

POPULAR COMMUNICATIONS

MAY 2011

Shortwave Listening • Scanning • AM & FM • Radio History

You're On The Air With Ham Radio

Unraveling Shortwave Relay Stations, p. 20

Tech Showcase:
The Wouxun KG-UVD1P
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Plus: Having Fun With
D-Star • Dress Up Your
DX With A Bowtie



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NEW COMPACT HF TRANSCEIVER WITH IF DSP

A superb, compact HF/50 MHz radio with state-of-the-art IF DSP technology, configured to provide YAESU World-Class Performance in an easy to operate package. New licensees, casual operators, DX chasers, contesters, portable/field enthusiasts, and emergency service providers- YAESU FT-450D...This Radio is for YOU!



Compact size: 9" X 3.3" X 8.8" and Light weight: 7.9 lb

HF/50 MHz 100 W All Mode Transceiver

FT-450D

With Built-in Automatic Antenna Tuner

- NEW** Illuminated Key buttons
- NEW** 300 Hz/500 Hz/2.4 kHz CW IF Filters

- NEW** Foot stand
- NEW** Classically Designed Main Dial and Knobs
- NEW** Dynamic Microphone MH-31A8J Included

- Large informative Front Panel Display, convenient Control knobs and Switches
- The IF DSP guarantees quiet and enjoyable high performance HF/50 MHz operation



Handy Front Panel Control of Important Features including:

- **CONTOUR Control Operation**
The Contour filtering system provides a gentle shaping of the filter passband.
- **Manual NOTCH**
Highly-effective system that can remove an interfering beat tone/signal.

- **Digital Noise Reduction (DNR)**
Dramatically reduces random noise found on the HF and 50 MHz bands.
- **IF WIDTH**
The DSP IF WIDTH tuning system provides selectable IF passband width to fight QRM.
SSB - 1.8/2.4/3.0 kHz, CW - 300 Hz/500 Hz/2.4 kHz
- **Digital Microphone Equalizer**
Custom set your rig to match your voice characteristics for maximum power and punch on the band.
- **Fast IF SHIFT Control**
Vary the IF SHIFT higher or lower for effective interference reduction / elimination.

More features to support your HF operation

- 10 kHz Roofing filter ● 20 dB ATT/IPO ● Built-in TCXO for incredible ± 1 ppm/year (@+77°F, after warm-up) stability ● CAT System (D-sub9 pin): Computer programming and Cloning capability ● Large, Easy-to-See digital S-meter with peak hold function ● Speech Processor ● QUICK SPLIT to automatically Offset transmit frequency (+5 kHz default) ● TXW to monitor the transmit frequency when split frequency operation is engaged ● Clarifier ● Built-In Electronic Keyer ● CW Beacon (Up to 118 characters using the CW message keyer's 3 memory banks) ● CW Pitch Adjustment (from 400 to 800 Hz, in 100 Hz steps) ● CW Spotting (Zero-Beating) ● CW Training Feature ● CW Keying using the Up/Down keys on the microphone ● Two Voice Memories (SSB/AM/FM), store up to 10

■ The rugged FT-450D aluminum die-cast chassis, with its quiet, thermostatically controlled cooling fan provides a solid foundation for the power amplifier during long hours of field or home contesting use.



MOS FET RC 100HF1



- seconds each ● 20 second Digital Voice Recorder ● Dedicated Data Jack for FSK-RTTY operation ● Versatile Memory System, up to 500 memory channels that may be separated into as many as 13 Memory Groups ● CTCSS Operation (FM) ● My Band / My Mode functions, to recall your favorite operating set-ups ● Lock Function ● C.S. Switch to recall a favorite Menu Selection directly ● Dynamic Microphone included ● IMPORTANT FEATURES FOR THE VISUALLY IMPAIRED OPERATOR - Digital Voice Announcement of the Frequency, Mode or S-meter reading

For the latest Yaesu news, visit us on the Internet:
<http://www.vertexstandard.com>

Specifications subject to change without notice. Some accessories and/or options may be standard in certain areas. Frequency coverage may differ in some countries. Check with your local Yaesu Dealer for specific details.

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ICOM
IC-R75
✓ **FREE Icom**
Ball Cap



Enjoy exciting international radio reception with the Icom IC-R75-22 communications receiver. With full coverage from 30 kHz to 60 MHz; all longwave, medium wave and shortwave frequencies are supported plus extended coverage to include the 6 meter amateur band. Some innovative features of the R75 include: FM Mode Detection (but not the FM broadcast band), Twin Passband Tuning, Two Level Preamp, 99 Alphanumeric Memories, four Scan Modes, Noise Blanker, Selectable AGC (FAST/SLOW/OFF), Clock-Timer, Squelch, Attenuator and backlit LCD display. Tuning may be selected at 1 Hz or 10 Hz steps plus there is a 1 MHz quick tuning step and tuning Lock. The front-firing speaker provides solid, clear audio. The back panel has a Record Output jack and Tape Recorder Activation jack. The supplied 2.1 kHz SSB filter is suitable for utility, amateur, or broadcast SSB. However, two optional CW/SSB filter positions are available (one per I.F.). The formerly optional **UT-106 DSP board** is now included and factory installed! Free Icom ball cap. **Order #0012 \$619.95**



R6 The Icom IC-R6 covers 100 kHz to 1309.995 MHz (less cellular gaps) in: AM, FM Narrow and FM wide. Enjoy local VHF-UHF coverage plus international shortwave broadcast. 1300 memories store: frequency, mode, step size, duplex, CTCSS, tone squelch and skip settings. Other features include: attenuator, LCD lamp, AM ferrite bar antenna, auto power off, CTCSS decode, weather function and battery save. You can put the world in your pocket for under \$200.00. **Call or visit website for price.**



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

IC-R9500



The Icom IC-R9500 raises the bar for professional receivers. Enjoy unmatched performance from 5 kHz to 3335 MHz (less cellular, in consumer version). Visit the Universal website for full details on this state-of-the-art instrument.

YAESU FT-450D



The Yaesu FT-450D amateur transceiver operates 160 to 6 meters with 100 watts on all bands. The superb receiver covers 30 kHz to 54 MHz. Operating modes include USB, LSB, CW, AM and FM. A built-in TCXO provides outstanding stability. The Yaesu FT-450D expands on the success of the previous FT-450, providing features such as: built-in antenna tuning system, classically designed knobs, dedicated data jack for FSK-RTTY, CTCSS, user configurable functions, digital voice announcement of frequency, mode and S-meter, 500 regular memories and two voice memories, CW beacon function, 10 kHz roofing filter, key illumination, foot stand plus 500 and 300 Hz CW filters. If you are in the market for a good shortwave receiver, with the idea of going into amateur radio in the future, this may be your ticket.

The FT-450D comes with: MH-31A8J hand mic, mic clip and DC power cord. This radio requires 13.8 VDC at 22 amps.

YAESU

FT-857D



FREE Yaesu orange mug with FT-857D/897D.



The Yaesu FT-857D is the world's smallest HF/VHF/UHF multimode amateur transceiver covering 160m to 70 cm with 100 watts on HF. Now with 60 meters and DSP2 built-in.

FT-897D



The Yaesu FT-897D is a multi-mode high-power base/mobile transceiver covering 160 m to 70 cm including 60 meters. Now with TCXO.

FT-817ND



FREE Yaesu canvas urban case with FT-817ND.

The Yaesu FT-817ND is an improved, deluxe version of the hugely popular FT-817. It includes 60 meter coverage plus the new high capacity FNB-85 battery. This radio has an excellent shortwave receiver built-in and is a fully self-contained, battery-powered, low power amateur MF/HF/VHF/UHF QRP transceiver.

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ON THE COVER

There's no radio like ham radio. And with easier licensing and terrific bargains on gear, there's never been a better time to get started—or to get back involved. Bob Witte, KØNR, tells you how in "First Steps In Amateur Radio," starting on page 12. (Cover Image: Eric Owen, KD4MZM, a member of the Sarasota Amateur Radio Association, pitches in with antenna maintenance atop Sarasota Memorial Hospital, Sarasota, Florida. Photo by Larry Mulvehill, WB2ZPI)

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Radios & High-Tech Gear

Tap into secret Shortwave Signals

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



MFJ-462B
\$199⁹⁵

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

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

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

Eavesdrop on the World

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

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

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a

"first-rate easy-to-operate active antenna... quiet... excellent dynamic range... good gain... low noise... broad frequency coverage." Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz. Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and auxiliary or active antenna. 6x3x5 in. Remote has 54" whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$15.95.

Indoor Active Antenna

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

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

Compact Active Antenna

Plug this compact MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz to 200 MHz including low, medium, shortwave and VHF bands. Detachable 20" telescoping antenna. 9V battery or 110 VAC MFJ-1312B, \$15.95. 3/8x1 1/4x4 in.



MFJ-1024
\$159⁹⁵



MFJ-1020C
\$99⁹⁵



MFJ-1022
\$69⁹⁵

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

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

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

Save several pages of text in memory for later reading or review.

High Performance Modem

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

Easy to use, tune and read

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

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

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

Copies most standard shifts and speeds. Has

MFJ *AutoTrak*™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312D AC adapter, \$15.95. 5 1/2"Wx2 1/2"Hx5 1/4"D 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 1/4"Hx1 1/4"D inches. 2.9 ounces

MFJ-5606SR, \$24.95. Cable connects MFJ-1800/WiFi antennas to computer.

Reverse-SMA male to N-male, 6 ft. RG-174.

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



MFJ Shortwave Headphones

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.



MFJ-392B
\$24⁹⁵

Eliminate power line noise!

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-1026
\$199⁹⁵

MFJ Antenna Matcher

Matches your antenna to your receiver so you get maximum signal and minimum loss. 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.



MFJ-959C
\$119⁹⁵

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.



MFJ-1045C
\$89⁹⁵

Dual Tunable Audio Filter

Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Plugs between radio and speaker or phones. 10x2x6 inches.



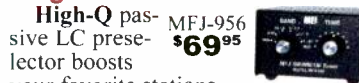
MFJ-752C
\$119⁹⁵

High-Q Passive Preselector

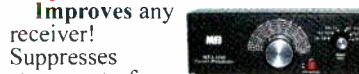
High-Q passive LC preselector boosts your favorite stations while rejecting images, intermod and phantom signals. 1.5-30 MHz. Preselector bypass and receiver grounded positions. Tiny 2x3x4 in.

Super Passive Preselector

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



MFJ-956
\$69⁹⁵



MFJ-1046
\$119⁹⁵

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

MFJ All Band Doublet

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



MFJ-1777
\$59⁹⁵

MFJ Antenna Switches

MFJ-1704 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!

MFJ-461
\$89⁹⁵



MFJ 24/12 Hour Station Clock

at-a-glance. High-contrast 5/8" LCD, brushed aluminum frame. Batteries included. 4 1/2"Wx1Dx2H inches.



MFJ-108B, \$21.95.
Dual 24/12 hour clock.
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EDITORIAL

Tuning In

by Edith Lennon, N2ZRW

editor@popular-communications.com

Changes In Radio... And Changes In *Popular Communications*

The French phrase rolls trippingly on the tongue: *Plus ça change, plus c'est la même chose*. English speakers say "the more things change, the more they stay the same." We lose the lyrical quality, but keep—I think—the non-sense value. The more things change, the more we have to adapt.

Last month, I wrote about *les changes* in the BBC World Service, which is for all I can remember where I first heard the French expression and which is busily engaged in slashing its foreign language services, budget, and jobs. This month, the slab of bloodied broadcasting meat on the chopping block is home-grown, the Corporation for Public Broadcasting. Both governments say they are simply out of money, and both corporations were just elitist, and, well, so *yesterday*. No more taxpayer money for them!

Of course, what's really changed, far more than tastes and technologies—and even the available funds when you see what still gets spent—are priorities. Education is going out of style, because the profits it creates are not neatly measured on the bottom line of a spreadsheet. Heck, we might not see any return on imparted knowledge for decades! And who can measure that kind of stuff anyway? Red pen, please.

No doubt plenty of *Pop'Comm* readers were no fans of the CPB—even before NPR's latest self-inflicted wound—believing that it has a left-wing tilt. But you gotta admit, even propaganda tries to engage the brain. Clear Channel, not so much. Forget about the stuff that crawls onto television.

I could go on, but I've got a lot of ground to cover...

Any readers with steel-trap memories may think the title of this editorial sounds familiar. They're right. It's the same one I used almost exactly four years ago, in June 2007, when I introduced myself as the editor. This month, I use it to bow out of this position and hand this page, and the reins of the magazine, to a new editor.

I have absolutely loved this job—working with the regular columnists, the feature contributors, meeting the readers at trade shows, and learning so much from all of the above. If there was one thing I could have changed about it, it was the unforgiving monthly deadlines that kept me tied to a computer most of

the time and cut into my globetrotting adventures/misadventures (I log my countries on site). So, since I couldn't change the nature of the magazine business, I've decided to change my association with it, switching to freelance writing and editing, and untethering myself to remove that one sticking point.


I'm happy to report that what skills I may have gathered over the years will still be put to use in a way that involves both radio and many of the wonderful people I've met through it. When he heard the news that I was stepping down, Thomas Witherspoon, founder and director of the non-profit organization Ears to Our World (if you don't know about them you haven't been paying attention) asked me to join ETOW's board of directors, a position I have humbly accepted. I hope my hitherto completely self-serving media involvement and globetrotting can now also serve a little good.

Between these new challenges and the red-wing blackbirds returning to the marsh near my house, I have so much I'm looking forward to. I sincerely wish you all the same.

Introducing (Drum Roll)...

Richard Fisher, KI6SN, *Pop'Comm*'s long-time "Washington Beat" columnist and the editor of sister publication *World Radio Online* since its April 2010 issue will be taking the editor's chair I'm vacating. He'll still serve as *WRO*'s editor and continue to write his regular columns for that magazine, *Pop'Comm*, and another sibling, *CQ*. Richard's interest in the radio hobby goes back over 50 years. Moveover, he's been a writer and journalist for nearly as long. In short, he is eminently qualified to guide *Pop'Comm* through changing times. While he'll of course place his own stamp upon it, in his hands I know it will remain the high-quality, interesting, and fun publication it's always been.

OK, I misspoke at the outset: In this *one instance*, the more things change, the more they stay the same. Vive la *Pop'Comm*!


Edith Lennon, N2ZRW
Editor, *Popular Communications*

Icom has the receivers for the experts...

IC-R9500 The Ultimate Wide Band Receiver

- 0.005–3335.000MHz*
- USB, LSB, CW, FSK, FM, WFM, AM
- 1020 Alphanumeric Memory Channels
- P25 (Option UT-122)
- Five Roofing Filters and so much more!

For those just getting started...



IC-R75 Wide Band Receiver

- 0.03–60.0 MHz*
- Triple Conversion
- Twin Passband Tuning
- Digital Signal Processing (DSP)



AND for those on the go!

IC-R20 Advanced Ops

- RX: 0.150–3304.999MHz*
- AM, FM, WFM, SSB, CW
- 1250 Alphanumeric Memory Channels
- Dualwatch Receive
- 4-hour Digital Recorder



IC-RX7 Track Ready

- RX: 0.150–1300.0MHz*
- AM, FM, WFM
- 1825 Alphanumeric Memory Channels
- 100 Ch/Second High Speed Scan
- Computer Programmable²
- Water Resistance Equivalent to IPX4



IC-R6 Pocket Compact

- RX: .100–1309.995MHz*
- AM, FM, WFM
- 1300 Alphanumeric Memory Channels
- 100 Ch/Second High Speed Scan
- Computer Controllable¹



IC-R2500 2 Wide Band RX in 1 Black Box

- 0.01–3299.99 MHz*
- AM, FM, WFM, SSB, CW (Main)
- AM, FM and WFM (Sub)
- 1000 Memory Channels
- Optional D-STAR (UT-118)
- Optional P25 (UT-122)
- Optional DSP (UT-106)
- PC Controllable



The Weirder Side Of Wireless

by Staff

You Can't Say That On (Or At) TV!

Martin Soloman, a retired plumber and ex-seaman, was convicted by a court in Gloucester, England, of disturbing his neighbors by launching foul-mouthed rants at politicians on his TV. In a report in *The Daily Mail's* MailOnline.com, the F-bomb laced tirades invariably happened late at night after stops at the local pubs and frequently woke neighbors and their young children. Two prior convictions did little to change the man's behavior so the judge imposed an unusual sentence: After serving jail time of 14 months the former sailor was banned from having a radio or TV in his home. The magistrate decreed, "You shall not have in your possession at any time during the next two and a half years any radio or TV receiving device. If that is the catalyst for your anti-social behaviour it will not be present when you come out of custody."

So please, dear readers, remember this cautionary tale: If a sailor can go to jail for cursing, no one is safe. Oh, and better not drink and watch TV.

Jerky Boys

Prince Albert may no longer be in the can and Amanda Kissenhug is nowhere to be found, but every generation finds a way to indulge in that most juvenile uses of communications: the prank call. The gamut typically runs from mildly amusing to pretty darn offensive, but people cross the line when they interfere with emergency bands. WFTV 9 Orlando recently reported on a story out of Lake County, Florida, where three men, ages 19 to 21, were arrested after stealing an off-duty detention deputy's radio from his personal vehicle and making fake calls for help, including one saying shots fired, officer down. A bloodhound was used to track the men for a short distance, and a piece of evidence along the trail—an empty beef jerky package—led deputies to the local 24-hour CVS Pharmacy, where the three men were seen on surveillance video entering and exiting

the store prior to the burglary. Once again criminals foiled by littering.

Twelve Homogenous Men

Sure he seems fair and unbiased, but let's see what his Facebook friends have to say about him... Reuters recently reported on the latest trend in jury selection: checking out potential jurors on social networking sites like Facebook. The goal is to use the information to get the most favorable juror possible. Lawyers and jury consultants are using the Internet to ferret out some of the most intimate details of potential jurors' lives including income level, personnel history, politics, and how well their Farmville building and Mafia Wars are going. Lawyers are restricted to the types of questions they can ask potential jurors, often just name, age, and marital status, but Goggle can often be much more revealing.

Was That A Sin? Don't Worry, There's An App For That

"Bless me father for I have sinned, let me get the details from my iPad," might soon be intoned to clergy, thanks to Confession: A Roman Catholic app, available for iPad and iPhone users for \$1.99. Targeted to people who may not get to the confessional booth very often—and presumably therefore have a long list—this software developed by Little iApps helps people keep track of their sins. It also helps them decide just which sins have been committed by taking the user through a review process, including the Ten Commandments, with questions attached to each—a process known as an examination of conscience. Luckily the app lists questions with check boxes in case one forgets answers to questions like "Have I wished evil upon another person?" or "Have I used any method of contraception or artificial birth control in my marriage?" While designed to spur Catholics on the fast track to repentance, the app does not distribute absolution or penance—you still need a real, live priest for that...for now...

News, Trends, And Short Takes

by D. Prabakaran

Iran's Cyber Army Hacks VOA, U.S.-backed Websites

An Iranian cyber group announced that it has hacked the Voice of America (VOA) and all its affiliated websites. The Iranian news agency Fars said the move came in response to what it called "the false reports released by the VOA and other websites on the spread and progress of seditious moves in Iran." According to the news agency, which is thought to have close ties to Iranian authorities, "VOA and its affiliates have long been supporting anti-Islamic Republic groups and sought to provoke unrests in Iran. The Voice of America is the official external radio and television broadcasting service of the United States' federal government, but it acts as a complementary and media arm of the US spy agencies." (Source: Fars News Agency)

New Shortwave Service To Be Launched

Taiwan-based PCJ Media has announced the creation of a new international shortwave radio service with targeted programming to Latin America, Eastern Europe, Asia/Pacific. PCJ sees an opportunity to fill a void being left by large publicly funded broadcasters. In the last few months a number of well-respected international broadcasters have announced that they will drop their shortwave transmissions to these regions in favor of the Internet and podcasts. In response, PCJ's new service would broadcast in five languages (Farsi, Mandarin, Spanish, Ukrainian/Russian, English) with programming targeted to audiences of those languages. New distribution platforms such as the Internet will also be used. Frequencies and schedules were to be announced at a later date.

(Source: Radio Netherlands Worldwide Media Network Blog)

BBCWS Could Return On SW To Cover Major Events

The BBC is considering plans to reinstate axed shortwave World Service radio broadcasts on a short-term basis to regions where major events are taking place, following the revolution in Egypt, reports *The Guardian*. Shortwave radio broadcasts of the BBC Arabic service, which has around 400,000 listeners in Egypt, were to be significantly reduced as part of plans to save £46m from the World Service budget, a 20-percent cut from its £253m annual budget. World Service broadcasts on shortwave are being cut back in the Middle East, Europe, Africa, and Asia as part of the cost savings drive. An email sent to Bush House staff by Peter Horrocks, the BBC's global news director, revealed plans to respond to major events in particular

regions by buying up shortwave radio capacity, against a backdrop of violent political uprising sweeping across the Middle East.

(Source: *The Guardian*)

UK Abandons Plans To Switch Off FM In 2015

The UK's Broadcast Minister Ed Vaizey has confirmed to a group of MPs that the FM waveband will not be switched off in 2015 and will remain as one of a number of multi-platform transmission options for local commercial radio. He also confirmed that he was prepared to take a look at the recent decision by Ofcom to limit license renewal terms for local commercial stations to just seven years.

(Source: www.mediauk.com)

Deutsche Welle Satellite Transmissions Jammed

Deutsche Welle has experienced jamming of its signals from the Hotbird 8 satellite. Engineers at Deutsche Welle detected interference of transmissions coming from the Hotbird 8 satellite beginning Monday at 13:07 UTC. It is believed the DW transmissions are being "jammed" by foreign signals, though the source of the signals could not be confirmed. Deutsche Welle last experienced jamming in February 2010, which was believed to have emanated in Iran. The disturbances affected DW-TV Europe, DW-TV Arabia, as well as very high frequency (VHF) and shortwave signals in regions including Europe, the Middle East and parts of Asia. TV live streaming on Deutsche Welle's multi-language news website was also affected by the disturbances.

(Source: Deutsche Welle website)

DRM Shortwave Broadcasts Starting In Malaysia

DRM broadcasts were to begin from Malaysia following the recent installation of HF Transmitters in Malaysia. DRM Members Continental Electronics recently completed the installation of three HF transmitters in Malaysia and following a recent series of successful trial broadcasts planned to begin regular DRM broadcasts. There has also been an undertaking to purchase a large order of DRM receivers. According to a press release from Continental, Radio-Television Malaysia has acquired three 100-kW DRM-ready HF transmitters, along with associated equipment. They were installed in the RTM Transmitting Station at Kajang, which will enable RTM transmissions in digital DRM format as well as conventional analog AM.

(Source: DRM Consortium)

Capitol Hill And FCC Actions Affecting Communications

by Richard Fisher, KI6SN

House Resolution Puts Public Broadcasting Funding In Peril

By a vote of 235 to 189, the U.S. House of Representatives has passed a resolution that in part would eliminate funding for the Corporation for Public Broadcasting—a potential loss of more than \$400 million in subsidies to the Public Broadcasting Service (PBS), National Public Radio (NPR), and about 1,300 locally owned stations nationwide. H.R. 1, the “Full-Year Continuing Appropriations Act, 2011” was approved by a 46-vote margin in the early morning hours of February 19. The CPB receives around \$420 million from the federal government annually—or \$1.40 cents per capita—according to a report published on ParkRecord.com, citing CPB grant calculations. Conservatives in particular had called for pulling taxpayer support of CPB. Shortly after gaining majority status, House Republicans set their sights on the corporation in an effort to slash \$61 billion from a government spending bill, according to McClatchy Newspapers and other published reports. The Democratic-led Senate and White House were expected to defend the CPB. The GOP would eliminate CPB’s funding, which totals \$445 million for fiscal 2012, or 0.01 percent of President Obama’s proposed \$3.73 trillion budget. “We will continue to work closely with our member stations, other national public broadcasting organizations and the millions of Americans who support public television to make our case to Congress,” PBS President and CEO Paula Kerger said in a statement.

House Bill Takes Aim At Radio Amateurs’ 70-cm Spectrum

A bill introduced by a powerful U.S. House of Representatives committee chairman could endanger 420 to 440 MHz—spectrum now authorized for radio amateur use—as the Federal Communications Commission and the new session of congress put a high priority on creating a nationwide interoperable broadband network for emergency responders. “Virtually all plans involve dedicating certain frequencies in the 700-MHz band to creating the network,” an Internet story from *CQ Amateur Radio* reported. “These frequencies were freed up by the migration of television broadcasting from analog to digital transmissions, and were initially scheduled to be auctioned off for commercial broadband use.” According to *CQ*, the FCC issued a Third Report and Order and Fourth Further Notice of Proposed Rulemaking in an ongoing proceeding to set up the service. “In addition, several related bills have been introduced into the new session of Congress, notably one by Senate Commerce Committee Chairman Jay Rockefeller (D-West Virginia) and another by House

Homeland Security Committee Chairman Peter King (R-New York).”

According to the American Radio Relay League, King’s bill, HR-607, “includes a provision to provide alternative spectrum to commercial users who would lose potential frequencies through the creation of the emergency response network,” *CQ* said. Among the frequencies that would be subject to reallocation are 420–440 MHz, part of the 70-centimeter band currently shared by amateurs and federal government radiolocation services, such as PAVEPAWS radar. The ARRL has promised to fight that portion of Rep. King’s bill and is encouraging radio amateurs to write their congresspersons to oppose HR 607 (see <http://bit.ly/f9S5JJ>).

AM Station Punished For Staying Up Too Late

A New Orleans-area daytime AM station is being fined \$14,000 by the FCC for staying on the air later in the evening than authorized. KGLA (1540 AM), “Radio Tropical Caliente,” may broadcast “for a limited period of time before and after sunset,” according to the Commission. It says the station—owned by Crocodile Broadcasting and based in Gretna—“willfully and repeatedly violated the rule by operating later than allowed.” The 1-kW daytime-only station was cited for failing to keep a complete public inspection file, as well. “When questioned about night-time operations, the general manager admitted that the station had been operating at reduced power throughout the night for a number of years,” FCC documents revealed. “He stated that he thought the station was authorized to operate at night.” The investigation was initiated when it received an interference complaint from another station. “A commission agent from the Enforcement Bureau’s New Orleans Office witnessed the station operating after 8:30 p.m.”

Commission Targets Illegal Cell And GPS Jamming Devices

The FCC announced that it is mounting “new efforts to clamp down on the marketing, sale, and use of illegal cell phone and GPS jamming devices,” according to published reports. “The Bureau released two Enforcement Advisories and a downloadable poster on cell phone and GPS jamming that warn consumers, manufacturers, and retailers that the marketing, sale, or use of cell, GPS, and other jamming devices is illegal,” a report on *RadioInk.com* said. In February “the Bureau issued warnings to four well-known online retailers—including the company that markets the TxTStopper—directing them to cease marketing jamming devices to customers in the U.S. or face stiff fines.



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You've probably seen and heard about the newest credit card systems that allow you to "wave" your key ring or credit card in the vicinity of the business terminal and pay for your purchase. This is an example of "proximity card technology." You've also almost certainly heard of radio frequency identification (RFID) tags. Many items of electronics and clothing are tagged for inventory and security purposes. Its closely related cousin, near field communications (NFC), is the equivalent for mobile phones and other devices. This trend represents the latest in "convenience," and there are implications for use of the HF spectrum.

In more formal terms, NFC is a technology that allows two devices, at least one powered, to exchange information using magnetic inductive coupling. Usually each device has an embedded loop antenna, which together create an air core transformer, establishing a communications circuit within the "near field."

So much for the definition. NFC uses a standard frequency of 13.56 MHz. The bandwidth allocated is 1.4 kHz, but it's quite common for the signal to spread as much as 0.9 MHz on either side of the carrier. Unlike technologies like WiFi or Bluetooth that use GHz-range frequencies, this one sits smack in the HF range. If I don't have your attention by now, you aren't a ham or SWL. By design, the power levels should only allow effective communications out to distances of six to eight inches, but in practice, highly sensitive receiving devices such as the ones in your shack are going to pick up the hash farther away.

I'm sure to average consumers or business owners it's "all magic" anyway. They won't be interested in the ASK modulation or baud rates used. It won't matter that the technology uses HF frequencies or that the actual bandwidth is more than 1,000 times wider than the specifications. Even the fact that it is electromagnetic communication isn't important to them. But it should be important to you, the reader.

Before going further, let me be clear that I don't necessarily oppose this technology. The frequency is allocated for this type of use and does not require licensing in most of Europe and North America. RFID devices are already using the frequency. There's no question that more and more technologies will continue to encroach on our favorite bands for listening or transmitting. It's inevitable as a result of technological development and the myriad commercial opportunities

"NFC uses a standard frequency of 13.56 MHz... Unlike technologies like WiFi or Bluetooth that use GHz-range frequencies, this one sits smack in the HF range."

that exist. Potential applications include mobile ticketing, electronic payment, smart advertising, biometric identification, to name just a few. My concern is how we cope with this and where do we go from here.

Pop'Comm readers can certainly think of lots of applications for this around our own homes and perhaps can even invent one or two that would be worthy of a patent. We can also imagine the "noise" this will add to our listening environment. (Hint: Don't keep your NFC-enabled mobile phone on the table next to your transceiver!) But it's the classic case of "no such thing as a free lunch." Moreover, the existing specifications and applications for NFC have serious and unresolved security and privacy issues.

If, in your opinion, the downside of NFC outweighs the upside, it's worth considering that rear-guard "don't touch my frequency" campaigns aren't likely to work. Even if you add all the scanner listeners, SWLs, hams, and any "organized" communications hobbyists together, we'd still fall short of the numbers needed to win that kind of battle. What we can do instead, as evidenced by the broadband over power line (BPL) saga, is point out where spectrum needs protection and how we can *co-exist* with NFC and other technologies. More wireless technologies are coming and we need to be aware and involved.

As I noted in past columns, many of us are the "technological sophisticates" of our social and family groups. We can lead by example and by providing well-thought-out arguments concerning the pros and cons of these uses of the RF spectrum. We can support our hobby organizations so they have the resources to act on our behalf. We also need to understand that some of these technologies might be our friends! You really don't want to give up your TV remote, mobile phone, or Bluetooth earpiece do you?

How do you feel about technologies such as NFC? Do you have, or would you consider using, a mobile phone, credit card, or passport that used it? Drop me a line using something other than NFC and let me know what you think.

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Work the world—and beyond—with ham radio. Expedition 11 Flight Engineer and NASA ISS Science Officer John Phillips enjoys an amateur radio contact with students at the Albany Hills State School in Brisbane, Australia. Phillips' callsign is KE5DRY. (Image courtesy of NASA)

First Steps In Amateur Radio

Tips And Suggestions For Exploring This Rich And Wonderful Hobby

by Bob Witte KØNR, bob@k0nr.com

Are you just starting out with your brand new FCC Technician license? Or maybe you've been licensed for a while but have taken a break from the hobby? It is easy to "get stuck" somewhere along the way, so let's look at some ideas on how to get started (or re-started) with the hobby.

With no Morse code requirement, the knowledge you need for the entry-level Technician license can be easily acquired via self-study or attending a license class. After passing the FCC exam, the question quickly becomes: what do I do next? The Technician license is just a *beginner's permit*, the starting point for becoming an amateur radio operator. And for some, actual-

ly getting on the air and gaining some experience with radio communications can occasionally pose a bit of a challenge.

With the Technician License, you have access to all the ham bands above 50 MHz. You also have voice privileges on the most popular section of the 10-meter band (SSB from 28.3 to 28.5 MHz). Of course, if you want to use Morse code, you can take advantage of working the other high-frequency bands. And it doesn't take much equipment, either (see "Basic FM VHF/UHF Starter Kit"), so diving right in is easy. Let's take a look at just a few of your operating options.

FM: The Utility Mode

A logical first step for a new Tech is to get up and running on the local VHF and UHF FM repeaters. This provides some

very practical communications and a connection with the local ham community. VHF FM gets used for so many activities—from public service and emergency communications to just chatting across town—that it's sometimes referred to as

the utility mode. While you'll likely want to expand beyond FM, it is the logical starting point.

To use repeaters, you'll need a basic FM transceiver, either a handheld or mobile radio. Some hams just choose to

pick up a single-band 2-meter radio, but the multiband radios are an attractive option (especially for the 2-meter and 70-cm bands). The additional cost is not that great and there are lots of additional frequencies and repeaters available there.

How do you find your local repeaters? Get a copy of the *ARRL Repeater Directory*, which is the authoritative guide for repeater listings, and see what repeaters are in your area. You can also do some searching on the Internet, looking for radio clubs that support the local machines.

The next step is to program your radio with the proper frequency, transmit offset, and access tone for each repeater. You'll also find activity on the 2-meter and 70-cm simplex frequencies, so be sure to program them into the radio, as well. In particular, include the FM calling frequencies (146.52 MHz and 446.00 MHz), which are useful nationwide. Modern FM VHF radios are packed with features, so it can be a challenge to get it all programmed correctly. Once you get the local repeaters and simplex frequencies programmed into memory, however, life gets easier.

Repeaters tend to attract a particular set of users who form a kind of commu-



Club activities such as Field Day are a great way to learn about ham radio. Here Rick, KØSU, helps a Boy Scout make some contacts on 20 meters.



The WØTLM crew erects an antenna tower at Field Day.



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Basic FM VHF/UHF Starter Kit

A common way to get started on the VHF/UHF bands is to obtain a dualband handheld transceiver and a few key accessories. Get a transceiver that covers at least the 2-meter (146 MHz) and 70-cm (440 MHz) bands, with 5-watt output power. Give some careful consideration to some key accessories, namely a spare battery pack, an extended length antenna, a 12-volt power cord, and a small magnetic mount antenna for mobile use.

Handheld radios are very convenient and versatile, but the battery has limited capacity and will always go dead when you least expect it. Having a spare battery and a cigarette plug power cord can really help with this issue. The “rubber duck” antenna that comes with every radio is also convenient, but it radiates like a wet noodle. A longer antenna (1/2-wave is best) will provide a much bigger signal without consuming additional battery capacity. The same thing goes for a magnetic mount antenna, which puts your signal on the *outside* of the vehicle when you are mobile.

Below are some typical prices for new gear—you can always shop around for a better price on new or used equipment, too:

- Dualband FM Handheld Transceiver (Yaesu FT-60, ICOM IC-T70A, or similar): \$220
- Spare rechargeable battery (matches handheld radio): \$30
- Longer antenna for handheld use (Diamond SRH77CA, Comet SMA24, or similar): \$20
- Magnetic mount antenna (Comet M-24S, Diamond MR77 SMA, MFJ MFJ-1724B, or similar): \$30
- 12-volt Cigarette Plug power cord (matches the handheld radio): \$25

For satellite work, a small dualband directional antenna is the way to go, such as the Arrow II 146/437 antenna or the Elk 2M/440L5 antenna (approximate cost: \$120–\$140)

The Beyond FM Station

If you want to work 10 meters and/or 6 meters, you'll need a transceiver capable of SSB on these bands. Typically, this is going to take you to a full-blown HF transceiver that also includes the 6-meter band. There are many choices out there starting with mobile rigs, such as the Yaesu FT-857D, ICOM IC-7000, Kenwood TS-480SAT (approximate range: \$800–\$1300) and extending up into more advanced transceivers. Some of these radios include all modes on 2 meters and 70 cm, which is a real bonus.

The Arrow II is a popular antenna for working the FM satellites with a handheld transceiver. →



A basic starter kit for a new Tech is a dualband FM handheld radio plus a few accessories.



nity and then hang out on that frequency. Since these communities are made up of human beings, the groups usually have their own personalities. Some repeaters are known for being very busy with chit-chat all day long, while others sit idle most of the time. Some are used exclusively for public service, while others are for general use. After you get the local repeaters programmed in, scan them to figure out which ones are active and which ones appeal to you. A general hint for any ham radio operating is to spend a lot of time listening to figure out how things really work on the bands.

