mid-

October between North America and South America, the South Pacific, South Asia, and southern Africa. The strongest openings will occur for a few hours after sunrise and during the sunset hours. Many international shortwave broadcast stations will soon change from their summer schedule to a winter schedule, taking advantage of this change in propagation.

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

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

HF Propagation

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

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

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

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

The 25- and 31-meter bands are all-season bands. Expect an incredible amount of activity on these two hot bands. Many broadcasters choose these, targeting their audiences during prime times (morning and early evenings). The conditions

prevalent on 19 and 22 are more pronounced, and last much longer, on these bands. Look for exotic stations a few hours before sunrise through early morning, then again in the early evening before sunset, until around midnight.

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

VHF Conditions

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

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

Additionally, toward the end of September, transequatorial (TE) propagation will begin to occur between southern North America and northern South America. Openings will generally occur in the late afternoon to early evening. F-region propagation activity may occur during the day on the VHF TV bands, though the 10.7-cm flux levels are not going to support reliable propagation at these higher frequencies. Don't expect any east-

west paths to be open. Tropospheric conditions are generally very good for many of the VHF bands during September with the appearance of different weather fronts. This will be the primary mode for working up to 300 miles. Continue to expect a high number of coronal mass ejections, possibly triggering Aurora during September and October. Look for days when the K_p index is above 5.

Jim Tabor, KU5S (SK)

Jim Tabor, KU5S, passed away at his home in Greenwood, Arkansas, on May 27, 2009. He was 54. Jim Tabor was head of Kangaroo Tabor Software, which published various programs for radio amateurs, such as the WinCAP propagation prediction software, GeoAlert-Extreme Wizard, Beacon-Time Wizard and ID Wizard. I had various discussions regarding propagation and analysis tools, and remember him as a kind, helpful expert in ham radio software.

Signing Off...

Please visit <http://podcast.hfradio.org/> and check out the new "NW7US Space Weather and Radio Propagation Podcast." An up-to-the-day Last Minute Forecast for you to use to get the very latest forecast for the month is available at <http://hfradio.org/>.

Drop me an email or send me a letter if you have questions or topics you would like to see me explore in this column. I'd also love to hear any feedback you might care to offer on what I've written.

Until next month, 73 de NW7US, Tomas Hood



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The Space Monkey/ Radio Connection

by Shannon Huniwell
melodyfm@yahoo.com

"She made it!" cheered the boy who practically sprinted into the classroom. "Miss Baker is safely back on earth!" he shouted, his index finger dramatically pointing toward the tiny speaker grille on a little red plastic radio grasped tightly in his left hand. "What about Miss Able?" a button-nosed red-haired girl demanded. She'd suddenly stopped washing the blackboard and instinctively moved close to her teacher seated at the third grade classroom's big desk. "Both creatures are A-OK," the kid confirmed. "The announcer said his news department just received that good word from our Navy a few minutes ago."

The children were allowed to celebrate while their teacher took a fat piece of pink chalk and

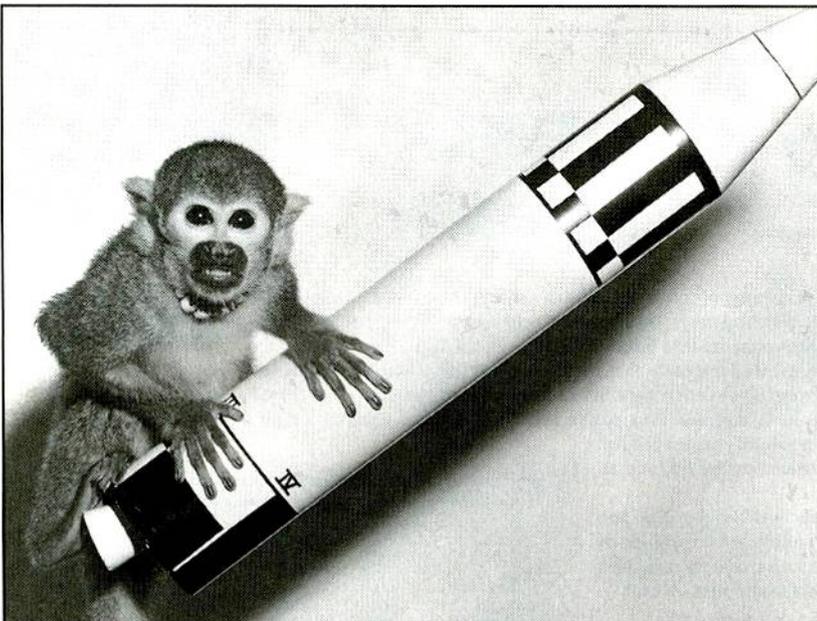
wrote on the board, Current Events for May 28, 1959. Through a sea of eagerly raised hands, she searched for a student who appeared least likely to participate in the class' opening lesson. "Who can tell us the importance of what has happened today? Let's see...How about...Timmy." Most of the enthusiastic arms went down immediately. The teacher's expectant gaze cued 26 sets of eight-year-old eyes to focus on one quiet youngster. He sank into his wooden seat, uttered a raspy, "um-m-m," and then 50 years later wrote me the fascinating letter that provided the idea for this month's column.

"My name is Tim Webston," the former kid and present day *Pop'Comm* reader began. "I'm more of a wannabe radio guy than are the real broadcasters who usually contribute story concepts for your history articles. Even so, my wife thinks you could turn these memories into a story others might enjoy," Tim wrote in his letter.

"I should admit that the sum total of my professional radio experience consists of two night-time weekend substitute air-shifts that required almost no talking, save several station identifications and a couple of sponsored weather forecasts, during which I stuttered so much that they probably sounded like a foreign language. Or maybe I should just say that a *monkey* could have done better! Actually, the primate angle is where I hope you'll begin this tale, or should I spell it t-a-i-l?" Tim punned before unfolding his saga and requesting that it be put primarily in my wording style. So, here goes...

And We Have Liftoff!

A half century ago, reddish-yellow flames shot from an AM-18 Jupiter rocket blasting off towards a 360-mile-high apogee. Once outside Earth's atmosphere, the missile zoomed at 10,000 mph. Two tiny passengers were aboard: one Capuchin monkey called Miss Able and her 11-ounce space colleague, a spunky squirrel monkey dubbed Miss Baker. Their names, hardly imaginative, were routinely assigned by military men schooled in



Somebody at NASA must have been very good with animals to convince the space agency's star astronaut to pose on a model rocket circa late spring 1959. Squirrel monkey, Miss Baker, not only performed admirably during her brief venture into space, but also served NASA in a public relations capacity as only a cute little creature can. Without being able to utter a word, she extended 15 minutes of fame into good will for the American Space Program for the rest of her long life.



From the nicely presented virtual radio museum site, www.radiolaguy.com, comes this image of a Japanese-built crystal radio that shows an example of one of several space-theme germanium diode-powered receivers popular with youngsters during the U.S./Russian space race's early years. Other forms of such radios included flying saucers, Saturn-shape, and a rockets. All of them required the user to listen through a crystal earpiece and be close enough to the little metal finger-stop on a rotary telephone dial (or other connection of long wire) so as to be able to attach the radio's antenna clip.

the phonetic alphabet. Somebody with the space monkey project playfully broke code handle discipline to the extent that he suggested the smaller, more animated mammal be branded "the one pound stick of dynamite."

Though Able went along for the ride, two-year-old Peruvian native, Miss Baker, clearly emerged the heroine of their 15-minute May 1959 flight from Cape Canaveral, Florida. Both experienced about nine minutes of weightlessness before their capsule splashed down in the ocean. And each achieved the status of being the first beings to survive an American space shot.

National Aeronautics and Space Agency documents indicate Miss Baker, when removed from her miniature space suit, mugged for the Navy photographer, gladly accepted a cracker and banana as hazard pay before conking out for a snooze. Her Capuchin counterpart's destiny wasn't as casual. Miss Able died a few days after the space journey, a victim of surgical complications from removal of various subcutaneous probes. As a bit of dubious consolation, she was subsequently stuffed and displayed at the Smithsonian.

