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IC-R75
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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**



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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.



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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

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



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

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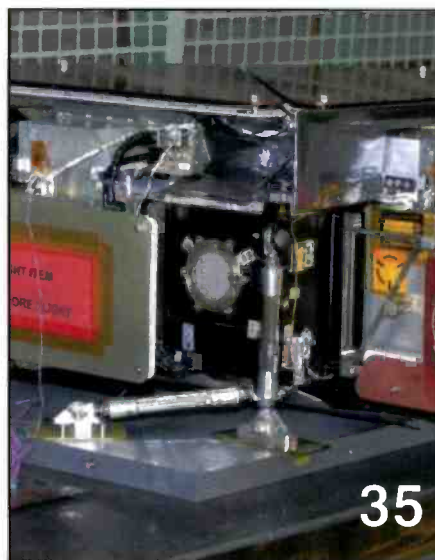


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ON THE COVER

Today's high-tech tactical satellite radios — like this one used in Iraq — are a far cry from vintage military field units like the one depicted in a display at Fort Huachuca, Arizona. It is home to the U.S. Army Intelligence Center and the U.S. Army Intelligence Museum, the Fort Huachuca Museum, and an adjacent Annex — also a museum. You'll get a tour in this month's *Pop'Comm*, beginning on page 12. The "soldier" in the smaller photo is a signals officer operating an ANPPS-5 ground surveillance radar used for detecting enemy movements. (Courtesy of U.S. Air Force and Roy Stevenson)

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Tap into secret Shortwave Signals

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



MFJ-462B
\$199⁹⁵

Plug this self-contained MFJ Multi-Reader™ into

your shortwave receiver's earphone jack.

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

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

Eavesdrop on the World

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Super Active Antenna

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

MFJ-1024
\$159⁹⁵

"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."



MFJ-1020C
\$99⁹⁵

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. 3/4x1/4x4 in.

MFJ-1022
\$69⁹⁵



Eliminate power line noise!

MFJ-1026
\$199⁹⁵

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



MFJ Antenna Matcher

Matches your antenna to your receiver so you get maximum signal and minimum loss. MFJ-959C preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, \$15.95.



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
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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

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

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

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

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High Performance Modem

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.

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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. 5/4x2 1/2Hx5 1/4D inches.

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



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

N-female connector. Tripod screw-mount. Wall and desk/shelf mounts. Use vertically/horizontally. 18Wx2 3/4Hx1 1/4D 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

MFJ-392B
\$24⁹⁵



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

High-Q Passive Preselector

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

MFJ-956
\$69⁹⁵



Super Passive Preselector

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



MFJ-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 \$79⁹⁵ MFJ-1702C \$39⁹⁵



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.

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
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MFJ 24/12 Hour Station Clock

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EDITORIAL

Tuning In

by Richard Fisher, KI6SN
editor@popular-communications.com

You're Invited to Sound Off, 'Across the Spectrum'

We're starting a new feature in *Pop'Comm* this month. It's written by you.

Across the Spectrum: Correspondence from Readers begins on page 44 and features many of the letters to the editor that come in each month.

As you'll see, it's a forum to share your feedback not only with the *Pop'Comm* staff, but with all of our readers, as well.

Some writers have follow-up questions for our columnists or feature writers, and we'll do our best to synthesize a response from them to you.

Across the Spectrum is also a place to express your opinion on *all things communication*. For example, in *Washington Beat* on page 8 there is an item about the state of New York cracking down on AM and FM radio pirates by giving local law enforcement the authority to cite illegal operations with a Class A misdemeanor. **Should local law enforcement be in the business of patrolling the airwaves?** Tell us what you think.

Send your unbridled opinions, questions, criticism and suggestions to: *Across the Spectrum* at: <editor@popular-communications.com>. Or write: *Across the Spectrum*, Popular Communications, 25 Newbridge Rd., Hicksville, NY 1801-2953.

A WPE History Lesson From Tommy Kneitel

Speaking of letters, **Rich Moseson, W2VU**, CQ Communications Editorial Director and Editor of *CQ Amateur Radio* magazine, ran across a bit more of the history of the *Popular Electronics* magazine Short Wave Monitor program from the 1950s, '60s and '70s.

As many of you know, *Pop'Comm* is launching its own WPC-KPC Monitoring Station Program January 1, 2012, so we've been very interested in learning more about the WPE and other programs like it. (See "*Building a Pop'Comm Monitoring Station Community: Being Part of Something Bigger*" on page 4 of the October 2011 edition. – Ed.)

Seems **Joe Tyburczy, W1GFH**, of Lexington, Massachusetts, was as curious about the WPE program's lineage as we are.

"In 2005, I was living in Los Angeles," Joe said, "and the World Wide Web was relatively new. I was surprised to find that there was no mention of the WPE Short Wave Monitor program anywhere on (the Internet).

"That same year, I put up the WPE page <<http://www.qsl.net/wb1gfh/sw1.html>> as a personal tribute to the program and included a request for former WPE'ers to contact me with their recollections and stories. Within a few months I was deluged with replies."

One of them was from the late **Tommy Kneitel**, manager of the renowned WPE program who later would become founding editor of *Popular Communications*.

"Here's a little background on the program's early days," Kneitel wrote to W1GFH. "Originally, during the mid-1950s, a DXer named Joe P. Morris was issuing SWL IDs with a WRØ prefix. For an SASE, you got a mimeographed strip with only an ID, which was written in by hand. As time went on, Roberts decided it required more time and effort than he had available. He was asking around if anyone was interested in taking it over.

"I volunteered. At that time I was writing for *Popular Electronics* and asked Perry Ferrell, the editor, if they would like to sponsor the project as a service to readers.

"They agreed and said they would publicize it as a *Popular Electronics* program, print up the certificates, etc. I was put in charge of the project and my signature was printed on the certificates.

"We also decided to reorganize the project and replace the WRØ with WPE. The original run of certificates had pre-printed IDs running from WPEIAA through WPEØZZ.

"I believe they announced the project late in the 1950s and the response was overwhelming. I processed the applications and typed in the names and dates . . . I handled this program until the spring of 1961 . . . I don't know much about the program after that but I know it existed for a number of years." – *Tom Kneitel, K2AES/WPE2AB (SK)*

Many thanks to W1GFH for allowing us to share Tommy's letter with *Pop'Comm* readers. I hope Tommy would be happy to know that "*we'll take it from here.*"

– **Richard Fisher, KI6SN**

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- 4-hour Digital Recorder

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- 100 Ch/Second High Speed Scan
- Computer Programmable²
- Water Resistance Equivalent to IPX4

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

IC-R2500 2 Wide Band RX in 1 Black Box



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- 1000 Memory Channels
- Optional D-STAR (UT-118)
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- PC Controllable

*Frequency specs may vary. Refer to owner's manual for exact frequency specs. ¹Optional CT-17 required. ²Optional CS-RX7 required.
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The Weirder Side of Wireless

by Staff

Bill Haley and the Swift-Tuttle Comets?

A U.S. Air Force space surveillance radar deep in the heart of Texas captured the sound of incoming space junk from the comet Swift-Tuttle. It's a toe-tappin' ditty even Bill Haley and his Comets couldn't resist. Listen here: < <http://gizmo.do/qwoxcR> >.

According to the website *Gizmodo.com*, the recordings were made by the USSSTRATCOM (say that three times fast – Ed) antenna in Lake Kickapoo, Texas.

"The radar system can detect objects (as small as) 10 centimeters (four inches) at heights up to 30,000 km (18,641 miles)." (Source: *Gizmodo* < <http://www.Gizmodo.com> >.

Listen Up: Asteroid Coming to a Scanner Near You?

... And speaking of space: The near-Earth asteroid 2005 YU55 will be making a 0.85 lunar distance flyby of Earth on November 8. (For an explanation of the lunar distance measure, visit: < <http://bit.ly/oAsigD> >. – Ed.)

Michael Busch, at the UCLA Department of Earth and Space Sciences, says this may be a chance for Earthlings to listen for earth-based radar echoes from the 400-meter diameter asteroid.

"Because YU55 will be so close to Earth, its radar echo will be detectable with even small antennas (~1 m²). YU55's echo will be a slowly drifting signal with a bandwidth of ~1 Hz within a few kHz of 2380 MHz or 8560 MHz," published reports said. For more information: < <http://1.usa.gov/qh66bL> >. (Sources: *Southgate*, *AMAST News*, *UCLA Department of Earth and Space Sciences*)

Tulsa Tower Climber Draws a Crowd — And Pizza Special

A crowd of people was entranced from the ground below him and a local restaurant reportedly offered a "Tower Guy" 5-topping pizza to mark William Sturdivant's fifth day atop the Clear Channel tower in Tulsa, Oklahoma.

The 25-year-old man, who allegedly hopped a barrier fence and scaled the 300-foot tower August 11, came down August 16, according to published reports.

Police said Sturdivant has a criminal record including burglary and drug convictions, as well as a history of mental illness. However, he was not believed to be suicidal.

Video from the early stages of the ordeal by *News9.com* and linked to *YouTube* can be seen at: < <http://bit.ly/oxXHk1> >. (Source: *Radiolnk.com*)

Eat, Drink and Be Nauseated

... And while we're on the subject of food and Tulsa: Several members of *The Billy Madison Show* on 106.9 Hits have filed suit against a local restaurant and cook because they think somebody intentionally tainted their food, giving them food poisoning.

According to Corey Deitz, of *About.com*, "The morning crew (was) eating lunch and allege the cook-manager went to a rival radio station's Facebook page and asked those followers what he should do to the food being served to the *Madison Show* crew. Honestly, it's hard to imagine morning radio personalities getting sick on anything after watching some of the things they eat out of the break room refrigerator." (Source: *Corey Deitz* at: < <http://bit.ly/mW8pPX> >)

'Where Are the Switches to Turn the Station Off?'

... And while we're tuned-in to *Corey Deitz*: He recently ran across a February 15, 1950 *Milwaukee Journal* story reporting that in York, Pennsylvania, Holmes Gibson was charged with disorderly conduct for trying to switch off a radio program he didn't care for — literally.

Seems Gibson walked 5 miles in the rain to the transmitter site of WORK where he met up with the engineer. "Where are the switches to turn the station off?"

"Gibson suddenly began darting from switch to switch," Deitz's posting said, "turning them off with the engineer right behind him switching them back on. Not able to keep up, the engineer went to a nearby home, retrieved a fellow employee, and finally stopped Gibson — who was arrested shortly afterward." (Source: *Corey Deitz* at: < <http://bit.ly/mW8pPX> >)



It's pretty hard to get a photograph while looking down on a meteor — unless you're NASA astronaut Ron Garan, aboard the International Space Station during August's Perseid's meteor shower. At the time, the ISS was passing over China. For a NASA video about the picture, visit: < <http://bit.ly/rkvcRn> >. (Courtesy of NASA)

News, Trends, And Short Takes

by D.Prabakaran
< bcdxer@hotmail.com >

Russia Loses Contact With \$265 Million Satellite

Russia reported it has lost track of a newly-launched, multi-million dollar telecommunications satellite — the latest in a series of setbacks that have dogged its space industry.

The \$265 million Express AM-4 satellite, described by its makers as the most powerful satellite ever built in Europe, was launched aboard a Proton-M rocket from the Russian-leased launchpad in Kazakhstan.