In most areas of the country, you'll find a number of VHF FM nets active, usually covering a variety of topics. In my area, we have weekly nets for specific clubs, traffic handling, ARES, RACES, AMSAT, APRS, and technical help. Checking into these nets gives you on-the-air practice and awareness of local ham activity.

Meet Some People

Obviously, one way to meet and get to know other radio amateurs is by talking on the air. But here's a little secret: you may meet people on the air but often the face-to-face interaction you have will really cement the relationship. Meeting someone in person who shares a common interest and (maybe) working on a project together really helps. Luckily it's often easy to move from being an unknown voice on the radio to someone who shows up in person.

Your local amateur radio club is a great place to meet other hams, so look around for a radio club that matches your interests. Just like repeaters, each club tends to have a different focus and personality. The ARRL has a good listing of clubs on its website (see "Web Links"). And here's another secret: Ham radio clubs are often in need of volunteers to make the club function, so consider offering to help with club projects. You'll get a lot out of the experience.

Find A Purpose

You got started in amateur radio for one reason or another. It might just be the general notion of wanting to play with radios, or it might be more specific than that. Whatever it is, use this interest as a springboard to getting on the air. For example, many new hams are motivated to help with public service and emergency communications. This is a key tenet of the



Lou McFadin, W5DID, of AMSAT, smiles next to a mockup of ARISSat-1 at the 2011 Orlando Hamcation hamfest.

Amateur Radio Service, and it's a fun and useful way to get involved.

There are several different organizations that are engaged in public service. The Amateur Radio Emergency Service (ARES) is part of the ARRL Field Organization, but you do not need to be an ARRL member to participate. The Radio Amateur Civil Emergency Service (RACES) is officially recognized in Part 97 of the FCC rules and is attached to a civil defense organization, usually a state or local government agency. If you're interested in weather-related public service, check out the SKYWARN program, which is sponsored by the National Weather Service. SKYWARN spotters provide essential information for all types of weather hazards, with special emphasis on identifying and describing severe local storms. Depending on location, these three programs may be tightly connected or organized separately. Contact the local leadership of these groups and find out when they meet and how they're organized. Be prepared to show up with a positive attitude and the willingness to learn and help out.

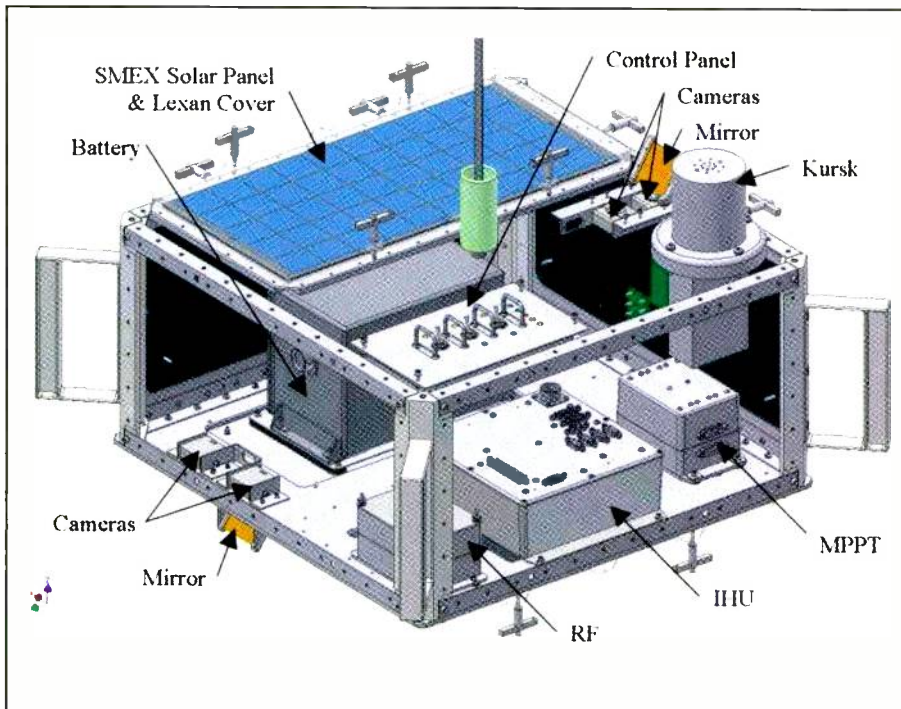
Beyond FM And Repeaters

As practical as FM and repeater operation is, there's much more to explore in amateur radio. For instance, many people have an interest in working more distant stations on the high-frequency bands. The

ARRL Field Day (always the last full weekend in June) is an excellent opportunity to operate any of the ham bands under the supervision of a suitably licensed control operator. (See "Getting Ready for Amateur Radio Field Day," by Chip Margelli, K7JA, in the June 2010 issue of *Pop'Comm* for a thorough description of this great event.)

Your Technician Class license provides voice privileges on two important bands that can provide long-distance communication via sky wave propagation: 6 meters and 10 meters. (I don't mean to overlook using CW on the HF bands, which is another fun option, but most Technicians are going to start out on voice.)

Getting on these bands will require some additional equipment, namely an SSB-capable transceiver that covers these bands. These days there are very few single-band SSB transceivers offered, with the common configuration being an HF transceiver that covers 160 meters through 10 meters. Often 6 meters is included as a bonus (and some rigs go up into the UHF range.) One option is to go ahead and gear up with an HF transceiver, one that includes 6 meters, even though as a Technician you can't use all of the capability yet. You'll also need to have an antenna that is tuned for those bands. Your first antenna does not need to be very exotic: a simple dipole can work wonders for either 6 or 10 meters.



This cutaway drawing of the ARISSat-1 spacecraft shows how the main components are constructed. (Drawing by Bob Davis, KF4KSS)

The most common sky wave propagation on 6 meters is sporadic *E* (abbreviated E_s). As the name implies, E_s is not very predictable, but it occurs much more often during the summer months in North America. That means that June and July are excellent months to try out 6 meters. Most of the operation is on SSB, starting at the calling frequency of 50.125 MHz and working up from there. The DX window of 50.100 to 50.125 MHz is kept open for QSOs to other countries. You will find some 6-meter activity on FM (calling frequency is 52.525 MHz), which some of the multiband FM transceivers cover.

Since the propagation tends to come and go, a good strategy is to monitor the calling frequency, listening for band openings. The summertime VHF contests are excellent opportunities to try out 6 meters, since there are usually lots of hams on the air. This year the ARRL June VHF QSO Party will be held June 11–13 and the CQ Worldwide VHF Contest is on July 16–17.

The 10-meter band is another option for SSB voice activity, with the potential for worldwide DX contacts. This band has good propagation during periods of high solar activity but it also benefits from E_s propagation. When 10 meters opens up, it's possible to work anywhere in the world. As the sunspot activity

increases over the next few years, this band will be hot!

Work The Birds

Another fun activity that you can explore with your Technician license is working the amateur satellites. The first step down this path is learning how to track orbiting satellites and receive their downlink as they pass overhead. Actually, you can do this without even having an amateur license—you just need a receiver capable of receiving FM transmissions on 2 meters or 70 cm. Later, you can add the transmit side and work other stations via satellite.

At press time, the ARISSat-1 satellite (also called KEDR or RadioSkaf V) was positioned on the International Space Station (ISS) ready to be deployed on a future EVA (Extra Vehicular Activity). One of the astronauts will take the ARISSat-1 out the hatch and toss it into orbit. (Check the AMSAT and ARISSat-1 websites for the latest information.) This satellite has a number of features to make it a little more fun to track, with simultaneous 2-meter FM, CW, BPSK, and transponder transmissions. The 2-meter FM transmissions on 145.95 MHz will cycle between a voice ID, telemetry, 24 international greeting messages, and live SSTV (slow-scan television) images.

You can decode the images being sent by connecting your FM receiver to your computer sound card and running some free SSTV decode software.

ARISSat-1 has a linear transponder that receives signals in the range of 435.742–435.758 MHz and retransmits them on 145.922–145.938 MHz. Note that this is *not* an FM repeater: only CW or SSB signals are allowed. Use one of the FM birds (such as AO-51) to make FM contacts via space. The Work-Sat website by Clint Bradford, K6LCS, has a lot of excellent information on working ARISSat-1 and AO-51.

Just Do It

We've covered a few radio operating activities to get you started, but there are plenty more to discover and explore. Whatever your interest, don't let yourself become one of those Techs who get their licenses but never really get on the air. Amateur radio has many different things to offer, so the key thing is for you to find one that motivates you and then go for it. Set a specific goal, get on the air, and have some fun!

Web Links

ARRL, Getting Started, Finding Radio Clubs
www.arrl.org/get-involved

Amateur Radio Emergency Service (ARES)
www.arrl.org/ares

Radio Amateur Civil Emergency Services (RACES)
<http://qsl.net/races/links.html>

SKYWARN
www.weather.gov/skywarn

ARISSat-1
www.arissat1.org

CQ Worldwide VHF Contest
<http://cqww-vhf.com/>

The AMSAT
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Shortwave Relay Race

Making Sense Of The Broadcast Transmitters That Pass The Signal Baton On To You

by Gerry Dexter

Last summer my wife and I were walking on Balboa Beach in Southern California, when I bent down to grab a handful of sand, as everyone walking a beach tends to do. (I think Fodor has a rule about that in their guidebooks.) For some reason, at that moment the idea for an article popped into my head. I thought, "I bet a piece on shortwave relays would probably be impossible to do. I'd have about as much chance of including them all as I would holding on to every grain of sand in my hand!" By the time we'd left the beach, walked to the end of Balboa Pier, spent an hour staring at the Pacific, and then left what, for me, is hallowed ground, I had decided to give it a go. Hence this piece!

Relays, like everything else in the shortwave world, have changed considerably over the years. I think the only thing that has remained the same are the numbers of the frequencies. I mean, 4780 is still 4780, regardless if the BBC decides to switch all of its broadcasts to telegraphy mode or you suddenly wake up in the year 2211 and discover that all your QSLs have been made into ID tags and are now hanging around the necks of runner-up Rottweiler's at the Westminster Kennel Club show.

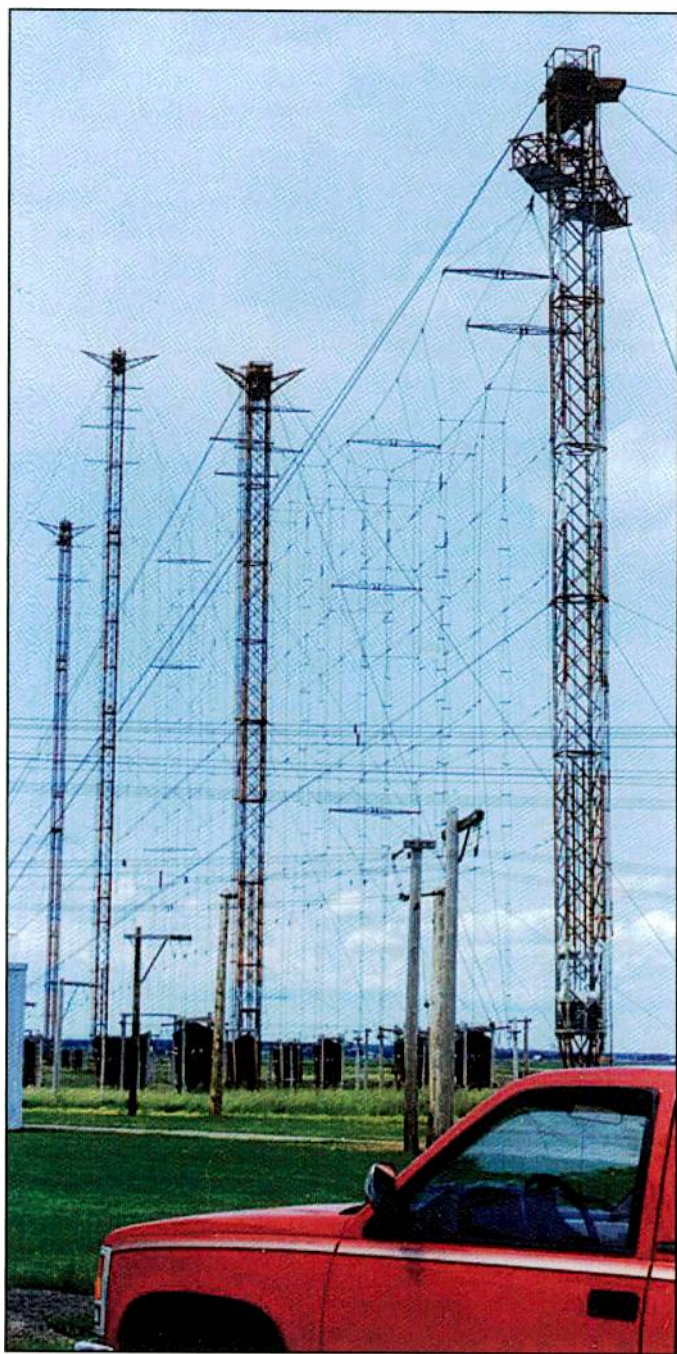
Raveled Relays

Today there are more relays, and they are receiving more use. Furthermore, many are no longer beholden to one particular broadcaster, which makes things even more confusing. In the good old days they'd actually tell you where they were coming from as part of the ID announcement or—as in the case of the VOA—at least at sign on and sign off ("This is the Voice of America Relay Station, Tangier. The following program is in Tiamongrelexian"). Later, you had to look it up and hope the reference source bothered to include the information.

Eventually the number crunchers got involved, and now it's all a jumble. "This would make a lot more sense if we farmed it out, privatized it and let someone else pay to mind the meters, maintain the antennas, fix the feedlines, test the transmitters, and all that stuff," said some Justin Justify no doubt muttered from under his green eyeshade while squirreled away in some forgotten back-of-the building cubicle at some state-run broadcaster.

Over time the idea must have grown, spreading like a malevolent oil slick. It certainly seems that eventually all the corner

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



Towers at the Sackville, New Brunswick, site of Radio Canada International are also used by Deutsche Welle and the Voice of Vietnam.



China Radio International relies on transmitter sites in Albania, Brazil, Cuba, France, Mali, and Spain, along with a couple of others, and several within China itself.



NHK World Radio Japan takes transmitter time supplied by Ascension, Bonaire, and a dozen others.

office suits picked it up and before you could say “Thiruvananthapuram” the halls of brass signed things over to some independent “Letsgoglobal” firm, which had already decided they could turn a profit by offering their services to other broadcasters. Suddenly the Meyerton site in South Africa is not only carrying the BBC but also half a dozen German-based missionary outlets, various U.S.-IBB broadcasters, and a “Radio Fee Barton,” for half an hour every other third rainy Tuesday. Not to mention Family Radio, Radio France International, Radio Nederland, and—for all we know—Radio Vanuatu! Before you can even grab your logbook you’re in a state of complete confusion, lost in a maze and surrounded by a London-thick fog.

Indeed, there are some countries that have actually given up operating transmitters within their own shores. These days, reporting logs of Radio Nederland, Deutsche Welle, and Polish Radio are a largely meaningless exercise. (There’s even a movement afoot in D.C. to shut down Greenville, the Voice of America’s last active continental U.S.-based site!) It may or may not mean anything, but some other countries found themselves on such

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AR-STV Handheld Video Receiver

See who is watching you on wireless video surveillance cameras. The AR-STV handheld receiver detects hidden NTSC or PAL analog video signals in real time. A valuable addition to any security operation, the AR-STV features a large 2.5 inch color LCD display and a USB connector that makes it easy to download stored images into a computer. With optional 4GB SD memory card, up to nearly 2000 images can be stored for later analysis.

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Whatever the monitoring need, AOR products deliver exceptional performance for use by federal, state and local law enforcement agencies, the military, emergency managers, diplomatic service, news-gathering operations, and home monitoring enthusiasts.

a path before they sang "The Party's Over," turned off the lights and went home. I guess you don't need to worry much about antenna heights or changing beams if you're "broadcasting" via the Web.

Site Specifics

By the way, in case you didn't realize it, logging and reporting one of the above-mentioned countries *without* including the site is akin to a broadcast band DXer reporting that he's heard ESPN Radio on 1220 kHz. 1220? Did he mean the station in Independence, Iowa, Toledo, Ohio, or Upscale, Missouri? All he really reported having heard was sound from a studio. I know many of you compile your log reports in a one-size-fits-all format. But that doesn't change the need to put in some extra effort and include the site (no matter where, or to whom, your logs are sent).

Nearly all the Web-based lists, such as EiBi (www.eibi-space.de), Aoki (www.geocities/binews.jp), and HFCC (www.hfcc.org), show the transmitter sites. The *World Radio TV Handbook* also lists sites (check the three-letter code shown opposite the frequency). Transmitter site abbreviations are also listed in the back of the book. So what's the problem with including them? (Personally, I'd like to see somebody also produce a pronunciation guide—you can't get your tongue around some of these place names!)

OK, enough for now. I'll get my sore back in motion and move the lectern back into the garage!

Cite The Site Help

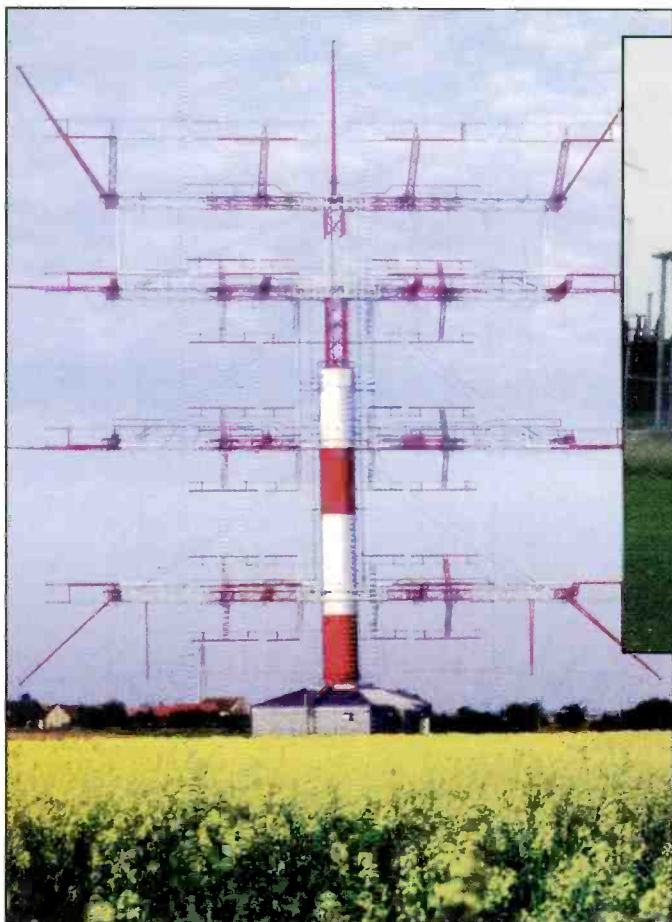
The accompanying tables list the relays. **Table 1** organizes them by site, with the geographical coordinates and country; **Table 2** shows the broadcasters and the sites they currently

Table 1. Relays By Site

Site	Co-Ordinates	Country	Site	Co-Ordinates	Country
Agingan Point	15-07'16"N—145-41'34"E	Saipan, NM	Montinsery	04-53'47"N—52-30'28"W	French Guiana
Almaty	43-13'11"N—77-00'15"E	Kazakistan	Meyerton	26-35'11"S—28-08'21"E	South Africa
Armavir	45-28'23"N—40-06'11"E	Russia	Mykolaiv	46-49'10"N—32-12'40"E	Ukraine
Bamako	12-44'37"N—08-03'11"W	Mali	Nakhon Sawan	15-48'37"N—100-03'51"E	Thailand
Biblis	49-41'15"N—08-29'25"E	Germany	Nauen	52-38'52"N—12-54'31"E	Germany
Bijelina	44-42'-02"N—19-09'58"E	Bosnia	Okeechobee	27-27'27"N—80-56'W	United States
Brasilia	16-36'40"S—48-07'53"S	Brazil	Novosibirsk	55-29'34"N—83-41'26"E	Russia
Caiari de Poroci	10-00'N—83-30'W	Costa Rica	Palauig	15-28'03"N—119-54'57"E	Philippines
Cerrik	40-59'47"N—19-59'58"E	Albania	Paochung	23-43'36"N—120-18'E	Taiwan
Cypress Creek	32-41'03"—81-07'50"W	United States	Petropavlovsk	53-11'27"N—15-24'36"E	Russia
Dhabbaya	24-10'07"N—54-15'E	UAE	Plovdiv	42-22'40"N—24-51'46"E	Bulgaria
Dushanbe	38-28'46"N—68-48'15"E	Tajikistan	Pinheira	00-17'34"N—06-45'08"E	Sao Tome
English Bay	07-53'55"—14-22'56"W	Ascension Island	Rampishm	50-48'30"N—02-38'40"W	England
Gavar	40-24'29"N—45-11'32"E	Armenia	Rimavska Sobota	48-24'12"N—20-07'30"E	Slovakia
Greenville	35-28'N—77-11'57"W	United States	Sackville	45-52'35"N—64-19'29"W	Canada
Grigoriopol	47-16'53"N—29-25'26"E	Moldova	Samara	53-16'27"N—50-13'49"E	Russia
Havana	22-56'55"N—82-32'42"W	Cuba	Santa Maria di Galeria	42-02'34"N—12-19.51"E	Vatican City
Hialeah Gardens	25-54'N—80-21'50"W	United States	Santiago	33-38'36"S—70-51' 01"W	Chile
Irkutsk	52-25'33"N—103-40'09"E	Russia	Shepparton	36-19'24"S—145-25'15"E	Australia
Huwei	28-43'35"N—120-25'02"E	Tiawan	Sines	37-56'26"N—08-46'20"W	Portugal
Iranawila	07-30'24"N—79-48'29"E	Sri Lanka	Sitkuani	55-02'37"N—23-48'28"E	Lithuania
Issoudun	46-56'40"E—01-53'40"E	France	Skelton	54-44'N—02-53'16"W	England
Jinha	29-06'42"N—119-18'39"E	China	Taipei	25-05'N—121-27'E	Taiwan
Juelich	50-56'53"N—06-21'37"E	Germany	Tanshui	25-11'58"N—121-24'58"E	Taiwan
Kashi	39-21'04"N—75-46'15"E	China	Talata	18-45'46"S—47-36'52"E	Madagascar
Khabarovsk	48-34'35"N—135-04'50"E	Russia	Tashkent	41-13'11"N—69-09'E	Uzbekistan
Kiev	50-30'13"N—30-48'32"E	Ukraine	Tinian	15-02'45"N—145-41'34"E	Northen
Kigali	01-54'52"S—30-06'57"E	Rwanda	Marianas		
Kranji	01-25'23"N—103-43'57"E	Singapore	Trincomalee	08-44'36"N—81-07'51"E	Sri Lanka
Kvitsoy	59-04'N—05-26'15"E	Norway	Udon Thani	17-40'37"N—103-12'09"E	Thailand
Lampertheim	49-36'N—08-32'07"E	Germany	Ulaanbaator	47-47'48"N—107-10'49"E	Mongolia
Litomysl	49-49'—12-18'27"E	Czech Republic	Ulbroka	54-56'18"N—24-16'56"E	Latvia
Lviv	49-53'55"N—24-43'E	Ukraine	Umm-Al-Riman	29-30'24"N—47-40'24"E	Kuwait
Medorn	07-27'28"N—134-28'40"E	Palau	Urumqi	44-08'50"N—86-53'47"E	China
Minsk	53-57'43"N—27-46'46"E	Byelorussia	Wertachtal	48-05'N—10-41'40"E	Germany
Mopeng Hill	21-57'14"S—107-10'49"E	Botswana	Woofferton	52-18'36"N—02-43'14"W	England
Moosbrunn	48-00'24"N—16-27'43"E	Austria	Xi'an	34-22'34"N—10-36'37"E	China
			Yamata	36-10'25"N—39-49'15"E	Japan

Table 2. Broadcasters And Sites Employed

Broadcaster	Non Domestic Transmitter Sites					
Adventist World Radio	Issoudun Wertachtal	Meyerton	Moosbrunn	Nauen	Taiwan	Talata
BBC	Ascension Kimje Novosibirsk	A'Seela Krasnodar Seychelles	Cypress Creek Meyerton Singapore	Cyprus Montsinery Sines	Dhabbaya Moscow Trincomalee	Dushanbe Nakhon Sawan Vladivostok
Bible Voice Broadcasting	Almaty	Dushanbe	Issoudun	Nauen	Wertachtal	
China Radio International	Bamako Nobeljas	Brasilia Sackville	Cerrik	Havana	Issoudun	Moscow
Christian Science Sentinel	Wertachtal					
Deutsche Welle	Dhabbaya Petropavlovsk Tashkent	Dushanbe Rampisham Trincomalee	Gigoriopol Sackville Wooferton	Kigali Sines	Kimje Singapore	Nakhon Sawan Talata
The Disco Palace	Bonaire	Issoudun				
Family Radio	Almaty Huwei Novosibirsk Tashkent	Ascension Issoudun Paochung Tinian	Chita Irkutsk Petropavlovsk Wertachtal	Dhabbaya Krasnodar Rampisham	Gavar Moscow Skelton	Grigoriopol Nauen Talata Tanshui
Far East Broadcasting Association	Ascension Tashkent	Dhabbaya Wertachtal	Gavar	Kigali	Moscow	Novosibirsk
HCJB Global	Santiago	Sitkuani				
IBRA Radio	Meyerton Skelton	Novosibirsk	Palau	Petropavlovsk	Rampisham	Samara
KBS World Radio	Jinhua	Rampisham	Sackville	Sines	Skelton	Wooferton
Pan American Broadcasting	Issoudun	Wertachtal				
Polish Radio	Dhabbaya	Kvitsoy	Moscow	Rampisham	Skelton	Wooferton
Radio Algerienne	Issoudun					
Radio Canada International	Kashi Tinang	Kimje Urumqi	Kunming Wooferton	Rampisham Xi'an	Skelton Yamata	SM Galeria
Radio Exterior de Espana	Cariari Pococi					
Radio Farda	Biblis Udon Thani	Dhabbaya Wertachtal	Iranawila	Lampertheim	al-Riman	Skelton
Radio Free Afghanistan	Iranawila	al-Riman	Udon Thani			
Radio Free Asia	Dhabbaya al-Riman	Dushanbe Saipan	Iranawila Sitkunai	Irkutsk Tinian	Lampertheim Ulaanbaator	Palau
Radio Free Europe/ Radio Liberty	Biblis Skelton	Iranawila Tinang	Lampertheim Tinian	Nauen Wertachtal	al-Riman Wooferton	Saipan
Radio France International	Irkutsk	Meyerton	Montinsery	Novosibirsk	Tinian	Tanshui
Radio Japan	Ascension Sackville Wertachtal	Bonaire Santiago Wooferton	Dhabbaya Sitkunai	Gavar Singapore	Issoudun Talata	Rampisham Tashkent
Radio Marshaal	Iranawila	Udon Thani	Wertachtal			
Radio Nacional Venezuela	Havana					
Radio Netherlands	Bonaire Sines Wertachtal	Dhabbaya Singapore	Grigoriopol Rampisham	Issoudun Saipan	Meyerton Talata	SM Galeria Tinang Tinian
Radio Sawa	Dhabbaya	al-Riman				
Radio Taiwan International	Issoudun	Montinsery	Okeechobee	Skelton	Tinian	
RTE Worldwide	Meyerton					
TWR India	Irkutsk	Novosibirsk	Samara			
Vatican Radio	Bonaire Tashkent	Dushanbe Tinang	Novosibirsk	Palauig	Sackville	Talata
Voice of America	Biblis Lampertheim Saipan Udon Thani	Bonaire Meyerton Sao Tome Wertachtal	Botswana Nauen Skelton	Dushanbe Novosibirsk Talata	Gavar al-Riman Tinang	Iranawila SM Galeria Tinian
VOA/Ashna Radio	Iranawila	Khabarovsk	al-Riman	Udon Thani	Wertachtal	
VOA/Deewa Radio	Iranawila	al-Riman	Tinang	Udon Thani	Wertachtal	
VOA/Aap ki Duniya	Dushanbe	Iranawila	Udon Thani			
Voice of Russia	Dushanbe	Gavar	Grigoriopol	Lviv	Montinsery	
Voice of Vietnam	Moscow	Sackville	Skelton	Wooferton		



One of the ALLISS/HRS-type antennas in use at the Issoudun site of Radio France International, which is also used by more than half a dozen broadcasters.



Another view of the Sackville site.

employ. Note that the site listed as “Havana” actually represents the three sites within Cuba. Unfortunately, the stations don’t differentiate between them—or perhaps Radio Cuba, which operates the transmitters there, doesn’t specify them. So we’re stuck with designating it as just “Havana.” Also, note that Bonaire is being closed down by Radio Nederland next year so, depending on when you see these words, that entry may have been deleted and replaced by the various affected stations.

Now here’s the required word of caution: The broadcaster-site alignments given here are based on those that were active for the B-10 season. One will get you a hundred that the A-11 season will see the line-ups somewhat affected or even significantly shifted.

I haven’t gone overboard and listed all the clandestine, target, or opposition broadcasters that tend to come and go like baseball pitchers in a 22–2 rout of the home team. Nor have I included some of the minor religious groups who become active now and then only so long as the money donated by the El Paso Ladies Tea and Badminton Society holds out. Broadcasters in those fly-by-night categories are nearly impossible to keep track of and can be gone almost before news of their existence has circulated to all the hobby informational sources. Nor have I gotten into the maze of in-country broadcast sites; such a list would quickly become as outdated as a door-to-door encyclopedia salesman!

I hope the information presented here will serve to help you better navigate the shortwave bands. The bottom line: Cite the Site!

Thank you, and good luck!



Radio Nederland is about to close the Bonaire site (inset).

The Wouxun KG-UVD1P Dualband Transceiver

This Budget Import Handheld Offers Great Functionality For Ham, Business, Public Safety, And More

by Chuck Gysi, N2DUP

“Yes, you read that right: just a little over a C-note for a dual-band handheld transceiver. They’re so inexpensive that many radio hobbyists buy more than just one.”

Every once in a while, a two-way radio comes onto the market that offers an incredible amount of functionality in a small package and at the right price. The Wouxun KG-UVD1P dualband handheld two-way does that—and so much more.

With many of the hallmarks of the once-feared “Japanese Invasion” of the two-way radio market a few decades ago, we seem to be on the cusp of a “Chinese Invasion.” Radio hobbyists started importing this great little handheld from China and Hong Kong through eBay and Internet vendors after learning how versatile it is. But what makes the Wouxun KG-UVD1P stand out is that, unlike most other handheld transceivers imported from Asia, it has been type accepted by the Federal Communications Commission for use in Part 90 radio services. This means that it may be used in the United States for the public safety and industrial/business radio services.

The manufacturer’s vendors are pushing this handheld as an amateur dualbander, though, and it has quickly become wildly popular among hams in the know who have found it to be an excellent performer at an incredible price.

The Wouxun KG-UVD1P covers UHF and VHF in a variety of band plans, depending on which version you purchase. For instance, the most popular version covers VHF from 136–174 MHz and UHF from 400–470 MHz. That’s a lot of spectrum. Another version offers UHF coverage from 420–520 MHz, which is good for those who have UHF T-band (470–512 MHz) activity

Chuck Gysi, N2DUP, is a former columnist and editor of *Popular Communications*, long-time journalist, hobby communications author, and a non-profit marketing executive.



Hector Padron, AD4C, of Florida uses his Wouxun KG-UVD1P for amateur radio on both 2 meters on VHF and the 440-MHz band. He has his own repeater on UHF and keeps in touch with friends with his Wouxun radio. He says it works great everywhere and also monitors satellites on the radio.

How Do You Pronounce Wouxun?

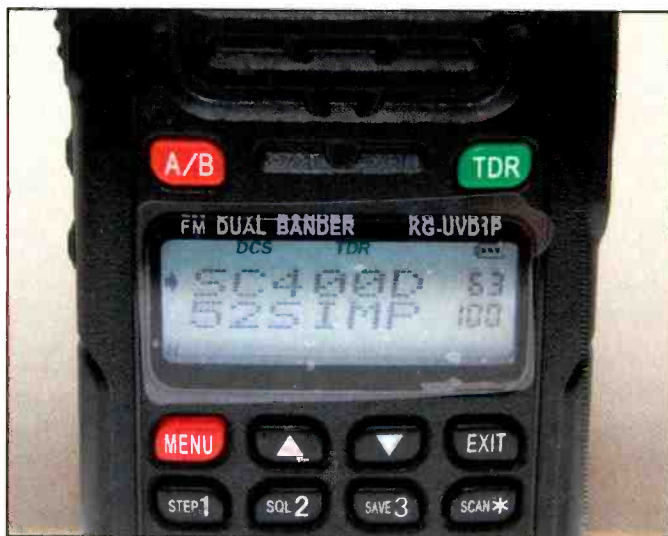
There are many suggestions out there about how to pronounce the name Wouxun, the Chinese manufacturer of the KG-UVD1P/2/3 radios. Some say it’s pronounced like the English word “ocean.” Those who don’t know any better try to pronounce it like it’s spelled in English, wocks-un. The correct pronunciation, according to the folks at Wouxun.US, is o-shing.



Ken Peakman, KJ4CTZ, of Florida, uses this setup to communicate with the International Space Station with his tiny Wouxun KG-UVD1P radio. The long boom antenna is aimed at the station. Note the radio mounted on the bottom end of the boom. Ken is showing off his QSL card and a QSL he received from the space station after talking to it with his Wouxun.



The inside of a UHF version of the Wouxun KG-UVD1P shows its frequency coverage of 136–175 and 400–471 MHz, and shows the power output as 5 watts on VHF and 4 watts on UHF. (Photo by Chuck Gysi, N2DUP/scancomm.net)



The display on the KG-UVD1P shows alphanumerics instead of frequency readout for a commercial radio channel and the ham simplex frequency of 146.520 MHz. The radio is monitoring both frequencies at the same time in dual-watch mode. Users may select alphanumeric or frequency readout in the display. (Photo by Chuck Gysi, N2DUP/scancomm.net)

from slightly over \$100 to as much as \$135. Yes, you read that right: just a little over a C-note for a dualband handheld transceiver. They're so inexpensive that many radio hobbyists buy more than just one.

Initially, the radio was only available from exporters, however, a handful of sellers in the United States now carry this little handheld. Prices can range widely, but there are a variety of packages available, which may include computer programming cables and software, spare batteries, speaker-mics, earphones, etc. They all help mask the true price of the radio, but some items you actually may want in a package deal. I strongly recommend that you take the software and programming cable to program this radio on your computer. The software will have you on the air in no time with minimal effort.

in their area. Or you can opt for a model that replaces UHF coverage with 216–280 MHz to allow operation in the 222–225 MHz amateur band. Finally, there's a version for 350–470 MHz, which apparently was designed more for the international market as the 350–420 MHz band does not see much use in the U.S.

The coverage allows this radio to operate on so many different frequencies, such as the 420–450 MHz ham band, the 451–453 and 461–465 business bands, the 144–148 MHz ham band, and many business and public safety frequencies in the 151–160 MHz band. Talk about versatile.

Over the years there haven't been many two-way radios that were frequency versatile without some type of modification. In the 1980s, the ICOM IC-H16 and IC-U16 VHF and UHF handhelds were easily modified to be keyboard frequency-agile. By entering a six-digit code and pressing the right keypad functions, you could easily change frequencies and CTCSS tones. Some Regency mobile radios also could be made frequency agile by adding a switch and using programming keystrokes to change your operating channels from the front keypad. But other than modifiable amateur gear, keypad-friendly two-way radios that were FCC approved for the Part 90 radio services were hard to come by—until now.