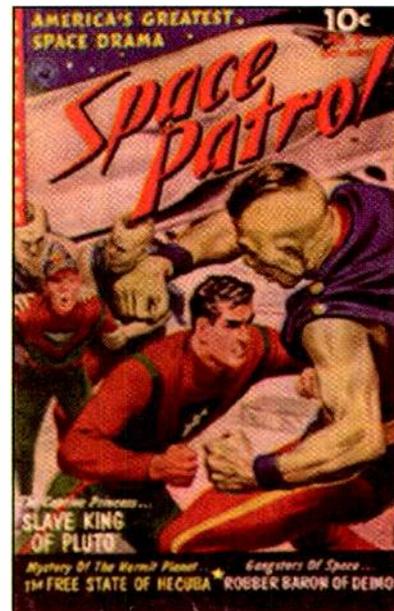
Miss Baker, however, lived until 1984, one of the most senior squirrel monkeys on record. Longtime staff members at the Huntsville, Alabama Space Museum, where Miss Baker happily spent most of her life, say she loved kids who visited

her climate-controlled digs. And even though the cute creature could not read, she reportedly got a kick out of the thousands of letters and packages mailed to her each year.

Not long before summer vacation of 1959, Tim's class prepared such a parcel for Miss Baker. He recalls it included a brief note (on those big-lined sheets of pulpy elementary level paper) from each student and three small boxes of prunes that their teacher purchased using a coffee can full of pennies donated by the entire student body. Tim says that the little red-haired girl lobbied tirelessly for the more expensive pitted prunes, as she warned that Miss Baker might otherwise choke to death and give their school a bad reputation. "We don't want those darn Russians to have anything to get happy about," she reasoned.

Public Affairs Programming To America's Rescue

The diminutive redhead reprised her patriotic line in a transcribed radio interview about the children's space monkey connection. Tim vividly recalls the day when a young newsman from their local station set up what was likely (as depicted in a drawing he sent to me) a mid-1950s Magacorder model PT-6 reel-to-reel tape deck and matching amplifier before recording the kids reading their corrected rough drafts, from which they'd



Comic books like this one were just one medium that young space buffs could use to connect with the early-mid 1950s *Space Patrol* franchise. Fans of the interplanetary *Space Patrol* could also enjoy its out-of-this-world adventures on TV and radio. The audio version ran twice weekly during the 1950–1951 season before switching to a Saturday offering through the fall of 1955. The TV show aired from 1950 through 1956. Like *Starr of Space*, it was an ABC production, but developed a much wider following than ABC's sister space show.

composed more neatly penned odes to Miss Baker. Some were delivered in rather halting monotone—every syllable unaccented—while others came across with a dramatic air of pride.

Besides that perky jingoistic girl bent on confounding the Soviets, the boy who had originally announced the safe touchdown commandeered the microphone for about a third of the 15-minute program. No doubt glad to have his least favorite part of the job made easier, the newsman seemed content to let the kid wax on about Miss Baker's vital statistics, how thrilled his classmates had been to hear of her happy landing, and resounding finale relating a detailed account of receiving the news, from the host's "excellently modulated radio station on the 'expensive four-transistor pocket portable hand-crafted in Japan' which his career Navy father had reportedly sent him for no special reason other than 'it cost a whole lot.'"

On the last day of school the program aired. The teacher borrowed a bulbous

brown Bakelite Zenith AM/FM from the principal's office. Some older kid from the sixth grade wheeled it in on a cart and fired it up near one of the big windows so that the incoming signal would be as interference free as possible in a room full of fluorescent lighting. In an apparent nod to the 1949-1955 DuMont TV Network show *Captain Video and His Video Rangers*, the news guy had ripped off that defunct kiddie space-man program's opening theme. When the music of Wagner's *Flying Dutchman* filled the Zenith's speaker, the teacher smiled approvingly and the children knew they'd soon have a local claim to fame, for a few days anyway.

The kids tended to either beam broadly or smile behind hands covering their faces, depending on the reaction to hearing their own voice on the radio. "Over-the-top" might be how a critic's review would caption the hometown station's P-A show. Under the thematic Wagner overture, that novice newscaster tried annunciating two octaves lower than normal, intoning, "Ladies and gentlemen... This station, in cooperation with our local school district, is honored to present a look at how area students have responded to the latest space age achievement of the United States Government. For the following quarter hour, we are proud to bring you... *VOICES OF OUR FUTURE... AND WHAT THEY HAVE TO SAY ABOUT THE RACE FOR SPACE!*"

Tim seems to remember that the program was sponsored by the town's Western Auto hardware store, which he thinks was owned by the red-haired girl's parents. He admits that his assumption probably has something to do with the fact that her comments were heard first and edited so that they'd fit around the advertiser's lead-off commercial.

Space & Sci-Fi On The Radio...

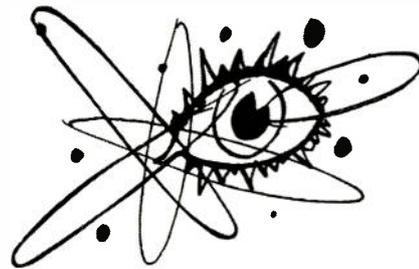
Tim laughs as he remembers that his "old" third grade teacher was probably all of 22 or 23 at the time. She was given the opportunity to issue the program's closing comments, but could hardly hear them over her students' collective, "Hey, that's you, Mrs. Wilson!" when she came on the air. She concluded by calling Miss Baker her class' favorite current events personality and then pronounced the monkey a true "star of space, just like the American Broadcasting Company production from a few years ago."

"Honestly," Tim noted, "that was a paraphrase on my part, but I'm sure she said something about ABC and space stars, or stars in space, or some such program name. She mentioned it blasting off on some of the afternoons when, as a teenager, she babysat her brother. All these years, I've been curious as to what she meant."

John Dunning's encyclopedic work *Tune In Yesterday* helped me solve Tim's mini mystery. In fact, his book lists ABC Radio Network as once originating a twice-weekly children's adventure offering known as *Starr of Space*. That double "r" represented a play on words as the show's main character, Captain Starr, operated from a fictitious space station above the equally fabricated twinkling Nova City. Dunning describes the half-hour feed as having been "filled with hissing rockets, comets, countdowns, and other space trappings." Why Mrs. Wilson hadn't remembered more about the 1953-54 season outer space opera is arguably the same reason Dunning rated *Starr of Space* "totally forgettable."

A much more reputable slice of radio science fiction plays into Tim's momentary association with professional broadcasting. Remember that confident kiddo who flew into the class-

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Well past radio's golden age of long-form drama programming, NBC ran one of the medium's finest science fiction programs, *X Minus One*. Its small but loyal fan base and few advertisers didn't generate much income for NBC, so the network spent little money on promoting the show, as evident from this simple line-drawn print ad.

room and bellowed the news about Miss Baker? Well, he and Tim crossed paths several times beyond third grade. Throughout their public school careers, they'd exchange an obligatory "acquaintance salute" whenever passing in the busy hallways.

It was in an obscure evening college class during the last semester of his senior year, however, when Tim was shocked to see the characteristically flamboyant fellow again. Tim hadn't even known that the guy attended his southern university (a good full day's drive from their home turf), but there he was, and boastful as ever.

He mentioned "seriously dating" a young woman who had connections at an NBC-affiliated television station in Augusta, Georgia, or some such venue. He predicted she was in the process of pulling strings to net him an exciting job as either a morning talk show host or sportscaster. Then the guy disappeared. Tim never saw him in class again or anywhere else on campus.

About six weeks after his May 1973 graduation, though, Tim ran into his mysterious friend once again in a convenience store parking lot. Dismissing the former main squeeze TV girl as "ancient history," the loquacious lad bragged that he'd "bagged a super happn'n' radio show" on an up-and-coming FM station in the next county. Also newsworthy was the announcement that

he was marrying some “sweet chick” who worked for one of the FM’s advertisers, questionable qualifications that left Tim rather nonplussed.

In the course of the chance meeting’s predominantly one-sided conversation, the guy offered Tim an “opportunity” to fill in for him on the air during the coming weekend so the happy couple could briefly escape the responsibilities of being members of the media and get away for their honeymoon. A few days later, Tim followed the guy’s scribbled directions to what he could hardly believe was an operating radio station.

I asked Tim about call letters, community-of-license, and other identifying features of the FM, but Tim’s email response made it clear that he didn’t want to be more specific other than noting that none of what he experienced in 1973 was still there, as the second string mid-south station had been consumed in the late 1990s consolidation frenzy and engineered onto a better frequency with higher power, and into a new city-of-license.

Long before that incarnation, though, when Tim had entered the hilltop studio/transmitter shack, it was through a bent-up aluminum screen door—minus the screens. The station was housed in what he describes as “a shopworn mobile home” that looked practically abandoned from the gravel road where the station’s rural mailbox tilted forlornly, with no particular markings other than its weathered red metal flag hanging downward.