The Russian space agency said the first stages of the launch went smoothly but communication with the satellite was lost due to a failure of the Briz-M upper stage. It said experts were working to re-establish contact with the craft, built by Astrium, a unit of European aerospace group EADS, to provide digital TV, Internet and telecommunication services for Russia over the next 15 years. (Source: Reuters)

BBC Rampisham Transmitter Site to Close by Christmas

Babcock Engineering plans to close the BBC Rampisham, England shortwave transmitter site in Dorset by Christmas, with the loss of 19 jobs.

Listeners across the UK had been expecting bad news after the decision by BBC World Service in January this year to sharply reduce the number of hours of shortwave broadcasting and to end it altogether by 2014. (Source: BECTU)

VOA HQ Briefly Evacuated During D.C.-Area 'Quake

Among the Washington D.C. buildings and facilities evacuated as a result of the August 5.8 magnitude earthquake was Voice of America Headquarters, authorities said.

U.S. Geological Survey said it was the largest earthquake to strike the eastern part of the country since 1944.

During the VOA evacuation, normal broadcasting was briefly terminated when the ground began shaking. (Sources: Media Network, Voice of America)

BBC Radio 1 On SiriusXM Internet Radio

BBC Radio 1 was introduced to SiriusXM Radio listeners in August as part of a new multi-platform agreement with the BBC that brings subscribers additional concert performances from the broadcasting corporation's vault.

In addition to being available online, BBC Radio 1 programming will be broadcast on satellite radio at various times throughout the year, coinciding with major events in BBC Radio 1's program schedule.

SiriusXM will also broadcast concerts from the extensive and wide-ranging BBC Radio archive, many of which are not commercially available. Listeners will hear classic performances by Led Zeppelin, U2, Lady Gaga, AC/DC, Pink Floyd, Duran Duran, Queen, The Cure and other music legends. The concerts will air on various SiriusXM music channels. (Source: SiriusXM Radio)

Dutch Authorities Getting Tough With Radio Pirates

Radiocommunications Agency Netherlands will soon launch a new, tougher policy to deal with pirate radio stations, according to the *De Telegraaf* newspaper in the Netherlands.

If illegal broadcasters do not comply with orders to cease broadcasting, they face a fine of 2,500 euros within a half hour after they receive a warning letter.

It is the agency's latest move in a cat-and-mouse game with the pirates. It used to take months before someone was punished for illegal broadcasting. That has been reduced to several weeks, and could now be cut to one-half under the new policy.

There have been more than 1,600 warnings this year, with 60 people being fined — which can be levied against the owner of the land which is used for broadcasting, as well as the pirate.

Radio pirates have responded by increasingly using mobile stations as "nomadic broadcasters," and after receiving a warning letter simply move to a different place to transmit. The collapsible masts used for the broadcasts are sometimes more than 40-meters high (more than 130 feet). (Source: Published reports)

China Launches Communications Satellite for Pakistan

Pakistan's PakSat-1R geostationary communications satellite has been launched into space by a Chinese rocket from a site in southwest China, according to IBN Live.

The satellite carried a communications payload to facilitate several new services, including digital television broadcasts, broadband Internet,

(Continued on page 54)

Capitol Hill And FCC Actions Affecting Communications

by Richard Fisher, KI6SN

FCC Clarifies Elements of This Month's Nationwide EAS Test

The Federal Communications Commission has issued a Public Notice to clarify some details of the nationwide test of the Emergency Alert System (EAS) scheduled for November 9 at 2 p.m. Eastern Standard Time (1900 UTC) — including a Federal Emergency Management Agency (FEMA) transmission of a live Emergency Action Notification (EAN) code to all EAS participants.

The test will contain a notice to the general public that the EAS has been activated for a national emergency, as well, along with an audible notice that “this is a test,” according to a report by *Radio Currents* and posted on *radiomagonline.com*.

FCC clarification issues included that:

- The test will conclude with transmission of the End Of Message (EOM) code.
- The location code for the EAS test will be the code for Washington, DC.
- The test will last approximately three minutes.

FEMA worked with “selected states, EAS participants and equipment manufacturers to conduct statewide tests of EAS equipment and procedures in those states in advance of the nationwide test,” the *Radio Currents* story reported.

For the full online story, visit: <<http://bit.ly/n7R1RJ>>. For state-by-state information, visit the FCC site: <<http://bit.ly/o1WCRX>>. (Source: *radiomagonline.com*)

Genachowski Heaves Fairness Doctrine Into Trash

Among the 83 “outdated and obsolete” media-related rules FCC Chairman Julius Genachowski recently threw in the trash is the highly-controversial, politically-charged Fairness Doctrine, to which he has long been opposed and vowed to eliminate this year.

The doctrine is not currently enforced by the FCC and has not been applied for more than 20 years.

“The elimination of the obsolete Fairness Doctrine regulations will remove an unnecessary distraction,” Genachowski said. “As I have said, striking this from our books ensures there can be no mistake that what has long been a dead letter remains dead.

“The Fairness Doctrine holds the potential to chill free speech and the free flow of ideas and was properly abandoned over two decades ago,” he continued. “I am pleased we are removing these and other obsolete rules from our books.” (Source: *RadioInk.com*)

Spectrum ‘Incentive Auctions’ Absent From Debt Ceiling Agreement

The debt ceiling agreement Congress reached in late July does not contain a proposal by Democratic Senate Leader Harry Reid (D-Nevada) that would have grant-

ed the FCC authority to conduct incentive auctions of broadcast TV spectrum with limited protections for TV station operators who choose not to participate in auctions, *TVNewsCheck.com* reported.

Quoting Gerry Waldron, a communications attorney with Covington & Burling, which represents the CBS and NBC affiliate organizations, the story said that “incentive auctions are not dead — that is the one thing we can be sure about.” He and other broadcast industry lobbyists believe the debate will resume “as members of a newly created House-Senate select committee begin looking at ways to come up with a \$1.5 trillion deficit reduction package by Thanksgiving.” The deficit reduction package is set for a December vote. (Source: *TVNewsCheck.com*)

New York Declares War on Radio Pirates

Operation of an AM or FM radio station without a license in the state of New York will be treated as a Class A misdemeanor, giving local law enforcement a “tool to protect consumers and stem the tide of illegal radio operation” in the state, according to a report on *RadioInk.com*. New York Gov. Andrew Cuomo signed legislation in August.

“New York’s licensed radio stations serve their local communities by providing life-saving information during emergencies, daily news and entertainment,” said David Donovan, president of the New York State Broadcasters Association, said in the *RadioInk.com* story.

“Unfortunately, many consumers cannot receive emergency information or enjoy their favorite radio station because of technical interference from illegal operators,” he said. “Unlicensed operators simply ignore consumer protection laws and the public interest responsibilities that guide every licensed radio station throughout the Empire State.” (Source: *RadioInk.com*)

Commission Considers Credit for Lifetime Amateur Radio Exams

The FCC is considering a petition by the Anchorage Volunteer Examiner Coordinator (VEC) to grant lifetime credit for amateur radio exam elements passed in earning licenses that subsequently expired and were not renewed during the two-year grace period.

According to *Amateur Radio Newslines*, the petition asks that the FCC permit volunteer examiners to give former holders of Technician, General, Advanced and Extra Class licenses appropriate element credit so they can obtain new licenses without retaking the examinations.

The Anchorage VEC says this is in the public interest because it would result in the immediate expansion of the pool of experienced operators who would be available in times of emergency. Currently, FCC rules permit lifetime credit for Element 3 (the General exam) only to holders of Technician licenses that expired prior to March 21, 1987. The comment period on the petition closed August 19. (Source: *CQ Newsroom* <<http://www.CQNewsroom.blogspot.com>> and *ARN*)

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The Next Revolution in Cable TV, Part I

by Rob de Santos, K8RKD
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Unless you are one of the few readers who don't own or watch television (and yes, some of you are out there), you probably are in the majority who have TV programming delivered by a cable.

Some changes are coming in your cable television, and this time around we'll take the first part of a two-part look at those changes. (We'll deal with other TV delivery methods in future columns.)

The biggest change driver in the cable TV world is probably "the cloud." For those in computer-related industries you probably know exactly what that means. For the rest, here is a simplified explanation:

The Internet provides us with millions of connected computers and indirect access to computer servers and storage sites. "The cloud" refers to using those servers and storage sites as an alternative to storing information locally on your computer's hard drive — or in the case of TV, in your cable box.

TV in the 'Cloud'

Today, most of the recorded programs and information used by your cable box, DVR, or other set-top box is probably downloaded and stored in the box. Hence, when the programming is changed, the box must download an update to the on-screen guide. This requires the cable company to send it to every box and customer connected to the system.

If you record a program, it is stored in the box. When using "the cloud" as storage, the information is likely on a computer server controlled by the cable company and changes need only be made in one place.

Recordings need only be stored once and that one copy can feed every customer who wants to watch it. That's more efficient for the company and, most importantly, cheaper, since the set-top box no longer needs a huge hard drive to store all that video.

Is there a downside? Yes, because you lose some control over that material and the system still needs to track the preferences and details for each customer. For example, I may have watched only half of a program and then pressed the pause button. Somewhere, either in your set-top box or at the cable company, a record must be made of that information so you can resume where you left off.

Big Bang for the Buck

The biggest consumer benefits of this change will be the greater use of Internet technologies and interfaces on the screen, making navigation more familiar and further merging TV viewing and the computer.

Features such as advanced searching, more personalized features, better interactivity, and so on, will be possible. Several major cable companies are

moving in this direction with Cablevision probably leading the way. If you get a new set-top box from Cablevision today, it is likely to be a PVR (or personal video recorder) which saves everything on Cablevision's server — and not the box.

The Quest for Omnipotence and Speed

Another revolution in cable is the recognition that we want access to our programs everywhere, at any time. "TV Everywhere" is something you may already have heard about or even experienced.

There is a mad rush among cable and satellite companies to make your programming available on your iPad, your smartphone, your computer, et al. There are still considerable legal questions that need to be resolved, but the momentum is already too great to stop this from happening — even if some program creators or copyright holders aren't too thrilled.

Speed. It's all about speed. Despite the debate in government about the speed of Internet connections, the move to big increases in broadband speeds over cable is already underway.

More and more cable customers are now being offered speeds of 30, 50 and even 100 megabits per second. The higher-end speeds are still expensive but rapid adoption will almost certainly cause the price to drop over time. Average Internet speeds worldwide are expected to quadruple over the next four years.

Bandwidth Challenge

In order to deliver that speed increase, more bandwidth is needed. *Sound familiar?*

To get this increase in bandwidth, many cable operators will finally make the switch to all-digital systems. The death of analog cable is not far away. Now, more than two years from the great "digital switch" in broadcast television in the U.S., many cable operators are approaching the day they will no longer be required by regulation to offer analog service.

In addition, with more than half of the households now having at least one HD (high definition) television, the need for analog service is decreasing. In fact, even without action on the part of the cable industry, the number of analog-only subscribers is declining rapidly.