The Right Kind Of Sticker Shock

The KG-UVD1P and its sisters, the KG-UVD2 (made for Wouxun.US in North Carolina) and the KG-UVD3 (made for Powerwerx.com), are best known for their price. While you have to factor in shipping for this radio, especially if you import it from an overseas vendor, you can expect to spend anywhere

Do an Internet search of the specific radio model you're interested in to find the best price. If you're comfortable dealing with Asian exporters, also check eBay to get a good deal.

More Than Just A Bargain

Bargain pricing should never be your only consideration, of course. So let's take a look at some highlights of what the Wouxun KG-UVD1P offers.

- Dual-band VHF/UHF or 222-MHz/VHF versions.
- Part 90 type acceptance means the radio may transmit in the public safety and business/industrial radio services.



The dual-slot charger for the Wouxun allows the radio to charge at the same time a spare battery charges behind the radio. The standard charger that comes with the radio charges only the radio. (Photo by Chuck Gysi, N2DUP/scancomm.net)

- It may be used on the VHF and UHF amateur radio bands.
- While this radio is not type accepted by the FCC for Part 95, which covers General Mobile Radio Service, Family Radio Service (462 MHz and 467 MHz), and Multi-Use Radio Service (151 MHz and 154 MHz), it is capable of operation in those bands, albeit *not* legally (see the sidebar "A Lure With A Catch" for more on this). The same applies for VHF marine frequencies.
- Dual-band operation with dual-watch capability on both bands at the same time, or monitoring VHF frequencies on both the main and sub bands at the same time, or monitoring UHF frequencies in the same fashion.

That's a mighty good start for this pocket-size gem. There are

At A Glance

The Wouxun KG-UVD1P, KG-UVD2, and KG-UVD3 Transceivers

Major Features and Specifications

Transmit (and receive) bands: Available in a variety of band plans for international use; however, most U.S. versions are 136–174 MHz and 400–470 or 420–520 MHz. Also, a 136–174 and 216–280 MHz version is marketed in the U.S. Some vendors of the KG-UVD2 and KG-UVD3 radios sell them disabled for all but the 144–148 and 420–450 MHz amateur bands. Software can be used to open up the additional ranges for commercial frequency use.

FM broadcast receiver: 76–108 MHz

Dual-band modes: VHF-VHF, UHF-UHF, UHF-VHF

Tone squelch: 50 CTCSS tones, 105 DCS codes

Power output: 5 watts VHF, 4 watts UHF high, 1 watt low VHF and UHF

Memory channels: 128 alphanumeric

Special features: VOX function, stopwatch function, Chinese/English voice programming prompts, flashlight illumination, DTMF pad

Channel bandwidth: capable of wide (25 kHz) and narrow-band FM (12.5 kHz) bandwidths

Frequency steps: 5, 6.25, 10, 12.5, 25, 50 and 100 kHz

Software programmable: PC program available on manufacturer and vendor websites

Keypad programmable: Also, DTMF pad for over-the-air use

Included accessories: antenna, high-capacity Li-ion battery, charger, belt clip

Price

List: Unknown

Street: Varies, but typically \$105–\$135, depending on number of accessories

For More Info

KG-UVD1P www.wouxun.com

KG-UVD2 www.wouxun.us

KG-UVD3 www.powerwerx.com

Also see:

Facebook Users' Group

www.facebook.com/Wouxun

Northeast Iowa Radio Amateur Association Wouxun info

www.w0mg.net/links/Wouxun.html



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A Lure With A Catch

If you're an amateur radio operator, you need to keep in mind that while you may use commercial radio equipment on amateur frequencies, you may not use amateur equipment on commercial channels. You often hear hams using radios such as Motorola on amateur repeaters. This Wouxun radio not only allows hams to transmit on amateur frequencies, but also on commercial frequencies (proper licensing required).

For instance, in addition to using the Wouxun KG-UVD1P/2/3 radio on ham frequencies, an amateur could also use it in a workplace (if employer uses VHF or UHF frequencies), in service of a volunteer fire department, or on a local government repeater for SKYWARN communications. In addition, multiple Wouxun radios would let users keep in touch with their families or friends, and even operate on MURS or GMRS/FRS frequencies.

However, as I mentioned earlier, this radio is *not* type accepted—or approved—by the FCC for use on anything other than Part 90 radio frequencies in the U.S. Part 90 covers public safety and commercial (business/industrial) frequencies. Technically, the FCC says that this radio may not be used on GMRS/FRS, MURS, or VHF marine channels. That's not to say the radio can't operate on those bands; it's just that the manufacturer did not get type acceptance in anything outside of Part 90. FRS radios must have a non-detachable antenna, thus this radio could not be used on FRS. Power output also is an issue as you could technically transmit with power in excess of the 1/2-watt allowed on FRS channels.

Note that some U.S. vendors have chosen to sell this radio programmed so it can transmit only on amateur frequencies and not have access to commercial radio channels. There is software available that will unlock these versions, or you can state your case for full access to the vendor and they may allow you to purchase a full-range radio.

many other features that you'll like, too, many of which you won't find on any other handheld radio.

Why You'd Want One

So how does this radio work? Like a champ! Its compact size makes it easy to use in many applications. You won't mind this radio sitting on your belt, in your hand, in your purse, or on your desk. Let's look at some of the specs for this palm-size beauty.

The Wouxun KG-UVD1P packs 5 watts output on high power on VHF and about 1 watt on low power. On UHF, the radio offers 4 watts high and 1 watt low power. The version that includes the 222-MHz ham band has the same power output: 5/1 watts on VHF and 4/1 watts on the 220-MHz band. You might even experience slightly higher power outputs, as most operators have found.

Even if you aren't a licensed amateur radio operator, this radio can do much for you. At the very least, it's an inexpensive dualband handheld scanner that also transmits, if you need to in a pinch. The scan rate is slow, and like amateur gear, it either scans and holds the conversation for a few seconds and then continues or it scans and stops on a channel with activity. That's annoying for those of us used to scanners that scan and stop on a channel for the full conversation before resuming scanning.

Now, The Gravy

Here are some additional features of this radio that I think you'll like:

FM broadcast receiver—While it's not the most sensitive receiver for monitoring FM broadcast frequencies, it's nice having this capability in a two-way radio. It tunes from 76–108 MHz, mainly to cover other countries' FM broadcast bands as well.

Narrow and wide FM transmit bandwidths—This is important as radio services are migrating from wideband FM to narrowband. By 2012, all Part 90 radio service users need to be using narrowband widths for transmitting. While other radio services are also changing, GMRS and amateur radio are not planned to change anytime soon. This radio will allow you to operate both narrow (12.5 kHz) and wide band (25 kHz) and be in compliance when all radio systems switch. The MURS frequencies, for instance, are narrowband for the three 151-MHz channels and wideband for the two 154-MHz frequencies.

CTCSS and DCS channel squelching—The radio offers 50 CTCSS quiet-channel codes and 105 DCS codes.

A built-in flashlight—This is a very cool feature. Hit the switch on the radio and you have a bright white LED that helps light your way in the dark!

Voice programming—When you're programming the Wouxun through the keypad, functions and frequencies will be read out to you in English or Chinese, your choice. This makes it easy for vision-impaired users to operate, and is even convenient just so you know for sure what buttons you're pushing. You can also turn the voice off if you wish.

Software programming—The 128 channels and various features of this radio can be programmed two ways: the old-fashioned method via the keypad or through software. Download the software from various vendors' websites and use a programming cable for the fastest method of getting on the air. I highly recommend the software method. Be sure to follow all instructions carefully to eliminate difficulties with connecting your PC to the radio.

Variety of accessories—You'll find many helpful accessories that you can use with this radio, including speaker-mics; mobile

packs that slide on the back of the radio in place of the battery for plugging into a 12-V cigarette lighter; high-capacity and spare batteries; a charging stand that accommodates both the radio and a spare battery; a variety of antennas depending on the radio's bands; and cloning cables.

128 channels in a main band and sub band—This allows you to monitor two frequencies at the same time. You also can set it up to scan one band while being locked on a single frequency on the sub band.

Stopwatch—Don't use it unless you need it because it will help stop down the battery faster, but if you're involved with public service in amateur radio or GMRS radio duties, such as helping with a race, you may appreciate the built-in stopwatch.

VOX—The voice-actuated transmit function on this radio works great. Get a headset speaker-mic, just start talking, and it will transmit for you. It's a neat function to have if you're a heavy radio user.

Caveats

Having a Chinese handheld radio comes with some caveats, too. For instance, while we're used to connectors such as BNC and others on radio antennas, this one has an SMA connector. If you have a BNC or other type of antenna you want to use on this radio instead of the stock antenna, you may need to use an adapter.

Some functions come with different nomenclature, too. For instance, what most hams know as VFO mode is called frequency mode on this radio. Likewise, memory mode is called channel mode on this handheld. The trick to moving from frequency to channel mode on the KG-UVD1P is to press MENU + TDR. Function 21 must be used to get back into the name display mode. The KG-UVD2 version of this radio fixed this issue by allowing you to press MENU + TDR to change back and forth between frequency and channel mode with the name remaining on the display.

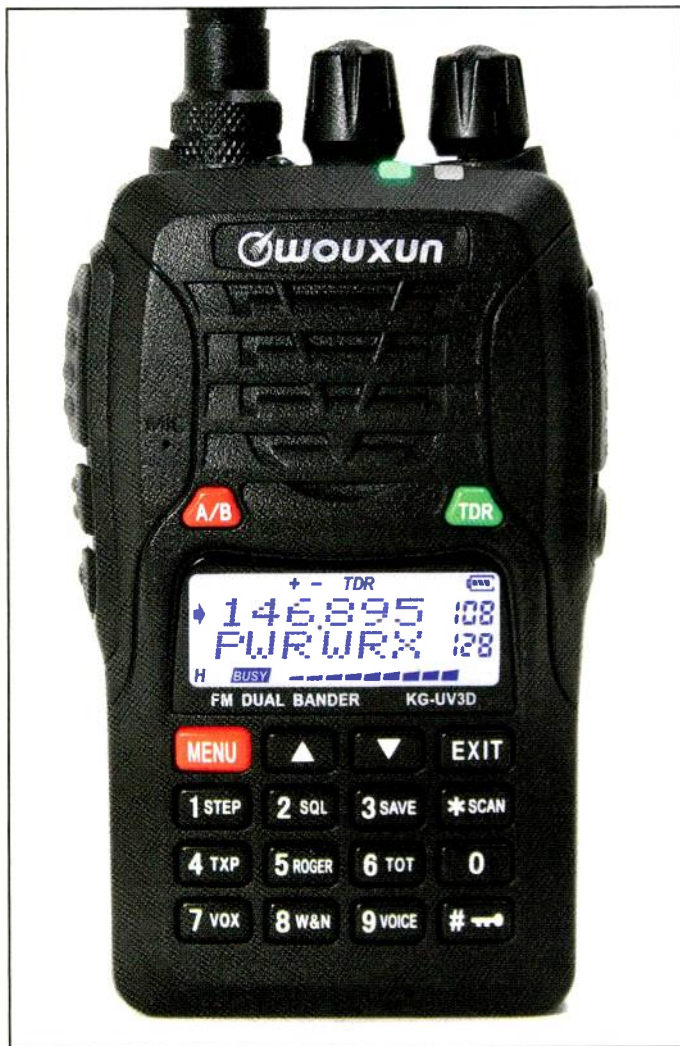
Get 'em While They're Hot

The first users of this radio imported it from Hong Kong eBay vendors, but now you can purchase it from sellers here in the United States (do an Internet search for a list of vendors). As previously mentioned, Wouxun.US and Powerwerx.com carry their own versions of the KG-UVD1P, the KG-UVD2 and KG-UVD3 respectfully. (The KG-UVD2 is much like the KG-UVD1P, except that it has a slightly different case and a minor difference in display functions. The KG-UVD3 also has a redesigned case, an upgraded 1700-mAh Li-ion battery, and the latest firmware with additional firmware features.) Wouxun also markets a variety of other two-way radios around the world, but the KG-UVD1P/2/3 has taken the radio world by storm because of its flexibility and incredible price.

This Wouxun handheld is so hot right now that we received word at press time that Powerwerx.com was expecting a shipment of a new version of the KG-UVD3 model, complete with new features they won't even know about until the radios arrive from China. The folks at Powerwerx.com were very excited about this; check their website for updates.

Also at press time, we were awaiting word on a new mobile radio Wouxun is preparing for sale very soon, the KG-UV920R, which will offer 1,000 channels on VHF and UHF and be as flexible as the handheld radio. It also will offer extended reception, including FM, AM, and HF, and dualband cross-band repeat.

Now that's a dynamic marketplace.



The KG-UVD3 model is made by Wouxun for Powerwerx.com and includes a slightly different case, an upgraded battery, and the latest firmware. (Photo courtesy Powerwerx.com)

Portable Power For The New Gizmo Generation

by Ken Reiss
radioken@earthlink.net

Periodically something from real life inspires you think about some novel uses for some of the stuff you encounter every day. As a case in point, I recently found how convenient an external power supply (a k a battery) can be in a new application.

I teach evening classes at one of the local universities a couple of nights a week. The school had recently refurbished the computer labs, apparently adding more gizmos to plug in, and now one lab in particular no longer has a convenient AC outlet for me to plug in my iPad for class use. I had to resort to a power cord that crossed the path where I walk back and forth, and nearly killed myself tripping over it (providing instant entertainment for the students). That was a bad option, and I had to find a solution.

While my iPad has a great internal battery, I use it all day long so it needed a little boost to make it through a busy evening class, too. If I'd had an outlet handy, an extra power supply would have worked great, but in this one room required me to look outside the box, so to speak.

I've long been a proponent of having charged batteries on hand for power outages and emer-

"...we have tons of gadgets around our house that can recharge from a standard USB port, and more are arriving all the time."

gency operations. That's been a very handy thing more than once around here. One useful device I picked up is an external battery pack from a company called New Trent (www.newtrent.com) that provides power via a USB jack connected to a device. Just the ticket for my classroom problem and it works fabulously.

Power Sharing

Like many of you I'm sure, we have tons of gadgets around our house that can recharge from a standard USB port, and more are arriving all the time. These include things like most phones, MP3 players, iPods, a few gimmicky flashlights, and ebook readers. The bottom line is that this battery can be used for all kinds of gadgets in all kinds of circumstances. Just having a quick way to charge or extend the battery life of a gizmo along on an outing or just in the car is a big help.

New Trent's IMP-1000 and its newer IMP-1100 offer 11,000 mAh of power, which just about doubles the iPad's life, but extends things like the iPod Touch four or five times its life and the Kindle ebook reader for much longer as well. The IMP-1100 also comes with a custom case for the iPad, but the battery is removable and can be used separately. It's so flat and compact that it fits in my briefcase's filing compartment without being noticeable.

Lots Of Battery Choices

There are many companies that make such devices, and some of them feature a standard 12-volt cigarette lighter plug, which may be more useful for you if you're looking to supply radios with a charge. Many scanners and ham transceivers can be easily powered from a cigarette lighter with an adapter of some kind. Power supplies of this type usually have a fairly high current capacity, expressed in Amp hours (Ah) or milliAmp hours (mAh).



The IMP-1000 from New Trent is a very capable battery in a relatively small package. It can power an iPhone for up to 50 hours or double the life of an iPad.

Pop'Comm May 2011 Reader Survey Questions

This month we'd like to ask you about how we can improve *Pop'Comm*. Please use the Reader Survey Card and circle all appropriate numbers. We'll pick one respondent at random for a free one-year subscription, or extension, to the magazine, so don't forget your address. Thanks for participating.

Is *Pop'Comm* meeting your needs?

- Yes..... 1
- No 2
- Jury's out..... 3

What would you like to see more of?

- Traditional technology 4
- Traditional operating modes... 5
- New technology 6
- New operating modes 7
- More radio history..... 8
- More emerging radio trends... 9

If you could add one column, what would it be? (use comment line)

If you could request three features, what topics would they be on? (use comment line)

January Survey Highlights

Our January survey was quite informal: we just asked people to jot down on the comment line what technology is next up on their "To Try" list. Winning the popularity contest was Internet radio, which was mentioned by the greatest number of respondents. Other hobby categories receiving repeat mentions were digital modes (look for an upcoming feature on this) and D-Star (see "RF Bits" in this issue). The Uniden Home Patrol and scanners like it (such as the GRE EZ Scan) were the devices most drooled over.

The winner of a free subscription or extension to *Pop'Comm* this month is **Neal Sumrell of Chocowinity, North Carolina**. Congratulations, Neal!



The IMP-1000 comes with a kit including a case and several common adapters that can charge many devices. Of course, anything that has a standard USB cable can be plugged into the USB jack on top.

It's not an exact science, but generally if something pulls 1 Amp of current for 1 hour, that's a 1Ah device and a 20Ah battery should be able to power it for about 20 hours. Most scanners pull something more in the 200mA range, so that same 20Ah battery would keep it running for 100 hours. That's a lot of scanning.

Unfortunately, those super high-capacity batteries are usually lead acid or variants like gel cell or a newer type called AGM (absorbed glass mat) and come with an equally super high weight. One that I've looked at from PowerStream Technology (www.powerstream.com) provides 20 Ah and weighs in at 15

pounds! You'll probably not want to carry that one far, but it does make a great emergency power supply. It also is available with a voltage regulator at almost any voltage you desire, so you could set one up for a specific device if you wanted to, eliminating the need for extra 12-volt to 6 or 9-volt adapter/converters. Another high-capacity choice I've found is Schumacher's PPO-2200, which features a massive 22Ah battery and a 400-watt power inverter. It comes with a 12-volt accessory outlet to power cell phones, GPS units, and more.

Others available from companies like Energizer and Duracell include both 12-



The newer, purpose-built IMP-1100 features the same 11000mAh battery but in a much flatter form factor, perfect for mating with the iPad in the included leather case. The case holds the battery and the iPad and doubles as a stand in a variety of positions.

volt battery power and a power inverter to create AC outlets for limited use. Some include jumper cables and air compressors for car applications, as well. Have a look at Amazon or your favorite online automotive retailer for these types of external supplies.

PowerStream and New Trent also offer batteries with the much newer and much lighter Lithium Polymer material. The

11Ah battery from New Trent weighs in at only 8 ounces, including the case. New Trent focuses on the USB charge output (as well as replacement laptop batteries) that's so useful for the new crop of devices we're all using. PowerStream has a lithium polymer battery, with selectable voltage output, that might be of interest if you're powering only radio equipment, or for older devices that operate above the

5-volt USB level. (I'm only familiar with this model through the company's website so I can't offer any personal experience). Either one will be quite useful for multiple devices should the need arise.

Don't Be Caught Powerless

Whether you're looking to power a device for an extended use, or for an emergency supply for devices you consider essential, it's worth checking out the new crop of external battery packs. You'll no doubt find lots of uses for them, just like I have.

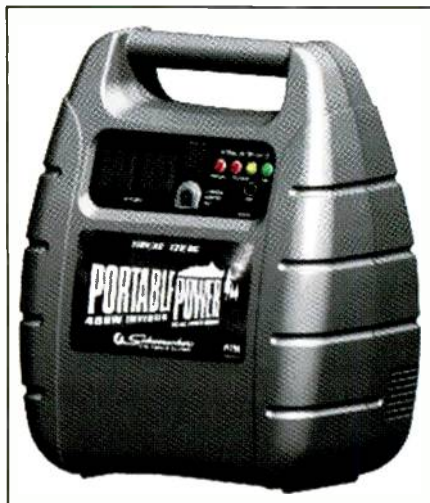
Until next month, Good Listening!

Frequency Of The Month

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

Let's try a different kind of aviation frequency this month. Give a listen on **114.8**. You might hear nothing, or you might hear just a signal with a Morse code identifier. You could also hear some voice traffic either relayed from another frequency or an automated weather system. Let me know what you hear, and the Morse code identifier if you can catch it, and we'll enter your name into the drawing for a one-year subscription to *Pop Comm*. Send your entries to radioken@earthlink.net, or to Ken Reiss at 9051 Watson Rd #309, St. Louis, MO 63126. Please note FOTM 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 **Steven Rakczynski of Ludington, Mississippi**, who wrote, "Nothing heard on this frequency. Had it in a full week and scanner is on 12 hours a day." Congratulations, Steven!



This Schumacher PPO-2200, available from Amazon for \$70, includes a cigarette lighter output and a 400-watt power inverter for powering AC devices. Its 22Ah battery can provide power for small devices for a long time, depending on load. Unfortunately, all that power weighs in at over 16 pounds.

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This heavy-duty charger from Duracell includes both jumper cables for your car, a 12V cigarette lighter output, and an AC inverter with the AC outlets seen on the front panel. It's a very versatile unit, if the roughly 32 pounds or \$190 price don't bother you.

Dress Up Your DX With A Bowtie: A New Configuration Of Broadband Loop Antenna

by Bruce A. Conti
contiba@gmail.com

“Broadcast engineer Craig Healy decided to put the Bowtie to the test...The results were impressive.”



The terminated broadband loop is the outdoor antenna of choice for AM broadcast DXing. It combines the unidirectional reception of a beam with the inherent low-noise performance of a loop, without the need for antenna phasing and pre-tuning. The Bowtie configuration is the newest arrival in this antenna family. Computer modeling and experimentation prove its worthiness.

Terminated Broadband Loop Designs

The original terminated broadband loop outdoor antennas were the Flag and Pennant configurations, developed by Hideho Yamamura, JF1DMQ; Jose Mata Garriga, EA3VY; and Earl Cunningham, K6SE, for low-band amateur radio applications. Then AM broadcast DXers discovered that these antennas performed admirably at mediumwave frequencies as well. Follow-up experiments by broadcast DXers resulted in the development of the Delta and SuperLoop configurations. The Flag, Pennant, Delta, and SuperLoop are now widely recognized for low-noise directional reception of AM radio stations over long distances.

The design is simple: a single loop of wire in the vertical plane with a series termination resistor and RF matching transformer. The configuration is defined by the physical shape of the antenna and the placement of a termination resistor and noise-reduced lead-in. The Flag looks like the outline of a flag waving on a pole, the Pennant like the outline of a pennant, the Delta like the Greek letter or triangle shape, and the SuperLoop a super-sized version of the Flag.

While there are standard sizes for the different loop configurations, the recommended dimensions are for reference only as the overall design is very forgiving. Just about any size and shape that's convenient will work. Normally a loop of wire will produce a figure-8 antenna pattern, but the addition of an in-line/series termination resistance forces the pattern into a cardioid or heart-shaped beam with a deep backside null. The termination resistance varies depending upon ground conduc-

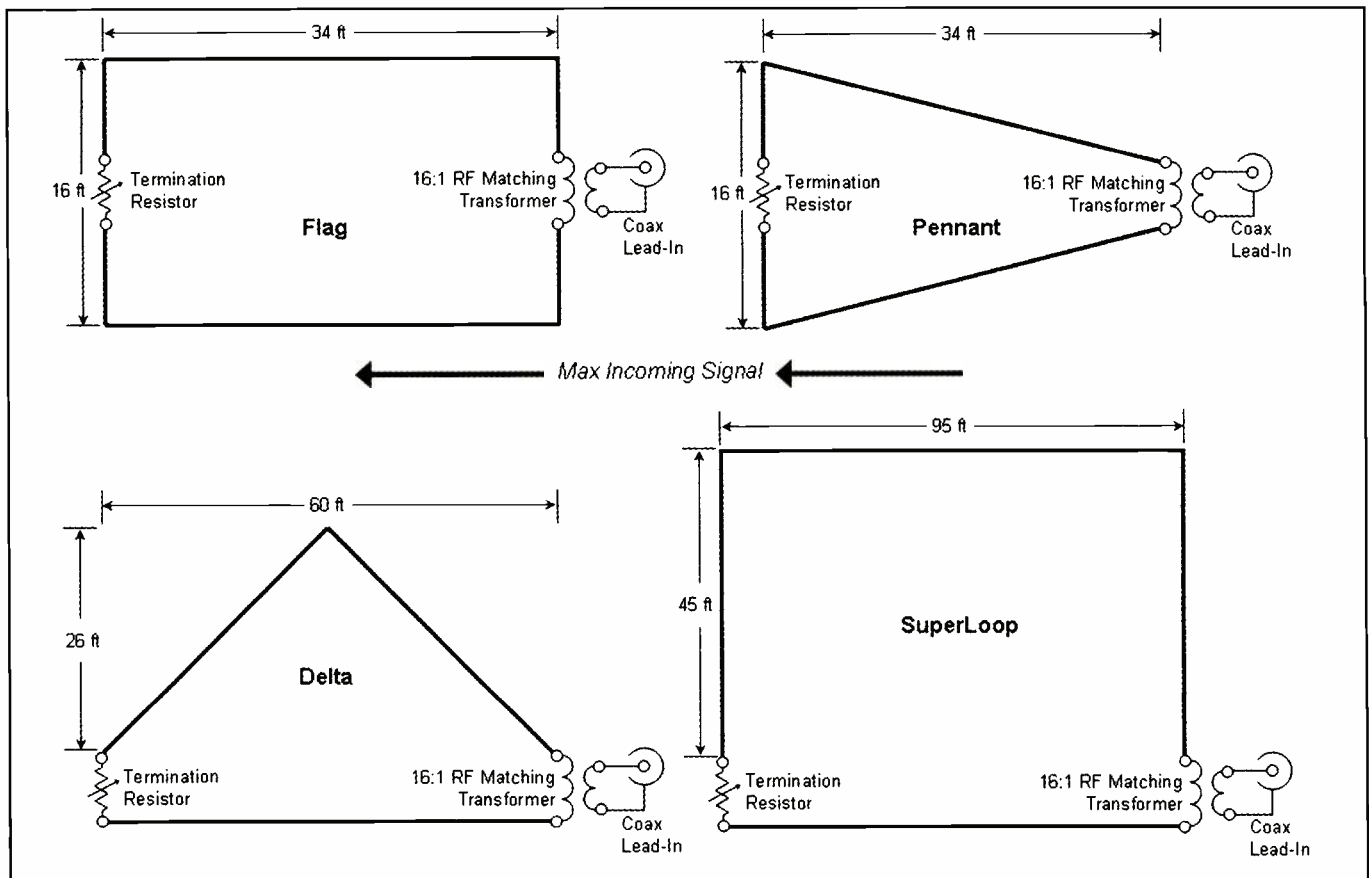
tivity, antenna dimensions, and surrounding environment, usually between 800 to 1100 ohms. A good value to start with is 1000 ohms.

RF Matching Transformer Assembly

The most critical component of any terminated broadband loop outdoor antenna is the RF matching transformer, which connects the antenna to the lead-in. The combination of transformer and lead-in is what's called a noise-reduced lead-in. The high- and low-impedance windings of the transformer must be isolated—no common ground! This is extremely important. Without isolation the antenna will be noisy, picking up radiated interference from household electronics, such as televisions and computers. Unfortunately the commercially available RF matching transformers for amateur radio and shortwave applications do not provide an isolated ground option, so the best option is to wind your own.

Winding transformers and assembly in a weather-resistant chassis is really easy. Only a few simple parts and tools are required: a Fair-Rite model 2873000202 binocular-type-73 ferrite core, light gauge (30 AWG typ.) solid hook-up wire or enamel-coated magnet wire, two chassis-mount binding posts, a chassis-mount coax connector, a plastic chassis, wire strippers, solder, soldering iron, hand drill, pliers, and a screw driver. Remember to protect your eyes with safety glasses while drilling and soldering. The Fair-Rite ferrite core is the only specific component required and is available from Newark Electronics (www.newark.com). Everything else can be obtained from a local electronics shop or national on-line retailer.

Transformer winding might appear challenging at first, but once you get started you'll realize that it's not so hard after all. The wire is threaded through one hole and then back through the other hole of the binocular core to complete one turn of a transformer winding. The number of turns is determined by the square root of the impedance ratio. For a 16-to-1 (16:1) impedance



Four examples of typical terminated broadband loop antenna configurations.

ratio, the transformer winding ratio is 4:1. (The square root of 16 is 4.)

To apply this ratio in simplest terms, for every four high-impedance turns, you'll need one low-impedance turn. Depending upon the gauge of wire used, 16 turns of wire for the high-impedance winding and four turns for the low-impedance is a no-brainer. Maintaining the same mathematical proportion of 4:1, 12 and 3 turns will work for a heavier gauge wire, while 20 and 5 turns of #30 magnet wire will easily fit on the core. Although more turns should improve coupling at lower frequencies, the difference for all practical purposes is negligible. Use wires with different insulation colors or mark the transformer to designate the high from the low impedance.

The high-impedance winding is connected to the antenna via binding posts, and the low-impedance to the lead-in via a coax connector. (In this example, the lead-in is standard 50-ohm coax cable. For generic twisted pair, speaker wire, or similar balanced lead-in, use a 9:1 impedance ratio.) Once the transformer is wound, it's a simple matter of drilling mounting holes in the plastic chassis to accommodate the connectors and then

soldering the transformer wires to the connectors. Done.

The Bowtie Loop

The Bowtie configuration of the terminated broadband loop antenna was inspired by the development of the "split" loop design. George Wallner, AA7JV, was the principle developer of the Double Half Delta Loop (DHDL) antenna, the first of what became known conceptually as the split loop. (Refer to the August 2010 edition of *Pop Comm* for more about split loop developments.) Experiments with a Split Delta and Split SuperLoop soon followed.

Essentially one end of the loop antenna is rotated 180 degrees so that the antenna is twisted or split into two geometric shapes in the vertical plane. It was found that the split loop configuration provided improved suppression of high-angle skip and nulling off the sides of the cardioid pattern for a somewhat tighter beam. EZNEC antenna models of the Bowtie indicate a backside null of -35 to -40 dB typical, with about -5 dB or more improvement off the sides, and a lower angle elevation off the horizon than the standard loop. The Bowtie is the simplest

of the split configurations to implement and perhaps the most effective. Just flip or twist one end of a Flag antenna by 180 degrees, and it becomes a Bowtie.

Broadcast Loggings

Broadcast engineer Craig Healy decided to put the Bowtie to the test. A Bowtie terminated broadband loop antenna was erected near the site of 1340 WNBH in New Bedford, Massachusetts, where Healy works. Fellow DXers Chris Black, N1CP, and I were invited to assist with the test. The results were impressive.

Here's a sample of what was logged at the WNBH site, captured in just a couple hours of monitoring on the WinRADIO Excalibur SDR receiver. The Bowtie was aimed south with the termination resistor adjusted to maximize the null of Boston radio stations to the north. A 1340-kHz notch filter prevented overload from the nearby WNBH transmitting antenna. All times are UTC.

550 WPAB Ponce, Puerto Rico, at 0100 fair, over WDEV and others; Puerto Rico jingle and announcements.

555 ZIZ Basseterre, St. Kitts & Nevis, heard at 0100 excellent; soca vocal, "You Make Mama Cry."

This Month In Broadcast History

75 Years Ago (1936)—“The relation between lightning discharges and atmospherics in radio receiving” by Harald Norinder Ph.D. was published in the *Journal of the Franklin Institute*. It compared observations on cathode ray oscillographs with sound from radio loudspeakers. “A method of reducing disturbances in radio signaling by a system of frequency modulation” by Edwin H. Armstrong was published in *Proceedings of the Institute of Radio Engineers*. It described FM theory along with accounts of experimental broadcasts from the Empire State Building in New York City.

50 Years Ago (1961)—Radio Havana Cuba was founded. Radio Swan, a clandestine anti-Castro station thought to be backed by the CIA, broadcast coded messages to U.S. forces during the Bay of Pigs invasion.

“Love You So” by Ron Holden topped the Swinging Sixty music survey on WDRC 1360 AM and 102.9 FM in Hartford, Connecticut.

25 Years Ago (1986)—The rock band Journey released the “Raised on Radio” album. President Reagan talked about tax reform in one of his weekly radio addresses, suggesting that the unfair and complex tax code be replaced with a clear and simple system.



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560 Radio Rebelde, Moa, Cuba, at 0100 fair; jazz vocal, ID accompanied by organ music, “Rebelde la habana, emisora de la revolución,” parallel 600, 610, 620, and 670 kHz.

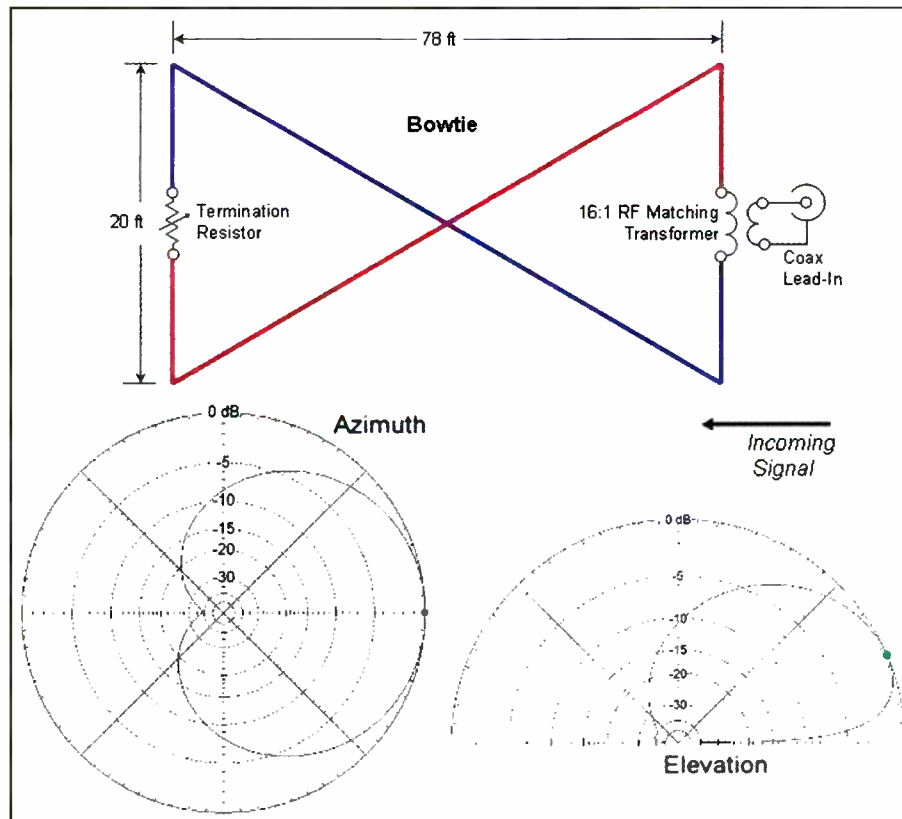
570 CMDC Radio Reloj, Santa Clara, Cuba, at 0058 good; syncopated clock, minute marker, RR code ID, etc.

580 WKAQ San Juan, Puerto Rico, at 0059 good; promo, “...por WKAQ” and ID.

“...WKAQ 580 AM San Juan, WUKQ 1420 AM Ponce, WYEL 600 AM Mayaguez.”

600 CMKV Radio Rebelde, Urbano Noris, Cuba, monitored at 0101 good; ID, “Deportivamente” program parallel 670 kHz.

610 CMAN Radio Rebelde, Bahía Honda, Cuba, heard at 0100 under Newsradio 610 WIOD Miami; Rebelde ID into Deportivamente program.



The Bowtie antenna configuration with corresponding EZNEC computer modeling of azimuth and elevation plots.