“Who you?” a skinny man demanded as Tim appeared in the hallway between a makeshift office and another small room piled high with bundled documents. He’d been startled, but glad to learn Tim was the 6 to midnight relief. “Thought I’d be here till the witching hour again,” he confided. “The guy who did nights for the past month or so, gave notice by phone and then didn’t even show up yesterday. I was supposed to take my sister’s kids to their school concert last night, but I got stuck here because of that bum.”

“Didn’t he just get married to some woman from a big Chevrolet dealership that advertises on this station?” Tim asked.

“Ha! That’s a laugh,” the thin fellow shook his head sarcastically, “We haven’t had any car dealer spots in weeks, not even anything for used cars. Anyway, I heard that the guy is heading west to avoid some jealous husband. Maybe *that* guy is chasing him in a Chevy 4-by-4 truck!”

He quickly changed the subject to instructions about how to run the control board, follow the program log, and read the transmitter meters. Tim was specific describing the gear that confronted him there: a five-channel McMartin board, two QRK 12-inch turntables with Shure tone arms, a stack of three (with one unplugged and obviously out of service) early 1960s vintage Automatic Tape Control cart machines, a pair of Akai reel-to-reel tape decks, a Realistic cassette machine, and Electrovoice microphone (probably 635A) on a makeshift gooseneck stand.

The instructor suggested Tim follow a format hand lettered in orange marker on a piece of cardboard thumb tacked to the studio wall. Pop Current, Country Current, Oldie (any type), Instrumental, Pop or R&B Gold, E-Z Pop or Country, Instrumental, E-Z Listening, Country Gold. “Do NOT play 2 female vocals in a row!!!” the bottom of the sign directed. Next to each category on the list was a colored sticker dot. These codes corresponded with dots on 45 and 33.3 rpm records in saggy shelving at the back of the studio and in an erstwhile bedroom down the hall.

Too jittery to say much on the air his first night, Tim attempted to satisfy whoever had printed the format. He tells me that he



A CBS News publicity shot from the mid-1960s offers a textbook-ready image of the “Tiffany Network’s” leading news personality and space launch commentator, Walter Cronkite. Understandably, neither the U.S. Government nor CBS executives wanted this Dean of American Broadcast Journalists to mention his circa-1950 witnessing of a UFO attack (see text).

probably wasn’t doing it right, as the result sounded like “quite a musical mish-mash that didn’t really target any taste—other than the most eclectic—for more than three and a half minutes.” There were two or three commercials most hours, several canned public service announcements (including one about winter safety), and an equally stale weather forecast apparently handwritten in early afternoon by the previous announcer.

When 11 p.m. finally arrived, Tim was more than a little glad that he and the listeners—if there were any, as none had phoned the station the entire evening—were slated to hear something other than “mish-mash music.”

And what a departure it was from the roulette wheel of Country to E-Z Listening to R&B to...whatever *that* was! As soon as he’d read the weather forecast, Tim punched play on the tape deck, rotating the 7-inch reel that the program log had warned him to cue up. He sat back in the duct tape patched studio chair and heard what he recalls as a *real* radio announcer say, “Countdown for blastoff...X minus five...four...three...two...X-minus one...Fire!”

Tim turned down the monitor a bit as rocket sound effects rumbled through the control room speaker. “From the far horizons of the unknown,” continued the taped announcer, “come transcribed tales of new dimensions in time and space. These are stories of the future, adventures in which you’ll live in a million could-be years on a thousand maybe worlds. The National Broadcasting Company presents...X-X-X-X [echo] – Minus – Minus – Minus One – One – One!”

What followed, Tim remembers, was an eerie tale of life on a desolate, windswept planet where members of a small science expedition interacted with creatures called Volplas, or some such weird nomenclature. He says the fact that it was on radio—not TV—made it especially scary because of the pictures this sci-fi show presented mentally. *X Minus One* forced the listeners to create images from other worlds in their mind’s eye.

What’s Wrong With This Picture?

Truly strange to me, though, was why or how the 1950s NBC program made it to the struggling station in the trailer on that June night in 1973. Again consulting Dunning, I was reac-

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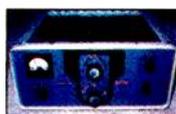
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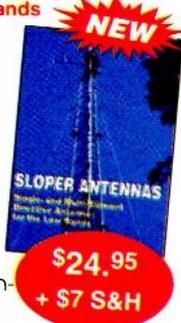
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quainted with the fact that *X Minus One* was essentially a spin-off of *Dimension-X*, which ran on NBC from April 1950 until late September 1951. The show adapted work of talented science fiction writers like Ray Bradbury and Isaac Asimov, but as Dunning hypothesizes, though "*Dimension-X* was a very effective demonstration of what could be done with science fiction on the [radio] air, it came so late that nobody cared."

That's why media observers would think it even odder that in spring or 1955—four years further into television's ascendancy and long-form radio programming's sunset—NBC would authorize another shot at audio sci-fi via *X Minus One*. Arguably, less of an audience was available for this quality redux, but the Network kept funding the show through the first week of 1958.

Dunning states that "some of the best drama of the mid-1950s [via radio or TV] was heard on *X Minus One*." That's high praise for what we might term an obscure tape-recorded (as opposed to radio's golden age norm of live performances) series that never found a regular sponsor, other than the occasional run-of-schedule commercials NBC would insert sometimes as a bonus for its larger advertisers.

But just how did a network show that died in the late 1950s make the early summer 1973 schedule of a struggling southern FM? The answer, it turns out, was that somebody at NBC remembered the old *X Minus One* tapes they'd seen in a cabinet on a Rockefeller Center production studio wall. He or she convinced NBC Radio officials to feed the programs down the network line once per month starting on June 24, 1973.

Tim confirms that he had his FM adventure right around then, but also notes that the mobile home-based station was *not* an NBC affiliate. My belief is that whatever broadcast facility in the market that had the NBC contract didn't care to experiment with what it likely considered outdated programming. Consequently, the also-ran FM picked up the opportunity to do something with NBC. Tim indicates that right before the show's commercial breaks, an NBC announcer invited folks to write to the station or directly to NBC in order for the *X Minus One* revival to take root. With such an irregular schedule on mostly small stations, however, *X Minus One* vanished in 1975.

In one of those split-second moments that push all the adrenaline buttons, Tim

thought he saw, through the peripheral corner of his vision, the outline of a figure silhouetted in the studio doorframe. There was an instant denial and then an involuntary shudder when he reacted to the fact that someone was indeed standing there.

"Ah-Lo there," the stranger murmured, "didn't mean to frighten you. I hear you're airing *X Minus One*. Absolutely love that show!" he smiled. "Love anything on the radio about space travel and UFOs. That's why I hope you'll put this on the transmitter tonight. It's only five minutes. It will enlighten many people."

The strange apparition placed an unboxed cassette in Tim's hand, formed the *Star Trek* Vulcan salute, and evacuated the room as fast as he'd materialized. Re-equipped with some composure and absolutely thrilled to have received any listener reaction, Tim decided he'd check the tape's sound quality and, if it seemed OK on cue, he would run it right before the midnight sign-off. And that's precisely what took place.

His first correspondence to me—the letter about Miss Baker—mentioned this off-beat cassette program but didn't give me much to go on. Tim only remembers it being hosted by someone called Moe (maybe a last name?) from a grassroots UFO investigation association in Pennsylvania.

"The brief program possessed perfectly audible levels with no noticeable distortion," Tim noted, "but had a garage or basement studio feel to it that hinted something wasn't quite right. There was kind of an intermittent background noise that chirped."

Whoever Moe was, he repeatedly asked listeners to contact his outfit with details of UFO sightings they might care to share. According to Tim, Moe kept trying to prime the pump on what the host apparently anticipated to be a wellspring of flying saucer reports "throughout the U.S. and all of North and South America." He told listeners that if they divulged their saucer secrets they would have something in common with a legendary CBS newsman.

Uncle Walter, Say It Ain't So!

Still a bit shaken by the scary *X Minus One* episode and the unannounced visitor, Tim caught himself turning away from the stark blackness staring back at

him through a half-opened window at that middle-of-nowhere station. When Moe's gravelly inflections began dramatizing the show's main feature, Tim felt an involuntary shiver. He heard himself mutter a whisper in an attempt to pull himself back to calm logic, "This is ridiculous! I don't need to be scared of UFOs around here!"