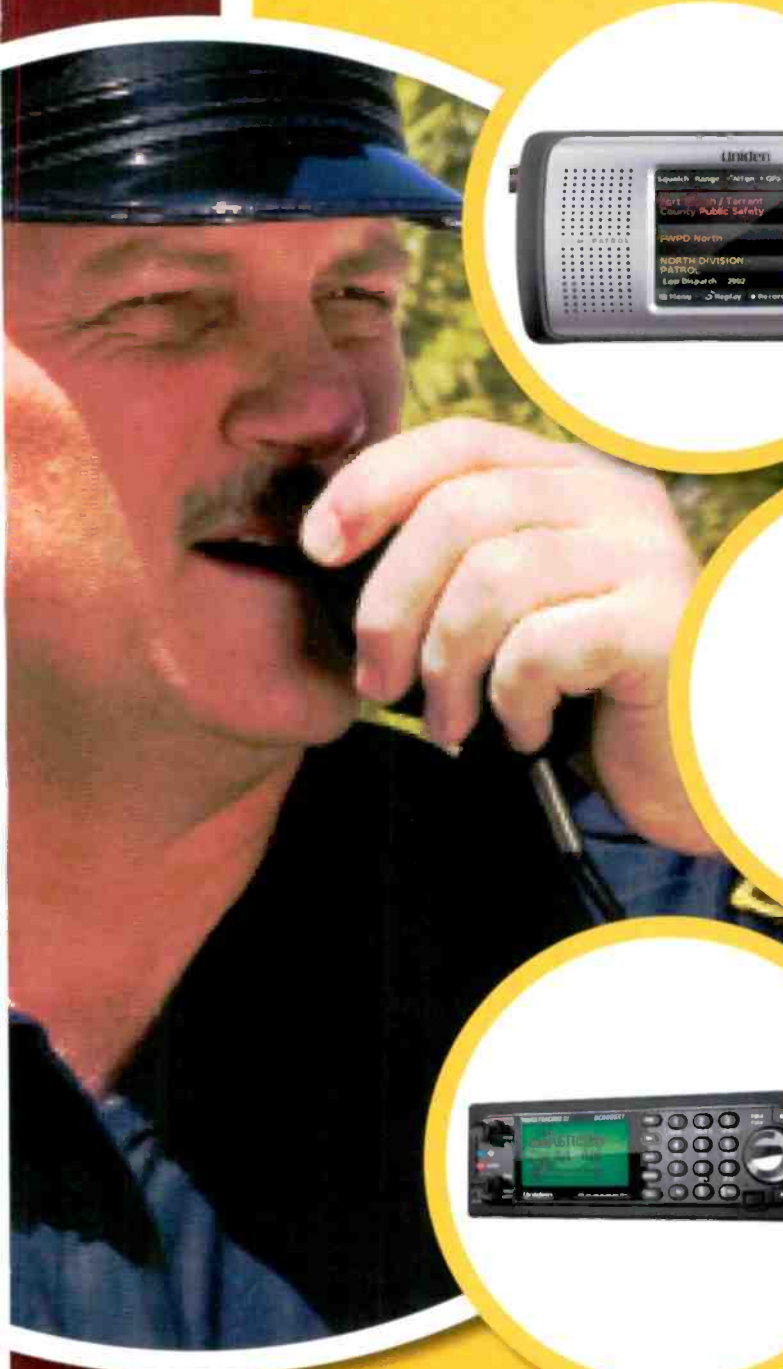
For several major cable companies, 75 percent or more of the customers are already digital.

I'll have more on the future of cable and TV next month. Where do you think your cable service is going? Drop me a note by e-mail, post, Twitter, or even over the air. I look forward to hearing from you.

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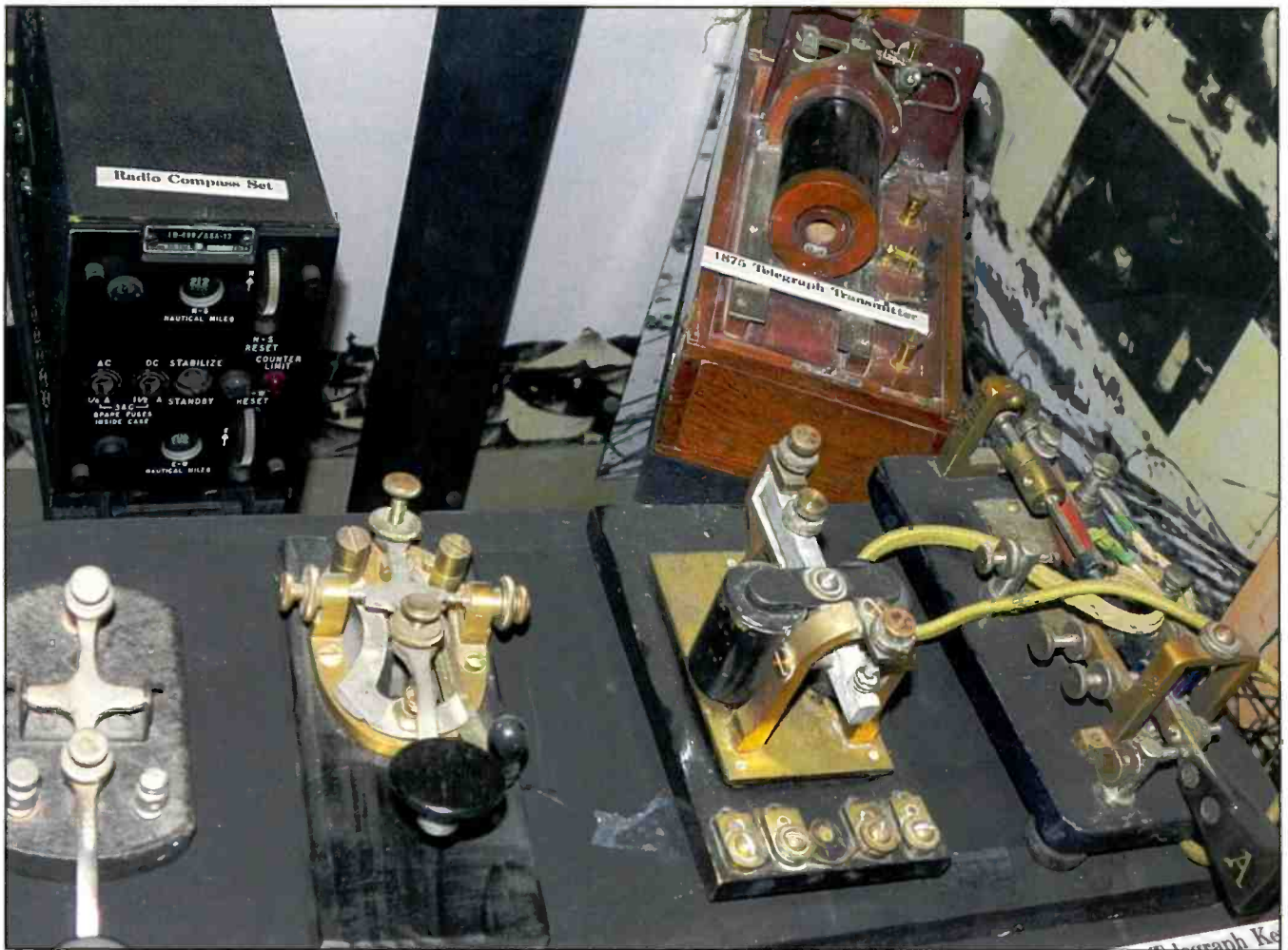
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Early communications devices displayed at Fort Huachuca Annex include a radio compass set, upper left; an 1875 telegraph transmitter (upper right), and an assortment of telegraphy devices. (All photographs courtesy of Roy Stevenson)

Marching Triple Time Through Military Intelligence Communications History

Three Museums At Fort Huachuca Tell the Story in Remarkable Detail

By Roy Stevenson

The thing that always strikes me when I walk through communications museums is how far military radio communication has come in the past 150 years.

From Apache scouts to heliographs and telegraphs, from spy receiver-transmitters hidden in suitcases to bouncing signals off the moon, and via satellite, there are always exciting and intriguing stories that accompany the development of military communications.

And nowhere in the United States is the remarkable evolution of military communications equipment, strategies and spyware shown better than in three museums in southern Arizona's Fort Huachuca, on the outskirts of the city of Sierra Vista.

The U.S. Army Intelligence Museum, the Fort Huachuca Museum, and the adjacent Annex (also a museum), all located within a few minutes' walk of each other on the hilly, sun-bleached grounds of this sprawling military base, offer two or



Heliograph signal lanterns were still being used in 1886 to transmit messages from hilltop to hilltop.

three hours of fascinating viewing for the military signals aficionado and radio enthusiast.

As the Intelligence Center for the U.S. Army since 1971, Fort Huachuca's missions are to provide trained manpower for intelligence gathering and to develop and test the U.S. Army's intelligence systems and equipment.

What You'll Find in the Museums

Since the arrival of the U.S. Army Intelligence Center, the Fort has accumulated and inherited hundreds of historic U.S. military intelligence signals artifacts that show the technical progression of this field.

Intelligence veterans donated virtually all of the signals intelligence artifacts over the years. The museum inherited several racks of field station equipment including the R-390 receivers, oscilloscopes, spectrum analyzers and recorders — all when the Army closed Fort Devens, Massachusetts in 1991.



A Chinese shortwave radio monitor, left, and U.S. barrage jammer.

A wide array of radios, transmitters and wireless telegraphs are displayed. Some interesting security artifacts — such as codebooks, code and cipher machines, direction-finding sets, and signal jammers — will also catch your eye. And for those interested in spy equipment, there are surveillance devices, electronic tools and concealed radios for secret agents.

Finally, for those interested in high-tech surveillance equipment, you'll find one of the first radio-controlled surveillance drones.

Early Military Comm Gear

Intelligence arts were practiced in every war U.S. forces have been involved in — including the Revolutionary War. Both the English and George Washington had spies.

Union Army General Albert Myer, known as the father of the U.S. Army Signal Corps, started this organization during the Civil War and was its first chief signal officer. From this organization would eventually grow U.S. Army Signals Intelligence.

General Myer's was an interesting era in military communications — where a combination of primitive methods and new technology were being used simultaneously.

Men still climbed towers and waved semaphore flags to one other and cavalry scouts were sent out on long-range reconnaissance missions to gather intelligence. But in 1863 during the Civil War, officers used the telegraph to provide communications between major headquarters. Known as the Beardsley Magneto-Electric Telegraph set, these early telegraphs were hand operated and did not use batteries.

Their signals were sent over several miles of insulated wire — there's an original Beardsley Telegraph displayed at the museum.

In 1875, telegraph transmitters were undergoing experimentation, but even in 1880, Army Apache scouts were recruited for long-range scouting missions. And even as late as 1886, heliographs — signal mirrors that used flashing sunlight reflected from mountain peak to hilltop to transmit messages — were employed during the Geronimo Campaign.

Invented by Briton Sir Henry Mance (1840-1926) of the British Army Signal Corps in 1860, the heliograph was tested by U.S. Army Major W. Volkman at Fort Huachuca in the late 1880s.

Then in 1898, the Signal Corps used its first radio or wireless telegraphy in a 110-mile link that was part of the Alaskan communications system. Field radios and

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AR8600 Mark II Wide-Range Desktop Receiver

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If you ask the curator at the Military Intelligence Museum, he'll show you the back storeroom crammed with outdated signal machines and computers.