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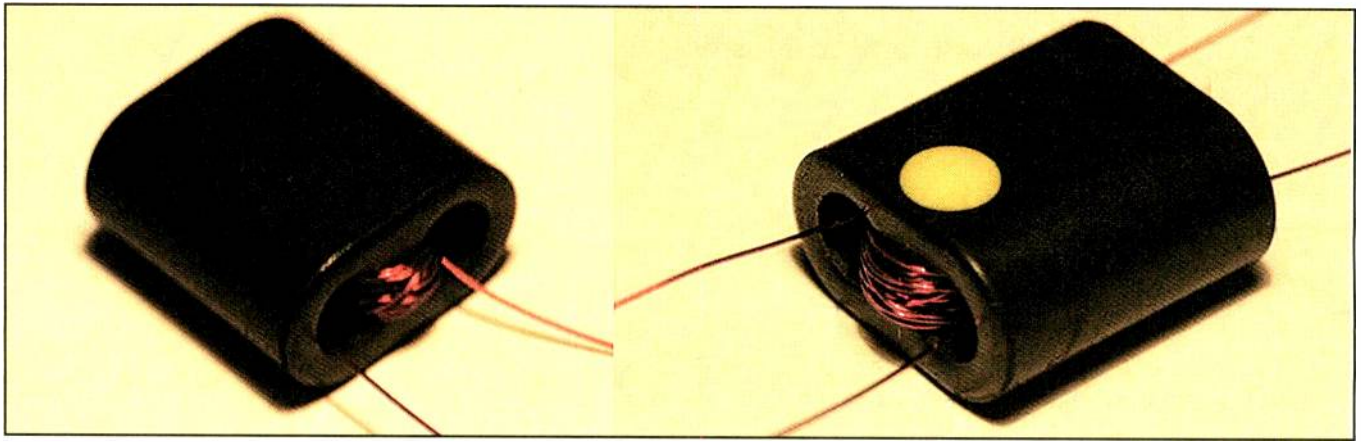
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The turns of the low-impedance winding are wound on the ferrite core (left), followed by the high-impedance turns marked by a dot on the completed transformer (right).

620 Radio Rebelde, Cuba, at 0100 over an unidentified Latin American signal; parallel 600 kHz.

630 Radio Progreso, Pinar del Río, Cuba, at 0058 under WPRO Rhode Island; salsa music parallel 640 kHz.

650 HJKH Antena Dos, Bogotá, Colombia, at 0100 good, over Radio Progreso Cuba; time marker, "...deportiva mejor, Antena Dos."

660 CMHG Radio Progreso, Santa Clara, Cuba, at 0058 under WFAN New York; salsa parallel 640 kHz.

670 CMQ Radio Rebelde, Arroyo Arenas, Cuba, heard at 2300 good; Rebelde sounder and news with distinctive attention signal between items.

680 WAPA San Juan, Puerto Rico, monitored at 0101 fading up and over WRKO Boston; ID with "Felicidades" and jingle, "Noticias más importantes... Wapa Radio..."

690 HJCZ Radio Recuerdos, Bogotá, Colombia, at 2300 choral national anthem, Radio Recuerdos jingle, under Radio Progreso Cuba.

690 Radio Progreso, Jovellanos, Cuba, at 0058 good; salsa music parallel 640 kHz.

730 CMBB Radio Progreso, Nueva Gerona, Isla de la Juventud, Cuba, at 0100 under CKAC Montreal; salsa parallel 640 kHz.

750 CMHV Radio Progreso, Trinidad, Cuba, at 0100 over/under WSB Atlanta and YVKS Venezuela; salsa parallel 640 kHz.

750 YVKS Caracas, Venezuela, at 2358 good, over Radio Progreso Cuba; "RCR... una produccion nacional..."

760 HJAJ Barranquilla, Colombia, at 2300 good; choral national anthem, "RCN Noticias."

770 HJXX Bogotá, Colombia, at 2300 choral national anthem under WABC.

780 ZBVI Roadtown, Tortola, British Virgin Islands, at 2358 excellent; Madonna "Vogue" into time marker, ID, "The big Zed... Zed-BVI 780 on your AM dial and at www.zbviradio.com" and reggae music.

790 CMAQ Radio Reloj, Pinar del Río, Cuba, at 0058 under WPRV Rhode Island; syncopated clock, minute marker, RR Morse code.

800 PJB TransWorld Radio, Bonaire, Netherlands Antilles, monitored at 0058 fair; Spanish contemporary Christian vocal.

810 ZNS3 Freeport, Bahamas, monitored at 0100 good, over WGY Schenectady; "Your inspirational voice, Zed-NS 810 AM."

811 Radio Progreso, Guantánamo, Cuba, at 0100 good with the off-frequency signal producing a loud het against 810; salsa parallel 640 kHz.

820 TBN Radio Paradise, Charlestown, St. Kitts & Nevis, monitored at 0100 excellent, over Radio Reloj Cuba; "...from the Trinity Broadcasting Network."

840 Radio 4VEH, Cap Haitien, Haiti, at 0100 good, over Newsradio 84 WHAS Louisville; "...ici Radio 4VEH."

850 Radio Reloj, Nueva Gerona, Cuba, at 0059 minute marker and RR code way under WEEI Boston.

860 Voice of Nevis, Bath Village, St. Kitts & Nevis, heard at 0058 good, over Radio Reloj Cuba and an unidentified Latin American; speech regarding government in Caribbean-accented English through the hour.

870 CMDT Radio Reloj, Sancti Spíritus, Cuba, at 0058 good; over an unidentified Latin Americans; news, syncopated clock, etc.

900 CMKP Radio Progreso, Cacocum-San Germán, Cuba, at 0100 good; salsa parallel 640 kHz.

930 Radio Reloj, La Jaiba and Santiago de Cuba, Cuba, at 0058 echo from delay between stations, also heard an unidentified Cuban wobbler.

940 WIPR San Juan, Puerto Rico, at 2300 good; "Esta es WIPR AM..." and nostalgic salsa music.

950 Radio Reloj, La Habana, Cuba, at 0058 good, over WPEN; syncopated clock, etc.

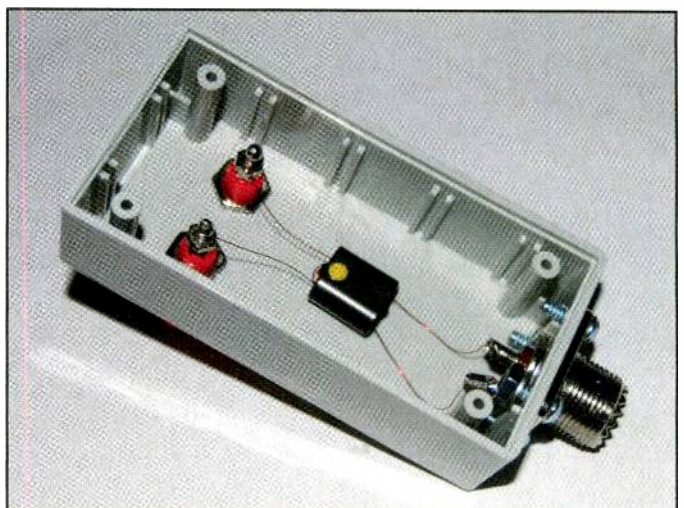
960 Radio Reloj, Cuba, heard at 0100 good, over domestic/Latin American jumble; "Radio Reloj," minute marker, "Ocho en punto."

1000 HJAQ Cartagena, Colombia, heard at 0101 fair, over an unidentified Latin American; sports commentary with RCN mention.

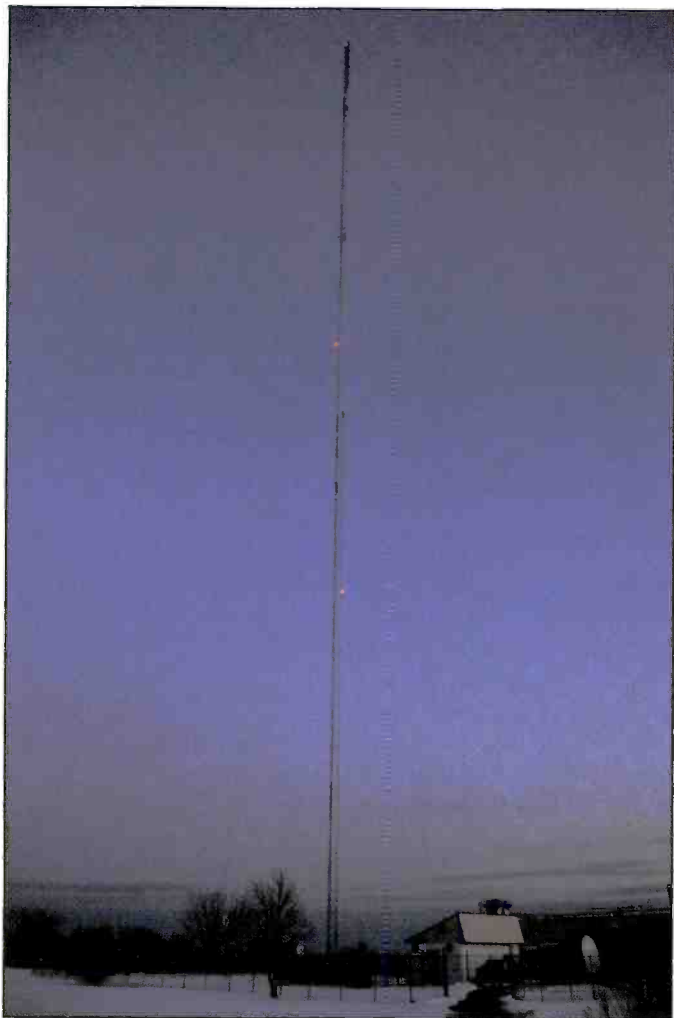
1020 Radio Reloj, Jobabo, Cuba, at 0058 fair, over/under KDKA Pittsburgh; syncopated clock, etc.

1039.61 YVLB La Voz de Carabobo, Valencia, Venezuela, at 0058 identified by offset frequency with tropical music and messy het against 1040 kHz.

1140 Radio Rebelde, Cuba, at 2300 Rebelde sounder into news



The completed matching transformer mounted in a plastic chassis with binding posts for the antenna and RF connector for a coax lead-in.



The 580-foot-tall transmitting antenna of 1340 WNBH New Bedford, Massachusetts.

with digital attention signal between items, parallel 1180 kHz; through unidentified 1141 het and 1130 WBBR New York splatter.

1150 Radio Bayamo, Entronque Buycito, Cuba, at 0100 fair; "Esta es CMKX, Radio Bayamo..." and chimes.

1160 VSB3 Hamilton, Bermuda, at 2359 fair; BBC Five Live promo, bbcworldservice.com promo.

1170 HJNW Cartagena, Colombia, at 0100 over/under "Ke Buena 1170" WCXN North Carolina; "Caracol" IDs into news.

1180 Radio Rebelde, Villa María, Cuba, monitored at 0100 good; ID and Deportivamente program parallel 670 kHz.

1200 YVOZ Radio Tiempo, Caracas, Venezuela, at 0000 fair, through WXKS Massachusetts; promos, "Radio Tiempo 1200 AM."

1280 VSB2 Hamilton, Bermuda, at 0000 good, over WADO New York and WCMN Puerto Rico; "This is BBN, on WYFQ FM Wadeboro-Charlotte" and SRN news.

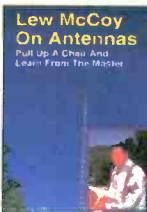
1280 WCMN Arecibo, Puerto Rico, at 0100 under/over WADO; multiple station ID, "En todo Puerto Rico...Ponce, WCMN 1280 Arecibo, y WNEL 1430 Caguas..." and NotiUno slogan.

As the logbook shows, the Bowtie configuration proved to be a real winner for us! Actually, all the terminated broadband loop configurations with a noise-reduced lead-in will outperform the random longwire thrown out the window or the noise-susceptible indoor antenna for AM broadcast DXing. Pick the configuration that fits best for your unique situation, and then prepare to be surprised by the results. Until next time, 73 and Good DX!



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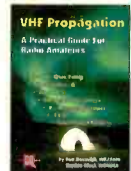


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AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German). Times given are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	9570	China Radio International, via Albania		0300	5025	Radio Rebelde, Cuba	SS
0000	9590	China Radio International	SS	0300	11765	Super Radio Deus e Amor, Brazil	PP
0000	6240	Radio Pridnestrovie, Moldova	various	0300	4930	VOA Relay, Botswana	
0000	9305	Radio Cairo, Egypt	AA	0300	7210	Voice of Russia	SS
0000	5970	Radio Exterior Espana, Spain	SS	0300	3985	Voice of Croatia	
0000	9525	Radio Romainia International	SS	0300	3320	Radio Sonder Grense, South Africa	Afrikaans
0000	9660	Radio Taiwan International, via Florida	CC	0300	6015	RT Zanzibar, Tanzania	Swahili
0000	13650	Voice of Korea, North Korea	CC	0330	7375	Voice of Croatia, via Germany	Croatian
0100	9870	All India Radio	Hindi	0400	5790	BBC	RR
0100	6200	International Radio of Serbia		0400	11720	BBC, via South Africa	
0100	6190	International Radio of Serbia		0400	9460	BBC, via South Africa	
0100	7400	Radio Bulgaria		0400	5865	Radio Algeriemne, via France	AA
0100	17860	Radio Veritas Asia, Philippines	Urdu	0400	4990	Radio Apinte, Suriname	DD
0100	3250	Radio Luz y Vida, Honduras	SS	0400	4985	Radio Brazil Central	PP
0100	6025	Radio Amanecer, Dominican Republic	SS	0400	5900	Radio Bulgaria	
0200	12133.5	AFN/AFRTS, Florida	usb	0400	11690	Radio Havana Cuba	SS
0200	11985	All India Radio	Kannada	0400	11760	Radio Nacional Venezuela, via Cuba	SS
0200	4965	CVC-One Africa, Zambia		0400	6100	Radio Tirana, Albania	
0200	6100	International Radio of Serbia	Serbian	0400	7200	RTVC, Sudan	AA
0200	11935	NHK Radio Japan, via Bonaire	JJ	0400	4775	TWR, Swaziland	GG
0200	5040	Radio Havana Cuba	SS	0400	4976	UBC Radio, Uganda	
0200	11880	Radio Pilipinas, Philippines		0400	7175	V. of Broad Masses, Eritrea	Vern
0200	11995	Radio Taiwan Intl, via French Guiana	SS	0400	9885	VOA, Botswana Relay	
0200	6130	Radio Tirana, Albania		0400	4960	VOA, Sao Tome Relay	
0200	4052.5	Radio Verdad, Guatemala	SS	0430	6165	Radio Tchadienne, Chad	FF
0200	4717	Radio Yura, Bolivia	SS	0500	6973	Galei Zahal, Israel	HH
0200	11710	Radiodifusora Argentina al Exterior	EE	0500	5860	Radio Farda, USA, Kuwait Relay	Farsi
0200	3350	REE, Spain, Costa Rica Relay	SS	0500	4790	Radio Vision, Peru	SS
0200	15180	Voice of Korea, North Korea	SS	0500	5010	RTV Malagasy, Madagascar	Malagasy
0200	6175	Voice of Vietnam, via Canada		0500	7255	Voice of Nigeria	
0200	3340	Radio Misiones Internacional, Honduras	SS	0500	9405	WBCQ, Maine	
0200	5045	Radio Cultura do Para, Brazil	PP	0500	7505	WRNO, Louisiana, USA	irreg.
0200	9645	Radio Bandeirantes, Brazil	PP	0500	6020	Radio Victoria, Peru	SS
0300	7255	BBC Ascension Island .Relay		0600	9675	Broad. Svc. of Kingdom, Saudi Arabia	AA
0300	3345	Channel Africa, South Africa		0600	13610	China National Radio	CC
0300	4885	Radio Clube do Para, Brazil	PP	0600	11750	China Radio International	CC
0300	5915	Islamic Rep. of Iran Broadcasting		0600	7235	Deutsche Welle, Germany	
0300	5915	Islamic Rep. of Iran Broadcasting		0600	9690	Radio Romania International	FF
0300	6155	NHK Radio Japan	Urdu	0600	13620	Islamic Rep. of Iran Broadcasting	Italian
0300	4915	Radio Difusora, Macpa, Brazil	PP	0600	5910	Marfil Estereo, Colombia	SS
0300	4780	Radio Djibouti	FF	0600	9865	Radio Nederland, Bonaire Relay	DD
0300	12025	Radio Free Europe/RL, Thailand Relay	Uzbek	0600	11725	Radio New Zealand International	

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0600	7370	Radio Romania International		1600	15230	Radio Havana Cuba	SS
0600	9660	Radio Vaticana	FF	1600	11905	SLBC,Sri Lanka	
0600	7345	RDP International, Portugal	PP	1600	15120	Voice of Nigeria	
0600	9595v	Super Radio Deus e Amor, Brazil	PP	1600	15200	Voice of Turkey	AA
0600	7335	RTT Tunisienne, Tunisia	AA	1600	13590	CVC-One Africa, Zambia	
0700	9765	Radio New Zealand International		1700	15465	RDP International, Portugal	PP
0800	12020	RDP International, Portugal	PP	1800	11695	China Radio Intl, via Albania	FF
0900	11990	Far East Broadcasting, No. Marianas	Mongolian	1800	9650	Polish Radio, via UAE	
0900	3290	Voice of Guyana		1800	15365	Radio Canada International	
0900	6185	Radio Educacion, Mexico	SS	1800	15540	Radio Kuwait	
1000	6135	Radio Santa Cruz, Bolivia	SS	1800	11655	Radio Nederland, Madagascar Relay	
1100	9540	China Radio International	CC	1800	15345	RTV Marocaine, Morocco	AA
1100	6160	CKZN, Canada		1800	9785	Voice of Turkey	
1100	7320	Madgadan Radio, Russia	RR	1900	9980	Adventist World Radio, Guam	
1100	6185	NHK Radio Japan	RR	1900	15275	Deutsche Welle, Germany, Rwanda Relay	
1100	6020	Radio Australia	Tok pisin	1900	11885	Deutsche Welle, Germany, Sri Lanka Relay	RR
1100	4747	Radio Huanta 2000, Peru	SS	1900	11605	Deutsche Welle, Germany, Sri Lanka Relay	RR
1100	6060	Radio Nacional Venezuela, via Cuba	SS	1900	15180	Radio Canada Intl, via England	AA
1100	5020	Solomon Islands Broadcsting Corp.		1900	11615	Radio Nederland, via South Africa	
1100	3280	La Voz del Napo, Ecuador	SS	1900	11610	Radio Nederland, via Rwanda	
1100	3385	Radio E. New Britain, Papua New Guinea	Tok Pisin	1900	11635	Radio Tirana, Albania	Albnian
1100	3925	Radio Nikkei, Japan	JJ	1900	12025	RTT Tunisienne,Tunisia	AA
1100	4815	Radio el Buen Pastor, Ecuador	SS	2000	17680	CVC-La Voz,Chile	SS
1200	13755	Adventist World Rdio, Guam	Uighur	2000	7455	Radio Algeriene, via France	AA
1200	2310	Australian Broadcasting Corp.		2000	9705	Radio Ethiopia	Amharic
1200	7255	VOA, Thailand Relay		2100	7550	All India Radio	
1200	11580	Far East Broadcasting, No. Marianas	CC	2100	9505	CVC-One Africa, Zambia	
1200	9650	KBS World Radio, South Korea via Canada		2100	7255	Islamic Republic of Iran Boadcasting	AA
1200	9345	Pyongyang BC Station, North Korea	KK	2100	9705	La Voix du Sahel, Niger	FF
1200	3315	Radio Manus, Papua New Guinea	Tok Pisin	2200	15320	Adventist World Radio, Guam	
1200	6170	Radio New Zealand International		2200	17605	NHK Radio Japan	JJ
1200	15570	Vatican Radio	Italian	2200	15515	Radio Australia	
1200	3275	Radio Southern Highlands, P/New Guinea	Tok Pisin	2200	7360	Radio Belarus	Unid
1200	9720	Radio Thailand		2200	4845	Radio Mauritanie, Mauritania	AA
1300	6070	CFRX, Canada		2200	6297	Radio Nacional RASD, Algeria	AA/SS
1300	11685	Islamic Rep. of Iran Broadcasting	Urdu	2200	15315	Radio Nederland Relay, Bonaire	DD
1300	15480	Polish Radio, via Germany	RR	2200	15345	Radio Argentina al Exterior	SS
1300	4750	Radio Republik Indonesia, Makassar	II	2200	15205	VOA, Philippine Relay	Indonesian
1300	7295	Traxx FM, Malaysia		2200	9420	Voice of Greece	Greek
1300	15450	Voice of Turkey		2200	9660	Voice of Russia, via Moldova	
1300	9525	Voice of Indonesia		2300	9580	Africa Number One, Gabon	FF
1400	9690	All India Radio		2300	6090	Caribbean Beacon, Anguilla	
1400	17780	BBC, Cyprus Relay		2300	11975	China Radio Intl, via Mali	CC
1400	9915	BBC, Cyprus Relay		2300	15640	Deutsche Welle, via USA	GG
1400	17895	Broad. Svc of Kingdom of Saudi Arabia	AA	2300	12025	Deutsche Welle, Germany, Rwanda Relay	GG
1400	9795	China Radio International		2300	11920	HCJB, Ecuador, via Chile	vern
1400	9580	Radio Australia		2300	13650	NHK Radio Japan	Burese
1400	7240	Radio Australia		2300	11910	NHK Radio Japan	JJ
1400	7505	Far East Broadcasting, Philippines	Mandarin	2300	11815	Radio Brazil Central	PP
1400	9460	Polish Radio, via Russia		2300	6125	Radio Exterior Espana,Spain	SS
1400	17850	Radio France International	Farsi	2300	15550	Radio Free Asia, USA, via Tinian, NM	CC
1400	5810	Radio Free Asia, USA via Tinian, NM	CC	2300	6100	Radio Havana Cuba	SS
1400	21695	Radio Jamahiriya, Libya		2300	15190	Radio Iconfidencia, Brazil	PP
1500	21655	RDP International, Portugal	PP	2300	7405	Radio Marti, USA	SS
1500	9835	RTV Malaysia	Malay	2300	11780	Radio Nacional Amazonia, Brazil	PP
1600	15235	Channel Africa, South Africa	FF	2300	15720	Radio New Zeland	
1600	15190	Radio Africa, Equatorial Guinea		2300	7475	Voice of Greece	Greek
				2300	11895	Radio Boa Vontade, Brazil	PP

Trivia And Toons

by R.B. Sturtevant, AD7IL

Q. With the Dayton Hamvention coming up later this month, I got to wondering about ham history. When did amateur radio really start taking off?

A. Well, we know there were lots of people already on the air when licensing began in 1912. In addition to Marconi and his work, there were plenty of other scientific types experimenting and striving to make new breakthroughs. Others still were interested commercial aspects and trying to establish communications companies. But these people can't be called amateurs. The first amateur radio clubs started to appear around 1909. So it's probably a good guess that the people we'd think of as amateurs were out there trying to get someone to pick up their signals sometime around 1908. From what we know of hams, these "lone wolves" would probably have started forming clubs as soon as they became aware of like-minded folks also throwing signals out into the air! Spark gap and longwave signals in the 300- to 600-meter range were what they would have been ragchewing over back then.

Q. Who invented the near vertical incident sky-wave antenna and what is it used for?

A. The NVIS antenna is, in one respect, a little like radar: everybody seems to have invented it independently at the same time. A regular dipole antenna has arms, which are more or less parallel with the ground. This creates a "skip zone" between where the antennas' ground wave signal ends and where the first "bounced signal" hits the ground on its return from the ionosphere. An NVIS

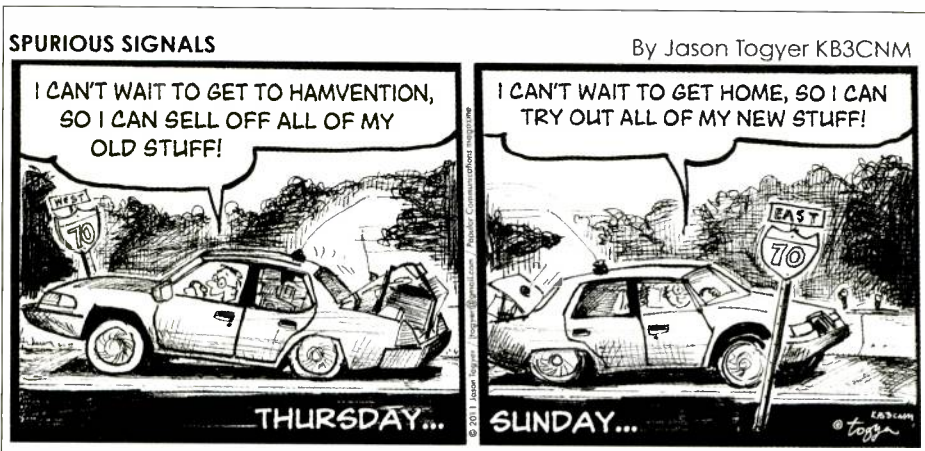
antenna has the arms of the dipole set at about 45 degrees with the high point in the center (inverted V). Typically, this allows the ground wave signal and the first bounced signal to overlap, eliminating the skip zone where no signal is heard.

This design was first used by the Germans during World War II and helped them maintain radio contact between units during their Blitzkrieg movements through Europe and Russia. The British followed, employing the same approach for North Africa, and later developing a classified manual on NVIS in preparation for D-Day. Interestingly enough, the lack of NVIS antennas caused many of the communications problems the British experienced during Operation Market-Garden when the First Parachute Regiment jumped into Holland. NVIS still finds major use among military and amateur antenna designers.

Q. When the North Koreans boarded the *USS Pueblo* all they got was a lot of radio intercept gear, most of which could be bought "off the shelf" in electronics stores in most westernized countries. Why did they pull such a dangerous and politically loaded attack?

A. You're right about the intercept gear. Even within the country, most of it could have been duplicated by civilian sources and a big enough budget. But the intelligence-gathering ship was carrying more than intercept equipment. The KW-7 cipher machine aboard it was the latest and greatest piece of crypto gear used by the Navy and other services on January 23, 1968, when the *Pueblo* was captured. Like any crypto machine, the key to set it up is one of the most closely guarded secrets of the system.

In December 1967, spy Johnny Walker started selling the monthly Key List used daily to change the setup on the KW-7. Walker also sold technical manuals and encoded messages used in the Atlantic. That opened the door for the Soviets to all of America's Naval communications, but the Soviets needed at least one KW-7 machine to actually get through that door. While difficult to confirm, the KW-7 as well as other models of crypto gear they finally got probably came off the *Pueblo*.



IN GEAR

Power Up

by Staff

New, Interesting, And Useful Communications Products

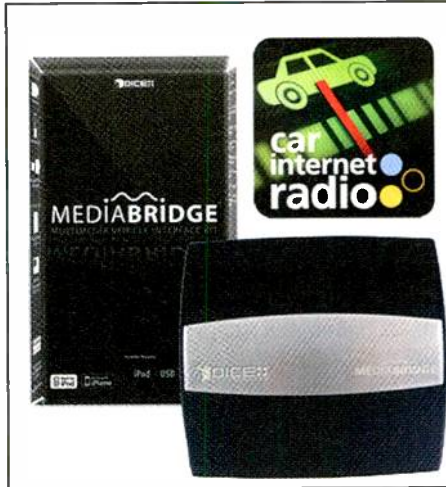
Dice, Livio Team Up On Internet Radio Kits

OEM integration supplier Dice Electronics and tabletop Internet radio supplier Livio are teaming up to offer aftermarket integration kits that will enable a vehicle's factory-installed sound system to play thousands of Internet radio stations through a connected iPhone. At January's International CES, Dice and Livio launched a Livio Car Internet Radio app and an optional user-installable firmware upgrade for new Duo and MediaBridge vehicle-specific integration kits. When the upgraded kits are added to select factory radios, users will be able to select, display, and play thousands of Internet radio stations through an iPhone connected to the kits via USB cable. Upgraded MediaBridge kits will be available for Acura, Honda, Toyota, Lexus, Scion, BMW, Mini, Nissan, VW and Audi vehicles. The Duo will be designed for BMW, Mini, Toyota, Scion, Lexus, Honda, Acura, Nissan, Infiniti, Mazda, and VW.

The Silverline Duo integration kits enable factory-head control of both an iPod/iPhone and a Sirius satellite tuner. In the top-end Media Bridge kits, Dice adds USB control of other-brand MP3 players, playback of music files stored on USB drives in various formats, and included stereo Bluetooth with hands-free capability. It also captures the PCM audio output of an iPod/iPhone, whereas the new Duo captures analog audio.

The downloadable Dice firmware and the Livio Car Internet Radio app will be available in the first quarter at a price to be announced. The Duo and MediaBridge are user-updatable via USB. Both the Media Bridge and Duo kits feature built-in translator to convert the Sirius protocol to the protocol used by OEM entertainment systems.

The Duo kits will retail for a suggested \$189 and begin shipping in January. Upgradeable versions of the company's currently available MediaBridge kits will retail for a suggested \$299 and ship in the first quarter. For more information, visit www.DICElectronics.com and www.livioradio.com.



Aftermarket integration kits from Dice Electronics and Livio for select factory radios let users select, display, and play thousands of Internet radio stations through an iPhone connected to the kits via USB cable.

App Happy PastBlast

Streamline Publishing, publisher of top radio-industry trade publication *Radio Ink*, launched the PastBlast application for the Apple iPad. PastBlast, based on Streamline CEO B. Eric Rhoads' book *Blast From the Past*, is the first app to be devoted to radio's Golden Age. "Radio has a rich history, embraced by people around the globe," Rhoads said. "This application is a way to relive some of the great shows and personalities from radio over the decades." Users navigate through the app by clicking items in an accurately reproduced 1950s radio studio, complete with mic, turntable, and control board. Every era of radio broadcasting is represented, and you'll hear great personalities like a young Howard Stern, Casey Kasem, Dick Clark, Jack Benny, Bob Hope, and George and Gracie Burns. Almost 1,000 rare, historic photos from radio's golden past are included, plus audio clips of hundreds of old shows, like *The Shadow*, *The Adventures of Superman*, and *The Lone Ranger*. PastBlast also features top radio songs from every decade of radio's 80-plus-year history, along with historic clips such as Lindbergh's landing in Paris, the death of John F. Kennedy, and the moon landing.

PastBlast is available for \$4.99 in the iTunes App Store now. More information and a video trailer visit www.pastblastapp.com.

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Black January, But A Few Glimpses Of Sunshine

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

“The bottom line is that it certainly won’t be your dad’s BBC any longer, or even your uncle’s!”

These are not happy days in the shortwave world, which during a single week in late January suffered several nasty blows. We’ve learned of the passing of beloved HCJB *DX Partyline* host Clayton Howard. Radio Prague ended its broadcasts on shortwave (though it will continue to be relayed over WRMI). Radio Netherlands Worldwide announced the pending closure next year of the Bonaire relay site, and the BBC announced the cessation of several of its language services.

In case you missed the items about this in last month’s issue, the BBC move ends programming in Albanian, Macedonian, Portuguese (to Africa), and the Serbian languages. In addition, English for the Caribbean will be axed. Further, languages such as Azeri, Mandarin Chinese, Russian, Spanish for Cuba, Turkish, Vietnamese, and Ukrainian are going down. Several other language services, such as Hindi, Indonesian, and Swahili, were also due to end in mid-March. Broadcasts to Burundi and Rwanda (Africa’s so-called “Great Lakes” region) were on the chopping block as well. English language programming will be revamped to include a number of new, shortened, or retitled programs.

It’s estimated that these changes and deletions will cost the BBC about 30 million listeners—or about one-sixth of its total audience—and in the process save the corporation some £42 million. In the long run, over the next two or three years, these negatives would also

cut the jobs of some 650 people (out of a total staff of more than 2,400). Needless to say a number of commissions, groups, boards, committees, unions, and other interested parties are in full rave at this point, so we can expect the teeth gnashing, complaining, and jockeying to drag on for a while. The bottom line is that it certainly won’t be your dad’s BBC any longer, or even your uncle’s!

RNW says that Bonaire doesn’t get enough usage, despite the number of hours devoted to carrying relays of other stations. Even with that positive, the station claims the Bonaire is unprofitable. So, beginning sometime next year, Bonaire will be closed down and the RNW broadcast hours—mostly Dutch and Spanish—will be relayed by Sackville (Canada) and Montinsery in French Guiana instead.

Radio Prague, in a distressing move that we knew was coming, ended shortwave at the close of January, although one of its English programs is still carried over WRMI-Miami, but I’d guess that will be short-lived.

Finally, we mourn the passing of Clayton Howard who, for many years, was the voice of HCJB’s *DX Partyline* program. Most “old timers” still active today cut their DXing teeth tuning in to Clayton and Helen Howard for their tips and other information about the hobby. Clayton retired from HCJB many years ago and lived in Florida for several years before moving back to Ecuador.



Clayton and Helen Howard hosted HCJB’s *DX Partyline* for many years.

But enough. Now let's turn the page, shake off the doom and gloom stuff, and step into the sunlight for a moment.

Some months back I mentioned the arrival of a station calling itself The Cross, operated by Pacific Missionary Aviation, from the island of Pohnpei, Micronesia.

It wasn't long before the operation went off the air. But now it's back and is being surprisingly well heard, despite using a humble 1 kW on 4755. Initial broadcasts were tests running 24 hours a day on 4755. I suspect once the testing has concluded the active hours on air will shrink

as well. The programming is mostly Christian music with English announcements.

Radio TV Malaysia has opened up a new, 100-kW outlet on 9835 and a second frequency, 11665, is also in use. According to well-known Australian DXer Bob Padula, the frequencies carry the domestic Wai FM service from Kuching, Sarawak. The new outlets are believed to be an answer to the opposition Radio Free Sarawak broadcasts that have been active over the past year. It's always fascinating to observe the moves and counter-moves stations and countries make to gain an advantage.

Watch for The Voice of Guyana to add broadcasts somewhere in the 49-meter band soon. Whether its activity on 3290 will continue, change, or even disappear is unclear at the moment.

Radio Cultural Juan XXIII, San

Help Wanted

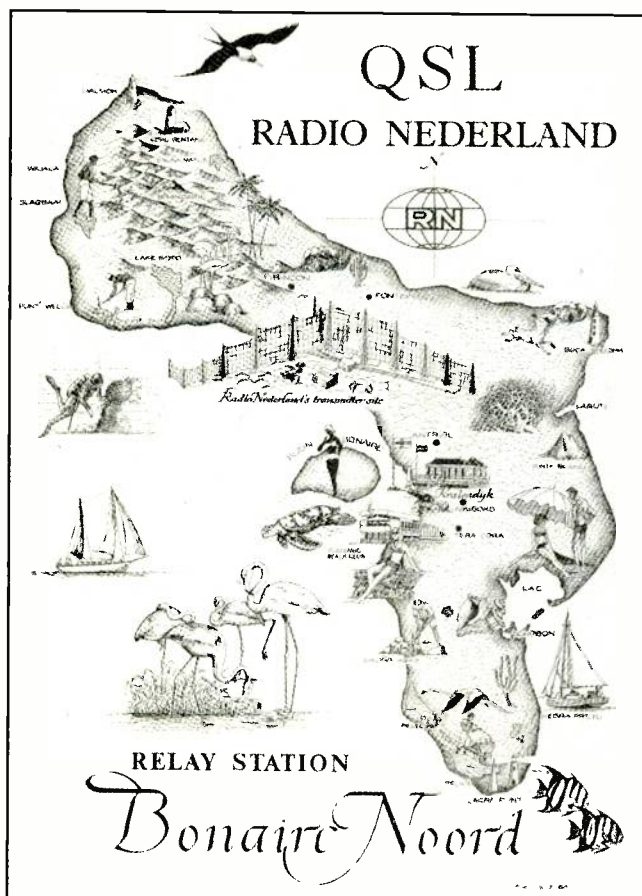
We believe the "Global Information Guide" offers more logs than any other monthly SW publication (520* shortwave broadcast station logs were processed this month!). Why not join the fun and add your name to the list of "GIG" reporters? Send your logs to "Global Information Guide," 213 Forest St., Lake Geneva, WI 53147. Or you can email them to gdex@wi.rr.com. Please note that attachment files do not always go through. See the column text for formatting tips, and please check over your submissions, making sure you've included frequency and UTC time.