Meanwhile, matter-of-factly, Moe outlined an early 1950s incident in which famed CBS anchorman, Walter Cronkite reportedly witnessed a demonstration of space alien technology and fantastic power. Tim wishes he could recall specific details other than hearing Moe tell of a flying saucer equipped with some sort of ray gun that Cronkite watched literally stop a U.S. rocket in mid-flight before blowing the missile to smithereens. Not even my trivia-rich Renaissance man father knew anything about Cronkite's UFO encounter, so gathering facts about such an unusual incident turned the three of us to the Internet. There, the puzzle pieces came together.

On the site www.rense.com, UFO expert Bill Knell recounts a 1973 conversation with Cronkite in which the CBS newsman quietly admitted to encountering something from another planet. The 1973 piece is significant, as it jibes with the year that Tim ran Moe's program. No doubt, Moe heard Knell's findings, as they certainly came from a more credible source (Cronkite) than the average UFO buffs who are stereotyped by government bigwigs as conspiracy theorists.

According to Knell, Cronkite was part of a group of journalists invited to see a military rocket launch from bleachers set up on a tiny Pacific island. Long before the blast-off, Air Force brass lectured visitors that they could not film or tape record anything they saw, but must convey their experience via only the written word. Military Police with German Sheppard dogs scoured the base in search of intruders. At liftoff, the newsman's attention suddenly turned from the rocket, inching off its launch pad, to a gray disc suspended some 30-feet off the ground nearby. Nobody heard it emit a sound, though any noise softer than the rocket's roar would have been drowned out.

When the missile had traveled upwards about seven stories, it was hit by a bluish blast of light from the saucer. Cronkite also told Knell that this ray zapped the guards and their dogs, too, causing the MPs to freeze in the middle of running towards the UFO's shadow.

One German Sheppard could be seen suspended in the air where it jumped at the mysterious object. Seconds later, the now stationary rocket blew up and the men and their K-9s resumed motion. Simultaneously, the saucer disappeared.

Why didn't Walter Cronkite immediately break this compelling story to his network? Reportedly, he and the rest of the press were strictly warned *never* to spread rumors that they'd witnessed an alien power destroy a state-of-the-art U.S. missile as if it'd been a plastic model in the path of a bazooka. Cronkite told Knell that the obviously flustered mili-

tary officials quickly cooked up a story that the whole thing had been a planned exercise to determine how bona fide news professionals might react to a flying saucer attack.

"Can you imagine what might have happened if Uncle Walter felt compelled to reveal the story on his CBS Evening News?" Tim commented with an email "lol" in his last message to me. "Some girl next door, button-nosed reporter from a competing network would probably have been assigned to interview Miss Baker and then close by branding the entire incident, *a bunch of monkey business.*"

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U.S. Navy MARS Possibly Endangered

by John Kasupski,
KC2HMZ,
kc2hmz@verizon.net

Before I jump into the subject of this month's column, I must point out that since there is a three-month lead-time on the production of *Pop'Comm*, the article you're reading now is actually being written in June. Thus it is that the bombshell contained in the accompanying **Table**, which by some stroke of good luck came to my attention just as I was racking my brain for a good topic for this month's column, appears just as the issue it addresses might well be coming to a head. As you hold this issue in your hands, the U.S. Navy MARS program may or may not be in its death throes.

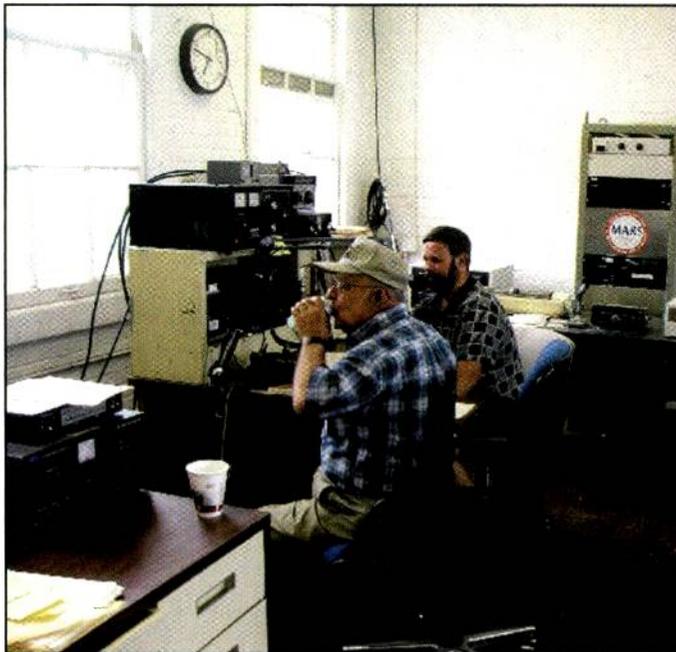
The text in the **Table** was relayed by Navy MARS stations and published on the Internet. While it may be difficult for those who are unfamiliar with the format of military message traffic to decipher, the crux of the matter is that the offi-

cer in charge of the Naval Network Warfare Command (NNWC) has proposed disestablishing Navy/Marine Corps MARS as of September 30, 2009.

As you might expect, this has resulted in some passionate discussions on numerous Internet forums, especially among MARS operators (NAVMARCORPS MARS as well as Army and Air Force MARS ops). The consensus seems to be that the proposal to sunset Navy MARS is the result of budget cutting instituted by the new administration. The fear is that Navy MARS will be entirely halted—and that this may signal an eventual end to Army and Air Force MARS programs as well.

There is considerable disagreement, however, about whether Navy MARS can go away entirely, given that there still is a Department of Defense directive in force that requires all branches to maintain MARS capability for contingency radio communications support to U.S. Government operations, using organized volunteer radio operators and operating facilities under the appropriate authorities, directed and coordinated by the Military Departments. The directive, DoD Instruction Number 4650.02ASD, charges MARS with the responsibility for providing contingency radio communications support to DoD Components as well as to civilian authorities at all levels, in fulfillment of DoD responsibilities specified under separate DoD directives. DoD 4650.02 also stipulates that MARS "shall provide health, morale and welfare radio communications support to military members, civilian employees and contractors of DoD Components, and civil agency employees and contractors, when in remote and isolated areas, in contingencies or whenever appropriate."

Some MARS operators have questioned whether Commander, NNWC has the authority to sunset Navy MARS given the DoD directive—to unilaterally tell his superiors, "No, I will not do this." This would seem to be a valid question, considering the existence of the DoD directive and



Navy-Marine Corps MARS station, NAV-4, operating on Armed Forces Day.

the lack of any indication that national command authority has approved any such action. Given the uncertainty with respect to total discontinuance of the program, MARS operators have speculated that Navy MARS may indeed continue,

but with an administrative level within its structure ceasing to exist. There is disagreement, however, about how this might affect the organization's ability to fulfill its missions under the above-quoted DoD directive.

Personally, I think the worst possible result here would be the total elimination of MARS. If you read my "EmComm Essentials" column elsewhere in this issue, you'll see that it's clear that eliminating stand-alone radio communica-

Table. Message Concerning The Disestablishment Of Navy/Marine Corps MARS

DE NNN0ASA 040

R 162200Z MAY 2009

FM CHNAVMARCORMARS WILLIAMSBURG VA

TO ALNAVMARCORMARS

INFO ZEN/CHIEF ARMY MARS FT HUACHUCA AZ

ZEN/CHIEF AIR FORCE MARS SCOTT AFB IL

BT

UNCLAS

SUBJ: CHNAVMARCORMARS BCST 03-09

A. DOD DIRECTIVE 4650.2 DTD 26 JAN 1998

B. DOD INSTRUCTION 4650.02 (PROPOSED) NOTAL

1. COMMANDER, NAVAL NETWORK WARFARE COMMAND (NNWC) HAS DECIDED TO 'SUNSET' THE MARS MISSION WITHIN NAVY AS OF 30 SEP 2009. NNWC HAS REQUESTED ALL MILITARY BILLETS AND MY CIVILIAN POSITION BE DELETED AND UNFUNDED AFTER THAT DATE. OPNAV HAS NOT YET APPROVED THIS REQUEST.

2. ALL THREE MARS SERVICES HAVE OPERATED UNDER THE MANDATE OF REF A, WHICH IS STILL VALID. REF B IS A PROPOSED UPDATE TO REF A AND IS IN THE PROCESS OF BEING COORDINATED BETWEEN DOD AND THE THREE SERVICES. REF B INCREASES THE SERVICES REQUIREMENT TO SUPPORT THE MARS PROGRAMS WITHIN THEIR SERVICE. ARMY AND AIR FORCE HAVE AGREED TO THE CHANGES BUT NAVY (OPNAV) HAS ASKED TO BE LET OUT OF THIS REQUIREMENT. THIS NEGOTIATION IS STILL IN PROCESS AND WE DO NOT KNOW WHEN IT WILL BE RESOLVED.