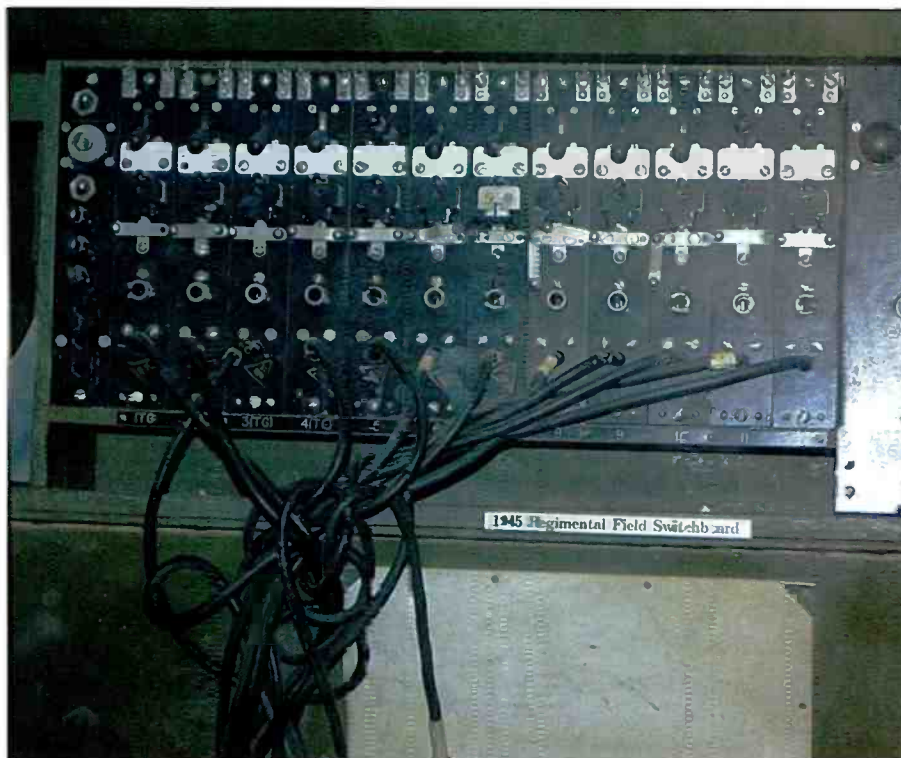
aircraft radios were also developed prior to World War I. Signal Corps researchers created more efficient vacuum tube radios and superheterodyne circuits, of which several are on display at the museums.

World War I

By World War I, intelligence had become recognized by General Pershing, Commander of the U.S. Expeditionary Force, as a critical element of war, and G2 intelligence officers were placed throughout the command structure. Within infantry battalions, a G2 could call upon a reconnaissance platoon of 15 scouts, 11 observers and two snipers.

At the corps-level in World War I, the G2 could rely on the use of observation posts, balloons, aero squadrons, flash and sound ranging teams to target and suppress enemy artillery.

These devices enabled intelligence officers to look 5 miles behind the enemy front lines — a far cry from the hundreds of miles that remotely-piloted vehicles and spy satellites now venture behind and above enemy lines. Radio intercept teams



The museum has a WWII-era regiments field switchboard as part of its display.

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also tapped the telephone wires strung across the battlefield and listened to German communications.

It was also during World War I that the U.S. Army began paying serious attention to communications security (COMSEC). No army wants the enemy to intercept its messages for obvious reasons, so two-part codes were compiled. You'll see two historic codebooks in the museums. Called the "River" and "Lake" codes, they were distributed down to the regimental level. Because the Germans could break the codes, they were changed every two weeks.

You'll also see an M1914 Service Buzzer, a portable instrument used as a telephone or for sending Morse code signals during World War I.

The Interwar Period

From 1919 to 1939 — the interwar period — research began on radar for military use. Major Edwin Armstrong developed a frequency modulated (FM) radio that would revolutionize radio communications. A device displayed in the museums called an Instructograph was used to train U.S. Army soldiers in Morse code intercept in the 1920s.

World War II

World War II proved to be an "intelligence war" and thousands of men and women were engaged in intelligence-related work in many different disciplines. As a result, many innovations were made that would be used and improved upon in future

← The Hagelin M-209 cipher machine was used by the U.S. Army and Navy from WWII until after the Korean War.



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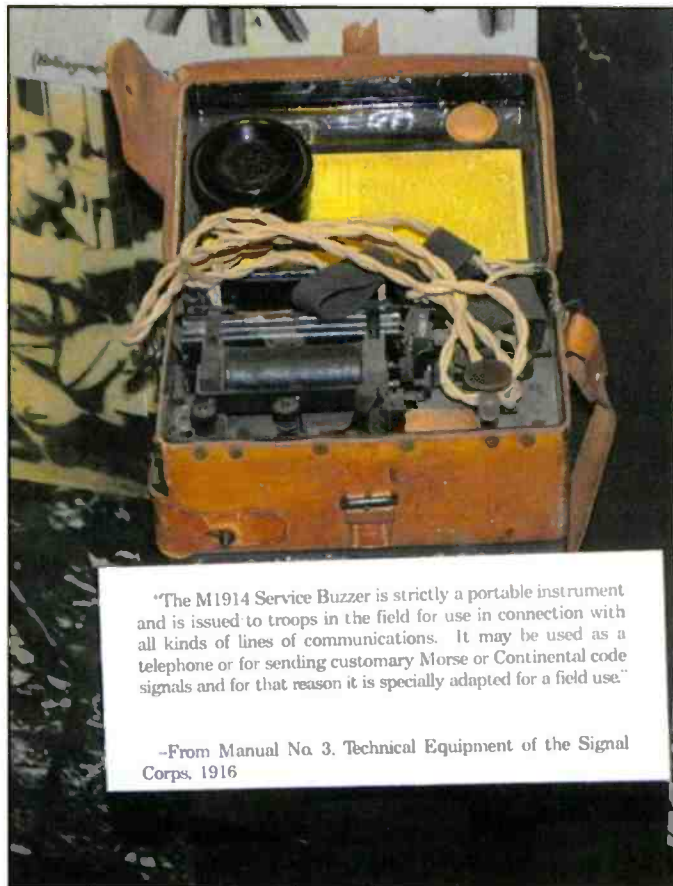
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"The M1914 Service Buzzer is strictly a portable instrument and is issued to troops in the field for use in connection with all kinds of lines of communications. It may be used as a telephone or for sending customary Morse or Continental code signals and for that reason it is specially adapted for a field use."

-From Manual No. 3. Technical Equipment of the Signal Corps, 1916

An M1914 Service Buzzer was used as a telephone or for Morse code transmission.

conflicts and that would have great applications for civilian communications later on.

Several schools across the country were set up to train intelligence personnel. The Signals Corps operated its Signals Intelligence (SIGINT) School for officers and civilians at Arlington Hall, while enlisted personnel were trained at Vint Hills Farms in Warrenton, Virginia. A total of 19,669 intelligence specialists were trained.

A museum reader board tells how General George S. Patton relied heavily on his G2, Brigadier General Oscar Koch, for intelligence estimates and opinions. Koch's information made a big difference to most of Patton's combat operations, forming the first tactical application of intelligence to modern warfare.

General Douglas MacArthur retained his trusted World War II intelligence chief, Major General Charles Willoughby, to manage the multidisciplinary intelligence system in the Korean War.

A remarkable artifact displayed at the Intelligence Museum is a German Enigma code machine that the Nazis used to safeguard their messages. These very rare and historic devices are typewriter-sized electro-mechanical cipher devices with a dramatic story.

The German High Command believed that the Enigma was unbreakable. Indeed, decoding the Enigma machine was a mammoth job. Consider these figures: the three rotors of the most common type of Enigma machine permitted 1,560,000 permutations for each character! Additional security was provided by a plug board that further scrambled each letter. Message keys were changed every 24 hours.

Despite these formidable challenges, an eclectic group of British cryptanalysts working out of drafty, temporary wooden huts at Bletchley Park, just north of London, managed to break the Enigma code.

The fact that the Enigma system had been broken was kept secret for 30 years and only declassified in 1974. The intelligence obtained from decrypting Enigma messages was known as ULTRA and was disseminated under strict control.

When the U.S. joined the war in 1941, the ULTRA information was shared with U.S. intelligence officers. ULTRA gave Eisenhower and his subordinates an

insight into the workings of the German High Command and its information intercepts played a major role in tactical and strategic planning by the Allied forces. Some experts claim that the ULTRA advantage may have shortened the war by six months.

World War II Counter Intelligence Corps

Specialists from the secret Counter Intelligence Corps, originally formed in 1917, and trained in counterintelligence at the U.S. Army Investigative Training School in Chicago, did some interesting

work in the European Theater of Operations in World War II. Once U.S. forces had occupied a German town or city, these little known specialists would seize radio stations and telephone switchboards and halt all communications emanating from it. Civilians were forced to turn over communications equipment to these signal corps personnel.

These strict measures were used because the U.S. Army did not want German switchboard operators or civilians phoning ahead to German soldiers in the next city, telling them that U.S. forces were approaching.

Other notable World War II artifacts in the museums include a Hagelin M-209 cipher machine. Used widely by the U.S. Army and Navy from late 1942 until after the Korean War, these devices were used for sending tactical messages at division level and below. They would encipher plain text on a paper tape into five-letter groups, or decipher messages that had been encrypted by another M-209, printing out the text on a paper tape with proper spacing between words.

Military Intelligence Comms Gear in Korea

The North Korean Army was lax in protecting its communications from intercept, and the U.S. signals intelligence capitalized on this. Information collected on the ground was credited with saving General Walton Walker's Eighth Army during the last ditch stand in the Pusan Perimeter.

His signals intelligence told him in advance of every North Korean planned attack, so he was able to shift his meager reserves to the critical points to strengthen his defenses.

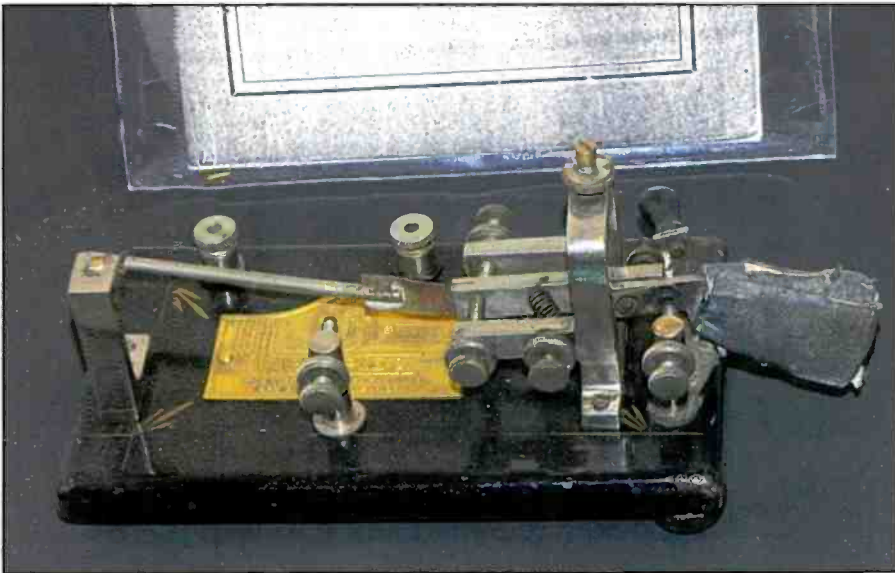
Fortunately, the U.S. Army maintained good communications security using the M-209 code converter in its message tactical centers — you'll see an M-209 displayed at the museums.

The Korean War saw two other military radio innovations: the use of barrage jammers and direction-finding equipment.