**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.*

A Guide To "GIG-Speak"

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

(l)	listed	Lang	language
(p)	presumed	LSB	lower sideband
(t)	tentative	LV	La Voz; La Voix
*	sign on/off time	M	man
//	parallel frequency	NBC	National Broadcasting Corporation (Papua New Guinea)
AA	Arabic	nf	new frequency
ABC	Australian Broadcasting Commission	ORTB	Office de Radiodiffusion et Television du Benin
AFN	Armed Forces Network	PBS	People's Broadcasting Station
AFRTS	Armed Forces Radio TV Service	PP	Portuguese
AIR	All India Radio	PSA	public service announcement
am	amplitude modulation	QQ	Quechua
ancr	announcer	RAE	Radiodifusion Argentina al Exterior
anmt(s)	announcement(s)	RCI	Radio Canada International
AWR	Adventist World Radio	Rdf	Radiodifusora, Radiodiffusion
BBCWS	BBC World Service	REE	Radio Exterior de Espana
BSKSA	Broadcasting Service of the Kingdom of Saudi Arabia	RFA	Radio Free Asia
CBC	Canadian Broadcasting Corp.	RFE/RL	Radio Free Europe/Radio Liberty
CC	Chinese	RFI	Radio France International
CNR	China National Radio	RHC	Radio Havana Cuba
co-chan	co-channel (same) frequency	RNZI	Radio New Zealand International
comml	commercial	RR	Russian
CPBS	China People's Broadcasting Station	RRI	Radio Republik Indonesia; Radio Romania International
CRI	China Radio International	RTBF	RTV Belge de la Communaute Francaise
DD	Dutch	s/off	sign off
DJ	disc jockey	s/on	sign on
DW	Deutsche Welle/Voice of Germany	SIBS	Solomon Is. Broadcasting Corp.
EE	English	sked	schedule(d)
f/by	followed by	SLBC	Sri Lanka Broadcasting Corp.
FEBA	Far East Broadcasting Association	SS	Spanish
FEBC	Far East Broadcasting Company	TC	time check
FF	French	TOH	top of the hour
GBC	Ghana Broadcasting Corp.	TT	Turkish; Thai
GG	German	TWR	Trans World Radio
HH	Hebrew; Hungarian	unid	unidentified
HOA	Horn of Africa	USB	upper sideband
ID	identification	UTC	Coordinated Universal Time (= GMT)
II	Italian; Indonesian	UTE, Ute	utility station
Intl	International	v	variable
IRIB	Islamic Republic of Iran Broadcasting	vern	vernacular (local language)
IRRS	Italian Radio Relay Service	VOA	Voice of America
IS	interval signal	VOIRI	Voice of Islamic Republic of Iran
JJ	Japanese	VOR	Voice of Russia
KBS	Korean Broadcasting System	W	woman
KK	Korean	ZBC	Zambian Broadcasting Corp.



Radio Nederland will end service from Bonaire next year. A reliable relay, Bonaire was inaugurated in 1969.

Ignacio del Velasco, in Bolivia—which is *World Radio TV Handbook*-listed with 2.5 kW on 6054 but never heard in North America—is reported to be planning an increase to 5 kW with an antenna arrangement favoring coverage in North America and an adjustment to the assigned 6055 spot will be something to watch for.

Hamada Radio International is a new opposition broadcaster beaming to Nigeria via Wertachtal on 7350 from 0530–0600 and 9840 from 1900–1930.

Reader Logs

Remember, your shortwave broadcast station logs are always very welcome. But *please* be sure to double or triple space between the items, list each logging according to home country, and include your last name and state abbreviation after each. Also needed are spare QSLs or good copies you don't need returned, station schedules, brochures, pennants, station photos, and anything else you think would be of interest. And how about sending a 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. Double capital letters are language abbreviations (SS = Spanish, RR = Russian, AA = Arabic, etc.). If no language is mentioned English (EE) is assumed.

ALBANIA—Radio Tirana, 6100-Shijak at 0430 with IS, sked and music. (Parker, PA) 6130 at 0249 with a news report ending at 0252

and into a press review. (Coady, ON) 7530 with ID and news at 2100. (Ng, Malaysia) 11635 in (I) Albanian at 1952. (Brossell, WI)

ALGERIA—Radio Algerienne, 5865 via Issoudun at 0410 with Koran. (Parker, PA) *0400 with anthem and Koran. (Yohnicki, ON) *0359 with W vocal, time pips, possible anthem, M in AA with ID and prayer. Also, 7455 via France at *2000 with M in AA, open anmts and news in AA. (D'Angelo, PA)

ANGUILLA—Caribbean Beacon, 6090 at 2350 with a Melissa Scott sermon. (MacKenzie, CA)

ASCENSION ISLAND—BBC Atlantic Relay, 6195 in FF at 0613 and 17830 at 1438 on Palestine. (Parker, PA) 7255 at 0336 with *The Strand*. (Coady, ON) 9410 on the Ivory Coast situation at 0638. (Sellers, ON) 9915 at 2140. (MacKenzie, CA) 11890 in (I) Hausa at 1955. (Brossell, WI)

ARGENTINA—Radio Argentina al Exterior, 11710 opening at 0159 with multi-lingual IDs, f/by 5+1 time pips and multi-lingual ID f/by news headlines. (D'Angelo, PA) 0205 on Argentina's bicentennial. (Parker, PA) 15345 in SS at 2235. (MacKenzie, CA)

AUSTRALIA—Radio Australia, 6020 at 1041 in Tok Pisin with an interview on Papua New Guinea. (Coady, ON) 7240 at 1450. (Sellers, BC) 9580-Shepparton with pops at 1843, 15515-Shepparton at 2237, 15560 at 2246 with a piano concert and 17795-Shepparton at 2330 with ID and news items. (MacKenzie, CA) 9500 at 2100 with news. (Ng, Malaysia) 11880 with world news at 2035. (Brossell, WI) 13690-Shepparton at 0604 with interview of a sports figure. (Parker, PA)

ABC Northern Territories Service: 2310-Alice Springs at 1359 with interview, //2325 and 2485; 2325-Tennant Creek at 1401 with a movie review and 2485-Katherine at 1535 with Australian country songs. (Sellers, BC)

Radio Symban, 2368.5 at 1537 with music and talk, very poor. (Sellers BC)

BANGLADESH—Bangladesh Betar, 4750 at 1130 with weak sub-continental music. (Wilkner, FL)

BELARUS—Radio Belarus, 7360 at 2245 with M/W in unid language. (MacKenzie, CA)

BONAIRE—Radio Nederland, 9685 Bonaire Relay in DD at 0623. (Parker, PA) 15315 in DD monitored at 2223. (MacKenzie, CA)

BOLIVIA—Radio Eco, Reyes, 4410 at 2300 fair to good in SS. (Wilkner, FL)

Radio Santa Ana, Santa Ana del Yacuma, 4451.2 in SS as late as 0100*. (Wilkner, FL)

Radio San Miguel, Riberalta, 4700 in SS heard at 0332–0335 abrupt close. (Parker, PA) (t) at 1044 with canned SS amts. Barely audible at 1126 recheck. (Sellers, BC)

Radio Yura, Yura, 4716.5 at 0253 in SS. (Parker, PA) (p) at 1046 with Andean music. (Sellers, BC)

BOTSWANA—VOA Relay, Mopeng Hill, 4930 with news at 0430. (Parker, PA) 9815 at 1830 with apparent news in FF. (Brossell, WI) 9885 at 0417 with *Daybreak Africa*. (Coady, ON) 0422 with 2-M and comments. (MacKenzie, CA)

BRAZIL—(All in PP—*gld*) Radio Municipal, Sao Gabriel da Cachoeira, 3375.3 at 0407. (Parker, PA)

Radio Capixaba, Vitoria, 4935 with M giving a speech, cheering crowd at 0435. (Parker, PA) 0513 with M preaching and live audience. (D'Angelo, PA)

Radio Clube do Para, 4885 at 0249 with M ancr and upbeat music, dominating Acreana. (Parker, PA) 0658 with music, numerous IDs. (Sellers, BC)

Radio Difusora Macapa, 4915 at 0345 with M/W talk. (Parker, PA)

In Times Past...

Here's your blast from the past for this month...

ANGOLA—Radio Clube Cuanza Sul, Novo Redondo, on 4840 in PP at 2154 on October 17, 1970. (Dexter, WI)



Radio Prague ended decades of shortwave broadcasting at the close of January.

Radio Cultura do Para, 5045 at 0307 with talk. (Brossell, WI)

Radio Brazil Central, Goiana, 4985 heard at 0216 with impassioned talk, mentions of "Cuba." Also 11815 at 2325 with old US pops. (Parker, PA)

Super Radio Deus e Amor, Sao Paulo, 9593 (p) at 0625 with passionate M speaker and an inspirational song. (Parker, PA) 11765 at 0351 with M and W talk. (Parker, PA) 0626 with preacher and Gospel song. (Sellers, BC)

Radio Inconfidencia, Sao Paulo, 9645.3 at 0620 with talk show and phone calls. (Parker, PA) 15190 at 2325 with Brazilian music. (Alexander, PA)

Radio Voz Missionaria, Camboria, 9665 at 0202 to 0271* with spirited anmts and upbeat music. (Parker, PA)

Radio Nacional Amazonia, Brasilia, 11780 with talks at 1117. (Brossell, WI) 2145 with talk on *football*. (Linonis, PA) 2330 with Michael Jackson number. (Parker, PA)

BULGARIA—Radio Bulgaria, 5900-Kostinbrod in RR at *0400. (Parker, PA) 7400 at 0100 sign on. (Linonis, PA) 2259 in BB. Suddenly off at 2300. (MacKenzie, CA)

CANADA—Radio Canada Intl, 15180 via Rampisham in AA monitored at 1920. (Brossell, WI) 15365 with *The Link* pgm at 1800. (Linonis, PA)

CFRX, Toronto, 6070 at 1403 with news, ID and weather. (Sellers, BC)

CKZN, St. John's (Newfoundland), 6160 at 0515. (Parker, PA) 1045 with music by a local group. (Coady, ON)

CFVP, Calgary, 6030 at 0406 with a traffic report, country songs "Classic Country Music" ID and TC. (Sellers, BC)

Bible Voice Network, 6225 via

Kazakhstan at 1422 with preacher. This is Sat/Sun only. (Sellers, BC)

CHAD—Radio Tchad, N'Djamena, 6165 at *0427 with balafon IS once Radio Nederland leaves the frequency, band anthem, f/by M in FF with ID and anmts. Mixing with presumed co-channel Zambia. (D'Angelo, PA) 0530 in FF with bits of hilife music. (Parker, PA) 2207 in FF. (Yohnicki ON)

CHILE—CVC-La Voz, 9780 at 1131 with promos, many mentions of "CVC." (Coady, ON) 17680 with Christian music at 2000. (Linonis, PA) 2328 with Christian pops. (MacKenzie, CA)

CHINA—China Radio Intl, 7250 in SS at 2317, 9435 in CC at 0050, 9570 via Albania at 0058, 9590 in SS at 0010, 9610 in Hakka at 0015, 9860 in CC at 0020 and 11790 at 0012. Also, 11820 in Cantonese at 0005, 11830 via Petropavlovsk in CC at 2358, 11975 via Mali in CC at 2345 and 13700 via Canada in SS at 2210. (MacKenzie, CA) 7350 at 0146. (Padazopulos, Greece) 9440-Kunming in CC at 1148, 9540-Beijing in CC at 1150, 11695 via Albania in FF at 1838 and 11935-Shijiazhuabg in RR at 1131. (Brossell, WI) 9795-Urumqi at 1404 ending news and into *The Beijing Hour*. (Coady, ON) 13600-Xi'an in RR at 0135 and 15350-Kashi at 0300. (Ng, Malaysia) 13750-Kunming in CC at 0639. (Parker, PA) 17505 at 0610. (Padazopulos, Greece)

CPBS/CNR: Voice of Pujiang, Shanghai, 3280 in CC at 1540, Xizang PBS, 4820-Tibet with local vocals at 1612, 4820 and 4905 at 1527, 6115 (t) Voice of the Strait, Fuzhou with EE/CC lesson at 1521. (Sellers, BC) CNR (t) 6045 at 2238 with M/W in Mandarin to 2300 close. (D'Angelo, PA) CNR-1, 11925-Lingshi in CC at 0153, 13610-Nanning in CC at 0635 and 12045-Beijing in CC at 0255. (Parker, PA) CPBS: 7245 in CC at 2320, 7385 in CC at 1820, 7415 in CC at 1822, 9745 in CC at 0057, 12025 in CC at 2335, 12070 in CC at 2325 and 13610 in CC at 2345. (MacKenzie, CA) 7345-Beijing in CC at 1141. (Brossell, WI)

COLOMBIA—Marfil Estereo, Puerto Lleras, 5910 heard at 0626 with SS music. (Parker, PA)

CONGO—Radio Okapi, 11690 via Meyer-ton in (I) Lingala heard at 0435. (Parker, PA)

CROATIA—Hravatski Radio/Voice of Croatia, 3985-Deanovic at 0300 with news. (Padazopulos, Greece) 0355 in Croatian with pops. (Parker, PA) 0500 with news in Croatian. (Yohnicki, ON) 7375 via Germany in Croatian at 0354. (Yohnicki, ON)

CUBA—Radio Havana Cuba, 5040 in SS at 0300. (Padazopulos, Greece) 6100 in SS at 2347, 6140 in SS at 2340, 9770 in SS at 0030, 9790 in Cantonese at 0428, 11690 in SS at 0420 and 15370 in FF at 2231. (MacKenzie, CA) 1916 in SS. (Brossell, WI) 15230 in SS at 1615. (Parker, PA)

Radio Rebelde, 5025 in SS at 0300. (Padazopulos, Greece)

DJIBOUTI—Radio Djibouti, Arta, 4780 from *0258 with O/C, orchestral anthem, M with ID, anmts and vocals. (D'Angelo, PA)

0325 with M in vernacular. (Parker, PA) 0342 with HOA music. (Coady, ON)

ECUADOR—HCJB Global, 11920 via Chile at 2315 in (I) Kulina with M and choir. (Parker, PA)

Radio Quito, 4919 in SS with ballads heard at 0735. (Yohnicki, ON) (*This is rarely active.*—gld)

EGYPT—Radio Cairo, 9305 at 0042 with M and comments in AA. (MacKenzie, CA) 11590-Zaabal at 0232 in AA with vastly improved audio. (Parker, PA)

ENGLAND—BBC, 3255 via South Africa at 0404 with talk about Rome, 5790-Rampisham in RR at 0527, 5875-Rampisham on Belorussia at 0636, 11720 via South Africa in Swahili at 0426-0430 close and 17830 via Limassol (Cyprus) at 1444. (Parker, PA) 5965 with news at 1300 and 6005//9410, 11760 and 12095 at 0605. (Padazopulos, Greece) 9460 via South Africa at 0408 with *The World Today*. (Coady, ON) 9915 Cyprus Relay at 1432 on a children's beauty pageant. (Sellers, BC) 12095 Thailand Relay at 0145. (Ng, Malaysia) 15425 via Portugal in FF at 1205. (Brossell, WI)

EQUATORIAL GUINEA—Radio Africa, Bata, 5010 with EE religious pgms at 1601. (Parker, PA) 1924. (Brossell, WI) 2110. (Linonis, PA)

ERITREA—Voice of the Broad Masses, Asmara, 7175 at *0405 with instl music opening, W with ID and anmts in (p) Tigrinya, choral anthem, M and HOA music. (D'Angelo, PA) 0425 with local music and talk. (Parker, PA)

FRANCE—Radio France Intl, 7315 in EE at 0400. (Weronka, NC) 17850 in Farsi at 1455. (Parker, PA)

GABON—Africa Number One, Moyobi, 9580 with FF news hear at 0530. (Yohnicki, ON) 0615 with FF talks and upbeat music. (Parker, PA)



Here's another view of Radio Verdad's attractive pennant, courtesy of Rich D'Angelo, Pennsylvania.



Radio Magnetar sent Rich D'Angelo this attractive QSL for its pirate broadcast on 6937.

GERMANY—Deutsche Welle, 5905 Portugal Relay with a sports report at 0400. (Coady, ON) 6155 Portugal in EE at 0519, 11605 Rwanda Relay in RR at 1833, 12025 Rwanda in GG at 2350, 17800 Portugal at 1502 and 17860 via Rampisham with a radio drama in Urdu at 1448. (Parker, PA) 7380 Madagascar Relay in Indonesian at 2252, 11605 Sri Lanka Relay in RR at 1907, 12025 Rwanda in GG at 2337 and 12070 Rwanda in EE at 2156. Off at 2200. (MacKenzie, CA) 7235 on terrorism at 0612. (Benson, NC) 11695 Sri Lanka with *Newslink* at 0315 and 15600 Sri Lanka at 0430 with *Art on the Air*. (Ng, Malaysia) 11795 via Rampisham on life in Germany to close at 2030, 11885 Sri Lanka in RR at 1925 and 15275 Rwanda in GG at 1926. (Brossell, WI) 12070 Rwanda at 2110 with *Newslink* and *Inside Europe* pgms. (D'Angelo, PA) 15640 via Cypress Creek in GG at 2305. (MacKenzie, CA)

GREECE—Voice of Greece, 7475 at 2305 with two M and GG comments. (MacKenzie, CA) 9420 in GG at 2220. (Ng, Malaysia)

GUAM—Adventist World Radio, Agat, 9980 at 1905, 12120 in CC at 2315 and 15320 in EE at 2238. (MacKenzie, CA) 11825 monitored at 1100 with EE ID and into CC and 13755 in Uigur at 1325. (Ng, Malaysia)

GUATEMALA—Radio Verdad, 4052.5 Chiquimula, at 0305 with M singing and playing guitar. (Parker, PA) 0435 end of EE religious talk, series of vocals. (D'Angelo, PA)

GUYANA—Voice of Guyana, 3290 with news headlines at 0445. (Brossell, WI) 0705 with M/W and BBC news. (Sellers, BC) 0930 with local anmts and pops. (Wilkner, FL) 0949 with M preaching in EE, ID and news at 1001. (D'Angelo, PA)

INDIA—All India Radio, 4840-Mumbai at 1420 with flutes, M in Hindi with presumed news. Into W with EE news at 1430, 4910-Jaipur with EE news at 1533, 4920-Chennai with news in EE at 1532, 5010-Thiruvananthapuram with news at 1530 and 9690 with EE commentary at 1434. (Sellers, BC) 5010-Thiruvananthapuram at 0119 with long talk in Hindi. (D'Angelo, PA) 6280//7550 with W singing at 2117. (Yohnicki, ON) 9870 at 0200 with W ancr, drums and sitar music. (Barton, AZ) 9870-Bangaluru with Vividh Bharati service at 1409. (Coady, ON) 9870-Bangaluru with Hindi songs at 0110. (Ng, Malaysia) 11985-Bangaluru at 0231 in (p) Kannada with local instls. (Parker, PA)

INDONESIA—Radio Republik Indonesia, 3325-Palangkaraya (Kalimantan), in II at 1545 with ballad and phone call. (Sellers, BC) 4750-Makassar (Sulawesi), with Koran prayers at 1305. (Barton, AZ)

Voice of Indonesia, 9525v at 1050 with local ballads, W talk and ID at 1057, then off at 1059. (Coady, ON) 1317 with news in EE, ID and contact info at 1318. (Brossell, WI) 1340 with English hour, M/W ancrs. (Sellers, BC)

ISRAEL—Galei Zahal, 6973u at 0200 in HH with US/Euro pops. (Linonis, PA) 0500 in HH. (Parker, PA)

IRAN—IRIB, 5915-Sirjan at *0258 with instl music, IS, M in Armenian with ID, open anmts, prayer, M/W with news and features. (D'Angelo, PA) 6010 in SS at 0150. (Padazopoulos, Greece) 7255 in AA at 2140. (MacKenzie, CA) 9865-Kalamabad at 0555-0600* in Turkish. Also, 13620 in Italian at 0631. (Parker, PA) 11685 in (l) Urdu heard at 1315. (Brossell, WI)

JAPAN—Radio Japan, 6155 with commentary in Urdu at 0330. (Padazopoulos, Greece) 6185 in RR at 1136. (Brossell, WI) 9835 in JJ at 1852, 11910 in JJ at 2150, 13650 via Bonaire at 2343, 17605 via Bonaire in JJ at 2204 and 17810 in Indonesian at 2334. (MacKenzie, CA) 11665 in JJ at 2320, 11750 via Singapore in Burmese monitored at 1035 and 15205 in EE at 0505. (Ng, Malaysia) 11935 via Bonaire in JJ at 0240 and 13650-Yamata in Burmese at 2355-0000. (Parker, PA) 17605 in JJ at 2345. (Barton, AZ)

KUWAIT—Radio Kuwait, 15540 at 1820 with pops, time pips, M with ID news and more pops. (Coady, ON)

LIBYA—Radio Jamahiriya/Voice of Africa 21695 at 1417 with W hosting music, but with deep fades. (Yohnicki, ON) 1509 with African news in EE. (Parker, PA)

MADAGASCAR—Radio Madagasikara, 5010 at 0301 with talks in (p) Malagasy. (Brossell, WI) 0610 in vernacular with M talk over guitar and W singer. (Parker, PA)

MALAYSIA—RTM, 5030 (Sarawak) at 1522 with US pop song, another in Malay. (Sellers, BC)

Traxx FM, 7295 at 1630 with US pop/rock. (Barton, AZ)
RTV Malaysia, 9835 (p) on this new frequency at 1554 with M/W in Malay. No parallels noted. (Sellers, BC)

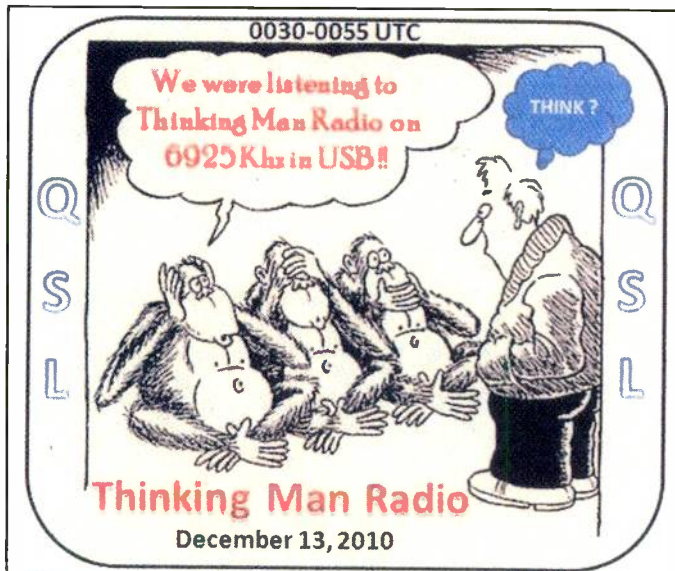
MAURITANIA—R Mauritanie, 4845 monitored at 2355 with AA talks. (Brossell, WI)

MOLDOVA—Radio Pridnestrovie, 6240 at 2230. (Weronka, NC)

MOROCCO—RTV Marocaine, 15345 at 1723 with ME vocals, AA talk. (Coady, ON) 1927 in AA. (Brossell, WI)

NETHERLANDS—Radio Nederland, 6185 in Pashto at 0328 and 9830 in EE at 0616. (Padazopoulos, Greece) 11610 via Rwanda with news at 1905, 11615 via South Africa with pop hits in Holland and 11665 Madagascar relay with a pgm on aging at 2016. (Brossell, WI) 11655 with a talk on Facebook at 1810. (Linonis, PA) 1839 on Chinese culture in Africa. (Parker, PA) 11615 via South Africa at 1905. (Yohnicki, ON)

NEW ZEALAND—Radio New Zealand Intl, 6170 at 1201 with news. (Brossell, WI) 9765 at 0708 with news and pops. Also, 11725 at 0623 on NZ shipping industry. (Sellers, BC) 9765 at 1003 with news



Another pirate, Thinking Man's Radio, also replied to Rich D'Angelo.



One of many colorful QSLs from the Voice of Turkey, this one to David Weronka (North Carolina) for reception of the Emirler site on 11655.

and weather. (Coady, ON) 9765 with ballads at 0729. (Yohnicki, ON) 11725 at 0603 with news. (Parker, PA) 15720 monitored at 2224. (MacKenzie, CA)

NIGERIA—Voice of Nigeria, 7255 at 2215 with 2-M doing news, many mentions of Nigeria. (Yohnicki, ON) 15120 at 1525 with talks and domestic music. (Parker, PA) 1620 with news at 1620. (Padazopoulos, Greece) 1800 with news. (Linonis, PA) 1802. (D'Angelo, PA)

NORTH KOREA—PBS Pyongyang, 3320 in KK at 1544 with traditional instls, 6400 with male chorus, W in KK at 1619. (Sellers, BC) 9345 at 1210 with talks in KK. (Brossell, WI)

Voice of Korea, 13650 with news in CC at 0010, 15100 in CC at 0050 and 15180 in SS at 0200. (Ng, Malaysia)

OPPOSITION—Radio Nacional de la RASD (to Morocco), 6927 in AA at 0720. (Yohnicki, ON)

Echo of Hope (to North Korea), 6348 at 1633 with instl music and M in KK. (Sellers, BC)

Voice of Democratic Eritrea, (t) 7165 at 0435 in (l) Tigrinya with W talk, bits of local music. (Parker, PA)

Open Radio for North Korea, 7480 with ID monitored at 2100, talk by M/W in KK. (Ng, Malaysia)

Voice of Tibet (to China), 13755 via Germany monitored at 1330 with ID, talk in TT. (Ng, Malaysia)

Radio Damal (to Somalia), 11740 at *1830 with HOA music, M in Somali. (D'Angelo, PA)

Radio Free Sarawak, 15420 at 1000 with M in Iban language. (Ng, Malaysia)

Sudan Radio Service, 17700 via Ascension in AA heard at 1630. (Linonis, PA)

PAPUA NEW GUINEA—Radio Manus (Admiralty Is), 3315 heard at 1231 with island vocals and M in Tok Pisin. (Sellers, BC)

PERU—Ondas del Huallaga, Huanuco, 3329.5 at 1015 with anmts, OA music. (Wilkner, FL)

Radio Huanta, Huanta (t), 4747 heard at 1000 with SS songs. (Sellers, BC)

Radio Vision, Chiclayo, 4790 at 0443 with SS talks. (Brossell, WI) 0541 with long huaynos in what seemed to be a live performance with occ. M speaking to the musicians. (Parker, PA)

La Voz de la Selva (t), 4824.7 in SS at 1128 with fast-paced anmts, W on phone. (Sellers, BC)

Radio Cultural Amuata, Huanta, (t) 4955 at 1057 with medley, W with anmts over OA music. (Sellers, BC)

Pacifico Radio, Lima, 4974.8 heard at 0221 with slow SS ballad, M crooner. (Parker, PA)

PHILIPPINES—Far East Broadcasting Co., 7505 at 1458 with religious pgm in Mandarin. (Sellers, BC) 11580 via Northern Marianas

in CC at 1229. (Brossell, WI) 11990 Northern Marianas in Mongolian at 0950. (Ng, Malaysia)

Radio Pilipinas, 11880 with *Dateline Malacanang* at 0200. (Ng, Malaysia)

Radio Veritas Asia, 9615 with talk in CC at 1020 and 17860 in Urdu at 0105. (Ng, Malaysia) 15280 in Indonesian at 2245. (MacKenzie, CA)

PIRATES—WHYP, 6925 at 0422–0451* with rock and clear IDs at 0431 and 0441. (Zeller, OH) 1843 to past 2200 with long, rambling pgm featuring various funny bits. Address not heard but it's whypradio@gmail.com. (Hassig, IL)

Captain Morgan Shortwave, 6924. At 2020 and 2220 with rap, *Twilight Zone* theme and holiday tunes. (Hassig, IL) 0325 rock numbers to 0332 close. (Johnson, IA)

Radio Free Euphoria/WBNY Relay, 6250.5 various spoofs, rock at 2030. Also 6874.7 at 2245 with a number of tasteless items. Address as PO Box 1, Belfast, NY 14711. (Hassig, IL)

CHIP Radio, 6925u at 2108–2215* with Chipmunk songs and ID with chipmunk voices. Email: chipradio@gmail.com. (Zeller, OH)

Lunar Eclipse Radio, 6925u heard at 2318–2319* with an assortment of weird sounds. ID at 2319. lunareclipserradio@gmail.com. (D'Angelo, PA)

Radio Free Speech, 6799.7 at 2328 with religious spoofs, song with lyrics tailored to drivers of 18-wheelers. Address as Box 452, Wellsville, NY 14895. (Hassig, IL) 6375//6950.7 at 2216–2222 repeat of old pgm discussing broadcasting during the federal government shutdown. Only the 6375 signal was on after 2222. Gave the old Wellsville address, which is now Belfast. (Zeller, OH)

WTCR, 3433u at 0307–0345* with pgm mixing blues, jazz and rock seldom heard. Three IDs including one at close. wtcr@nysms.net. (D'Angelo, PA)

Random Radio, 6925u at *2310–2327* with pgm of Christmas songs. Ragtime piano IS at open. Said reports go to FRN. (Zeller, OH)

WRR1, 6925u at *2210–2022 with rock and M ancr. (Zeller, OH)

Wolverine Radio, 6950u at 0237–0335 various songs including the word "smile." Good pgm but no address given. (Hassig, IL)

Channel Z Radio, 11428.3 at 1835 said was a special DX xmsn. Address as channelzradio@gmail.com. (Hassig, IL)

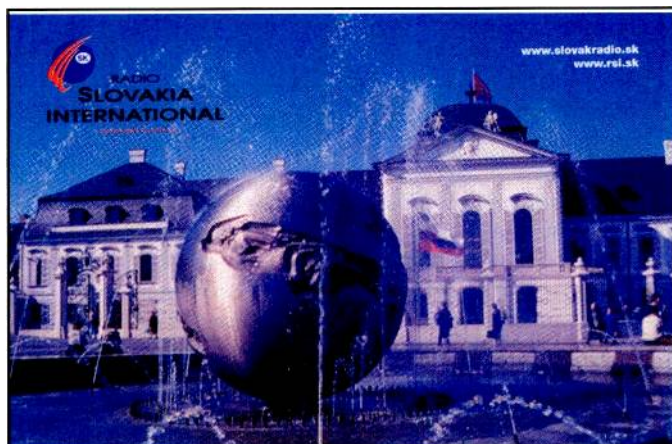
Liquid Radio, 6925 at 2225 with dance music similar to WMPR. QRM from a pirate airing rap. (Hassig, IL)

Radio Garbanzo, 6925u at 2252–2305 with parody ads, some rock and conversation. (D'Angelo, PA)

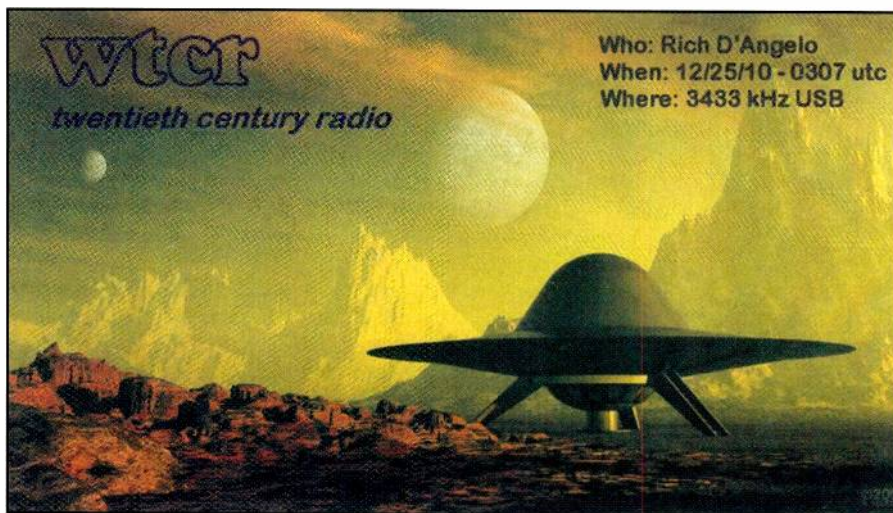
Bust A Nut Radio, 6940 at 0407 with a Dean Martin song. (Parker, PA)

"WMLK," 6924.4 at *1701–1727* with King's "I Have a Dream" speech with occasional catcalls and insulting remarks mixed in. (Zeller, OH)

Northwoods Radio, 6925u at *1431–1459* with loon call IS and various guitar bits. northwoodsradio@gmail.com. (Zeller, OH)



Radio Slovakia International sent David Weronka this card picturing the Presidential Place in Bratislava.



Pirate QSLs are getting fancier. This one went to Rich D'Angelo from WTCT, Twentieth Century Radio.

Radio Ronin, 6928.2 heard at 1529–1624* with rock. Said was “coming from the planetary atmosphere.” radioroninshortwave@gmail.com. At the time there was a jumble of stns causing QRM to all. (Zeller, OH)

WHOF, 6375//6800.2, at 2145–2237, ID mentions Hall of Fame Radio, relay by WBNY. (Zeller, OH)

WBLK, 6925 heard at 1847–1915 discussing ACE and John Arthur, then into soul and rap, numerous IDs and phony phone calls. No address given. (Zeller, OH)

POLAND—Polish Radio, 9460 with an interview at 1415. (Padazopulos, Greece) 9650 via UAE at 1823 with press review f/by light music. (D'Angelo, PA) 15480 via Wertachtal in RR at 1315. (Brossell, WI)

PORTUGAL—RDP Intl, 7345 in PP at 0622, 11655 in PP at 0225 with an ID half past the hour and 21655 in PP at 1513. (Parker, PA) 9455 in PP at 0055. (MacKenzie, CA) 12020 in PP at 0815. (Padazopulos, Greece) 15465 with PP vocals at 1746. (D'Angelo, PA)

RUSSIA—Voice of Russia, 7210 with SS commentary at 0325. (Padazopulos, Greece) 9855-Vladavostok with EE talks. (Parker, PA) With *In Focus* pgm at 0631. (Sellers, BC)

7330 in FF at 1815. (MacKenzie, CA) 9665 via Moldova at 2230 with *Christian Message From Moscow*. (Linonis, PA) 12025-Samara in RR at 1220. (Brossell, WI) 12030 at 0330. (Barton, AZ)

Radio Rossii, 13665 in RR heard at 1204. (Brossell, WI)

Magadan Radio, 7320 in RR heard at 1108. (Brossell, WI)

Tartarstan Radio, 15105 in RR at 0530. (Ng, Malaysia)

ROMANIA—Radio Romania Intl, 6145-Tiganesti in RR at 0540, 7370-Galbeni in FF at 0614 and 9690-Tiganesti in FF at 0603. (Parker, PA) 9525 with ID and W talk in SS at 0000. (Ng, Malaysia)

SAO TOME—VOA Relay, Pinheira, 4960 heard at 0446 on taxing small businesses. (Parker, PA) 0453 with news and features, ID and into Hausa at 0500. (D'Angelo, PA)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 9675-Riyadh at 0614 in AA with W vocal and guitar. Also, 17895-Riyadh with Koran at 1440. (Parker, PA)

SERBIA—International Radio of Serbia, Bijeljina, 6100 in SS at 2025. (Brossell, WI) 6190-Bijeljina with news and commentary at

0130. (Benson, NC) 0153–0158* ending their day's EE pgm at 0157 with closedown and contact info. (D'Angelo, PA)

SINGAPORE—BBC Far East Relay, 7325 in CC at 2240. (Ng, Malaysia)

SOLOMON ISLANDS—SIBC, 5020 at 1121 with call-in pgm. (Brossell, WI)

SOUTH AFRICA—Channel Africa, 3345 at 0310 with M/W in EE. Decent signal but the audio was down. (Parker, PA) 15235 at 1630 in FF. (Linonis, PA)

SOUTH KOREA KBS World Radio, 9650 via Canada at 1235 with *Worldwide Friendship* pgm. Opening of news covered by North Korea for a few minutes. (Barton, AZ)

SPAIN—Radio Exterior de Espana, 3350 Costa Rica Relay at 0524 in SS. (Yohnicki, ON) 5970 in SS at 0045. Also, 9675 at 1850. (Barton, AZ) 6125 in SS at 2344 and 9675 Costa Rica in SS at 0435. (MacKenzie, CA) 11895//12025 in SS at 0610. (Padazopulos, Greece) 21610 in SS at 1516. (Parker, PA)

SRI LANKA—SLBC/Radio Ceylon (p) 11905 under Polish Radio at 1622 with domestic vocals. Very poor. (Sellers, BC)

SUDAN—Radio Omdurman, 7200 in AA with Koran at 0410. (Parker, PA)

SURINAME—Radio Apinte, Paramaibo, 4990 at 0343 with pops, ID by M at 0352. (D'Angelo, PA) 0428 in DD with pops oldies. (Parker, PA)

SWAZILAND—TWR, 4775 heard at 0353 with choir vocals and M in GG. (D'Angelo, PA)

TAIWAN—Radio Taiwan Intl, 9660 in CC at 0020. (MacKenzie, CA) 9735 in (I) JJ at 1145. (Brossell, WI) 11520 in Indonesian at 1010. (Ng, Malaysia) 11710 in CC with possible radio play at 2330. (Linonis, PA) 11885-Hu Wei in CC at 2320 and 11995 via Montinsery in SS at 0027. (Parker, PA)

TUNISIA—RTT Tunisienne, 7335 in AA at 0657. (Parker, PA) 12005 in AA at 1930. (Brossell, WI)

TURKEY—Voice of Turkey, 9700-Ermirler in TT at 0633 and 15200-Cakirlar with Koran at 1608. (Parker, PA) 9785 in EE heard at 1830 sign on and 15450 on Turkish tourist sights at 1312. (Brossell, WI)

UGANDA—UBC Radio, Kampala, 4976 with local music heard at 0442. (Parker, PA)

USA—Voice of America, 7255 Thailand Relay ending service in Indonesian and off at 1230. (D'Angelo, PA) 9315 Philippines in EE monitored at 0045 and 15205 Philippines in Indonesian at 2255. (MacKenzie, CA) 9895 Thailand in Indonesian at 2330, 12120 Philippines Relay in Burmese at 2315, 13650 Tinian (NM) Relay in CC at 1050 and 15205 Philippines in Special EE at 0030. (Ng, Malaysia) 11765 monitored at 1500. (Padazopulos, Greece)

Radio Free Asia, 5810 Tinian (NM) Relay in Cantonese at 1442. (Sellers, BC) 9905 via Palau in CC at 1901. (MacKenzie, CA) 9385 Tinian (NM) in KK at 1740 with “Brother Stair” co-channel. (Barton, AZ) 9435 via Tajikistan in (p) Tibetan at 1241. (Coady, ON) 13710 Tinian (NM) in CC at 0624. (Parker,

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 or other prize. 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 **Jack Linonis**, who is now studying his copy of the 2011 *World Radio TV Handbook*, your guide to everything that's on the air: frequencies, addresses, transmitter locations, powers, relays, times—everything but the manager's favorite soup! Get your copy at any radio hobby supplier, on-line bookstore, or walk-in hobby store. Don't DX without it!