3. AS A CONSEQUENCE OF NNWC DECISION TO 'SUNSET' THE MARS MISSION, I AM FORCED TO INITIATE ACTION TO CLOSE DOWN NAVY-MARINE CORPS OPERATIONS AND FACILITIES BY 30 SEP 2009. ACCORDINGLY:

A. AREA DIRECTORS WILL TRANSFER ALL MEMBERSHIP RECORDS TO HQ NLT THAN 31 JUL 2009. WHEN RECORDS HAVE BEEN TRANSFERRED, STATE DIRECTORS WILL SEND ALL MEMBERSHIP RELATED MATTERS DIRECTLY TO CHNAVMARCORMARS VICE THE AREA DIRECTOR.

B. AREA DIRECTORS WILL CLOSE DOWN THEIR OFFICES AND TURN IN ALL EQUIPMENT TO DRMO NOT LATER THAN 30 SEP 2009.

C. NONE OF THE EQUIPMENT AT THE AREA DIRECTORS STATIONS WILL BE ALLOWED TO BE TRANSFERRED TO ANY MEMBERS. THE EQUIPMENT MAY BE TRANSFERRED TO OTHER OFFICIAL NAVY ORGANIZATIONS (LIKE MWR OR SPECIAL SERVICES) TO HELP EQUIP OR START UP MILITARY RECREATION STATIONS. THESE TRANSFERS WILL BE APPROVED BY HQ ON A CASE-BY-CASE BASIS.

4. IF NAVY'S REQUEST TO BE DELETED FROM REF B IS NOT APPROVED, THERE WILL BE A NAVY-MARINE CORPS MARS PROGRAM BUT IT WILL NOT HAVE AREA DIRECTORS (THEY WILL HAVE BEEN TRANSFERRED). ALL MEMBERSHIP CORRESPONDENCE WILL BE HANDLED BETWEEN THE STATE DIRECTOR AND CHIEF, NAVMARCORMARS DIRECTLY. AREA DEPUTY DIRECTOR AND AREA STAFF POSITIONS WILL BE RETAINED TO COORDINATE FREQUENCY MATTERS, TRAINING, ETC. ALL OPERATIONAL MATTERS WILL BE HANDLED BY STATE AND REGION DIRECTORS.

5. I WILL INFORM YOU AS SOON AS I FIND OUT THE FINAL RESOLUTION OF NAVY'S REQUEST TO 'SUNSET' NAVY-MARINE CORPS MARS.

BT

NNNN



Navy MARS stations, such as NNNØNLR aboard USS *Little Rock* pictured here, may be on the “endangered species” list. (Author photo)

tions systems is not in the best interests of the American public or any of the served agencies that these systems service. However, it might be a very good idea for DoD to consider combining all the MARS programs under one umbrella. This would not only simplify funding considerations by making MARS a joint operation rather than a conglomeration of efforts by three separate military departments.

One needs only to peruse the readers’ logs that accompany each month’s column to see that USAF MARS is very active in providing communications support, not only to the Air Force, but also other branches. This very month, in fact, the loggings include instances where Air Force MARS operators provided services to non-Air Force personnel, including running Morale & Welfare (M&W) phone patches for Coast Guard personnel. Furthermore, since we know that America is at risk of attack from terrorists at home and abroad, and that stand-alone radio systems are the most survivable methods of communications available (as any ham involved with an ARES or RACES group can tell you), it makes little sense to completely end such operations. There are definitely multiple missions for MARS to fulfill, in terms of official military business, M&W considerations for military personnel, and providing contingency support to civilian authorities and organizations.

At least one of my contemporaries has criticized MARS on his Internet blog, calling it a relic of the Cold War. It’s actually much older than that: The organization that led to the MARS system was called the Army Amateur Radio System and was created in 1925 by members of the U.S. Army Signal Corps. Nevertheless, RACES (Radio Amateur Civil Emergency Service) was also originally created for wartime purposes. RACES has evolved since then, and today its operators serve their communities—and serve them well—in a wide variety of situations.

“As you hold this issue in your hands, the U.S. Navy MARS program may or may not be in its death throes.”

I think it’s time that MARS underwent a similar evolution. Pulling the switch and shutting everything down is not the answer to the budget problems driving this issue. The DoD and various branches of the military need to start cooperating with Congress, with one another, and with other governmental agencies, such as the Department of Homeland Security, to address the problem in a way that best benefits American military personnel, civilian entities, and the American people. Anything else would be an abdication of responsibility on the part of everyone involved.

Reader Logs

It is now my privilege to present another oversized batch of readers’ logs, provided this month by Al Stern, Satellite Beach, FL (ALS); Mark Cleary, Charleston, South Carolina (MC/SC); Spencer Sholly, Central Texas (SS/TX); Chris Gay, Lexington, KY. (CG/KY); and Glenn Valenta, Lakewood, CO (GV/CO).

I’m still catching up on loggings that were submitted while I was on vacation, so once again this month there are a lot more logs than usual. As I indicated last month, this will be the case until I get caught up, so enjoy the extra few weeks’ worth of logs. And, as always, my sincere thanks to all those who send in their loggings!

2962.0: Santa Maria Radio wkg var airliners for SELCAL checks in USB at 0408Z (ALS); Santa Maria handing airliners off to 6628 for SELCAL checks in USB at 0458Z. (ALS)

2971.0: Gander Radio wkg var airliners in USB at 0410Z. (ALS)

3299.0: AFD4FL, net control in USAF MARS 4S1 Net, in USB at 0026Z. (MC/SC)

3315.0: AFF3WV, AFA3AJ in USAF MARS NE2S1 Net in USB at 2355Z. (MC/SC)

3320.5: NNN0JKI and NNN0JYV in USN/USMC MARS 4G1B South Carolina Net in USB at 0041Z. (MC/SC)

3390.0: USN/USMC MARS net in USB at 0004Z. (MC/SC)

3413.0: Shannon VOLMET reciting WX for Luxembourg etc. in USB at 0434Z. (ALS)

3455.0: NY Radio wkg American 955 for SELCAL check in USB at 0405Z. (ALS)

3476.0: Gander Radio wkg airliners in USB at 0115Z. (ALS)

4003.0: AAR4FF, AAM4TS in US Army MARS net in LSB at 0046Z. (MC/SC)

4149.0: Tug *CENTURION* (WBN 3022) wkg WPE Jacksonville in USB at 1200Z. (MC/SC)

4372.0: DELTA wkg HOTEL in USN net in USB at 0054Z. (MC/SC)

4469.0: FLORIDA CAP 204 net control with FLORIDA CAP 209, GEORGIA CAP 41, GEORGIA CAP 44, GOLDENROD 595, GOLDENROD 305 in CAP Florida net in USB at 1242Z. (MC/SC)

5450.0: RAF VOLMET broadcast in USB at 0020Z. (MC/SC)

5505.0: Shannon VOLMET with WX for Copenhagen, etc. in USB at 0127Z. (ALS)

5526.0: Piarco Radio wkg Speedbird 346 for posrep, hands off to Santa Maria's 6628 kHz, in USB at 0135Z. (ALS)

5547.0: San Francisco Radio wkg N17LJ in USB at 0440Z; San Francisco wkg American 267 for SELCAL check in USB at 0443Z; San Francisco wkg Northwest 627 to relay comms to other acft in USB at 0445Z. (ALS)

5574.0: San Francisco Radio wkg var airliners in USB at 0416Z. (ALS)

5598.0: New York Radio wkg Edelweiss flight for SELCAL check in USB at 0352Z; NY Radio wkg "KLM 6308" for posrep in USB at 0147Z; NY Radio wkg Lufthansa 4867 for SELCAL check in USB at 0211Z. (ALS)

5598.0: LVG107 (Livingston Airlines) in QSO with Santa Maria off and on over an hour regarding apparent in-flight emergency: received permission to land at LEST (Santiago, Spain), granted altitude reduction from 37000 to 29000, given "direct route" to LEST, in USB at 2100Z. (CG/KY)

5616.0: Gander Radio wkg USAF "REACH" flight for SELCAL check in USB at 0121Z; Gander wkg Delta 116 for SELCAL check in USB at 0123Z. (ALS)