Barrage jammers were devices that could jam multiple enemy radio frequencies simultaneously to disrupt enemy command and control radio communications.

Innovations During the Vietnam War

The AN/PRD-1 Direction-Finding Set was used to detect the transmitting location of enemy radio signals. It could pick



A semi-automatic Morse code "bug" telegraph is on display in the Fort Huachuca Annex.



This Mercedes Gelandenwagen was used by U.S. Army Intelligence officers on observation missions.

up continuous wave (CW), interrupted wave, frequency-modulated (FM) and amplitude modulated (AM) signals, and by rotating the antenna to determine maximum signal strength, home-in on enemy radio sources.

The AN/PRD-1 could be mounted on jeeps and trucks for mobility.

An exhibit at the Intelligence Museum shows a full-sized soldier mannequin operating an AN/PPS-5 ground surveillance radar. In the Vietnam War, three-man teams using this equipment could detect people moving up to 3-miles away and spot vehicles more than 6-miles away. This device was used to detect enemy movements and provide early warning of attacks.

Spying Communications Equipment

One of the most intriguing galleries at the Military Intelligence Museum features an impressive array of cloak and dagger spy equipment. In spy parlance, these specialized tools and techniques are called *tradecraft*.

Spying devices are used to measure the electronic emanations of weaponry, to listen to enemy communications and to check rooms for surveillance devices — all very *James Bond-esque*.

Several examples of concealed spy equipment provided by the Intelligence Material Division stand in glass cabinets in the Intelligence Museum. This special organization within the U.S. Army intelligence community would procure, customize or fabricate devices to meet the

needs of counterintelligence operations. Much of this equipment was classified until the end of the Cold War in 1989.

Concealed communications equipment was necessary for spies to report information from behind enemy lines and to prevent their capture, interrogation and torture. A thermos bottle is displayed in the museum, which concealed communications devices, recorders and transmitters.

A display of historic secret agent radios shows the evolution of transmitting instructions and reports to and from enemy territory. The first of these — used in the 1950s — relied on a Morse-code

sending key. However, by using triangulation, enemy security forces could close in on the source of the signal, making transmitting a risky business. Successive models allowed voice communications but still carried risk of discovery if the agent stayed in one place for too long.

Another transmitting device displayed in the museum, called Caber Aztec, used a solar-powered collector as a power source, with a transmitting range of 100 miles.

But the most important improvement was a transmitter fitted with computerized storage capacity. The agent could



Here's a view of a soldier operating the ANPPS-5 Ground Surveillance Radar.



Here's an example of what the display galleries look like at the Fort Huachuca Museum.

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precode and record a message, stash the radio in a safe place such as behind a wall or in a tree in a public area. Later, he could walk past it and activate it with a hand-held transmitter. This radio could be programmed to relay the message at a later time. Designed to save agents' lives, these devices meant that agents would never have to risk being caught in the immediate vicinity of the radio at the time of transmission.

Military Communications Enters the Space Age

On January 10, 1946, the U.S. Army Signal Corps opened up space to military communications by bouncing radio signals off the moon. Man-made satellites followed with launch of Vanguard I in 1953.

In 1960, the world's first active repeater satellite — Courier I-B — was launched and began receiving, storing and trans-



The concealed receiver-transmitter rearview mirror mounted in U.S. Army reconnaissance vehicles was used for emergency distress signals, if attacked.



A spy thermos bottle concealed recorders and transmitters in James Bond-esque fashion.



The German Enigma code machine has a dramatic story all to itself.



Several portable spy radios are on display in the Military Intelligence Museum in Arizona.

mitting voice and telegraph messages at a rate of 67,000 words per minute.

Satellite communications now made possible a direct communications link between Washington and Moscow and a worldwide Defense Communications System (DCS) used by the U.S. Department of Defense for day-to-day operations and wartime communications.

Unmanned Aerial Vehicles

Standing in a corner of the Military Intelligence Museum is a beat up 1957 SD-1 surveillance drone. The Combat Surveillance Department of the U.S. Army Electronic Proving Ground (USAEPG) conducted testing and development with these drones in 1955.

The radio-controlled spy plane on display was used from 1957-1961. This prototype Unmanned Aerial Vehicle (UAV) was used for photo surveillance and had a 12-foot wingspan with an air speed of 228 mph and a maximum altitude of 23,000 feet. The SD-1 was recovered by parachute, which would account for the scratches and dents in the display model's fuselage.

The SD-1 was the forerunner to what are now called Unmanned Aircraft Systems (UAS) — and sometimes Remotely Piloted Vehicle (RPVs) — which are used for laser pinpointing of targets, air attacks and surveillance. There are over a dozen UAS models in service today.

Other Noteworthy Equipment

A final oddity worth noting at the Intelligence Museum is a specially-made



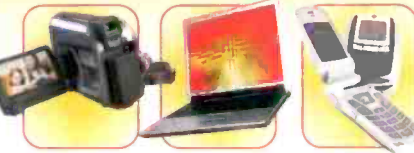
This rather beat up SD-1 surveillance drone is a forerunner to the Unmanned Aerial Vehicles we see today.

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rear view mirror that was placed in reconnaissance jeeps that operated in East Berlin. The mirror concealed a radio, transmitter and antenna to relay signals sent by U.S. Army officers. It would relay distress signals sent by U.S. Army soldiers who were threatened or attacked when on observation missions. The mirrors looked exactly like the standard Mercedes Gelandenwagon mirror.

The mirrors were made after a Soviet sentry gunned down Major Arthur Nicholson, a military intelligence officer, in 1985 while on an observation mission. These reconnaissance missions were allowed under a long-standing international agreement between NATO and the

Soviets, but they could obviously be very confrontational.

The museum complex is a testament to how much military intelligence depends upon surveillance and electronic warfare to be able to operate properly.

In modern warfare, the force that has the fastest, most accurate intelligence and the most secure radio communications will generally win — and U.S. Army communications have led the world in military signals development, saving countless lives on the battlefield.

These museums are a walk through the Pantheon of military intelligence communications and offer some outstanding displays of communications equipment that illustrates the technological revolution in military intelligence.

When you visit these museums, be sure to phone ahead for an appointment and for permission to enter Fort Huachuca.

Your tour would start best at the Fort Huachuca Museum — for a general introduction to the base.

Then visit the Annex, which has some of the earliest communications artifacts.

Finally, end in the Military Intelligence Museum to see more modern intelligence and communications equipment. This sequence would give you a historical overview in the best chronological order. For up-to-date information about the museums at Fort Huachuca < http://bit.ly/pV_Vue2 >

The author would like to gratefully thank Katharine Schmidli, Director, Fort Huachuca Museum, for her assistance with this article.

Listening to a Dream: DXpedition to the Top of the World

You, Too, Can Venture Across the Finnish Line in the Arctic Circle

by Bruce A. Conti
< contiba@gmail.com >

“If you don’t mind traveling, this is a unique chance to experience a (shortwave listening) DXpedition of a lifetime — without the hard work.”



For decades, intrepid AM broadcast band DXers have imagined listening from famous Arctic DXpedition sites such as Kongsfjord, Norway and Lemmenjoki, Finland. Now that dream can become reality, thanks to the work and dedication of DXers in Finland who have opened what is perhaps the world’s first broadcast band DXpedition-specific site.

A team of eight DXers — Markku Jussila, Martti Karimies, Olli Kilpeläinen, Mika Mäkeläinen, Lauri Niemi, Jaro Salmi, Jari Sinisalo, and Jim Solatie — have completed construction of a new site in Aihkiniemi, Finland. Now they invite the DX community to experience DXing, Finnish style.

“Going on DXpeditions has always been difficult: Finding the right place, dealing with the interference, getting permission for the antennas, and the hard work of actually putting up the antennas. Not any more!” writes Mika Mäkeläinen.

“Now we have just the right place in the Finnish Lapland,” he said, “tested and found to be excellent for AM DXing and equipped with a huge array of 1-kilometer-long (about 3,280 feet) Beverage antennas.

“You may have already read about the hundreds of legendary DXpeditions made to the Arctic since the 1970s. Now you can join the fun! We built ‘Aihkiniemi’ last summer for ourselves. But we can’t be there all the time, so we are also offering it for rent to fellow DXers from around the world,” Mika said.

“If you don’t mind traveling, this is a unique chance to experience a DXpedition of a lifetime — without the hard work.”

Where in the World?

The DXpedition site, located in Aihkiniemi, Finland (69°14’ North, 27°52’ East) is within the Arctic Circle, so the best time of year for DXing is either late autumn or early spring, when the midday sun barely rises; or through the winter, when the sun remains below the horizon.

As you can imagine, be prepared for cold Arctic weather during the sunlight-deprived DX

season. Unfortunately the warmer months are not the best for DXing. The AM band is silenced by 24/7 daylight in the summer.

Despite typically snowy weather, Aihkiniemi remains quite accessible through the winter. Mika suggests booking a flight on Finnair or Norwegian Airlines to the capital city of Helsinki, Finland, connecting with a local flight on either airline to Ivalo where a four-wheel-drive vehicle can be rented for the two-hour trip north on Route 4 to Aihkiniemi.

To avoid the crowds, keep in mind that peak winter travel is during Christmas, New Year’s and through the February school break. “All public roads in Lapland are open through the winter and are well kept,” Mika said. “But they will still be icy and snowy.”

For a complete DXpedition vacation, Mika recommends the Saariselkä ski resort just south of Ivalo, as well as spending some time in Helsinki to enjoy cultural and nightlife activities.

Cozy Cabin

The Aihkiniemi DX cabin comfortably accommodates two DXers at a time, but don’t expect much in terms of privacy. As you can see in the accompanying photograph, it’s a simple two-room cabin with electric heat.

One room has two beds, while the other serves as the DX den and kitchenette outfitted with basic electric appliances. There is no running water. There is a high-tech composting toilet between the two rooms.

Cottages with running water at Lake Nitsijärvi are available for non-DX rental or just a quick, hot shower. The lake is near the Norwegian border, about 15 kilometers from Aihkiniemi.

Drinking water and groceries can be picked up in Ivalo, along with additional winter gear, should you be under-prepared, before driving north.

Flashlights and batteries will be needed for occasional power outages. AC power in Finland is 220 volts using the two-prong, ungrounded Type C Europlug or grounded Type E/F Schukoplug outlet.



A Beverage antenna wire is supported by a tree along a lakeshore in the scenic wilderness of Aihkiniemi, Finland. (Photographs courtesy of Mika Mäkeläinen)

Laptop computer external switching power supplies will usually operate automatically on anything from 100 to 240 VAC, and the internal power supplies of most high-end communications receivers can be set for 120 or 240 VAC operation with the flip of a switch, so you would only need an adapter to convert from an American plug to a Finnish receptacle. Otherwise you'll need converters to step-down from the Finnish 220 to the American 120 volts.

An American power strip can be used to power more than one piece of equipment from a single AC converter. Necessary adapters or converters should be purchased before traveling to Finland. They're available from any number of online retailers.

Now that you have a general idea of what to expect, it's time to get down to the business of DXing.