PA) 15220 Tinian in Tibetan at 0100 and 21540 Tinian at 0630 in Tibetan. (Ng, Malaysia) 15550 NM in (p) CC at 2330. (Linonis, PA)

Radio Free Europe/Radio Liberty, 6105 via Wertachtal in Belorussian at 0439 and 12015 Thailand in Turkmen at 0302. Also, 12025 Udon Thani in (l) Uzbek at 0258. (Parker, PA)

Radio Farda, 5860 Kuwait Relay in Farsi at 0525. (Parker, PA)

Radio Marti-Greenville, 7405 in SS at 2308. (MacKenzie, CA)

Family Radio, 5835 via Almaty "camping" here at 1432, also 7560 in (l) Burmese at 1358 and 7730-Okeechobee in (l) Romanian at 0640. (Sellers, BC) 7560 via Kazakhstan in (l) Burmese at 1327, 9280 via Taiwan in CC at 1135, 9450 via Irkutsk with hymns at 1150 and 11840 via Germany in FF at 1925. (Brossell, WI) 11570 via Taiwan in Burmese at 1332. (Coady, ON)

AFN/AFRTS, 12133.5u Saddlebunch Keys, at 0250 with PSAs. (Parker, PA)

Adventist World Radio, 11730 via Germany in AA at 1920. (Brossell, WI)

TWR, 6115 via Samara in Urdu with Pakistani vocals at 1505. (Sellers, BC)

WTWW, Tennessee, 5755 with Pete Peters at 0543. (Parker, PA)

WRNO Louisiana, 7505 with New Orleans jazz at 0406. (Parker, PA)

WBCQ, Maine, 9405 with pop/rock at 0525. (Barton, AZ)

VATICAN—Vatican Radio, 7390 with ID in CC to sign off at 2240. (Ng, Malaysia)

ZAMBIA—One Africa, 4965 with Christian rock at 0241. (Parker, PA) 6162 (*nom. 6165—gld*) at 2150-2208 with Afropops, talk, instl anthem at 2205. (Alexander, PA) 9430.1 at 0403 with Christian pops, brief talk and more pops. (Coady, ON) 0555 with pops. (Barton, AZ) 9505 at 2111 with PSAs. (Yohnicki, ON) 13590 at 1602 with website anmt and Christian pops. (Sellers, BC)

And, once again, order is restored! Endless thanks to the following who checked in this month: Rich Parker, Pennsburg, PA; Peter Ng, Johor Bharu, Malaysia; Stewart MacKenzie, Huntington Beach, CA; George Zeller, Cleveland, OH; Rick Barton, El Mirage, AZ; Harold Sellers, Vernon, BC; Rich D'Angelo, Wyomissing, PA; William Hassig, Mt. Pleasant, IL; Mark Coady, Peterborough, ON; Jack Linonis, Hermitage, PA; David Weronka, Benson, NC; Ben Johnson, Mt. Union, IA; Robert Brossell, Pewaukee, WI; Fotios Padazopoulos, Zahoro, Greece; Brian Alexander, Mechanicsburg, PA; Michael Yohnicki, London, ON; and Robert Wilkner, Pampano Beach, FL.

Thanks to each of you and, until next month, good listening!



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In The Belly Of The Beast— Biological Antennas

by Kent Britain, WA5VJB
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And now for something completely different, to borrow a phrase. Over the years I've worked on several biological antennas, both human and beast. The longest running of these projects involves putting UHF transmitters in the second stomachs of cows.

Yep, cows.

In the summer of 2000, I was working with Irving, Texas, research company K&C Technology, which was tasked by CowTek, a company that offers database management for the livestock industry, to develop a telemetry transmitter to be swallowed by a cow. How long was the transmitter to stay in the digestive track? Its entire life.

Cows (I'm employing the informal usage of the term here to refer to both genders of cattle) have four stomachs, and if a transmitter is slightly weighted, it will stay in the bottom of the second stomach for the life of the animal, providing many years of valuable data. Such research subjects are used in a variety of studies, testing things

"The third transmitter design was for a very specific application...the temperature plot showed when the cow was in estrous, meaning she was fertile."

like different feeds and how well the food was being processed by the digestive system.

Talk About Direct Access

Meet Buster (**Photo A**), a research animal with openings into his first and second stomachs. For the study in which my transmitter was involved, it was convenient to be able to retrieve my prototype. After testing, an animal handler would put on a long plastic glove that came all the way up to his neck, and then reach into Buster's stomach to retrieve the transmitter. I was always amazed that Buster was completely unconcerned about someone feeling around inside his stomach, but of course, people had been doing it since he was a calf.

In **Photo B**, you see my unusual research facility, a feedlot near Ranger, Texas. The photo was taken at the point where I lost the telemetry signal. Typically we got about 100 yards with a usable signal.

In **Photo C** we show the transmitter board and the final sealed configuration with a ballast weight to make it sink to the bottom of the second stomach. **Photo D** is a close up of the loop antenna, which was tuned to nearly 2000 MHz. (2000 MHz for a UHF antenna? More on that in a bit.)

Receive Antenna

The marketing wizards involved in the project looked at the frequency requirements of the different beef-producing nations and decided on three frequency requirements for the transmitters.

For instance, starting with 418 MHz in the United States, security and alarm systems are allowed to use 418 MHz with about five times the power they can use on 434 MHz. The transmitters must be part of an alarm system and have to



Photo A. Buster, research animal extraordinaire.



Photo B. Feedlot near Ranger, Texas.

use very short transmissions (thus in the U.S., the units became the Sick Cow Alarm System versus the Animal Health Telemetry System). More familiar to most of you, that 434 MHz is the same frequency used by many wireless devices around your home, such as the remote temperature sensor for your fancy weather station or possibly your keyless entry system.

In still other countries, frequencies in the 450- to 470-MHz band would be needed. To cover this broad frequency range, I developed the log periodic antenna shown in **Photo E**. To minimize coax loss between the antenna and the receivers, I added pads (**Photo F**) for an optional antenna-mounted MMIC (Monolithic Microwave Integrated Circuit) amplifier.

Bovine Antenna Tales

Other versions of these transmitters also look at the pH of the animals' stomachs. When just eating grass, cattle usually don't have many digestive problems, but on high protein feed in feedlots, they tend to develop acid-indigestion and need a lot of antacids added to their feed.

Another model was for dairy herds. Some versions of the data transmitter contained a loop tuned to 125 kHz. A strong signal on 125 kHz woke up the transmitter, which reported the animal's temperature. The 125-kHz loops and the log periodic receive antenna were placed at the entrance of the milking barn, and if one of the cows was running a fever, her milk was not used. (She'd still have to be milked—you just didn't want that milk to be used as human food.)

The third transmitter design was for a very specific application. It reported the

temperature of the cow every 15 minutes (the transmitter's battery didn't last very long!), and the temperature plot showed when the cow was in estrous, meaning she was fertile. This enabled the rancher to inseminate her at just the right time from that expensive vile of sperm from the grand champion bull at last year's fair.

Gut Measurements

This design presented some new challenges for me, I have to admit. Antennas, of course, are affected by their surroundings. Light travels slower when it moves through a dielectric, which is why thick plastic or water can bend light. They also bend radio waves.

An antenna is shortened by the square root of the dielectric constant (ϵ_r) of the material it is in. Air, as one would expect, is pretty close to an ϵ_r of 1, and the square

root of 1 is 1. The ϵ_r of plastics is usually around 4, giving a square root of 2, so an antenna completely embedded in plastic would be 1/2 as long as it would be in air (see **Figure**). The ϵ_r of water is near 80, so a resonate antenna is about 1/9 as long in water as it is in air. Bear with me here. Well, I discovered that the ϵ_r of a mixture of water, hydrochloric acid, grain, and grass is about 55.

I must say that was one of the hardest measurements I ever had to make in my life. I don't mean in terms of accuracy, just making dielectric measurements on well-brewed cow stomach contents! The antenna is not exactly in direct contact with stomach contents, but an antenna tuned to 2000 MHz comes pretty close to an ideal 418-MHz antenna when in the stomach of a cow. And, for the record, about 500 pounds of hamburger on the hoof has 17 dB attenuation at 418 MHz.

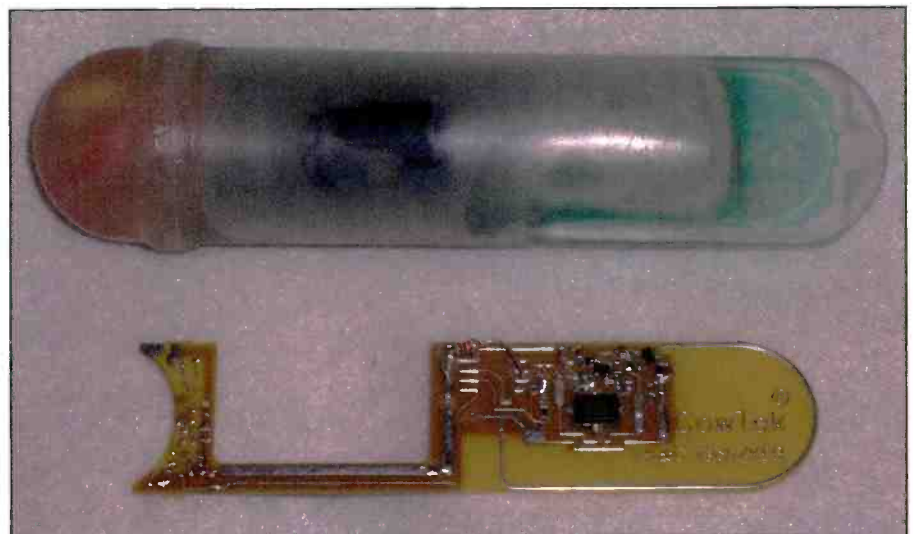


Photo C. Telemetry transmitter and the pc board.

(On a side note, at first it might seem like sticking an antenna in plastic, or even water, is a great way to make a big antenna much smaller. You're welcome to experiment, I know I have quite a bit, but the shortened antenna will behave like most short antennas: not much bandwidth, difficult to tune, and all the other usual problems with small antennas.)

We did have some "issues" when it came to FCC testing. For some reason, local test laboratory Professional Testing in Round Rock, Texas, was not all that happy with the idea of

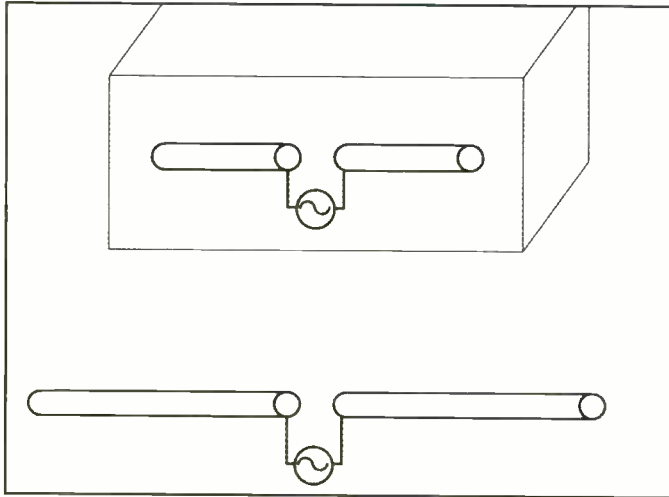


Figure. Two dipoles tuned to the same frequency, but one encased in a block of plastic.

having a steer out on their 10-meter EMI range. But the FCC allowed the use of a five-gallon plastic bucket filled with saline solution to be used as a substitute for Buster. The transmitter was simply suspended in the middle of the saline solution and field strength, duty cycle, modulation bandwidth, and harmonic levels could all be taken in an environment resembling the one in which the transmitter would be used.

I would like to thank CowTek for letting me publish some of this data.

Drop Us A Line

We always enjoy hearing from our readers. In fact, some of my best ideas for columns come from you. For antenna questions or suggestions for future columns, just drop me a line at wa5vjb@cq-amateur-radio.com. Spring is in the air—now's a great time to get some more antenna up!

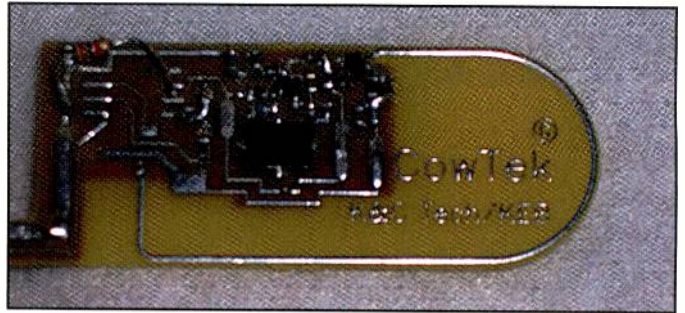
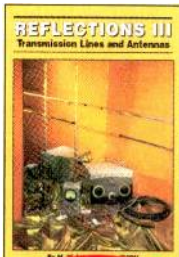


Photo D. Close up of the loop antenna.

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by Walter Maxwell, W2DU

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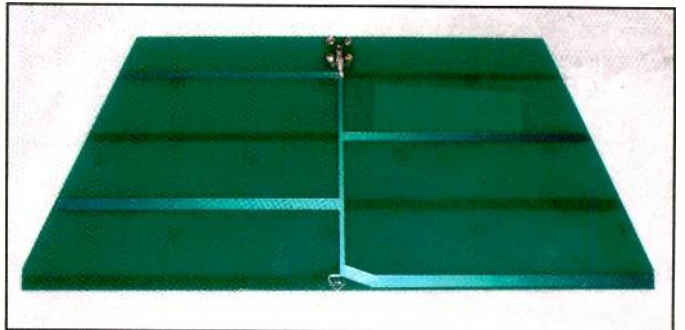


Photo E. Log periodic antenna for 418 MHz, 434 MHz, or 450-470 MHz use.

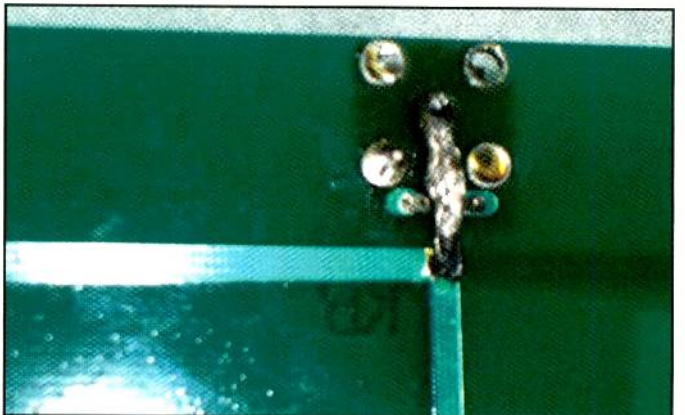


Photo F. Close up of the pads for the antenna-mounted preamp MMIC (see text).



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Having Fun With Digital Voice (D-Star)

by Dan Srebnick, K2DLS
k2dls.rfbits at gmail.com

“But what if, I thought, I could have a local D-Star-capable repeater that only had to provide reliable HT coverage in and around my house.”

A VHF or UHF handheld portable is useful not only **out** in the field, but at home as well. I live about **25** miles south of Manhattan in the urban sprawl of New Jersey. My location is elevated enough that I have HT coverage into many of the New York City amateur repeaters and a good selection of local ones. The HT gives me the freedom to enjoy the patio or just lounge on the couch in the den, listen to whatever might be going on, and join conversations of interest without being restricted to the shack upstairs on the second floor. To enhance my coverage, I replaced the rubber duck on my analog Yaesu HTs with one of the Diamond SR-320H antennas with higher gain.

I also like to play around with D-Star and have both an ICOM IC-2820H mobile, which I use as a base rig, and an IC-91AD analog/digital HT. The two best D-Star repeaters at my location are K2DIG in the Empire State Building and NJ2DG in Martinsville, New Jersey. I have no problem reaching these and other digital machines when using the 2820H on the chimney-mounted antenna, but I noticed that HT coverage from the first floor is spotty. Spotty coverage on D-Star results in a choppy robotic effect, often called “R2D2” by D-Star users.

A lot of D-Star activity takes place over Internet-based links. These links, called reflectors, allow connection of repeater gateways, DV (digital voice) Hotspots, and other DV devices, such as the DV Dongle. I have a decent-quality Internet connection from Optimum Online. But what if, I thought, I could have a local D-Star-

capable repeater that only had to provide reliable HT coverage in and around my house. It could leverage that Internet connection to connect my HT back to one of the busy reflectors, such as 1C (the D-Star Megarepeater) or 20A (the mid-Atlantic reflector used by my local repeaters).

Some folks have set up their own D-Star Hotspots. A D-Star hotspot uses an analog FM transceiver and a GMSK (Gaussian Minimum Shift Keying) modem. The GMSK modem in turn communicates with the Internet to connect the Hotspot to the D-Star network. Setting up a D-Star Hotspot is a bit of a construction project. If you’re interested in going this route, you can Google “D-Star Hotspot” and find a wealth of information. But there’s also another path to having something resembling your own personal D-Star repeater.

My Own Repeater?

That’s almost what Internet Labs has created with its DV Access Point (DVAP) Dongle (Figures 1 and 2). But unlike the other DV Dongle, this device connects via a USB port to your computer, but is not meant to be used *from* your computer. It contains a lower-power (10 mW) 2-meter transceiver and a GMSK modem. This low-power transceiver and the provided stubby antenna are enough to provide excellent local D-Star coverage around the house. It does function as a repeater, but unlike an RF-only repeater, it listens on the radio and repeats to the Internet connection, and listens to the Internet connection and repeats the audio back over the radio.

The DVAP is simple to set up and use. It supports Windows, Mac, and Linux. I plugged the device into a free USB port on a machine running Fedora Core 13 and installed the Linux version of the DVAP Tool that I downloaded from http://dvapdongle.com/DV_Access_Point_Dongle/Downloads.html. You have to set up the software to use an available 2-meter frequency that is not going to interfere with other users. While it’s not likely that the DVAP will interfere with much else, remember that the low-power mode on your HT may only go as low as 0.5 watt, enough to possibly interfere with other local comms if you’re in a congested area. Choose wisely. I use 145.67

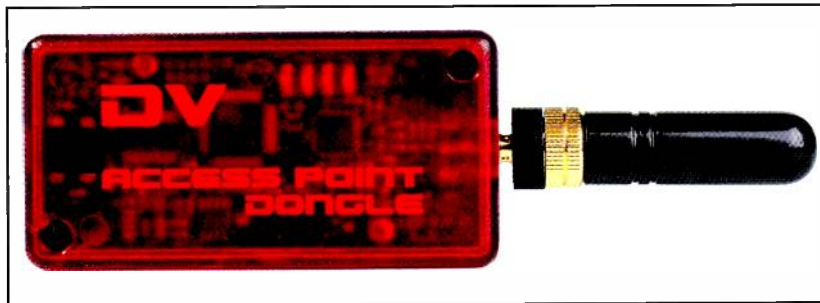


Figure 1. Internet Labs’ DV Access Point (DVAP) Dongle. It’s smaller than a cigarette pack and has a full 10 mW of RF power!

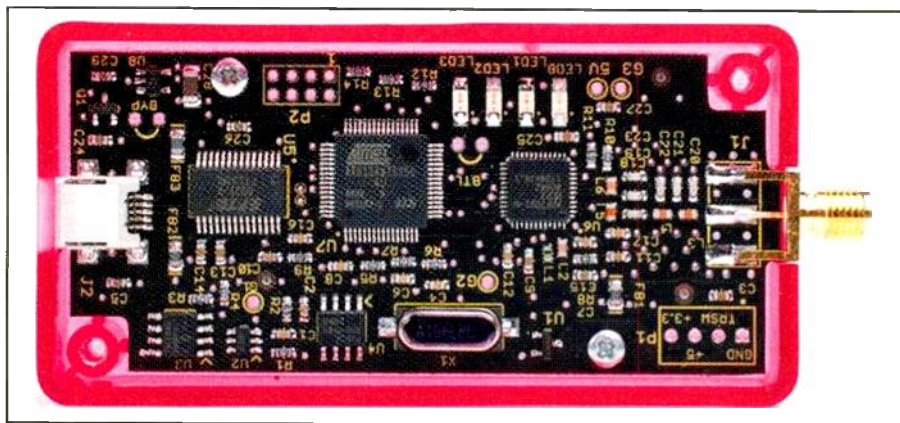


Figure 2. An inside view of the DVAP Dongle.

MHz, which DVAP and Hotspot users alike seem to be increasingly adopting.

Many streaming applications require some “port forwarding” magic on your broadband router. The DVAP is no different and requires that you forward UDP (User Datagram Protocol) ports 2001 through 2005 to the IP address of the computer that will host the DVAP.

Figure 3 shows the DVAP Tool screen. I am running the DVAP on my Fedora Linux computer, version FC13. The software can run as a regular user (root not required) as long as that user has access to the required USB port. The DVAP Tool allows the user to record an audio transcript of all communications on the frequency and attached reflector. The “lock callsign” checkoff prevents RF connections from any device not using the configured callsign.

Remote Control

The DVAP is controlled from the remote HT, which allows linking and control commands to be saved into the various available memories. Important commands include,

REF###aL	Link
bbbbbbbU	Unlink
DVAPbbbE	Echo test
DVAPbbbI	Identify
CQCQCQ	Normal QSO mode

b = blank space, # = numeric digit, a = {A,B,C}

To connect my IC-91AD to reflector 20A, a popular meeting spot for locations in the Mid-Atlantic States, I would use the RS-91 software to program a memory on the HT as follows:

Mode: DV
Name: 20A

Your call: REF020AL (the L is the Link command)

RPT1 and RPT2 should be left blank.

Take a look at **Figure 4** and you’ll see the memory screen of the RS-91 software. I have preprogrammed the various memory locations with commands to link to different reflector channels and to transmit the other commands as well. Transmit the link command and the DVAP will respond with an audio and a text message indicating that you are connected. Change the “Your call” to “CQCQCQ” or just switch to a memory channel already programmed with “CQCQCQ,” and you can chat away.

So What Next?

You could transmit your callsign and add something like, “looking for a contact on reflector 20A.” Just say what you want and someone is likely to come back

to you. Of course with D-Star, that someone could well be in Japan, England, or just about anywhere. You’ll hear him or her in communications-quality digital, with good clarity and no QRM through the combination of RF and the Internet.

There are nets on D-Star. Lots of nets. Some are check-in nets, some are emergency communication nets, there are nets in Dutch and Italian, and there is a Sunday night scanner net that is growing in popularity. For a comprehensive listing of nets on D-Star, check the following URL: www.dstarinfo.com/Nets/Nets.aspx.

IC-2820H Crossbanding

Sometimes I use the crossband feature on the ICOM IC-2820H, the mobile D-Star rig I use as my base radio. Typically, FM crossband operation will allow you to come in on either a VHF or UHF frequency and be repeated via the band on which you are *not* transmitting. You could use an HT to transmit on low power via UHF and crossband via the antenna mounted high on the roof or a tower and speak to your friends on 2-meter simplex. At least, that’s how I use it.

Enabling the crossband feature on the ICOM IC-2820 is relatively simple. Hold down both the left and right side tuning knobs while pressing the “F” button. The lock icon will appear, signifying that you are now operating a crossband repeater.

When I first discovered the crossband feature on the IC-2820H, I wondered whether I could repeat an FM signal into the D-Star network. No such luck, as this is frowned upon by the operators of the D-

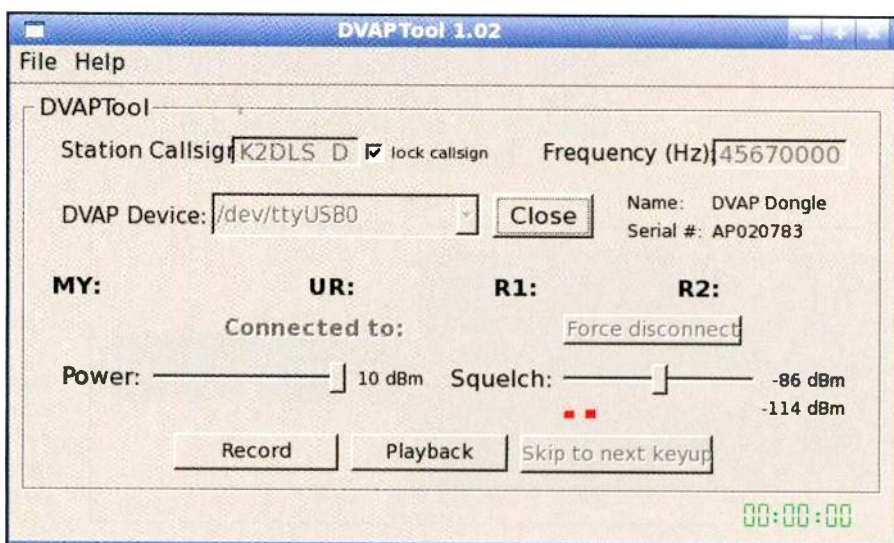


Figure 3. The DVAP Tool is running under Fedora Linux (FC 13) and is setting the DVAP to operate on 145.67 MHz.

Star Trust Servers. D-Star is meant to be a purely digital network and I have heard that anyone caught trying to gateway from FM to DV will be banned on the Trust Servers, at least temporarily.

However, I recently discovered that the FM crossband feature on the IC-2820H can be used to create a simulation of a D-Star Hotspot. The idea is to set up the Main band of the IC-2820H to transmit on the D-Star frequency of your choosing, perhaps a repeater that you would not normally reach via your HT. With your HT in DV mode, pick a simplex frequency on which the HT will transmit, and the non-Main side of the IC-2820H will listen (remember that it must be in the "opposite" band that the Main band is using). Turn on the duplex or "+/-shift" function on the HT and set the frequency shift to 0. I haven't determined why duplex must be on for this to work, but I have verified that this is the case.

Set up your HT just as if you were going to access the repeater that's set up on the Main band of the IC-2820H. This might mean that you have set the RPT1 value to "NJ2DGbbB" and the RPT2 value to "NJ2DGbbG," but your frequency might be set to some vacant 2-meter frequency. Tune the B side of the IC-2820H to the same 2-meter frequency.

Transmit using DV mode on the HT. Your signal will be received by the IC-2820H on the non-main side (set to FM mode) and repeated on the Main band of the rig via FM. The input to the IC-2820H is a DV stream and it's mirrored on the output. Strange though it sounds, you effectively have a D-Star repeater. However, missing is the ability for the IC-2820H to automatically identify as required every 10 minutes, so be sure that you treat this feature as an experiment and don't leave it running unattended.

The main reason you might want to try this is if you own both an IC-2820H as well as a D-Star-capable HT and have problems reaching a particular repeater on the HT. Using the IC-2820H connected to a better antenna and running higher power than the HT might allow you to connect.

Done Digital? Tell Us About It

Have you tried any digital modes of communication lately? Drop us a line using the old digital "store and forward" protocol—email—at k2dls.rfbits@gmail.com.

Until next time, 73 de K2DLS

CH	Select	Freq	DUP	Offset Freq	TS	Mode	Name
300		145.67000			15k	DV	ID
301		145.67000			15k	DV	Echo
302		145.67000			15k	DV	Unlink
303		145.67000			15k	DV	CQ
304		145.67000			15k	DV	20A
305		145.67000			15k	DV	20B
306		145.67000			15k	DV	20C
307		145.67000			15k	DV	1A
308		145.67000			15k	DV	1B
309		145.67000			15k	DV	1C
310		145.67000			15k	DV	2A
311		145.67000			15k	DV	2B
312		145.67000			15k	DV	2C
313		145.67000			15k	DV	3A
314		145.67000			15k	DV	3B
315		145.67000			15k	DV	3C
316		145.67000			15k	DV	4A
317		145.67000			15k	DV	4B
318		145.67000			15k	DV	4C
319		145.67000			15k	DV	5A

Figure 4. Here's how I set up some of the memory locations on my IC-91AD for easy use with the DVAP.

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Sunspot Cycle 24 Makes Progress

by Tomas Hood,
NW7US, nw7us@arrl.net

Last month, we explored the explosive release of solar energy known as an X-ray flare. How timely! As this month's column goes to press in March 2011, the sun is making history in the new Sunspot Cycle 24.

Faithful readers of the "Propagation Corner" know that this cycle is not following the typical quickly rising path expected by solar scientists who thought it would fit into the usual 11-year statistical curve. Impatient observers think it highly unusual that this cycle has taken its time to gain any significant level of energy. Case in point: Between February 2010 and February 2011, the 10.7-cm radio flux daily observed index never rose above 96. On February 12, 2010, the 10.7-cm radio flux measured 96. For exactly 12 months, the radio flux fluctuated from the low 70s to just shy of 96, until February 12, 2011! What are the odds? On February 12, 2011, the radio flux

"Two new records have been set so far in the new sunspot cycle, both this past February..."

index was again 96! This time around, however, the solar energy continued to rise.

Two new records have been set so far in the new sunspot cycle, both this past February: the highest daily observed sunspot count of 103 (Figure 1), and the highest daily observed 10.7-cm radio flux index of 125. The resulting ionospheric changes were noticed around the world as communicators enjoyed exciting openings on even the highest shortwave frequencies (in the 10-meter band). Most noticeable was how the weakest of signals on the middle shortwave bands (chiefly, 31 to 19 meters) were well-propagated without excessive fading or noise. The lack of noise is a seasonal blessing for those in the Northern Hemisphere, as there are few atmospheric disturbances (read: electrical storms) to generate that interference. With such an improvement in solar energy, the improvement on ionospheric propagation for shortwave radio signals was dramatic in February.

Another historical moment in February 2011 for Sunspot Cycle 24 is the magnitude X2.8 X-ray flare that erupted on February 15 (Figures 2 and 3). This was a huge event, which released a coronal mass ejection that caused some geomagnetic disturbances on Earth a few days later. As you'll remember from last month's column, an X-ray flare can cause a sudden ionospheric disturbance (SID), and this huge flare certainly wiped out most of the shortwave bands for a good half hour.

Soon after these events, things grew quiet for about a week, but as proved by the STEREO Behind and Ahead spacecraft, which now allows us to see the entire sun (<http://stereo.gsfc.nasa.gov>), there was significant sunspot activity rotating back into Earth's view.

HF Propagation

As we begin to move closer to summer, DX signals on the higher bands become weaker and openings more sparse. Long-distance East/West *F*-layer propagation on 10 through 15 meters will suffer due to the lower maximum usable frequencies (MUF) caused by an only moderately



Figure 1. A very welcome sight: a daily observed (smoothed) sunspot count over 100! These spots are not only numerous, but also complex and energetic (see last month's column regarding X-ray flares). This image is the "intensitygram," taken on February 17, 2011, at 0229 UTC by the Solar Dynamics Observatory's Helioseismic and Magnetic Imager (HMI) instruments. (Source: SDO/HMI)

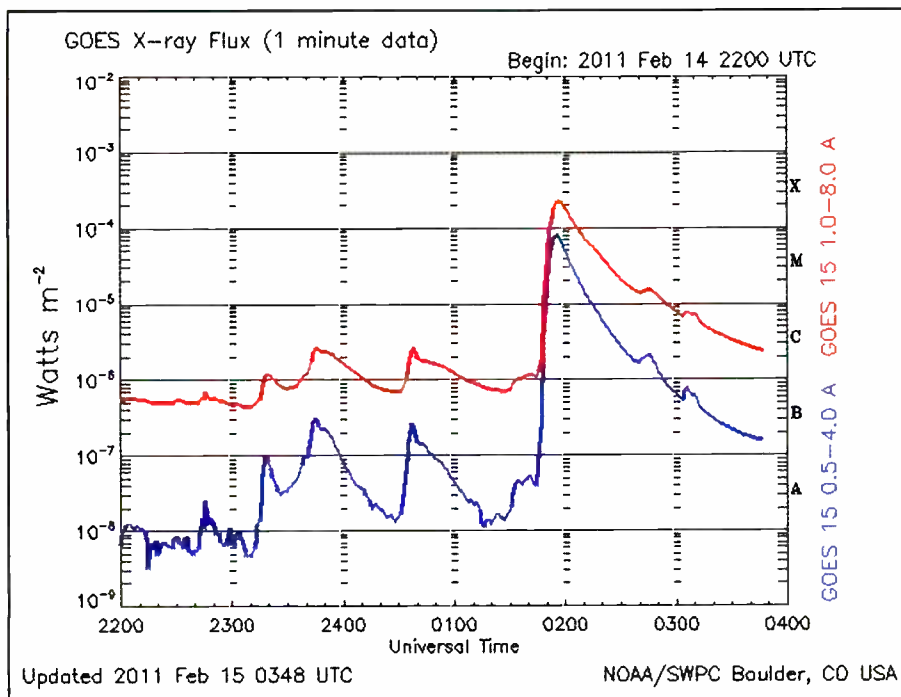


Figure 2. Just before 0200 UTC on February 15, 2011, the most powerful solar X-ray flare yet recorded during the new Sunspot Cycle 24 erupted. This very powerful X2.8-magnitude flare caused communications disruptions on most of the shortwave radio spectrum. In addition, it unleashed a huge cloud of solar plasma (a coronal mass ejection) out toward Earth. This CME, about three days after the flare, caused minor geomagnetic storms on Earth. A series of C- and M-class flares led up to this flare, and continued flare activity was observed for days afterward. (Source: NOAA/Space Weather Prediction Center of the National Weather Service)

active sun. However, there will be some improvement on North/South path propagation on these bands. Optimum frequencies for DX propagation are lower during most of the daylight hours, but higher during the late afternoon, early evening, and nighttime hours, than were the optimum frequencies during the winter months.