5680.0: RESCUE 137 in QSO with Kinloss Rescue, advised he was going to Aberdeen to refuel, then remain on ground, in USB at 1545Z. (CG/KY)

5696.0: USCG COMSTA Kodiak wkg CG 1714 for posrep and ops normal report, in USB at 0251Z; CAMSLANT wkg CG 6017 (MH-60J) for radio check, 6017 fails to confirm reception, in USB at 0257Z; CAMSLANT working CG 1502 (HC-130) for radio check in USB at 0300Z. (GV/CO)

5696.0: USCG CAMSLANT Chesapeake wkg CG 2003 (HC-130J, CGAS Elizabeth City, NJ) for flight following in USB at 0310Z; CAMSLANT wkg CG 2003 on approach to HOMEPLATE, secures guard with CAMSLANT, in USB at 0312Z. (ALS)

5696.0: CAMSLANT wkg CG 2001 (HC-130J, CGAS Elizabeth City NC) in USB at 0228Z; CAMSLANT calling CG 2006 (HC-130J, CGAS Elizabeth City), with no joy, in USB at 1655Z. (ALS)

5696.0: RESCUE 2131 (HU-25, CGAS Corpus Christi) with 6 POB requests guard from CAMSLANT in USB at 2317Z. (MC/SC)

5708.0: JNR (Puerto Rico HF-GCS) clg 190012 (C-5A) in ALE USB at 0033Z. (MC/SC)

5715.0: ENIGMA V24 numbers station, music then YL w/numbers in Korean, in Am at 1300Z. (CG/KY)

5717.0: TRENTON MILITARY and HALIFAX MILITARY in QSO with RESCUE 30 and RESCUE 313, ran p/p to Halifax Search, comms over an hour or so related to helicopter crash off Newfoundland, in USB at 1600Z. (CG/KY)

6215.0: CAMSLANT making callouts in USB at 2347Z. (MC/SC)

6586.0: New York Radio wkg Continental 312 for handoff to San Juan Center on VHF, in USB at 0450Z; NY wkg American 993 for posrep, hands off to San Juan Ctr on VHF, in USB at 0452Z. (ALS)

6604.0: Gander VOLMET reciting WX for Halifax, Montreal-Mirabel, etc. in USB at 0453Z. (ALS)

6628.0: NY Radio wkg Martinair 665 for routing to EHAM (Schipol), SELCAL check, in USB at 0348Z; Santa Maria wkg Speedbird 215 in USB at 0459Z; NY wkg KLM 758 for clearance to climb, in USB at 0459Z. (ALS)

6628.0: Santa Maria Radio wkg Speedbird 346 for posrep in USB at 0137Z. (ALS)

6640.0: NY Radio working various airliners in USB at 0143Z. (ALS)

6715.0: HUNTER 22 (CANFORCE CP-140) wkg HALIFAX MILITARY with request to go secure to pass message in USB at 2354Z. (MC/SC)

6739.0: EQUALITY (prob. USN E-6 TACAMO), p/p via Lajes HF-GCS, in USB at 2222Z. (MC/SC)

6761.0: PISTON 13 (KC-135R, MacDill AFB 927ARW) wkg GRITS 31 (C-17A, Charleston AFB 437AW) to arrange schedule for AAR, in USB at 1510Z. (ALS)

6761.0: MOOSE 71 (C-17A, 437 AW) in QSO for AR coordination with HOSR 11 (KC-135), in USB at 2253Z. (MC/SC)

8156.0: C6DR ops report to CORAL HARBOUR BASE (Bahamas Defence Forces) in USB at 2107Z. (MC/SC)

8648.0: VTP, Visakapatnam, India, with 4-fig grps (T=0) in CW at 1850Z. (CG/KY)

8906.0: Shanwick Radio in QSO with N104AD (registered to Studio City Aviation); advises his request for higher altitude denied due to tfc, in USB at 1349Z. (CG/KY)

8912.0: JULIET I4 (USCG MH-60J, ATC Mobile) passing posrep to CAMSLANT in USB at 2348Z. (MC/SC)

8918.0: New York Radio wkg CACTUS 968 for posrep, rqsts deviation from course, 2 nmi to right; is passed Sigmet Mike 1; secondary freq 11330; further deviations to be coordinated with Miami Center, in USB at 2029Z. (ALS)

8918.0: New York Radio wkg Delta 50 for posrep in USB at 2050Z; NY wkg Delta 485 for posrep in USB at 2051Z; NY wkg REACH 211 for posrep (at ELMUC; FL360; Mach .76) and SELCAL check, in USB at 2051Z. (ALS)

8971.0: Red TALON 711 (P-3C, NAS Jacksonville VP-16 "Golden Eagles") calling GOLDENHAWK (NAS Brunswick TSC) in USB at 152Z, again at 1535Z; RED TALON 711 calling WAFER 22 (another P-3C) in USB at 1536Z. (ALS)

8971.0: RED TALON 711 passes on-station PIREP to RED TALON 712 (P-3C): "2700 broken, tops 5000", visibility 5 miles, sea state 1" in USB at 1538Z; RED TALON 711 passes msg "Spare Group 3" to GOLDENHAWK in USB at 1539Z. (ALS)

8971.0: 71N wkg 71P (USN assets), rqsts range and bearing, in USB at 1728Z. (ALS)

8983.0: USCG CAMSPAC Pt. Reyes wkg CG 1701 for posrep in USB at 0156Z. (GV/CO)

8983.0: CAMSLANT wkg a CG 17xx aircraft (HC-130H) for posrep in USB at 0230Z; CAMSPAC wkg CG 1702 (HC-130H); asks where District wants them to park at Fargo (they are approaching Fargo), in USB at 0235Z. (ALS)

8983.0: CG 2006 (HC-130J, CGAS Elizabeth City) calling CAMSLANT Chesapeake with no joy, in USB at 1650Z; CAMSLANT wkg CG 2005 (HC-130J, CGAS Elizabeth City, NC); guard established, passes 5696 kHz as primary, in USB at 1704Z. (ALS)

8983.0: CAMSLANT wkg CG 2006 (HC-130J, CGAS-Elizabeth City, NC) in USB at 1548Z. (ALS)

10051.0: New York VOLMET with aviation WX for Baltimore, Washington-Dulles, Philadelphia, New York-Kennedy, Newark, in USB at 2041Z. (ALS)

10051.0: GANDER VOLMET ending aviation WX xmission in USB at 1130Z. (CG/KY)

10202.0: 119CDCS05 (Center for Disease Control station) sounding in ALE USB at 2241Z. (MC/SC)

10588.0: WGY901 (FEMA Region 1, Maynard, MA), WGY908 (FEMA Region 8, Denver, CO), WGY911 (FEMA) with radio checks and exchange of data transmissions, in digital modes and USB at 1402Z. (MC/SC)

10780.0: CAPE RADIO (Cape Canaveral AFS) wkg BH 700 (NP-3D, Point Mugu, VX-30, tasked to photograph the belly of the Space Shuttle *DISCOVERY* as it lands at Kennedy

Space Center) for radio checks in USB at 1239Z, frequent radio checks subsequent to this also. (ALS)

10780.0: CAPE CONTROL wkg BLOODHOUND 300 who reports "on-station at 1531Z" and passes update on WX at present location, in USB at 1531Z. (ALS)

11175.0: HF-GCS Station PUERTO RICO wkg STARBIRD (USN TACAMO) for DSN phone patch to Offutt AFB RF Orderwire Controller, rqsts 37B; ground says they will meet STARBIRD on the Orderwire, in USB at 1823Z. (ALS)

11175.0: HF-GCS Station OFFUTT wkg SKULL 22 (B-52H, Barksdale AFB) for DSN phone patch to Barksdale BLUE OPS, checking on status of SKULL 21; "Taking off right now." In USB at 1955Z. (ALS)

11175.0: HF-GCS Station PUERTO RICO wkg REACH 274 for phone patch to Hilda Metro (Scott AFB) for 2130Z WX at CYYT (St John, Newfoundland) and 2200Z WX at CYJT (Stephenville, Newfoundland), in USB at 2023Z. (ALS)

11175.0: HF-GCS Station ANDREWS wkg SAM 4619 (VIP flight, Andrews AFB) for radio check only, in USB at 1453Z; **11175.0:** HF-GCS Station PUERTO RICO wkg KING 85, they QSY to freq 15016 kHz, in USB at 2024Z. (ALS)