Global Beverage Antenna Array

Yes, you can hear the world on AM radio from Aihkiniemi. A total of 11 Beverage antennas have been erected at the site, aimed toward specific targets around the world on selected bearings:

- 250° to Spain, United Kingdom, Brazil, Argentina, Uruguay and Paraguay

- 270° to Venezuela, Colombia, Ecuador, Peru, Bolivia, Chile and the eastern Caribbean
- 290° to east coast North America, Cuba, Puerto Rico and Central America
- 305° to the Great Lakes and midwestern regions of North America and to Mexico
- 325° to the Prairie states, Rocky Mountains, and western Mexico
- 345° to the upper west coast of North America and Alaskan panhandle
- 5-10° to Alaska, Hawaii and the Pacific
- 30° to the Pacific and New Zealand
- 51° to Siberia, Japan, Korea, eastern Australia, eastern China and the rest of eastern Asia
- 71° to China, southeast Asia, Thailand, and western Australia
- 100° to India, Pakistan, Thailand, south Asia and the Middle East.

As is often the case with Beverage-length antennas strung through the wilderness, it's reasonable to expect that an antenna or two might be knocked out of service at anytime by wildlife and rough weather. Moose and reindeer are common.

DXers should plan on hiking through the snow to inspect the

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By Mike Richards, G4WNC



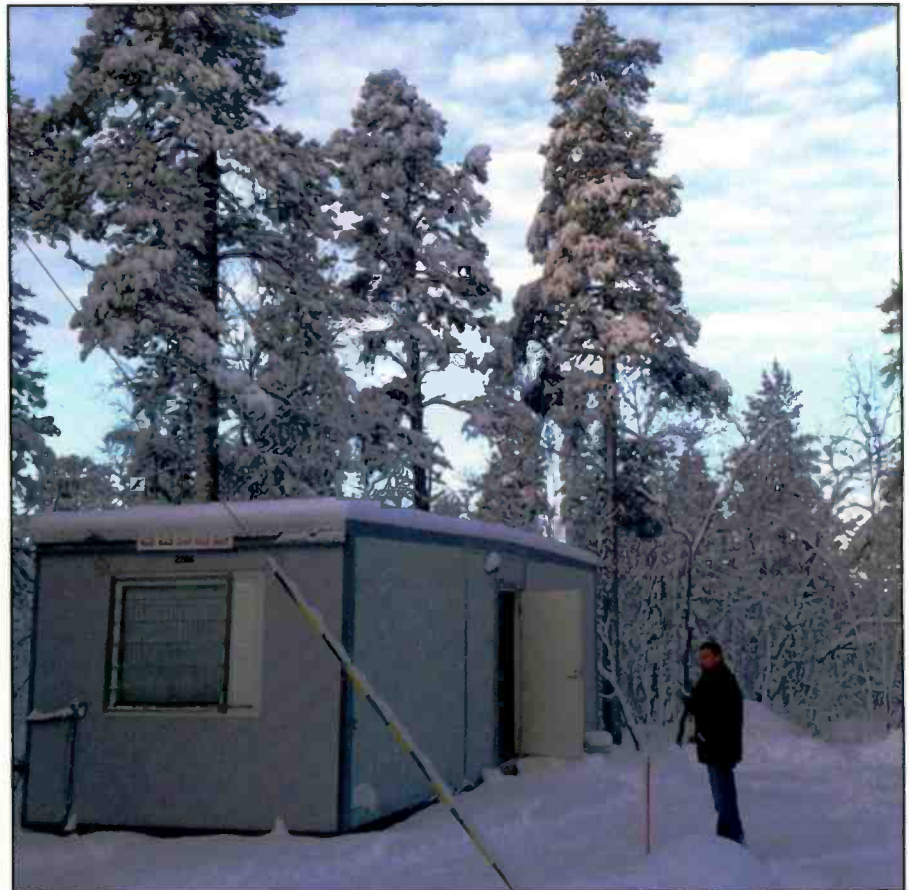
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Jim Solatie stands outside the Aihkiniemi DX cabin.

antenna array and make repairs at some point during their stay.

Non-Stop DX Excitement!

Sleep is optional when DXing from the Arctic. DX signals can be heard around the clock under favorable solar conditions.

Reception of New Zealand and a 10-watt highway advisory radio station in Alaska are among the milestones already achieved at Aihkiniemi.

While DXpeditioning in October, WQLE259, Prudhoe Bay, Alaska, was heard broadcasting the weather forecast on 1610 kHz. During the same October

This Month in Broadcast History

75 Years Ago (1936): The Canadian Broadcasting Corporation was established as a result of the Canadian Broadcasting Act. WBRU signed on the air from Brown University in Providence, Rhode Island, the first student owned and operated college radio station in the U.S.

50 Years Ago (1961): "The Lion Sleeps Tonight" by The Tokens topped the 1580 KDAY Los Angeles music survey.



25 Years Ago (1986): The National Radio Systems Committee released NRSC-R12 "Considerations for a 10 kHz Transmission Bandwidth in AM Broadcasting" which proposed standards regarding pre-emphasis and low-pass filtering in the broadcast chain to address modulation, over-modulation and occupied bandwidth concerns.

— Bruce A. Conti

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Jim Solatie listens for broadcast DX signals while capturing RF spectrum on a laptop computer connected to a Perseus software defined radio (SDR) receiver.



DXpedition, Newstalk ZB was logged at 1108 UTC on 1035 kHz along with Southern Star at 1207 UTC on 657 kHz, both from New Zealand. Hearing New Zealand was a first for Mika Mäkeläinen.

A typical DX session begins in the morning between 0430 and 0600 when reception conditions have been productive toward much of the western hemisphere — especially to the Rockies and midwestern U.S., including impressive graveyard

Marti Karimies and Jim Solatie install a Beverage antenna during construction of the Aihkiniemi DX site last year. →



A reindeer crosses a snow-covered roadway, a common sight in the Lapland region of Finland.

signals from 1230 KYSM Mankato, Minnesota, 1240 KASL Newcastle, Wyoming, and 1340 KTOQ Rapid City, South Dakota.

Later in the "day," 0700 to 1000 UTC reception shifts to the Rockies and Pacific Northwest with 1240 KQIK, Lakeview, Oregon; 1340, Corvallis, Oregon; 1400, KQMS, Redding, California; and 1400, KART, Jerome, Idaho, among the more notable catches.

The six graveyard frequencies of 1230, 1240, 1340, 1400, 1450 and 1490 kHz are so-called because approxi-

mately 200 1-kW radio stations are assigned to each of these channels in the U.S., thus making them especially challenging targets.

Some signals from the Pacific Northwest and Alaska on other frequencies could be heard all day. The most common Hawaiian signals have arrived from over the pole by 1230 UTC, with 1570, KUAU, Haiku "booming like a semi-local" on one occasion.

Favorable tropical conditions to the Caribbean and Latin America have occurred during Aihkiniemi sunrise when

European interference subsides and Pacific Northwest reception has been lackluster. A brief opening after 0500 UTC one morning produced Radio Comercial, Dominican Republic, on 1010 kHz as one of the more exotic catches among the Cubans, Brazilians and Argentines, before propagation shifted further west toward Mexico and the Pacific Northwest.

Although solar activity is associated with improved reception from the tropics for DXers at temperate latitudes, a significant solar storm can shut down any AM broadcast reception in the Arctic for extended periods, a definite risk for such a journey.

During the 1100 to 1400 UTC time period or late afternoon, the first signals rise from the Far East to Australia. Exceptional logs include HLKH, Gwangju, South Korea, on 747 kHz; AFN, South Korea, on 1080 kHz; JOLC, Japan, on 1125 kHz; Kungchuling, China, on 1485 kHz; and "Hot Country" from Australia on the offset frequency of 1628.958 kHz.

Yet-to-be-identified rare Philippine signals have also been tentatively logged, while DXers are still busy dissecting software defined radio spectrum captures from the Aihkiniemi proof-of-performance DXpeditions.

The Americas start to regain momentum by the evening or 2100 UTC with Brazilian and North American signals fading in while European skywave signals are strong — a good time to activate automated recording equipment and catch some sleep before doing it all over again beginning at 0400 UTC the next day.

Contact Info

With compilation of extensive files ongoing from the first of the Aihkiniemi DXpeditions, detailed logs were unavailable at the time of this writing.

For updates from Aihkiniemi, interested DXers may stay tuned online at: < <http://www.dxing.info> >. There you'll find more information, as well, about DX cabin rental, travel tips, and additional DXpedition accounts.

To inquire directly about Aihkiniemi cabin availability, contact Jari Sinisalo by email at: < jari.sinisalo@anvia.fi >. You can write to Mika Makelainen, as well, at Mäyrämäentie 8 B, FI-01260 Vantaa, Finland.

Thanks to Mika for sharing this once-in-a-lifetime opportunity with us.

73 and Good DX! – Bruce A. Conti.



Mika Mäkeläinen is ready for some DX at the famed Lemmenjoki, Finland DXpedition site.

In Review: We Have Dual Winners In a DSP Speaker Duel

By Gordon West,
WB6NOA

“Listen to them in action before you decide which of these equal performers is going to be best for your mobile or base station.”

Two DSP (digital signal processing) amplified speakers — same size, but dramatically different — battle to a tie in a classic classroom shootout.

When the dust settled at the A-OK Corral, bhi Limited’s DSP Noise Cancellation speaker and West Mountain Radio’s CLRSpkr showed what they’re made of — and that is a lot.

Each has been repeatedly upgraded over the past 5 years. Mobile-sized, they offer:

- 10 watts of added audio output.
- Adjustable DSP levels to tailor noise subtraction behind noisy FM scanner reception.
- Near noise elimination when trying to pull signals out of your single sideband receiver.
- An uncanny capability of pulling CW from the background hash.

In a word: *Remarkable.*

Each speaker manufacturer incorporates its own proprietary techniques of DSP “signal-cleanup.”

Multiple DSP products from bhi Ltd. use the company’s DSP chip found in its products sold by GAP and W4RT.

West Mountain Radio, with new ownership in Wisconsin, uses NCT ClearSpeech® adaptive speech filtering.

DSP noise filtering and noise subtraction occur when analog audio input is fed to an analog-digital converter, where the waveform is digitally sampled up to a rate of 8 kHz. This sampling develops a digital picture of the incoming waveform in both amplitude as well as the sampling rate.

Noise subtraction is a remarkable adaptive filtering where the chip recognizes the pitch or tone of voice and CW, and subtracts the bland audio characteristics of noise and hash. The filter, built into each speaker, will also subtract any incoming heterodyne tone, such as that from a ham radio tuner-upper, or a steady scanner “birdie” coming from somewhere inside your car.

The same smart chip can also recognize the sounds of Morse code. And as long as the code is faster than 3 wpm, the interrupted continuous wave (ICW) passes through both speakers that we tested.

After the digital noise subtraction and steady tone elimination, this digitally scrubbed signal is now restored to analog, is amplified to about 10-watts peak output, and we can cut in as little or as much DSP filtering as we want.

Both speakers require 12-volts input, drawing less than an ampere of current at low volume, and between 1 to 2 amps at higher audio output. Both bhi and West Mountain Radio use the common DC power input plug — inner receiver positive.

bhi terminates red and black wires to tinned stripped wires, and West Mountain terminates to bonded Anderson connectors. bhi also has an in-line fuse.

For audio input, bhi is already connected inside the speaker and terminates to the common miniature speaker plug. For West Mountain, the audio-in cable plugs into the back of its DSP speaker, and a common miniature speaker plug is used at both ends of the circuit.

Both speakers feature an audio-output, miniature speaker jack, to drive either headphones or an auxiliary speaker for the processed DSP signal.