Thankfully, during May, occasional sporadic-E (E_s) propagation may be possible on the highest HF bands and even on 6 meters. Seasonal static is increasing during May, but perhaps not enough to yet overly degrade the lowest HF bands.

On the lower shortwave bands, expect solid performance. The 31-meter band will often play a major role in DX propagation, with somewhat better nighttime propagation than on lower bands. Expect good daytime propagation into many areas of the world. On bands lower than 31 meters, fewer DX openings are expected because of the shorter hours of darkness and the higher level of static. But fairly good openings should still be possible to several areas of the world from shortly before sunset, through the hours of darkness, until shortly after sunrise. Good daytime short-skip openings can be

expected over distances of between approximately 150 and 750 miles, with nighttime openings extending up to the one-hop limit of 2,300 miles.

VHF Conditions

May should see an increase in E_s , with some continued trans-equatorial (TE) propagation. Solar activity is not expected to be high enough to support F-layer DX on the low VHF frequencies.

E_s ionization is expected to increase moderately during May, so look for short-skip openings, likely to occur over distances of approximately 1,000 to 1,400 miles. Although E_s openings can take place at just about any time, the best time to check is between 10 a.m. and 2 p.m. and again between 6 and 10 p.m. local daylight time.

During periods of intense and widespread E_s ionization, two-hop openings considerably beyond 1,400 miles should be possible on 6 meters. Short-skip openings between about 1,200 and 1,400 miles may also be possible on 2 meters.

A seasonal decline in TE propagation is expected during May. An occasional opening may still be possible on 6 meters

toward South America from the southern tier states and the Caribbean area. The best time to check for 6-meter TE openings is between 9 and 11 p.m. local daylight time. These TE openings will be North-South paths that cross the geomagnetic equator at an approximate right angle.

Current Sunspot Cycle 24 Progress

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 83.7 for January 2011, about the same as for December 2010. The 12-month smoothed 10.7-cm flux centered on July 2010 is 80.1. The predicted smoothed 10.7-cm solar flux for May 2011 is 103, give or take about 9 points. If we do see this high of a flux in May, expect some openings on 10 and 12 meters primarily on paths between the Northern and Southern Hemispheres; expect even more activity on 15 and 17 meters.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for January 2011 is 19.0, up from December's 14.5. The lowest daily sunspot value of zero (0) was recorded on January 14. The highest daily

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UTC TO/FROM US WEST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	24	24	24	23	21	19	18	16	15	14	13	12	13	15	17	19	20	21	22	23	23	24	24	24
NORTHERN SOUTH AMERICA	31	31	30	28	26	23	21	20	18	17	16	15	15	18	21	24	25	27	28	29	30	31	31	31
CENTRAL SOUTH AMERICA	30	27	25	23	21	20	18	17	16	15	15	18	17	20	23	25	27	28	30	31	32	32	33	32
SOUTHERN SOUTH AMERICA	26	19	18	17	16	15	15	14	14	14	13	13	13	17	20	22	25	26	28	29	30	31	31	29
WESTERN EUROPE	13	12	11	11	10	12	14	13	12	12	11	15	18	19	20	21	22	22	21	21	20	18	16	
EASTERN EUROPE	10	10	10	9	14	17	14	13	12	11	11	11	16	18	19	20	21	20	20	19	17	15	11	11
EASTERN NORTH AMERICA	28	28	27	27	26	24	22	20	18	17	16	15	17	20	22	23	25	26	27	27	28	28	28	28
CENTRAL NORTH AMERICA	16	16	15	15	15	14	13	12	11	10	9	9	9	10	11	13	13	14	15	15	15	16	16	16
WESTERN NORTH AMERICA	8	8	8	8	8	8	7	7	6	6	5	5	4	5	5	6	7	7	7	8	8	8	8	8
SOUTHERN NORTH AMERICA	25	25	25	25	24	23	21	19	18	16	15	14	14	15	17	19	20	22	23	23	24	25	25	25
HAWAII	21	21	21	21	21	21	21	20	18	16	15	14	13	12	11	11	13	15	16	17	18	19	20	20
NORTHERN AFRICA	17	16	15	14	13	13	15	14	13	12	13	16	18	19	20	21	22	22	22	23	22	22	21	19
CENTRAL AFRICA	19	17	16	15	15	16	14	13	12	12	11	16	18	19	20	21	22	22	22	23	23	23	22	20
SOUTH AFRICA	17	16	16	15	14	14	16	19	17	16	15	17	20	22	23	24	25	26	27	25	23	21	20	18
MIDDLE EAST	14	13	13	15	17	17	14	13	12	11	11	13	17	18	20	21	21	22	22	21	20	19	17	16
JAPAN	22	22	22	22	22	21	21	20	19	18	16	15	14	14	16	15	14	13	13	16	17	19	20	21
CENTRAL ASIA	22	22	22	22	22	21	21	20	19	18	16	15	14	14	16	18	19	18	16	15	15	16	19	21
INDIA	19	20	20	20	19	18	17	14	12	11	11	10	10	11	10	10	9	9	12	15	17	18	19	
THAILAND	19	21	22	22	22	21	20	20	18	17	15	14	13	13	16	18	19	19	18	16	15	14	14	16
AUSTRALIA	32	33	33	33	33	33	32	31	28	26	24	22	20	19	18	17	16	15	15	14	18	24	27	30
CHINA	21	22	22	22	22	21	20	19	17	15	14	13	12	13	16	17	16	15	14	13	15	17	19	20
SOUTH PACIFIC	32	32	33	32	31	29	26	20	18	17	16	15	15	14	14	13	13	13	13	23	27	30	31	31

UTC TO/FROM US MIDWEST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	27	27	27	26	23	21	20	18	17	16	15	14	16	18	20	22	23	24	25	26	26	27	27	27
NORTHERN SOUTH AMERICA	29	28	28	25	23	21	19	18	17	16	15	14	15	18	20	22	24	25	26	27	28	28	28	29
CENTRAL SOUTH AMERICA	30	27	25	23	21	20	18	17	16	15	15	17	19	21	24	26	27	29	30	31	31	32	32	32
SOUTHERN SOUTH AMERICA	25	20	18	17	16	16	15	14	14	14	13	13	16	19	22	24	26	27	29	30	31	31	30	28
WESTERN EUROPE	16	14	13	12	11	12	15	14	14	16	17	18	19	20	21	21	21	22	22	22	21	20	19	18
EASTERN EUROPE	11	10	10	10	9	15	14	13	12	12	16	18	19	20	21	22	21	21	20	20	19	17	15	11
EASTERN NORTH AMERICA	20	20	20	19	18	16	15	14	13	12	11	11	13	15	16	17	18	19	19	20	20	20	20	20
CENTRAL NORTH AMERICA	9	9	9	9	9	8	7	7	6	6	5	5	5	6	7	8	8	8	9	9	9	9	9	9
WESTERN NORTH AMERICA	16	16	16	15	15	14	13	12	11	10	9	9	9	10	11	12	13	14	15	15	16	16	16	16
SOUTHERN NORTH AMERICA	18	18	18	17	17	15	14	13	12	11	10	9	9	11	13	14	15	15	16	17	17	17	18	18
HAWAII	24	25	25	25	25	24	23	21	19	18	16	15	14	14	13	13	15	17	19	20	22	23	23	24
NORTHERN AFRICA	22	20	18	17	16	15	15	14	13	14	16	18	19	20	21	22	22	23	23	23	23	23	23	22
CENTRAL AFRICA	19	18	16	15	14	14	15	14	13	14	17	18	19	20	21	22	22	23	23	23	23	23	23	21
SOUTH AFRICA	17	16	15	15	14	14	15	21	19	18	18	20	23	25	27	29	30	31	28	25	22	21	19	18
MIDDLE EAST	15	14	13	13	15	16	14	13	13	15	17	19	20	21	21	22	22	22	22	22	21	20	18	16
JAPAN	22	22	21	21	21	20	19	18	17	15	14	14	16	18	16	15	14	13	14	16	18	19	20	21
CENTRAL ASIA	22	22	22	21	21	20	19	18	16	14	13	13	16	18	19	20	19	18	17	15	15	16	19	21
INDIA	14	16	17	18	18	16	14	13	12	11	11	16	18	18	17	15	13	10	10	10	9	9	9	9
THAILAND	18	20	22	21	20	19	17	15	14	13	12	13	16	18	19	20	21	20	18	17	16	15	14	16
AUSTRALIA	32	33	33	33	32	32	30	27	25	23	21	20	18	18	17	16	16	15	14	14	19	25	28	30
CHINA	21	21	21	21	20	19	17	15	14	13	12	13	16	18	19	18	16	15	14	14	16	18	19	20
SOUTH PACIFIC	32	32	32	31	30	28	24	17	16	16	15	14	14	14	13	13	13	13	15	25	28	30	31	32

UTC TO/FROM US EAST COAST	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
CARIBBEAN	22	22	21	19	18	16	15	14	13	12	11	11	14	15	17	18	19	20	20	21	21	22	22	22
NORTHERN SOUTH AMERICA	25	25	24	21	20	18	17	15	14	14	13	13	15	17	19	20	22	23	23	24	25	25	25	25
CENTRAL SOUTH AMERICA	29	27	24	22	21	19	18	17	16	15	15	17	20	23	25	26	28	29	30	30	31	31	31	31
SOUTHERN SOUTH AMERICA	23	20	18	17	16	15	15	14	14	14	13	13	19	22	24	26	27	28	29	30	31	31	30	28
WESTERN EUROPE	18	17	15	14	13	14	13	12	12	15	16	18	19	20	20	21	21	21	21	20	20	20	19	18
EASTERN EUROPE	12	11	11	10	10	15	14	13	14	17	18	19	20	21	22	22	22	22	21	20	19	18	17	13
EASTERN NORTH AMERICA	10	9	9	9	8	7	7	6	6	5	5	6	6	7	8	8	9	9	9	9	10	10	10	10
CENTRAL NORTH AMERICA	21	21	21	20	19	17	16	14	13	12	12	12	14	15	17	18	19	20	20	21	21	21	21	21
WESTERN NORTH AMERICA	28	28	27	27	26	24	22	20	18	17	16	15	17	20	22	23	25	26	27	27	28	28	28	28
SOUTHERN NORTH AMERICA	22	22	21	21	19	18	16	15	14	13	12	12	13	15	16	18	19	20	20	21	21	22	22	22
HAWAII	27	27	27	27	26	24	22	20	19	17	16	15	15	14	14	16	19	21	22	23	25	25	26	26
NORTHERN AFRICA	22	20	18	17	16	15	15	16	15	17	19	21	23	24	26	26	27	28	28	28	27	27	26	24
CENTRAL AFRICA	19	18	16	15	14	14	16	16	15	17	19	21	23	24	26	26	27	27	27	27	27	25	23	21
SOUTH AFRICA	17	16	15	15	14	14	18	17	17	18	21	23	25	27	28	30	31	28	24	22	20	19	18	
MIDDLE EAST	19	17	16	15	16	15	14	13	13	15	17	19	20	21	22	22	23	23	23	23	23	23	23	21
JAPAN	22	22	21	20	19	18	16	15	14	14	15	17	19	18	16	15	14	13	14	17	18	20	21	21
CENTRAL ASIA	21	21	20	20	19	18	16	15	15	15	17	18	19	20	20	21	20	18	17	16	15	16	18	21
INDIA	10	10	9	9	15	15	14	14	15	17	18	19	20	21	21	20	20	19	18	17	15	12	11	10
THAILAND	18	20	20	19	18	16	14	13	13	16	18	19	20	21	21	22	22	20	19	17	16	15	14	15
AUSTRALIA	32	33	32	32	31	28	26	23	22	20	19	17	17	18	17	16	15	15	14	14	20	26	29	31
CHINA	20	20	20	19	18	16	15	14	14	15														

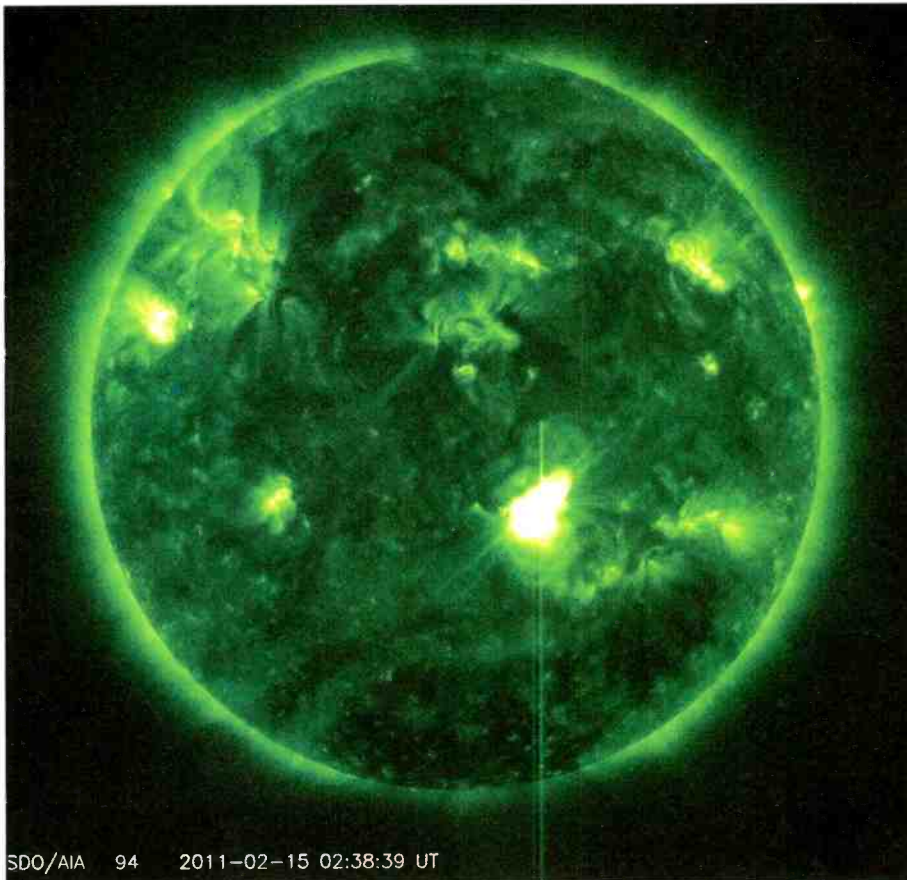


Figure 3. The X2.8-magnitude X-ray flare of February 15, 2011, seen here at the 94-Angstrom wavelength by the Atmospheric Imaging Assembly (AIA) instruments aboard the Solar Dynamics Observatory (SDO), was a bright double-peaked burst of intense energy. This X-ray flare, at press time, was the most powerful yet recorded during the new sunspot cycle, Cycle 24. (Source: NASA/SDO)

sunspot count was 37 on January 1. The 12-month running smoothed sunspot number centered on July 2010 is 16.8. A smoothed sunspot count of 50, give or take about 9 points is expected for May 2011.

The observed monthly mean planetary A-Index (A_p) for January 2011 is 4 (as was December's), still very quiet. The 12-month smoothed A_p index centered on July 2010 is 6.0, about the same as for June. Expect the overall geomagnetic activity to be varying greatly between quiet to minor storm level during May; expect more geomagnetic activity as we continue into the new sunspot cycle. Refer to the Last Minute Forecast, online at http://hfradio.org/lastminute_propagation.html for an up-to-the-minute propagation condition forecast that incorporates the geomagnetic conditions expected based on the 27-day rotation of the sun.

Connections...

Do you have a question that you'd like me to tackle in this column? Drop me an

email or send me a letter, and I'll be sure to cover it. I'd love to hear any feedback you might have on what I have written. You may email me, write me a letter, or catch me on the HF amateur bands. If you're on Facebook, check out www.facebook.com/spacewx.hfradio and www.facebook.com/NW7US. Speaking of Facebook, check out the *Popular Communications* magazine fan page at www.facebook.com/PopComm. I also invite you to visit my online propagation resource at <http://sunspotwatch.com/>, where you can get the latest space data, forecasts, and more, all in an organized manner. Please come and participate in my online propagation discussion forum at <http://forums.hfradio.org/>.

Until next month, 73 de NW7US, Tomas Hood

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Printed QSL Cards Still Necessary? You Bet!

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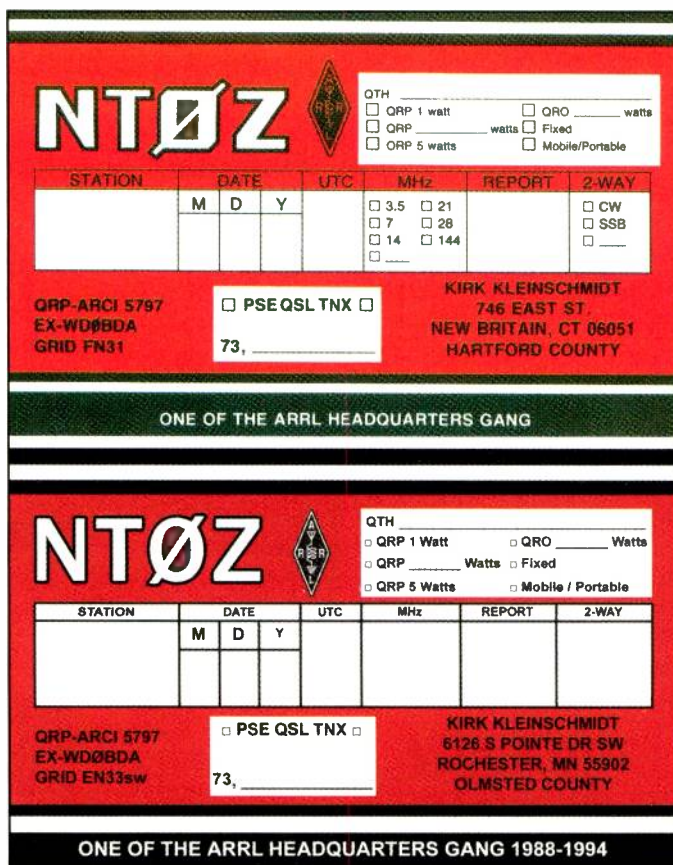
With an iPhone in every pocket, ubiquitous computing, global data networks, and even amateur radio's inevitable transition to software-defined radios, our hobby and our society have been overtaken by technology. Printed publications are transitioning to digital, and tablet PCs and digital e-book readers (such as amazon.com's Kindle) may soon make notebook PCs and hardcover books antiques.

For hams, electronic QSO confirmation systems and electronic QSLs have been making inroads for sure, but it's still refreshing to know that *real* QSL cards, the kind that are printed on card stock and sent through the mail (for as long

"There are only two ways to fill out a QSL card: perfect and wrong."

as the postal system remains viable, anyway!), are still useful and appreciated by most ops.

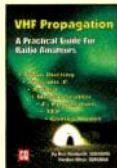
According to the ARRL, the increased sunspot counts in 2010 (and still climbing) that mark the start of Solar Cycle 24, feeble though they may be, mean that hams are working more DX, which means the League's Incoming and Outgoing QSL Bureaus have been working harder to handle the increased volume. Yay!



When online business printer Vista Print (www.vistaprint.com) periodically puts its DIY postcards on sale you can get 100 super-high-quality glossy QSL cards of your own design for about \$8, shipping included. I wanted to recreate my favorite QSL card from back in the day. The original is on top, the new card is on the bottom. Even with my limited Photoshop skills and color-matching abilities, I was very happy with the result. Vista Print saves my design, so when postcards go on sale again I can simply reorder at the "nice price," without recreating the card from scratch. See text for more info.

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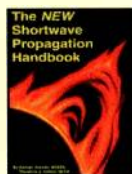
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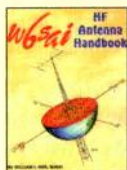


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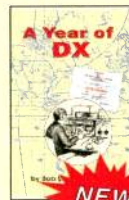
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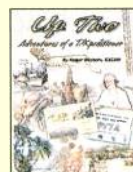


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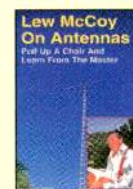


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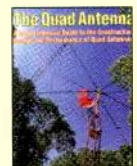
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Through December 14, 2010, the ARRL Outgoing QSL Bureau processed 709,800 cards destined for foreign QSL bureaus from ARRL members in the U.S. That's a 16-percent increase over 2009, when the ARRL shipped more than two tons of QSL cards to foreign QSL bureaus.

You can be as digital as you want to be, but old-fashioned printed QSL cards are still used by most hams and are still considered to be "the final courtesy of a QSO," as they have been since Day One. Feel free to use any and all of the electronic QSL card services, especially when DXing and contesting, but remember that, in your Golden Years, a sterile "electronic" QSL card will not spur the fond memories that a physical, printed QSL card will.

Whenever I look through my QSL card collection I'm amazed at how, with a single glance at almost any particular card, I'm transported back to the moment of that QSO, complete with fleeting details. An electronic QSL card or a digital logbook entry will probably never do that. One of my biggest regrets is that I didn't QSL as consistently in my "middle ham

You can be as digital as you want to be, but old-fashioned printed QSL cards are still used by most hams and are still considered to be "the final courtesy of a QSO," as they have been since Day One.

years" as I did during the first 10. That makes for a lot of "missing memories."

Until the postal service is replaced by high-resolution "mail printers" in every household (or whatever Pitney Bowes comes up with), make sure you have some QSL cards on hand and that you know how to correctly fill them out.

Easy To Obtain

Many QSL card printers advertise in *CQ* and *QST*. The larger companies have display ads, but their smaller counterparts do business in the classifieds. QSL printers also have quite a presence on the Internet. Most have online catalogs and many have automated online ordering.

Spend a buck or two and send away for information kits and samples, or check out the online samples from the many companies that offer them. Window shopping is fun and educational, but it can make the process of choosing a design more difficult, so be prepared.

In addition to completely custom cards, most commercial printers produce a line of "stock" cards, where the only customized parts are your name, callsign, and the usual personal information. Stock designs may be used by hundreds, or even thousands, of other hams! Most beginning hams start this way. Stock cards are inexpensive, and you're sure to end up with a QSL card that contains all the necessary information. To reduce costs, limit your cards to plain white stock and black ink. Starting out with a plain vanilla QSL card is perfectly acceptable.

Whether you choose a standard card, a photographic card, or a one-of-a-kind masterpiece, make sure you don't buy too many right off the bat. If you upgrade, change callsigns, or move to a new QTH, staring at a huge pile of outdated QSL cards is disturbing. Choose your quantities with your likely future needs in mind.

For a list of links to online QSL card printers and commercial QSL print shops, point your Web browser to <http://ac6v.com/qslicards.htm>. Some of my favorites include www.quickcards.biz, www.w4mpy.com (for quantities of 250 and up), and www.cheapqsls.com. Nowadays, there are plenty of overseas QSL card printers doing business via the Internet. And if you want to see how other hams rate many of the larger print shops, check out the reviews at www.eham.net/reviews/products/23.

Make Your Own

If you're a do-it-yourselfer, it's easy to make our own cards. You can print them from a suitable inkjet or laser printer, or print master copies and have your QSL cards printed at a local "quick printer." Several QSL card design programs are available for downloading from the Web. For an interesting list, check out ac6v's link, above, and scroll down to the section entitled "make your own QSL cards." You can also use standard desktop publishing programs such as Microsoft Publisher and Adobe PhotoShop.

DXing Via The Bureau

If you're looking for a low-cost way to send (and receive) QSL cards to faraway DX operators without enduring the expensive process of sending each one directly, you can simply sort your outgoing cards and send them to the ARRL Outgoing QSL Service. Within a week or so of arrival, the Service forwards your cards to hundreds of other similar bureaus in most foreign countries. This route, while inexpensive, does take time (two months to two years), but it's quite popular among hams the world over. To accommodate international postal rate increases, the ARRL just updated the Outgoing Bureau's rate structure. The new rates are \$2 for 10 cards; \$3 for 11 to 20 cards; and 75 cents an ounce for bundles of 21 cards or more (for example, a 1.5-pound package of 225 cards that weighs 24 ounces would cost \$18).

To use the Outgoing Service, U.S. hams must be ARRL members, but the services of its counterparts, the Incoming QSL Bureaus, are available to members and nonmembers alike. Separate Incoming Bureaus are maintained for each callsign district in the U.S. and Canada. Cards arrive from overseas and are sorted by the first letter of the callsign suffix.

To get your cards, you send a few 5 x 7-1/2-inch SASEs to your bureau, which will forward cards to you every month or two, depending on your QSL card volume. Each Incoming Bureau has slightly different procedures, so be sure to follow the rules for the one you'll be using.

The bureau system exchanges millions of QSL cards each year. If you haven't yet, it's time you "QSL via the buro." For complete information on how to use the bureau system, point your web browser to www.arrl.org/outgoing-qs-service and www.arrl.org/incoming-qs-service.

If you're interested in completely outsourcing the printing and mailing of your QSL cards, check out Global QSL at www.globalqsl.com, which prints and mails custom QSL cards based on the logbook data you upload to the site (via ADIF files from your logging software, etc.). I haven't used this personally, but it's an interesting idea and the service seems to be getting some traction.



This QSL card from 9G1MB in Ghana is a torturous lesson about why you should fill out each QSL card carefully—especially if you’re the rare DX! As the snippet of the reverse side shows, the operator accidentally wrote my callsign as WDØBAA instead of WDØBDA (my first callsign), making this card useless for awards such as DXCC. One of these days I’m going to have to work another 9G station, as I was never able to get a corrected card.

You can purchase card stock that’s designed just for printing your own QSL cards at www.hamstuff.com/QsKitPage/qsokit.html. W7NN’s “QSL Kit” is just what the doctor ordered, and at \$14 for 400 cards, it won’t break your piggy bank, either. If you don’t mind trimming your cards to size, Wal-Mart sells a 500-count package of brilliant white card stock for about \$6. That’s enough for more than 1,000 QSL cards (and plenty of trimming!).

Another online source for QSL cards, eyeball cards, and other printed stuff is Vista Print (www.vistaprint.com). Known mostly for free business cards, Vista Print frequently puts its design-them-yourself postcards in its freebie section. If your timing is right, you can snag 100 custom-designed QSL cards for less than \$8 (includes shipping and a small fee to

I’m a big fan of placing all QSO information on the front side of your QSL card. The easier you make the QSLing process, the greater your chance of getting a card in return.

process your custom design). The kicker is, Vistaprint’s postcards are 4.25 x 5.5 inches instead of the standard QSL dimensions of 3.5 x 5.5 inches. You can use them as is or design your cards with the intention of trimming the bottom edge, as I did (see photo).

Critical Information

Regardless of your final design, make sure your card includes your callsign, name, mailing address, and your country. You may also want to include your county to please the county hunters you’ll encounter on the air. And you may want to include your grid square designation if you’re active on VHF, UHF, or increasingly, QRP.

The fields for QSO information should be large enough to easily write in the other op’s callsign, date, year, time (in UTC), band, mode, and signal report. Most hams also include a “PSE QSL TNX” line; circle either PSE or TNX to indicate whether you’re requesting a card or responding to a received card.

Feel free to include other personal data, but don’t get too carried away. Clean, uncluttered designs work best. Be sensible about the artwork and forget about stuff that may be offensive or humorous. Something that’s funny in one

region may not be funny in another. Think twice about graphic themes that are overly political, religious, or “visually stimulating.”

I’m a big fan of placing all QSO information on the *front* side of your QSL card. The easier you make the QSLing process, the greater your chance of getting a card in return.

There are only two ways to fill out a QSL card: perfect and wrong. Be careful, be accurate, and be neat. If you make a mistake, toss the card into the trash and start over. Marked-over or altered cards, even if corrected in good faith, do not count for awards programs. Think about it: What if you’re that op’s only North Dakota contact?

Hams in rare states (and other rare places) are often inundated with QSL card requests, so if you want to increase your chances of getting a reply card, make sure yours is sent with a self-addressed, stamped envelope. Being patient also helps.

Keep The Courtesies Coming, And Going

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SCANNING

Civil Aviation Monitoring

Basic Necessities For Air Scanning

by Tom Swisher, WA8PYR
airscan65@gmail.com

“If your wallet can handle it, however, two scanners are better; you can use one to monitor the VHF air channels, and the other to monitor the military frequencies.”

The weather is warming up, and that means it's time to hit the road in search of elusive and interesting aircraft. You're gearing up and rarin' to go, but exactly what should you bring along on your little excursion into the world of plane spotting? As long as you plan to be properly equipped, the answer is plenty.

Rig Choice

First and foremost, don't forget the scanner! It's awfully difficult to keep track of who is flying where if you can't hear them talking, so a scanner is absolutely essential. Of course, the type of scanner you bring along will be dependent upon what type of aircraft you plan to watch. Civilian or military monitoring require different model scanners due to the varied frequency bands in use. Civilian aircraft are found in the VHF aviation band between 118 and 136 MHz, while military aircraft also use the UHF spectrum between 225 and 380 MHz.

If you're only planning on civilian aircraft monitoring, a fairly simple radio will do the trick, and it doesn't even have to have many channels. In fact, most inexpensive scanners cover the VHF aviation frequencies. However, if military aircraft call the skies around you home, or if you're planning on a jaunt into areas with a lot of military activity, you're better off with a scanner that will cover both VHF and UHF. This means a slightly more expensive scanner, and when the cost goes up it's not too practical to buy more than one radio. So, if you have to limit yourself to one scanner it really should be one capable of both VHF and UHF.

If your wallet can handle it, however, two scanners are better; you can use one to monitor the VHF air channels, and the other to monitor the military frequencies. You could also dedicate the military scanner to monitoring both the VHF and UHF frequencies, and use the other solely for the civilian side. How you go in this respect is entirely up to your own personal preference.

If you're in a stationary location close to an airport where you can see and hear the action (like the lucky folks who live nearby), you can also use your computer to run control and logging software for your computer-capable scanner. This will allow you to better see active frequencies as well as control the radio and log what the scanner catches; some programs even record the audio from transmissions and key the audio files to a log file.



Two handy scanners for aviation monitoring. On the left is a Pro-83 scanner for monitoring civilian air frequencies; on the right is a PSR500 monitoring the UHF military frequencies.

Ferretting Out The Frequencies

So now that you've determined what scanner or scanners to use, the next step—and it's a vital one—is to find the frequency lists for where you plan to check out the action.

The most accurate place to find these frequencies is, of course, in charts and documents from the FAA, in what are known as sectional charts. Updated regularly, these show a portion of the United States (or Canada) and list frequencies for various facilities and airways. Alternatively, you can check websites like AirNav.com, which lists facility information and frequencies for nearly every airport in North America, and for many overseas as well. It's important to note, however, that while it's accurate, AirNav information may not be as up-to-date as information from the FAA or the airports themselves.



A selection of batteries, and a Portable Power Station, which contains a 7Ah gel-cell battery which will power a typical handheld scanner for at least 24 hours.

Once you've determined the facilities you want to visit and the frequencies to be monitored, make a cheat sheet of frequencies for quick reference. This is not particularly vital if the scanner you use is capable of alphanumeric tags to identify frequencies, but if your scanner is pretty basic, a cheat sheet will be invaluable so you can check out who and what you're hearing. And, of course, always program your scanner before setting out on your little jaunt; trying to program your scanner while driving is difficult at best, and could get you hurt.

Bring Plenty Of Power

Of course you use rechargeable batteries, right? Don't we all? They're incredibly useful, since they save money and can be used over and over again. That being said, however, don't forget to take along extra batteries. If you run dry, there probably won't be any place (or time) to charge a set of batteries. You can always stop by a convenience store and pick up a four-pack of AA cells, but they'll be quite pricey, so it's best to bring along extra batteries.

Another useful addition along these lines is a larger-capacity battery pack, and many stores sell these for short-term emergency power. If you're handy with a soldering iron, however, you can make your own by installing C cell (or even D cell) battery holders in a project box, adding a red/black pair of banana jacks to the outside of the project box, and connecting it to the scanner with an appro-

appropriate connector. The added capacity of the C or D cells will run your scanner far longer than the AA batteries, and allow you to save the AA batteries for when you need to be really portable. But if you plan to be portable most or all of the time, the DIY battery pock would get kind of heavy, so a few spare sets of AA batteries in your go-kit will be perfectly sensible.

Easy On The Ears

Another must-have is a set of good quality earphones; the best are comfortable ear bud-type phones used with the Apple iPod and other similar music play-

ers. Alternatively, you can use a set of ear-muff-style headphones. Either way, you're looking for a type that will block outside noise so you can hear the aviation action. Most consumer stores like Best Buy and Circuit City carry these ear-phones, which cost around \$20. It's kind of pricey, but you need something that's comfortable yet will allow you to hear what's going on.

Capture The Moment

Whatever you do, don't forget the still or video camera; you'll want photos of the action, so take along your camera and a selection of lenses if you have any. Something else to consider is audio recording equipment; the sounds of an airport are pretty impressive, and if you would like to put together an interesting multi-media presentation of what you've seen some good quality audio recordings are worth having.

Sundries

There are always other odds and ends you should bring along on your little jaunt, too.

First and foremost is a good map or two. Don't rely on your smartphone for this; Internet mapping is usually reasonably accurate, but if you're out of range or your smartphone battery dies, you'll be stuck trying to figure out how to get back to the main road from that little holler you drove into unless you have a good map. Along those lines, another useful addition is a portable GPS unit; not only can it help you get "un-lost," but it's handy for making



A selection of miscellaneous "basic necessities," including a flashlight, pad and pencils, portable GPS, poncho, and backpack.

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pictures, too. If your digital camera automatically inserts this information in a photo's EXIF data each time you take a picture (some do), that's great. If you use a film camera, though, or your digital camera doesn't have that handy feature, you might want to make a note of the precise coordinates. The GPS built in to a camera isn't much help for getting un-lost, though.

Also important is a notepad and ciphering sticks (a.k.a. writing utensils or simply, pens and pencils). You'll want to log what you hear and see, especially if you're making photographs and want to make notes on date, time, location, and aircraft type.

Don't forget a good flashlight. If you were a Boy Scout like me and live by the mantra "Be Prepared," you should always have one, or better yet several, in your car and house (you can never have too many flashlights; I have two in the car and at least 10 in the house). I'm personally partial to Maglites, but these days you can get a very nice flashlight that uses high-brightness LEDs instead of an old-style incandescent bulb for two or three dollars at any home center, and LED-style flashlights will run for hours on a set of batteries without losing any brightness.

Finally, you'll need to take along some items for your personal comfort. While we're not talking here about a lengthy emergency communications deployment requiring days worth of clothing, food, water, medications, and other necessities, it's always a good idea to carry a few of these things with you. At a bare minimum, carry some bottled water and snack items, along with gloves and a hat, a poncho or raincoat, and something to carry everything in.

And always remember that this is an outdoor activity and you're going to be spending a lot of time outdoors in either the bright sunshine or cold wind. Be sure to dress comfortably (or warmly as the case may be), and don't forget the sunscreen in the summer.

Of course, what you've read here can also be used for outdoor ferroequinology (study of the iron horse), but I won't tap into someone else's subject matter here...

Enjoy

So there you have it, the basic necessities for a more successful and comfortable jaunt into the hinterlands chasing planes (or trains). And with that, it's time for me to fold my tent by the side of the runway and silently steal away into the night. Thanks for reading along.