11175.0: HF-GCS Station McClellan wkg ROCCO 82 (NJ-ANG KC-135, McGuire AFB 108ARW) for DSN phone patch to TORCH CONTROL (home station at McGuire AFB); passes 1900Z ETA, in USB at 1525Z. (ALS)

11175.0: STRIKERMAN (US MIL) reciting EAM in USB at 1532Z; CASINO 01 calling CASINO 02 with no joy in USB at 1924Z. (ALS)

11175.0: ANDREWS reciting 22-character EAM in USB at 1420Z; ANDREWS wkg ANVIL 93 (C-130, WV-ANG, Yeager A/P, Charleston WV) for phone patch to San Juan to obtain 1610Z arrival WX, in USB at 1520Z. (ALS)

11175.0: PUERTO RICO wkg RAIDER 08 (KC-130, VMGR-352, Miramar MCAS) for phone patch to metro; rqsts 2230Z WX for KGSB (Seymour Johnson AFB), in USB at 1841Z; OFFUTT wkg LL 76 (P-3C, NAS Jacksonville VP-30 "Pro's Nest" sqdn) for radio check in USB at 1856Z. (ALS)

11175.0: BLUE91 (Coronet mission tanker) via Lajes for phone patch, aircraft is inbound to Lajes, in USB at 1333Z; USAF Rescue 84 via ANDREWS, p/p to COYOTE, in USB at 1930Z. (CG/KY)

11175.0: REACH 472 p/p via Offutt HF-GCS to HILDA METRO for WX in USB at 2144Z. (MC/SC)

11220.0: CONVOY 3241 (C-130T) p/p via OFFUTT to Davis Monthan AFB Metro in USB at 2235Z. (MC/SC)

11232.0: TRENTON MILITARY wkg PEACH 33 (E-8C JSTARS, Robins AFB 116ACW) for DSN phone patch to Robins

AFB PEACHTREE OPS, accepts ARCP of 1545Z, in USB at 1433Z. (ALS)

11232.0: TRENTON MILITARY wkg SENTRY 61 (E-3 AWACS, Tinker AFB, over northern Wisconsin) for DSN phone patch to Tinker Metro to obtain 2100Z WX for Tinker, in USB at 1844Z. (ALS)

11232.0: TRENTON MILITARY wkg CANFORCE 4099 flight for WX at Ottawa, followed by several M&W phone patches re: meeting plane on arrival at 1800 Local, in USB at 1933Z. (ALS)

11232.0: PEACH 33 (E-8 JSTARS) p/p via TRENTON MILITARY to PEACHTREE in USB at 1810Z. (MC/SC)

11330.0: New York Radio wkg American 1134; rqsts climb to FL380; unable due to other t/c, in USB at 1946Z; NY wkg Cactus 1036 for posrep and SELCAL check, in USB at 1950Z. (ALS)

11330.0: NY wkg Continental 879 for posrep and passes Sigmet Mike 1, in USB at 1958Z; NY wkg Jet Blue 790 for posrep and SELCAL check in USB at 2001Z. (ALS)

11330.0: NY wkg Cactus 1024 for POSREP and SELCAL check, confirms FL320 and receipt of Sigmet, in USB at 1953Z; NY wkg Jet Blue 756 for posrep and SELCAL check, is warned about chop reported along route; backup freq 6577 kHz is passed, in USB at 1954Z. (ALS)

11485.0: KGD825 (U.S. Environmental Protection Agency, Boston, MA) sounding in ALE USB at 1222Z. (MC/SC)

12631.0: Coastal maritime station KSM (California) with WX reports in 45/100 RTTY at 2001Z. (GV/CO)

13270.0: New York VOLMET reciting WX, Sigmets in USB at 2035Z. (ALS)

13927.0: USAF MARS Operator AFA5QW (Greenwood, IN) wkg OMNI 03 for phone patch to BLUESTAR (USN TSC El Salvador) in USB at 1812Z. (ALS)

13927.0: USAF MARS Operator wkg REACH 2110 (C-17A #02-1112, MS-ANG, Jackson MS, over Bangor ME) for M&W phone patches to New York, Missouri, and Massachusetts, in USB at 1510Z. (ALS)

13927.0: USAF MARS Operator wkg HAWK 21 (B-1B Bomber, Dyess AFB 7BW) for DSN phone patch to Dyess HAWK OPS in USB at 1440Z; USAF MARS Operator AFA5AD wkg HAWK 31 (B-1B Bomber, Dyess AFB) in USB at 1949Z. (ALS)

13927.0: USAF MARS Operator wkg KING 21 (USAF C-130) for phone patch to Nashville FBO Operator; reports inbound Nashville, will contact on VHF when closer, in USB at 1518Z. (ALS)

13927.0: USAF MARS Operator wkg HAWK 52 (B-1B Bomber, Dyess AFB) for phone patch; informs that they are headed to Navy Ft. Worth at this time; they are about 74 on the gas at this time, so should be good, in USB at 1932Z. (ALS)

13927.0: USAF MARS Operator wkg Hawk 52 (near Oklahoma City) for phone

patch to Dyess HAWK OPS, WX at Navy Ft. Worth not good; wants Ops to look at WX at Kelly Field and Barksdale instead; decides to continue to Ft. Worth (only 15 minutes away), in USB at 1941Z. (ALS)

13927.0: USAF MARS Operator AFA9AY (California) wkg KING 21 (NY-ANG C-130 #88-2101, Gabreski A/P, Westhampton Beach, NY; over KY) for phone patch to Metro; rqsts 2200Z WX for KHOP (Ft. Campbell, KY) and KHSB (Harrisburg-Raleigh A/P, IL), in USB at 2055Z. (ALS)

13927.0: AFA9AY wkg REACH 205 (C-17A #93-0604, Charleston AFB 437AW, near Puerto Rico) for p/p to Charleston AFB CP; passes tail number 30604; ETA Charleston 0300Z, need Customs, Agriculture; no pax/cargo, in USB at 2301Z. (ALS)

13927.0: USAFMARS Operator AFA4TP wkg UTAH 51 (KC-135R, UT-ANG 151ARG 191ARS, Salt Lake City UT) for M&W phone patch in USB at 1605Z. (ALS)

13927.0: USAF MARS Operator AFA5RS (Shelbyville, IN) wkg CG 6022 (HH-60J, CGAS Clearwater, over Caribbean) for M&W phone patch to Georgia area code, in USB at 1545Z. (ALS)

13927.0: USAF MARS Operator AFA6DD wkg ROPER 94 (C-130H, TX-ANG 136AW, Ft Worth NAS JRB) for M&W phone patch re: ETA 3:30 p.m. local, in USB at 1809Z. (ALS)

13927.0: USAF MARS Operator AFA6DD (Los Angeles) wkg PITT 12 (C-130H, 911AW, Pittsburgh PA; over Atlanta, GA) for DSN phone patch to PITT OPS, reporting inbound, in USB at 1818Z. (ALS)

13927.0: AFA6DD wkg REACH 7044 (over SC) for M&W phone patch to SC area code; leaves message "Flying over the house"; also calls a Maryland number, in USB at 1921Z. (ALS)

13927.0: AFA7HS (Leawood, KS) wkg AFA5RS (Shelbyville, IN); strong signal from both stations, in USB at 1900Z; AFA7HS wkg TORCH 41 (C-130H, IL-ANG, Greater Peoria RAP, IL) for radio check in USB at 1350Z. (ALS)

13927.0: AFA5RS wkg HAWK 43 (B-1B, Dyess AFB) for phone patch to Dyess AFB; gets WX for arrival at Dyess: storms between Lubbock and Abilene, in USB at 1925Z. (ALS)

13927.0: KING 52 (HC-130) via AFA9AY (California), phone patch to Eglin AFB in USB at 2240Z. (MC/SC)

14300.0: KC0YHM (in Minnesota) net control in Maritime Mobile Service Net, in USB at 0015Z. (MC/SC)

15016.0: HF-GCS Station PUERTO RICO wkg KING 85 (EC-130H #73-1585, Davis-Monthan AFB 41ECS) for DSN phone patch to Davis-Monthan Metro; rqsts WX for KRCA (Ellsworth AFB), in USB at 2025Z. (ALS)

17515.0: Unid numbers station, YL/SS with 5-number groups, in AM at 1600Z. (SS/TX) ■

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Bill Finds An Acorn

by Bill Price, N3AVY
chrodoc@gmail.com

“One of the pieces had to be driven into place using a log-splitting wedge and the sledge, all wrong-handed, but it worked as nicely as when those Egyptians discovered the inclined plane... The bazillion-dollar dish was back in operation for about \$93 worth of parts, and I was back inside, locating satellite after satellite once again.”