Both units feature an “ON” LED as well as an LED alert that you are overdriving the DSP external speaker system. I found that one-quarter volume on any of my radios was just the right level for both speakers to give me plenty of amplified volume output, without overdriving the input.

Audio output on both speakers can easily overcome road noise, convertible noise, and dune



Photo A: The West Mountain Radio DSP CLRSpkr® speaker, left, and bhi DSP Noise Cancellation speaker each feature built-in audio amplification. (Photographs courtesy of WB6NOA)

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Photo B: The bhi DSP Noise Cancellation speaker uses a top-mounted button to set and preset DSP levels.

buggy engine noise with ease. If all you want is loud audio, turn down or select the least amount of digital signal processing.

West Mountain Radio, at its new manufacturing facility, has gone away from the DSP "click" knob control, changing to infinitely-variable adaptive noise reduction, 0 dB to -17 dB.

"We added a more-powerful 10-watt internal speaker for high-level volume, with reduced distortion, where the ClearSpeech® adaptive DSP algorithm analyzes the noise content of the incoming signal, greatly attenuating and sometimes completely removing hum, hiss, ignition, power line noise, static and heterodynes," Amanda Rhyner, of West Mountain Radio, said.

"We also relocated the external speaker jack to the front of the unit, for easier access for the user's favorite speakers or headphones," she added. West Mountain also redesigned its tilt-mounting bracket to simplify vehicle installations.

Meanwhile, bhi's DSP noise canceling speaker offers up to seven DSP filter levels via a convenient push button, allowing the user to optimize the level of noise and interference rejection.

"We offer seven steps from 0 dB to -24 dB of white noise reduction, and once users find their favorite level, this can be stored," said Graham Sommerville, M3ZGS, of bhi in West Sussex, England. He is a "regular" at U.S. amateur radio events,



Photo C: The original West Mountain Radio CLRspkr®, above, offered four selectable DSP levels. The upgraded version, shown in **Photo A**, uses a potentiometer for setting DSP levels — infinitely adjustable for filtering levels.



Photo D: Gordon West, WB6NOA's, station was used in the test of both bhi and West Mountain Radio DSP speaker systems — with each showing near-equal excellent performance in eliminating white noise and background hash on the multiple radios we see here. (Courtesy of Julian Frost, N3JF)

supporting his products sold by GAP and W4RT.

Once the favorite level of DSP has been stored in the little bhi DSP noise cancellation speaker, you can cycle between noise-canceling OFF and that preselected level by just the push of a button.

To un-store the saved level, press and hold the Function key again until the unit emits a tone. The status indicator will change back to orange, and the unit will now cycle through all seven levels of noise canceling.

Both speakers gave me optimum noise cancellation with good-sounding voices about one-third active — maybe 9 dB. It changes a little with FM-versus-SSB, but you don't want to crank in full DSP noise subtraction because it will cause the voice to sound robotic and over-sampled in the DSP network.

Each 4-inch speaker was pre-engineered so the tuned cavity within the enclosure gives a nice mellow audio output. This was the secret of those old GE, RCA and Motorola land-mobile speakers. They just sounded *full*. You'll get the same thing with the bhi and West Mountain Radio systems, too.

Both units are about the same price —

a about \$230. West Mountain Radio has a less-expensive 10-watt speaker, minus the DSP network inside.

At bhi, you'll find in-line, 3-watt DSP modules; PCB modules; a smaller DSP speaker along with a new larger DSP desktop amplified speaker system, as well — also available from W4RT Electronics and GAP.

West Mountain Radio products are sold by most amateur radio dealers.

The DSP noise elimination technology is built-in to many modern ham transceivers, as well as top-end shortwave receivers and all software-defined (SDR) receivers and transceivers. DSP noise subtraction systems are also available from TimeWave, MFJ, SGC and Heil Quietphone Pro headphones.

Here, though, our focus is on the lightweight similar-looking DSP speaker systems: One from bhi of the United Kingdom and the other from the new facility of West Mountain Radio.

Listen to them in action before you decide which of these equal performers is going to be best for your mobile or base station. And be sure to play with the controls to really get the "feel" on how to adjust the levels.

Check out the specifications for each product at these websites:

- < <http://www.bhi-ltd.com> >
- < <http://www.W4RT.com> >
- < <http://www.GAPantenna.com> >
- < <http://www.WestMountainRadio.com> >
- < <http://www.nctclearspeech.com> >

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Pop'Comm November 2011 Reader Survey

Your feedback is important to us at *Pop'Comm*. It helps guide us to make the magazine even more valuable to you each month.

Please take a few minutes to fill out this month's Reader Survey Card and circle the appropriate numbers corresponding to the questions below. We'll pick a respondent at random for a year's free subscription or an extension of an existing subscription as thanks for your participation — so don't forget to fill in your mailing address and other contact information.

We encourage your comments and suggestions in the space provided, as well. Thank you.

Last, but not least: You can now take this survey online. See details below.

As a shortwave listener, radio amateur, scanner monitor, digital communications buff, and so on, how much do you rely on propagation reports to establish your listening or operating habits?

- They are critically important all the time 1
- I use them when I'm "on a mission" or have a goal. 2
- Occasionally I check on them. 3
- I don't pay any attention to them. 4

Have your listening/operating habits changed since the last solar cycle peak, when bands were open worldwide?

- No. I enjoy listening/operating, regardless of band condition 5
- Somewhat. If propagation is poor, I get discouraged 6
- Yes, dramatically. I listen/operate much less. 7

With listening via the Internet as an option, I find myself:

- Pretty much ignoring it, just the same. 8
- Using it more and more on all frequencies 9
- Using it, but only for VHF-and-higher listening. 10
- Using it, but only for shortwave listening 11

What factors most influence your listening habits? Choose all that apply:

- In my busy life, finding the time to turn on the radio 12
- Propagation and band conditions 13
- Being able to listen for "something new" 14
- The capabilities of my listening equipment 15

What mode or part of the radio spectrum most interests you? (Use the comment line.)

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You can now participate in this reader survey via the Internet. Simply go to *Pop'Comm On the Web* : < <http://www.popcommmagazine.blogspot.com/> > and click the link to the *Pop'Comm November 2011 Reader Survey*. It's quick and easy.


And the Winner Is . . .

For participating in the *Pop'Comm Readership Survey*, the winner of a free subscription or extension is **Trevor Goodwin, of St. John's, Antigua, West Indies**. *Congratulations, Trevor! You suggested we carry more product reviews. We hope to be doing just that in the coming months. Many thanks!*

On the Solar Scene, Two Stunning Breakthroughs

by Tomas Hood, NW7US,
< nw7us@arrl.net >

“Researchers have come up with a possible way to forecast sunspots up to 2 days before they emerge . . . And a 40-year-old mystery has been solved about how coronal mass ejections change shape between the Sun and Earth.”

 Since the launch of the Solar Dynamics Observatory (SDO) — the first satellite under the Living with a Star (LWS) program at NASA — teams of scientists from SDO, NASA’s Solar Terrestrial Relations Observatory (STEREO) mission, NASA’s Solar and Heliospheric Observatory (SOHO), and other groups, including from Stanford University, have worked tirelessly on the rich data gathered from these new technologies deployed in space, keeping a high-definition view on our dynamic local star.

In July 2010, we first reported on SDO and that there are three main instrument packages aboard the spaceship. One of these is the Helioseismic and Magnetic Imager (HMI), which maps solar magnetic fields and looks beneath the Sun’s opaque surface (**Figure 1**).

The experiment deciphers the physics of the Sun’s activity, taking pictures in several very narrow bands of visible light. The HMI instruments allow scientists to make ultrasound images of the Sun and study active regions in a way similar to watching sand shift on a desert dune.

The ultrasound data is the key to a new technique discovered by a team of Stanford researchers and called “time-distance helioseismology.” This technique is similar to an approach widely used in earthquake studies.

Just as seismic waves traveling through the body of Earth reveal what is inside the planet, acoustic waves traveling through the body of the Sun can reveal what is inside the star.

Breakthrough 1: Two-Day Sunspot Forecasting

Fortunately for helioseismologists, the Sun is amazingly alive with acoustic waves — literally “roaring” with turbulent boiling motions. Armed with the new technology of SDO, and enlightened with the data and new methodology, these researchers have come up with the possible way of forecasting sunspots up to two days before they emerge to the surface of the Sun’s photosphere.

That’s big news! We take for granted the ability to forecast weather in our local region. Forecasters look at wind patterns, moisture and barometric pressures, and satellite images and are able to work out — using models — how our next few days’ weather will likely progress. This has not been the case for space weather.

While some major progress has been made since the days of Skylab in the 1970s, it has only been a dream of space weather scientists to be able to accurately track and forecast space weather with the same precision with which terrestrial weather scientists are capable.

Over the last 400 years of sunspot observation, solar scientists have come to understand some basic facts about sunspots: They are planet-sized islands of magnetism that float in solar plasma.

Although the details are still debated, researchers generally agree that sunspots are born deep inside the Sun, created by a complex action of the Sun’s inner magnetic dynamo. From there they rise to the surface (out to the photosphere), carried outward by magnetic buoyancy. A sunspot emerging at the stellar surface is a bit like a submarine emerging from the ocean depths.

“We have learned to detect sunspots before they are visible to the human eye,” says Stathis Ilonidis, a PhD student at Stanford University. “We can’t actually hear these sounds across the gulf of space, but we can see the vibrations they make on the Sun’s surface.” Instruments onboard two spacecraft, SOHO and SDO, constantly monitor the Sun for acoustic activity.

Submerged sunspots have a detectable effect on the Sun’s inner acoustics — namely, sound waves travel faster through a sunspot than through the surrounding plasma. A big sunspot can leapfrog an acoustic wave by 12 to 16 seconds. “By measuring these time differences, we can find the hidden sunspot.”

Ilonidis says the technique seems to be most sensitive to sunspots located about 60,000-km beneath the Sun’s surface. The team isn’t sure why that is “the magic distance,” but it’s a good distance because it gives them as much as two days advance notice that a spot is about to reach the surface.

“This is the first time anyone has been able to point to a blank patch of Sun and say ‘a sunspot is about to appear right there,’” says Ilonidis’s thesis advisor, Prof. Phil Scherrer, of the Stanford Physics Department. “It’s a big advance.”

“There are limits to the technique,” cautions Ilonidis. “We can say that a big sunspot is coming, but we cannot yet predict if a particular sunspot will produce an Earth-directed flare.”

Imagine the implications if this detection technique proves reliable: The ability to detect large,

complex sunspot regions ahead of time, and know where on the solar disc they will appear allows a mapping of these regions for analysis on how they may affect space weather.

Will the new sunspot region be in a location where it will impact the Earth — if it were to unleash coronal mass ejections, through x-ray flare activity? Having the ability to know what the Sun is doing, in such detail, enables us to better understand solar weather and the Sun-Earth connection.

For us radio communicators, this knowledge allows us to better plan our DXpeditions and other radio use: If we know

that the sunspot activity is about to rise, and four days from now there will be a rise in overall ionospheric energy as a result, we might plan that Summit-On-The-Air (SOTA) hike that we were contemplating.