Judging A Station By Its Cover

by Shannon Huniwell
melodyfm@yahoo.com

The grimy, bearded bum, clutching a broken-down radio, stumbled into my church just when the Sunday service was getting started. Nearly losing his balance as he staggered down the aisle, this sad case barely managed to maintain his grip on the boombox's duct-taped handle. Blaring from its speakers was Pink Floyd's *Another Brick in the Wall*, followed by the local FM rock station's DJ

"Dust kicked up from all four tires as my father's Rambler maneuvered through the open gate leading to the studio facility. 'I bruised my hand for this place?!...'"

making some remark that certainly wasn't meant for a religious audience. Fortunately, the guy thought to fade the audio before getting within close range of the front of the sanctuary, but the boisterous belch he issued elicited whispers from many in the congregation.

I'll have to admit, I was rather disgusted when that man with long, matted hair ascended the steps to the pulpit and braced himself at the lectern, knocking its big Bible to the floor. And I was shocked when he bent down to retrieve the Good Book...and his wig fell off. Regaining his stance, the fellow peeled off his fake beard and shed his stinky coat. Unveiled and standing there for all to see, was our minister, who had just preached a powerful sermon about the dangers of being judgmental—without having said a single word.

No, the radio connection is not the boombox and Pink Floyd, but rather that pegging a radio station's worth to the community by simply looking at its studio setup is not dissimilar. "In fact," my quirky radio hobbyist Dad likes to point out, "many of America's most fascinating stations derive their unique personalities from being housed in facilities only a true broadcasting buff could love." The particular case in point for his hypothesis is a humble Arizona AM.

I hope you won't mind if I indulge Dad by starting with a brief story within this my larger theme about happily atypical radio headquarters, like the one that used to be home to KDJI in Holbrook, Arizona.

My Folks (Before They Were "My Folks") On America's "Mother Road"

On a Friday evening in October 1960, my father, then a 21-year-old college freshman straight out of the US Army Signal Corps, was studying in the library and overheard some big-men-on-campus preppy guys talking about a girl they'd just seen who looked just like a young Katharine Hepburn. After one of the fellows, apparently sent as a scout,

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My father says his college's TV lounge had a set like the Emerson advertised here. Maybe the committee tasked with equipping the room decided upon the then-huge 21-inch television because, as this theater-themed ad suggests it was great for group viewing as almost the entire front was picture tube. Emerson said its secret in creating this movie screen illusion was the side placement of the TV's channel, fine tuning, on/off, and volume controls. Also touted was Emerson's Cinevision screen, "as radical a television advance as 3-D is in the movies [with] picture depth...never seen before." Of course the 3-D mentioned in the advertisement was the 1950s analog type—a lot less vivid than today's digital 3-D imagery.

returned to the group to report that she was even “hotter than Hepburn,” Dad decided to pack up his books and search out this beauty for himself.

Within minutes he spotted a woman more than matching that superlative description. That’s when he caught a glimpse of himself in the big gold-framed mirror that hung over the study lounge’s fireplace and figured someone who looked like her wouldn’t be interested in this lanky sort who’s only look-alike claim might be homey character from a Norman Rockwell illustration. Anyway, he managed to muster sufficient courage to take a seat within earshot of whatever she might say to several nearby coeds. It didn’t take long for one of the girls to break up the study session by suggesting that the entourage head over to a party at her boyfriend’s fraternity.

Much to my future father’s delight, they all immediately left...except for Kate Hepburn. She excused herself, explaining that she had homework and then wanted to relax by watching a little TV. Dad knew the college’s only likely venue for the latter activity, so he sprinted over to the Student Union and took up a conspicuous position in an erstwhile second-floor office recently reconfigured with wall-to-wall carpeting, a small overstuffed sofa, several upholstered chairs, and a 21-inch Emerson television.

Sure enough, she eventually showed up. My Dad looked up from a magazine he’d quickly grabbed—which, he laughs, might have been *Good Housekeeping* or *Women’s Day* and was probably upside down—as he heard someone coming up the stairs. He gave his most sophisticated, “Hello.” She smiled, gracefully set her books in the chair furthest from him, and asked if he’d mind if she turned on the TV. “Allow me,” my father offered. “Anything in particular you’d like to watch?” She suggested the premier of a CBS drama about two guys who drove their sports car into unexpected places of adventure. “Sounds OK to me,” Dad said. He was amazed that somebody as beautiful as she wasn’t stuck up. As they started talking, she even seemed more interested in his stories and plans than his appearance. Friday nights in the TV lounge turned into a steady thing.

A half-dozen Friday nights later, as they watched *Route 66* together on the cushy couch, my father asked my mother if she might like to experience the real Route 66. He wanted to see the Pacific Ocean and some radio stations that start-



My folks happily studied this photo long enough to notice the “Merry Christmas” Santa Claus heads peering through KDJI’s front windows. Such decoration seems rather odd considering that radio historian Jan Lowry took the picture in March. Also visible in his 1960-shot is the stump next to the metal entrance stairs that my Mom remembers navigating in order to get into the station trailer’s main entrance. And those two big roof-mounted air conditioning units are telltales of just how incredibly hot a mobile home radio studio (with tube gear!) could otherwise become. Don’t you love the Chevy wagon making good use of KDJI’s scruffy grounds? Lowry says he stood on the edge of Route 66 looking down into Leroux Wash, bordered by that rocky ledge, when he aimed his camera at what has got to be one of the most evocative photographs of small-town radio.

ed with “K” and wondered if she’d enjoy coming along. Much to his surprise, she accepted without hesitation, even before he offered to cover the cost of proper, separate hotel rooms. They began their trek along the Mother Road a few days after classes ended in mid-May 1961.

While the *Route 66* television characters had an expensive new Corvette, my Dad used nearly half his “vacation money” to buy a very basic used Rambler station wagon. Modest though it was, the car—complete with an AM radio bordered by big plastic knobs—offered much less trouble than the show’s fancy Chevy. During that trip, the humble auto’s only problem was that its radio occasionally had to be pounded just under the slide rule when a tube pin apparently lost contact with the socket. Mom remembers Dad having her slap the thing silly for nearly 25 miles east of Holbrook, Arizona, so he could hear their next destination, KDJI.

When the radio finally cooperated, it conveyed an eclectic mix of country and pop music, along with what sounded like promotional announcements in a Native American tongue. Dust kicked up from all four tires as my father’s Rambler maneuvered through the open gate leading to the studio facility. “I bruised my hand for this place?!” my mother asked, in a voice louder than Dad had ever heard her use before.

“Let’s just knock on the door and see what there is to see,” he said calmly.

“It’s nothing but a tin trailer! And, look, they’ve got a tree stump for a front step! Plus, the place is held up with a few cement blocks! What if the wheels go flat and the stupid thing tips over?” Mom tearfully protested. The intervening years would show that she rarely got that way, but even then Dad recognized her 50,000-watt version of tired and cranky. He passed her a tissue while she calmed down, then they both ven-



When Lowry passed by KDJI again, this time in 1998, he clicked another pix of the old metal transmitter shack. Not seen is the station's new 5000-watt RF generator inside—though clearly visible is a brown water mark from flooding that had drowned the station five years earlier.

tured toward what, admittedly, looked like a very lowly broadcast establishment.

People Make The Station

Once inside, however, they quickly felt much better. First off, KDJI had air conditioning, albeit a tad noisy. And Sam, the station's General Manager, happily took a break from doing some bookwork so he could hear Dad's accounts of what was going on in radio "back East," especially regarding stations in New York, Boston, Buffalo, and Hartford converting to rock 'n' roll music formats.

After Mom freshened up, she and my father were ushered into KDJI's studio, where they were interviewed between a couple of instrumentals by a star-struck disc jockey impressed that folks from New England would agree to be guests on his program. Dad vividly recalls the guy introducing Mom to KDJI listeners as "a dead ringer for Katharine Hepburn." He seemed to almost believe her dual identity when my future parents told the DJ that they were on their way to Los Angeles (it didn't seem to register that, in 1961, the real Kate Hepburn was much older than my Mom!) Thirty seconds after the interview concluded, the proprietor of one of Holbrook's hotels phoned the station to invite my mother and father to dine in his restaurant and stay overnight—both on the house!

Besides later walking hand-in-hand at sunset on Malibu beach a few days later, that serendipitous Holbrook excursion became the highlight of their Route 66 trip. In fact, whenever they recounted the radio interview story, their only regret was not having taken a picture while at KDJI. So you can imagine their surprise and delight when I presented them with a candid color photo our broadcast historian friend, Jan Lowry, snapped about a year prior to my parents' visit there. Once more, KDJI caused tears to well in my mother eyes. "Oh look!" she exclaimed—nostalgically this time—"there's the tree stump front step!"

Jan Lowry's Record Of The Arizona Station

Along with some great pictures, Jan Lowry provided a KDJI history from his bulging files. He notes that the precursor to KDJI was an FCC Standard Broadcast Station application that the Commission turned into a construction permit in late July 1955. Being granted this OK to build a new 1000-watt daytime AM on 1270 kHz in Holbrook were tourist curio shop owner Donald Edward Jacobs Sr., with a 75-percent share, and housewife Irene Tabor, who held a 25-percent share of what was soon dubbed K-D-J-I, presumably for Donald Jacobs and Irene.

In today's dollars, their estimated \$25,378 to put the station on the air doesn't seem like much, but coupled with predicted first-year operating expenses of \$31,200, it was easily the price of several nice houses and a new car. The duo, under the banner of Northeastern Arizona Broadcasters, figured on recouping much of their investment with an initial annual ad revenue of \$42,530, a number my Dad speculates they found difficult to eke out.

The new station took shape throughout the summer and fall of 1955. Most notably, a guyed tower was erected in a low marshy area called Leroux Wash, west of Holbrook's business district. Almost touching the stick's concrete base, a corrugated steel shed served as the transmitter shack in the truest sense of the word. Studio and office facilities were established in a more civilized locale, however, at 1014 West Hopi Drive. With everything hooked-up, KDJI debuted in mid-November. A relative of Mrs. Tabor's got the job of General Manager, but held the post for only a few months before relinquishing the position to Donald Jacobs. Irene Tabor's interest in KDJI ended quickly, too, as she sold her shares to Jacobs in early 1957 for about \$3,000.

As sole proprietor of the station, but not a broadcaster by trade, Jacobs sought out an experienced radioman to helm KDJI. He found help for his day-timer in a young broadcast pro, who'd later become famous for being America's first overnight network radio personality, Herb Jepko (and who we met in March's column). The future host of KSL Salt Lake City's and Mutual's *Nitecap Radio Show* helmed the little Holbrook AM until early 1960, about 10 months after Donald Jacobs sold KDJI to Harold Arnoldus for approximately \$33,000.

Cost Cutting On A Trailer Hitch

The new owner of Holbrook's sole station must have studied the outlet's ledger long enough to recognize that being the only show in town wasn't any guarantee of profitability. In order to implement his plan to reduce accounts payable, Arnoldus vacated KDJI's downtown (Hopi Drive) headquarters and refitted the station's possessions into a mobile home towed into place just a short roll of a tumbleweed from KDJI's wavy metal transmitter shack. Jan Lowry mentions that, dur-

ing a 1998 trip, he sidetracked through Holbrook and peered into KDJI's long vacant original Hopi Drive studio/office. Though it had also been home to a machine shop, the interior window to the 1955 studio was still in place, allowing Jan to note that the former studio's walls were still "lined with faded acoustic tiles."

Jan's files indicated that a Sam Taylor Jr. took over the GM position when Jepko left for greener pastures in early 1960. This must have been the Sam who my folks recalled from their May 1961 tour. He was only there for a short stint himself and his replacement was named around Thanksgiving '61. KDJI's format during this period was described as "disc jockey music programs" with the exception of "2.5 hours of Navajo language weekly."

A pair of networks was added to the schedule in 1963: ABC Radio from New York and the Arizona Broadcasting System out of KOY in Phoenix. These affiliations were severed three years later, after the new owner—Navajo Broadcasting Company, Inc.—paid \$90,000 for KDJI (in 1965) and began recasting it as a strictly local independent. That company focused much of its modifications on an application to boost power to 5 kW (6 a.m. to sunset), something the Commission granted in 1967.

In the FCC paperwork, KDJI officials dubbed the trailer studio/transmitter site "North Broadcast Lane," a fancy handle for a patch of desert "in Leroux wash, adjacent to the new interstate highway [Route 40] which passed on the southern edge of the property." By 1968, Navajo Broadcasting was reorganized when a minority partner was bought out.

Shifting Sands Of Sound And Flood Waters

Several format changes were in store for KDJI as the 1970s arrived. Ties were reestablished with the Arizona Network and ABC's relatively new Information Network. Along with this out-of-town fare, 15 hours per week of Navajo language was offered. Much of the daytimer's schedule, though, became the province of what KDJI announcers called "Town & Country" radio, a tag that typically means mostly songs from Billboard magazine's country music chart laced with some prominent middle-of-the-road pop and country/top-40 rock crossovers. This lasted until a 1978 switch to pure Top-40 hits. KDJI stopped airing Arizona Network feeds in 1987 and also mixed Top-40 fare in favor of Adult-Contemporary music.

The next format shift arrived a year later when the Top-40 label was reaffixed to its main programming listing. Those favoring such hit music—and living within a few miles of the tower—could get it on KDJI after sunset, when, starting in 1989, the FCC OK'd a post-sunset (non-directional) power of 130 watts. Management used this decent grant (some daytime stations only received the go-ahead for as few as a couple of watts at night!) to keep KDJI active until 12 a.m. Satellite Music Network's (SMN) *Good Times-Great Oldies* got pulled, ready-to-run direct from the bird for local personnel cost savings in 1990. This coincided with replacing ABC Information with news and brief features from the Mutual Broadcasting System, also received off a satellite 22,000 miles above the Equator.

KDJI officials would have settled for having their facility being 22 feet off the ground when waters from the Leroux Wash flooded the transmitter shack and studio trailer. The January 8, 1993, deluge was serious enough to register a three-foot high water mark, knock the AM off the air for nearly two weeks, and rack up \$85,000 in property damage. When KDJI returned to



This cover jacket for a commercial production music record (probably with a couple dozen :30- and :60-second bright, snappy music beds over which radio ad copy could be read/recorded) shows a shopworn studio resembling at least one humble broadcast setup in every North American media market. Besides revealing the exact time that the photographer clicked the shutter, the image also shows late 1940s/early '50s Gates turntables (with Gray Research tone arms) and a two-channel Gates control board that is as big as the back of a minivan! Note the Magnecorder model PT-6 reel-to-reel tape recorder, a tremendously useful piece of technology back in the day. By the way, that second tone arm on the right-hand turntable was meant to accommodate a breed of transcription recording fast fading from the post-World War II audio scene. It played 78-rpm discs, sometimes tracking from the record's inside (near the center hole) to grooves near the outer perimeter. Check out the RCA DX-77 mic on a chain. Such mounting was not an uncommon practice, but I think a stand/boom looks much more radio-like.

the ether, it did so in a replacement "mobile studio set on pillars on higher ground," with a borrowed LPB-brand 100-watt transmitter. The weak voice it offered was better than no signal at all, and the station marked time until a newly ordered 5-kW box could be installed in the recently scrubbed-out transmitter hut. When listeners could receive the Holbrook AM at full power, the savviest among them probably noticed SMN's oldies fare had been replaced by similar music from the Jones Satellite Network. By the mid 1990s, the Holbrook area audience could hear KDJI 24 hours a day. And by 1999, they could visit station staff in the AM's new studio/office headquarters at 222 Navajo Boulevard in downtown Holbrook.

Developments for KDJI in the new millennium included a summer 2000 switch from oldies to ESPN sports, the license changing hands in 2001 and 2002 (in the latter instance for \$650,000 with a companion Holbrook FM property), a 2004



Here's a broadcast facility only an owner could love. On the silver screen it served as the mythical home to nearly defunct Ultra High Frequency TV, station U-62, and it had to scream, "No viewers, no ratings, no budget!" Weird Al Yankovic dreamed up the video underdog for his 1988 cult movie, *UHF*. Actually, the studio/transmitter building had no real video connection at all, but once housed a Tulsa, Oklahoma, daytime AM outlet on 1050 kHz, a Standard Broadcast property that began in 1946 as KFMJ under the ownership of Ford car dealers, Fred & Mary Jones. It has worn other calls, too, like KRAV and KGTO. By the time Weird Al's film crew scouted the site as a perfect place to represent a rundown TV station, the beat-up building contained no working studio. All that remained inside and on its unkempt grounds was the 1050 AM's 1-kW transmitter and associated classic four-legged self-supporting tower. Still, the movie maker had his crew modified the facade to make the ramshackle place look even worse! Today, that brick and mortar (and particle board) structure is gone, replaced by a tower-side shed to house the transmitter.



Motorists traveling the Arizona stretch of America's first paved interstate "super highway" were apprised of where they were via signs like this. Opened in late 1926, Route 66 spanned some 2,450 miles, from Chicago to Los Angeles, and was traversed by millions of motorists, from wealthy vacationers to the fictional Joad family down on their luck in John Steinbeck's *Grapes of Wrath*. Steinbeck dubbed the thoroughfare, the Mother Road. Route 66 was decommissioned in the mid-1980s when wider, faster Interstate 40 replaced it, though portions of the old ribbon have been deemed "historic" and serve as fun stretches for nostalgic cruise drives.

shift to news/talk programming via simulcasting co-owned KVWM, first from that station's Show Low, Arizona studios, and then, in 2008, to new KVWM digs in Pinetop-Lakeside, Arizona. Purists, however, still consider that the true spirit of KDJI remains within its tower location behind a locked gate at 250 North Broadcast Lane in Holbrook. That's where local radio buffs can still see the desert station's humble metal transmitter shack and red/white stick silhouetted against sand, rock, and the beautiful western sky.

Very Nice On-Air Studio, But No Thanks

I would have doubted that there's such a thing as reverse bias when it comes to sizing up an AM or FM station, but the reaction of one of my father's radio buddies to a job interview seems to indicate otherwise. Armed with an unusually soothing, friendly radio voice, plus three years experience at several Providence, Rhode Island, area stations, and after sending out a barrage of air-check tapes to prospective program director employers, this fellow got a call from the PD at

CBS-owned WEEI-FM 103.3 in Boston within a week of his 1975 college graduation.

A true radio junkie, the 20-something loved even the scent of shopworn studios and equipment that occasionally required a strategically placed pound of the fist to coax back into cooperation. Also key to this radio culture were the colorful folks who either worked at such stations or drifted in for a visit. But this cherished milieu seemed a world away from the one he experienced while riding the elevator to the high-rise headquarters of soft rock WEEI-FM. Once inside the well-appointed, musically automated venue, he easily passed the interview and was told he possessed the proper sound. During the time he spent in that CBS space near the top of the landmark Prudential Center, however, he saw no record albums nor blue jean-clad DJs enthusiastically flipping through a short stack of 45-rpm singles. My Dad reports that his friend did not take the job at WEEI-FM.

"It was too sterile-looking to be any kind of radio station I could be comfortable in," the diehard radio guy explained. "Maybe I'm prejudiced, but some of the best broadcasting I ever heard—or participated in—came out of some pretty scruffy-looking stations. It's like the kind of medical creativity that comes out of a M.A.S.H. tent, as opposed to some one-procedure specialist's office. That's what creating good theater of the mind from a broken down studio was all about."

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

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The Zenith 8G005 Trans-Oceanic Restoration Challenge—Part IV The Final Chapter

by Peter J. Bertini
radioconnection@juno.com

It's been a long road, but we've reached the end of our Zenith Trans-Oceanic restoration journey. This month we'll spend some time getting the cabinet back into acceptable condition and conclude the restoration at the point where the radio is both displayable and useable.

Unfortunately, my cabinet had not fared well over the years, and decades of improper storage and physical neglect had taken its toll. It suffered abundant evidence of past damage: the fabric edges were becoming unglued in many areas, and there were a few areas where tears, gouges, and rips were patched and repaired some time earlier. A full restoration would have included a complete repair of the cabinet. This would have involved reupholstering the cabinet, and perhaps buffing or re-plating the brass-trim pieces. Some restorers

“A full restoration would have included a complete repair of the cabinet...Some restorers would settle for nothing less, but I opted to be a bit more pragmatic.”

would settle for nothing less, but I opted to be a bit more pragmatic.

Decisions

As mentioned, there were some issues with the original Zenith stag covering. Some areas were loose and some others were worn to the point of being thin and gauze-like. I had two options.



Photo A. The Zenith Trans-Oceanic cabinet has been disassembled into five sections. The largest is the main cabinet. At left, going from top to bottom, is the top front lid, top plate, and the small door for the instruction booklet located in the lower front section of the radio. The rear cover is just below the main cabinet box.



Photo B. White mold is commonly seen on the stag covered Trans-Oceanic radios. The glues and materials provide a fertile growing medium for the mold. Luckily, it's easily removed with a damp rag and soap.

First, I could replace all the fabric covering with new black Tolex material. (Tolex is the brand name for the vinyl covering used on Fender amplifiers and other types of equipment housings and is available from restoration supply houses that cater to the music equipment trade.¹) While not an exact match for the original Zenith stag material, the results are impressive if you are willing to go to the expense and have the time to carry the restoration to that level. If the radio had been a valued family heirloom, I might have considered this avenue.

The second approach, and the route I followed, was to simply do the best I could to make the radio look presentable, while displaying some vestiges of its past. This radio will be used on a three-season screened porch, not the best environment for an expensive shelf queen!



Photo C. Years of storage and changing seasons can cause the old glues to dry out and weaken, resulting in loose sections of stag material, especially at the edges and seams. Note the wire leads that are attached to the hinge arms. These wires connect the WaveMagnet antenna to the radio. The wires and hinge pivot points are hidden beneath the top plate section when the radio is assembled.

There are many surviving examples of Trans-Oceanics left in the world. If you're in the market, I'd suggest looking for the nicest example available; paying a few extra dollars for a nicer specimen upfront is often far more cost effective than endless searches for replacements for missing or damaged parts, or getting involved in labor- and cost-intensive cabinet restorations. Personally, I find more satisfaction in doing the electronics versus cosmetic cabinetwork.

The cabinet is comprised of five individual sections, all of which are held together with small wood screws. The disassembled cabinet is shown in **Photo A**. Zenith wood Trans-Oceanic radios all suffer from a common malady: white mold! The materials and adhesives are a fertile breeding ground for mold growth, and **Photo B** shows the whitish residue. Even though this radio was cleaned and stored in a climate-controlled room, the mold eventually returned. Fortunately, it is easily removed using a gentle soap and a wipe down with a damp rag.

The largest section is the main cabinet. The front lid and rear lids are the two next largest components, followed by the top cover (which hides the WaveMagnet wiring), and finally the small lid for the instruction booklet compartment at the bottom front of the radio.

Loose Stag

Many of the glue seams along the edges of the stag material had failed, resulting in loose fabric edges, as shown in **Photo C**. Fortunately, this is an easy fix.

First, I cleaned all cabinet surfaces using a damp rag and soap; this step also removed all traces of mold. I used damp Q-Tips to clean out any loose material (dust, dried glue, etc.) that

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Photo D. Once re-glued, the seams should be held firmly against the cabinet using scraps of oak and wood clamps. Wax paper keeps the wood strips from being inadvertently glued to the cabinet!

had lodged between the material and plywood base. If the stag has curled, you can wet it with a spray of water to soften the material. Clamp it flat until it is fully dry, and then proceed with the glue repairs. I found that Pliobond adhesive, available at local hardware stores, worked well to repair the loose edges. The adhesive, while quickly becoming tacky, has a good working time and is easy to use. Once the seams were filled with adhesive, I pressed the material back down and removed with an alcohol-dampened rag any excess adhesive that squeezed out.

As seen in **Photo D**, several wood clamps, with narrow strips of wood,

ensured that the seams were held tight while the adhesive set and cured. This approach keeps an even amount of pressure along the full length of the newly re-glued seam. A layer of waxed paper between the wood and cabinet prevents any residual glue from attaching the oak strip to the cabinet.

More Decisions: Shoe Dye Or Paint

The next step is to restore the original black stag finish. Many Trans-Oceanics will do fine with an application of black shoe polish; I had to go a few steps fur-



Photo E. It's a good idea to remove any pieces (metal feet, hinges, etc.) that shouldn't be painted. If they aren't removed, they should be covered with masking tape.



Photo F. Here's the before photo of the Zenith 8G005 Trans-Oceanic.

ther on my radio, however. Black stoe dye is an excellent choice to "refinish" original black stag material that's in good condition, but that was not my case. I'd read that some restorers had had good results using black spray paint, so I decided to give that approach a try.

One reason I chose the paint over the dye was because of those worn stag areas, where the material looked more like gauze than a full-bodied fabric. The paint

helped to "fill in" those areas, making for a more uniform surface. Since it's hard to remove everything that isn't going to be painted or dyed, I carefully covered those areas using masking tape, as shown in Photo E. I used a black semi-gloss, being careful to only apply very light coats of spray paint as heavy coats can mask the original grain of the Zenith stag material.

The painted cabinet now looked a bit too shiny for my liking, so I wet-sanded



Photo G. And here's the finished radio! The differences are a bit more dramatic than the photos show.

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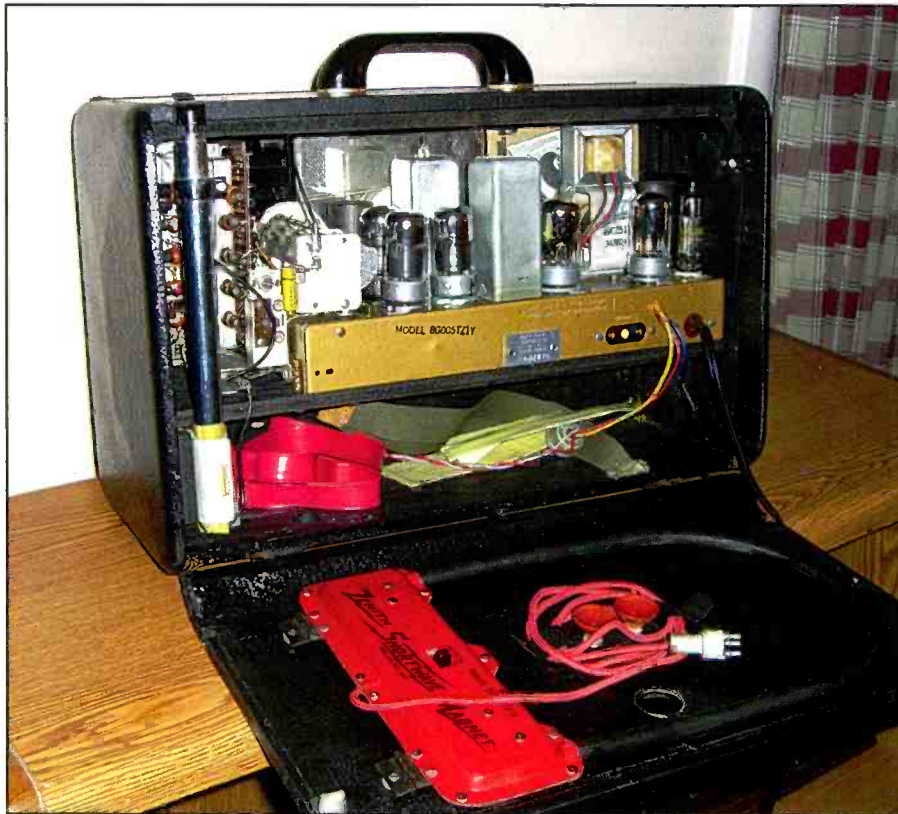


Photo H. Here's a peak inside the restored radio. Many of the accessories are neatly stored on the inside of the rear cabinet lid.

the cabinet using a fine grit sanding sponge, which knocked down the sheen to an acceptable level. I allowed the paint to fully cure for a few weeks, and then applied a few coats of hand-rubbed bowling alley wax. You'll often find that "restored" Trans-Oceanics have been waxed and polished until they glisten, but this is not the correct look for these radios. At most they should only show a very slight sheen.

Tah-Dah—Restoration *Fini!*

Photo F shows the original, untouched radio; the completed restoration is shown in **Photos G** and **H**. The differences are a bit more dramatic when seen in person—it's hard to photograph a black radio!

It would be fun to reupholster the cabinet with Tolex, just to gain the experience. Time permitting, I may do so in a future column.

Until then, keep those soldering irons warm and those old tubes glowing!

References

1. Antique Electronic Supply, 6221 S. Maple Avenue, Tempe, AZ 85283; Phone: 480-820-5411, 800 706-6789

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Keyed Up In Cowfield

by Bill Price, N3AVY
chrodoc@gmail.com

“...it just seems so much more polite to send a ‘HI’ to another ham with a nice oscillator tone than with your horn.”

It’s been a quiet month in Cowfield County. The long-suffering Mrs. N3AVY has been monitoring some of my expenditures and asks ever-so politely what a 30mm scope-lapping tool is, and also how anyone could spend over \$400 a year on airgun pellets. I respond with a discussion of how I get by with two pair of pants and one pair of shoes, and we call it a draw long before the inventory count gets near socks and underwear—or *radios*.

I now have one of those great little Grundig general coverage receivers (thanks, DG), which follows me around the house and even performs well within a foot or so of my computer. Since I see the receiver advertised on the pages of *Pop’Comm*, it’s safe for me to say that it’s a real performer and does far better on the AM broadcast band than my Super Radio II. It’s better on FM as well.

Just this morning, I gave a once top-of-the-line scanner to the local Boy Scout Council, along with some ham radio books. The thought of teaching some code to our young khaki friends has even crossed my mind, just as long as they don’t make me wear a uniform or carve my own neckerchief slide. Actually, I’d probably walk a mile to meet kids interested in learning CW.

I miss CW. Since I’ve been carrying the little Grundig around the house, I’ve been listening to WIAW’s CW broadcasts and copying in my head. I even got a pencil and paper one evening, but it’s easier to just listen. What I really need is one of the (several dozen) old manual typewriters I used to collect (believe me—they *won’t* fit in a scrapbook—especially the wide-carriage Underwoods). Since I got rid of every last one of them, I’m wondering if I can sneak one into the house without “She Who Must Be Obeyed” thinking I’m having a relapse into my old ways.

And as much as today’s Dollar-Store ear-phones are quite adequate, I also miss those lousy cans we used to wear in the radio shack on the Coast Guard ships. You know, those lovely germ-laden Bakelite earpieces with the two steel bands across the head—the ones that looked as if they had a little antenna sticking up over each

ear. Frayed fabric-covered cord with a stereo phone plug for split-phone watches. Imagine having *two* Collins R-390s at your command. Now imagine also having two permanent grooves across the top of your head. It’s OK, though—they *were* a part of history. I’m sure some had earwax dating back from before World War II.

Soon I’ll find a pair of those extremely comfortable old cans for listening to CW, but that only covers the *inbound* CW. I have never in my whole life owned a keyer. I’ve used a few, and found them kind of interesting, but I never actually owned one. That’s about to change.

I recently found a nice guy with a 9 in his call-sign who’s selling an old Heath keyer, and I decided that I should have one—and the two-tone green Heath keyer is just about as modern as I want to get. Now I’m not saying I’m going to connect it to a transmitter, or connect the transmitter to an antenna. So far the plan is just to sit around and improve my withering fist, and like most CW ops, see if I can send twice as fast as I can receive.

And I’m really tempted to put an amplifier in the car, with a little speaker under the hood. Don’t bother to tell me that’s not quite legal, I know—it just seems so much more polite to send a “HI” to another ham with a nice oscillator tone than with your horn.

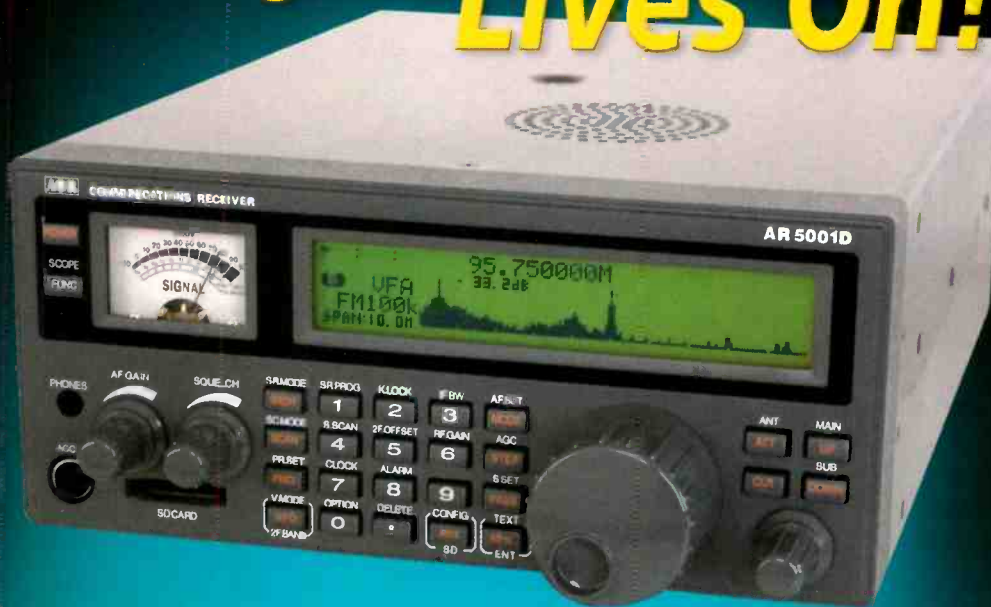
Besides, I already learned (the hard way) that a bug will burn out a horn relay in short order. That was then; this is now. My ’66 Plymouth probably had a weak horn-relay to begin with.

Norm and Beezer are holding their breath in the hopes that I’ll actually put up an antenna and get on the air. I think Chief Bob and David in Mass will be waiting, too. No promises, but I’m thinking about it. I wonder if the FCC is issuing unlisted callsigns.

Bill doesn’t know it, but his spark-gap transmitter from the Coast Guard Cutter Bear is not type accepted (or even bands) for use on the ham bands—or any bands, for that matter, but we continue to humor him.—ed.

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- Fast Fourier Transform algorithms
- Operated by a Windows XP or higher computer through a USB interface using a provided software package that controls all of the receiver's functions
- An SD memory card port can be used to store recorded audio
- Analog composite video output connector
- CTCSS and DCS squelch operation
- Two selectable Type N antenna input ports
- Adjustable analog 45 MHz IF output with 15 MHz bandwidth
- Triple-conversion receiver exhibits excellent sensitivity
- Powered by 12 volts DC (AC Adapter included), it can be operated as a base or mobile unit
- Professional (government) version is equipped with a standard voice-inversion monitoring feature

Add to the capabilities of the AR5001D with options:

- Optional APCO-25 decoder
- Optional LAN interface unit enables control via the internet
- Optional I/Q output port allows capture of up to 1 MHz onto a computer hard drive or external storage device
- Optional AR-I/Q Windows software facilitates the easy storage and playback of transmissions captured within the selected spectrum in conventional modes, or, signals can be subjected to further analysis
- Optional GPS board can be used for an accurate time base and for time stamping digital I/Q data



® The Serious Choice in Advanced Technology Receivers

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**Cellular Locked for US consumer version. Unlocked version available to qualified purchasers with documentation. Specifications subject to change without notice or obligation*

Nothing But Performance



The TS-590S

Kenwood has essentially redefined HF performance with the TS-590S compact HF transceiver. The TS-590S RX section sports IMD (intermodulation distortion) characteristics that are on par with those "top of the line" transceivers, not to mention having the best dynamic range in its class when handling unwanted, adjacent off-frequency signals.

- HF-50MHz 100W
- Digital IF Filters
- Built-in Antenna Tuner
- Advanced DSP from the IF stage forward
- Heavy duty TX section
- 500Hz and 2.7KHz roofing filters included



• 2 Color LCD

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* For 1.8/3.5/7/14/21 MHz Amateur bands, when receiving in CW/FSK/SSB modes, down conversion is automatically selected if the final passband is 2.7KHz or less.