I once watched a video of the novelist Carlos Fuentes at work. He typed with one finger. Not one finger on each hand, but one finger. Period. It was amazing to watch. Soon I will be using just the fingers of my left hand, as I'm up for my second round of shoulder surgery (the right one—again). Maybe next month I'll only turn in half a column. The left half.

It's been interesting at work.

My HPJIE* requires me to climb ladders and other tall things (now forbidden) or to reach over my head to run cables, or make connections, or tighten nuts and bolts and screws (also forbidden). Crawling around on the floor was never my strong suit, and doing it without straining the right shoulder or using it to pull myself up has pretty much limited me to sitting in my chair or driving the truck to various sites, where I can't do much once I get there.

My normally cruel and evil boss has been very understanding and has asked me to supervise people doing little projects, research some things for him on line, and pay people left-handed compliments.

I have learned to climb ladders one-handed when there's no one else to do the job, but I gotta tell you—if you've never tried using your “other” hand to put a wire onto a screw terminal and tighten the screw, or tighten nuts or bolts using the “wrong hand,” you're in for moments of feeling really useless if you ever end up with doctor's orders to avoid all stress and strain to the bad arm.

Installing BNC connectors, for instance, is something that you learn over time, and you become proficient at it. When you have to re-learn it, doing all the crimping with your “other” hand while doing only the light work with your “main paw”...well, it'll make you appreciate the day when the physical therapy is all over and you're back to being “two handed” again.

When I can't really get a good shot at tightening a mounting bolt on a small antenna clamped to the top of a chain-link fence, a part of me (usually the right hand) wants to take over from my useless left hand. When my brain wants to let old righty get away with it, old righty immediately lets out a yelp to remind the brain about doctor's orders.

You might recall that two months ago I was having an inordinate amount of difficulty making a controller work in order to aim our 30-foot satellite dish at the various satellites. Because it's “light work,” it's something I've been allowed to do.

The people who make the digital counters have truly been saints, and eventually when I described what was happening—when I would move one control motor and the counter display for another counter began to display random numbers, they asked if my leads were “shielded.” You know about shielding—

the way the outer braid of coaxial cable prevents stray signals from getting into (or out of) the center conductor, or the way some RF sections are enclosed in little metal boxes to isolate stray signals from talking to other parts of the device.

I said there were no sources of RF anywhere near them. Then they asked about relays that might be throwing an arc.

“Well, just the two 400 volt contactors for the main drive motors. They're in the same box as the leads that go to the displays,” I said.

I think I heard them laughing and groaning. It seems the veeblefretzer and quadriblifit displays are extremely sensitive to nearby arcing.

I spent a day building a separate box and moving all the display wires out of the big relay box and into their own happy little box. It was truly a beautiful day. Birds were blooming, flowers were singing, bees were stinging. All was right with the world. One by one, I began to seek out and mark the coordinates of all the satellites across the sky. I even put a call in to the boss to tell him everything was fixed and working great. (Note to self: Don't ever do that again until the *whole* job is done.)

There are mechanical couplers that go in between motors and drive shafts. On this particular dish, they are huge. One of these couplers decided to disconnect itself as I was inside the control shack pressing the azimuth and elevation buttons, and the dish stopped moving and wouldn't start again—but the motor did make a nice kind of “whining” sound.

After three hours spent poring over old manuals, diagrams and parts lists, another two hours on line, tracking manufacturers who have changed hands and changed names since 1978, I finally heard, “Yeah, we've got that in stock. We can ship it today.” Be still my heart.

Two days later, with no one around but me, I again did my one-handed climb up the ladder, held the wrecking bar with the bad hand, and swung the short sledge with the other. Words cannot describe how clumsy I felt using the wrong hands, but they were the only hands I had, and they would just have to do. And they did. One of the pieces had to be driven into place using a log-splitting wedge and the sledge, all wrong-handed, but it worked as nicely as when those Egyptians discovered the inclined plane while moving those huge stones. The bazillion-dollar dish was back in operation for about \$93 worth of parts, and I was back inside, locating satellite after satellite once again.

They say that even a blind pig finds an acorn once in a while. Oink.

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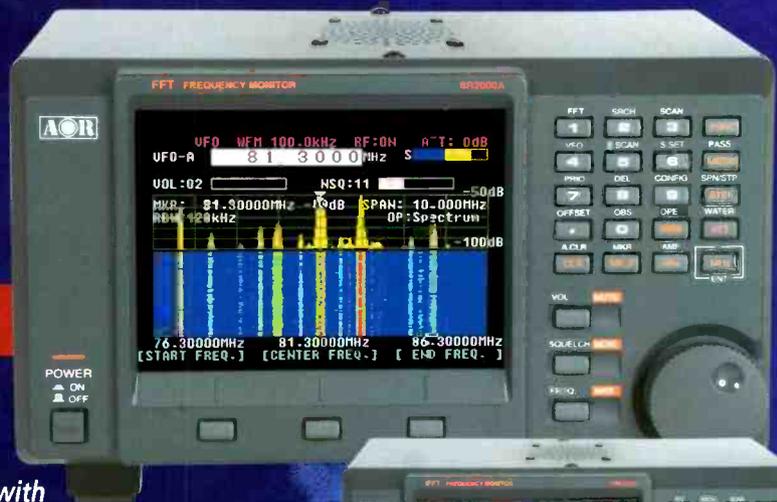
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Ultra sensitive, incredibly fast, yet easy to use with a high quality internal speaker for crisp, clean audio signals. Scans 10MHz in as little as 0.2 seconds! Instantly detects, captures and displays transmitted signals. PC control through RS232C serial port or USB interface. With 12 VDC input, it's perfect for base, mobile or field use.



AR8200MkIII Handheld Receiver



From inter-agency coordination to surveillance, you can't know too much. The world-class AR8200MkIII portable receiver features a TXCO that delivers solid frequency stability and performance not found in most desktop units. With 1,000 alphanumeric memory channels, it covers 500 KHz ~ 3GHz*. Improved RF circuits combine greater sensitivity, resistance to intermod and enhanced Signal to Noise ratio. It offers increased audio frequency response and includes NiMH AA batteries that can be charged while the unit is in use.

Optional internal slot cards expand the AR8200MkIII's capabilities. Choose from Memory Expansion (up to 4,000 memories), CTCSS Squelch and Search, and Tone Eliminator.

The AR8200MkIII offers "all mode" reception that includes "super narrow" FM plus wide and narrow FM in addition to USB, LSB, CW and standard AM and FM modes. It also features true carrier reinsertion in USB and LSB modes and includes a 3KHz SSB filter. The data port can be used for computer control, memory configuration and transfer, cloning or tape recording output.

A special government version, AR8200MkIII IR features infra-red illumination (IR) of the display and operating keys. The IR illumination function is selectable, allowing operation by users wearing night vision apparatus without removing goggles and waiting for the eyes to re-adjust. Ideal for military, law enforcement and surveillance operators.



Authority on Radio
Communications

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* Government version, cellular blocked for US consumer version.
**No audio is available when the frequency span is set to 20MHz or 40MHz.
Specifications subject to change without notice or obligation.

SEE more and HEAR
more with AOR, the
serious choice in
Advanced Technology
Receivers™.

Designed for the track...

IC-RX7 Stylish Scanner with Smart Interface

Sleek, fast, and able to hit the track even during a rain storm, the 'RX7 is Icom's first receiver to achieve the IPX4 water resistant rating. Besides its sleek and aerodynamic design, it's what's under the hood that will really put you in the race — power and performance! A newly developed user-interface allows you to zip around the track and frequencies, qualifying you for pole position with Li-ion battery performance that will have your friends hitting the pits way before you. Join the winning circle and visit an Authorized Icom Dealer today!

Features:

- 0.150 - 1300.000 MHz*
- AM, FM, WFM
- 1650 Alphanumeric Memory Channels
- High Speed Scan and Search
- Computer Programmable (Optional CS-RX7)
- Water Resistance Equivalent to IPX4

...and good for everyday use.



During recent "on-track" tests, the 'RX7 passed expectations with flying colors! Here's what some enthusiasts had to say:

"We were able to listen at all three races, including practice and qualifying without recharging!"

"The ability to select a channel by the car number made listening to the races even more fun!"

"We were able to see the car number, the driver's name, and the race type all at the same time!"

*Frequency coverage may vary. Refer to owner's manual for exact frequency specs.
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