Breakthrough 2: A 40-Year-Old Mystery Is Solved

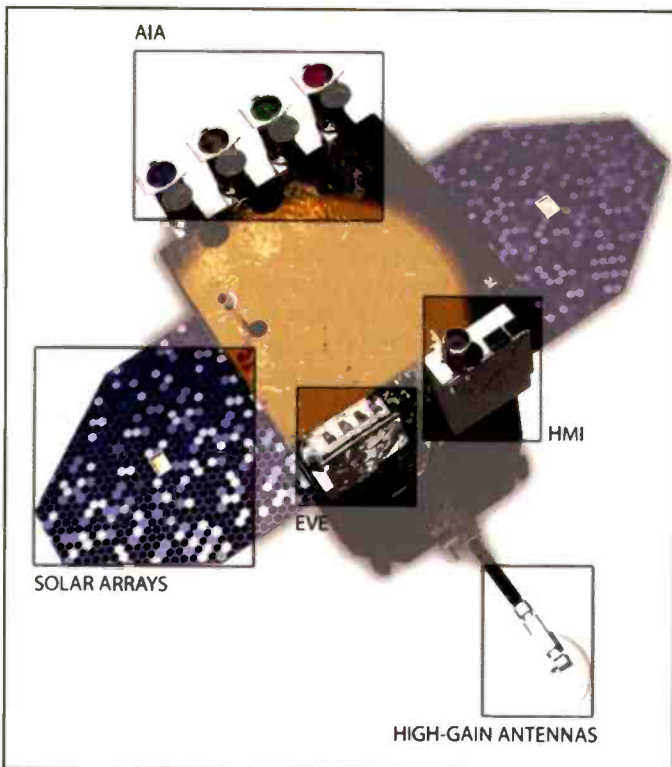
News of the Stanford research came out at the same time that the NASA STEREO mission announced solving a 40-year mystery about how coronal mass ejections (CMEs) change shape over their journey from the Sun, to the Earth.

Plasma from solar flares or coronal mass ejections travel along solar wind to ultimately produce auroras in Earth's polar regions, and affect satellites and power grids and other man-made electronics.

Of course, we know that CMEs also adversely affect the propagation of shortwave signals, because of how a CME can cause geomagnetic storms. When Earth's magnetic fields become very active, they cause the ionosphere to lose energy through a process known as recombination. This lowers the usable frequencies over any given radio path.

For many years, the idea that coronal mass ejections launched from the Sun could strike the Earth was inferred from an indirect chain of evidence collected from multiple satellites. Now, the Heliospheric Imagers aboard the STEREO-A spacecraft have managed to view a CME propagate from the surface of the Sun to the Earth.

NASA's STEREO spacecraft and new data processing techniques have succeeded in tracking this CME from the origin in



← **Figure 1:** The Helioseismic and Magnetic Imager (HMI) Instrument aboard the Solar Dynamics Observatory (SDO). HMI allows scientists to “hear” sunspots before they emerge on the visible solar disc. See text. (Courtesy of NASA/SDO)



Optimum Working Frequencies (MHz) - For November 2011 - Flux = 120, Created by NW7US

UTC	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
TO/FROM US WEST COAST																								
CARIBBEAN	21	16	13	13	12	12	11	11	11	11	10	10	10	10	18	21	23	24	24	25	25	25	24	23
NORTHERN SOUTH AMERICA	30	27	21	17	16	16	15	15	14	14	14	14	13	13	22	27	30	32	33	33	34	33	33	31
CENTRAL SOUTH AMERICA	29	26	18	17	16	16	15	15	14	14	14	14	13	24	28	31	32	33	34	34	33	33	31	
SOUTHERN SOUTH AMERICA	31	29	25	18	17	17	16	15	15	14	14	14	14	19	27	29	31	32	33	33	34	34	33	
WESTERN EUROPE	10	10	9	9	9	9	9	9	9	9	9	9	9	9	10	15	16	16	15	13	11	10	10	
EASTERN EUROPE	10	9	9	9	9	9	9	9	10	9	9	9	9	9	9	12	14	13	11	10	10	10	10	
EASTERN NORTH AMERICA	23	20	15	14	13	13	13	12	12	12	12	11	11	11	11	20	23	25	26	27	27	27	26	
CENTRAL NORTH AMERICA	13	12	10	8	8	7	7	7	7	7	6	6	6	6	6	11	13	14	14	15	15	15	14	
WESTERN NORTH AMERICA	7	7	6	5	4	4	4	3	3	3	3	3	3	3	4	6	7	7	8	8	8	8	8	
SOUTHERN NORTH AMERICA	23	21	17	13	13	12	12	11	11	11	11	11	10	14	20	22	24	25	25	25	25	25	24	
HAWAII	22	21	20	19	16	12	11	11	10	10	10	9	9	9	9	9	17	19	20	21	22	22	22	
NORTHERN AFRICA	10	10	10	10	10	9	9	10	10	10	9	9	9	9	13	16	17	18	18	14	12	11	11	
CENTRAL AFRICA	12	12	11	11	10	10	10	10	10	9	9	9	9	9	12	15	17	18	18	15	14	14	13	
SOUTH AFRICA	21	16	14	13	13	12	12	12	11	11	11	11	11	11	19	22	23	24	25	25	25	24	23	
MIDDLE EAST	10	10	9	9	9	10	10	10	10	9	9	9	9	9	9	13	15	12	12	11	11	10	10	
JAPAN	20	20	19	18	16	12	11	11	10	10	10	10	10	9	9	9	10	9	9	9	16	19	20	
CENTRAL ASIA	20	20	19	18	15	12	11	11	10	10	10	10	10	10	9	9	9	12	12	12	11	18	20	
INDIA	9	15	14	11	10	10	10	10	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
THAILAND	19	19	18	17	15	11	11	11	10	10	10	10	9	9	9	9	12	13	12	12	12	12	16	
AUSTRALIA	29	30	31	29	25	18	17	16	16	15	14	14	14	14	14	13	18	17	17	20	23	25	27	
CHINA	18	18	18	16	14	11	11	10	10	10	10	10	9	9	9	9	10	10	10	9	9	9	15	
SOUTH PACIFIC	32	32	31	28	23	18	17	16	16	15	15	14	14	14	14	18	18	20	23	25	27	29	31	
TO/FROM US MIDWEST																								
CARIBBEAN	23	16	15	14	14	13	13	12	12	12	12	11	21	25	27	28	29	29	29	29	28	27	25	
NORTHERN SOUTH AMERICA	26	22	18	17	16	15	15	14	14	13	13	13	12	21	25	28	30	31	31	32	32	31	30	
CENTRAL SOUTH AMERICA	27	19	18	17	16	16	15	15	14	14	14	14	26	28	30	31	32	33	34	34	34	32	30	
SOUTHERN SOUTH AMERICA	30	26	21	20	18	17	17	16	15	15	14	14	21	26	28	29	31	32	33	33	34	34	32	
WESTERN EUROPE	10	10	10	9	9	9	9	9	9	9	9	9	9	15	17	18	18	18	17	15	13	11	10	
EASTERN EUROPE	9	9	9	9	9	9	9	9	9	9	9	9	9	12	14	14	13	13	11	10	10	10	9	
EASTERN NORTH AMERICA	16	11	10	10	10	9	9	9	8	8	8	8	13	16	18	19	20	20	20	20	19	19	18	
CENTRAL NORTH AMERICA	8	7	5	5	4	4	4	4	4	4	4	4	4	3	6	8	8	9	9	9	9	9	8	
WESTERN NORTH AMERICA	14	13	11	8	8	7	7	7	7	7	7	6	6	6	6	11	13	14	15	15	15	15	14	
SOUTHERN NORTH AMERICA	16	14	10	9	9	9	8	8	8	8	8	7	7	7	13	15	17	17	18	18	18	18	17	
HAWAII	24	23	21	17	14	13	12	12	12	11	11	11	11	11	10	11	15	21	23	25	26	26	25	
NORTHERN AFRICA	12	11	11	11	10	10	10	10	10	9	9	9	9	12	17	19	20	20	21	21	20	15	14	
CENTRAL AFRICA	12	11	11	11	10	10	10	10	10	9	9	9	11	16	18	20	20	21	20	15	15	14	13	
SOUTH AFRICA	20	17	17	16	15	15	14	14	14	14	13	21	27	29	31	32	33	33	33	32	30	27	25	
MIDDLE EAST	10	10	10	9	9	10	10	10	10	9	9	9	9	9	15	17	18	18	16	12	11	11	10	
JAPAN	19	18	16	12	11	11	10	10	10	10	10	10	9	9	9	9	10	10	9	9	15	18	20	
CENTRAL ASIA	19	17	15	12	11	11	10	10	10	10	10	9	9	9	9	10	12	12	12	12	11	16	19	
INDIA	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
THAILAND	18	16	14	11	10	10	10	10	10	10	10	9	9	9	9	13	13	13	12	12	12	12	11	
AUSTRALIA	29	30	27	22	18	17	16	15	15	15	14	14	14	14	14	19	19	18	17	17	20	23	25	
CHINA	17	16	13	11	11	10	10	10	10	10	10	9	9	9	9	10	10	10	10	9	9	9	13	
SOUTH PACIFIC	32	30	27	20	18	17	16	15	15	15	14	14	14	14	19	18	18	21	24	27	28	30	31	
TO/FROM US EAST COAST																								
CARIBBEAN	17	14	13	12	12	11	11	10	10	10	10	9	16	19	21	22	23	24	24	24	23	23	22	20
NORTHERN SOUTH AMERICA	23	20	18	17	16	15	14	13	13	12	12	12	17	21	24	26	27	28	29	29	28	28	27	25
CENTRAL SOUTH AMERICA	24	22	21	19	18	17	16	16	15	15	14	18	24	26	28	30	31	32	33	34	34	33	29	
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EASTERN EUROPE	9	9	9	9	9	9	9	9	9	9	9	11	16	16	16	16	15	13	11	10	10	10	10	
EASTERN NORTH AMERICA	6	5	5	5	4	4	4	4	4	4	4	4	6	8	9	9	10	10	10	10	9	9	8	
CENTRAL NORTH AMERICA	16	12	11	10	10	9	9	9	9	9	9	9	9	14	17	19	20	21	21	21	20	20	18	
WESTERN NORTH AMERICA	23	20	15	14	14	13	13	12	12	12	12	12	11	11	20	23	25	26	27	27	27	26	25	
SOUTHERN NORTH AMERICA	18	13	12	11	11	10	10	10	10	9	9	9	16	19	21	22	22	23	23	23	22	21	20	
HAWAII	24	21	15	14	14	13	13	12	12	12	12	12	12	11	12	17	23	26	27	28	28	27	26	
NORTHERN AFRICA	13	12	12	12	12	12	12	11	12	11	11	20	23	25	26	27	27	26	24	21	15	14	13	
CENTRAL AFRICA	13	13	12	12	12	12	12	12	11	11	11	20	24	25	27	27	27	25	22	17	16	15	14	
SOUTH AFRICA	18	17	17	16	15	15	14	14	14	14	14	25	29	32	33	33	34	34	33	32	30	27	20	
MIDDLE EAST	11	11	11	10	10	10	10	10	9	9	9	15	18	20	21	21	22	21	15	14	14	13	12	
JAPAN	16	12	11	11	11	10	10	10	10	10	9	9	9	10	10	10	10	9	9	9	13	17	18	
CENTRAL ASIA	15	12	11	11	10	10	10	10	10	9	9	9	9	14	13	13	12	12	12	12	12	11	17	
INDIA	10																							

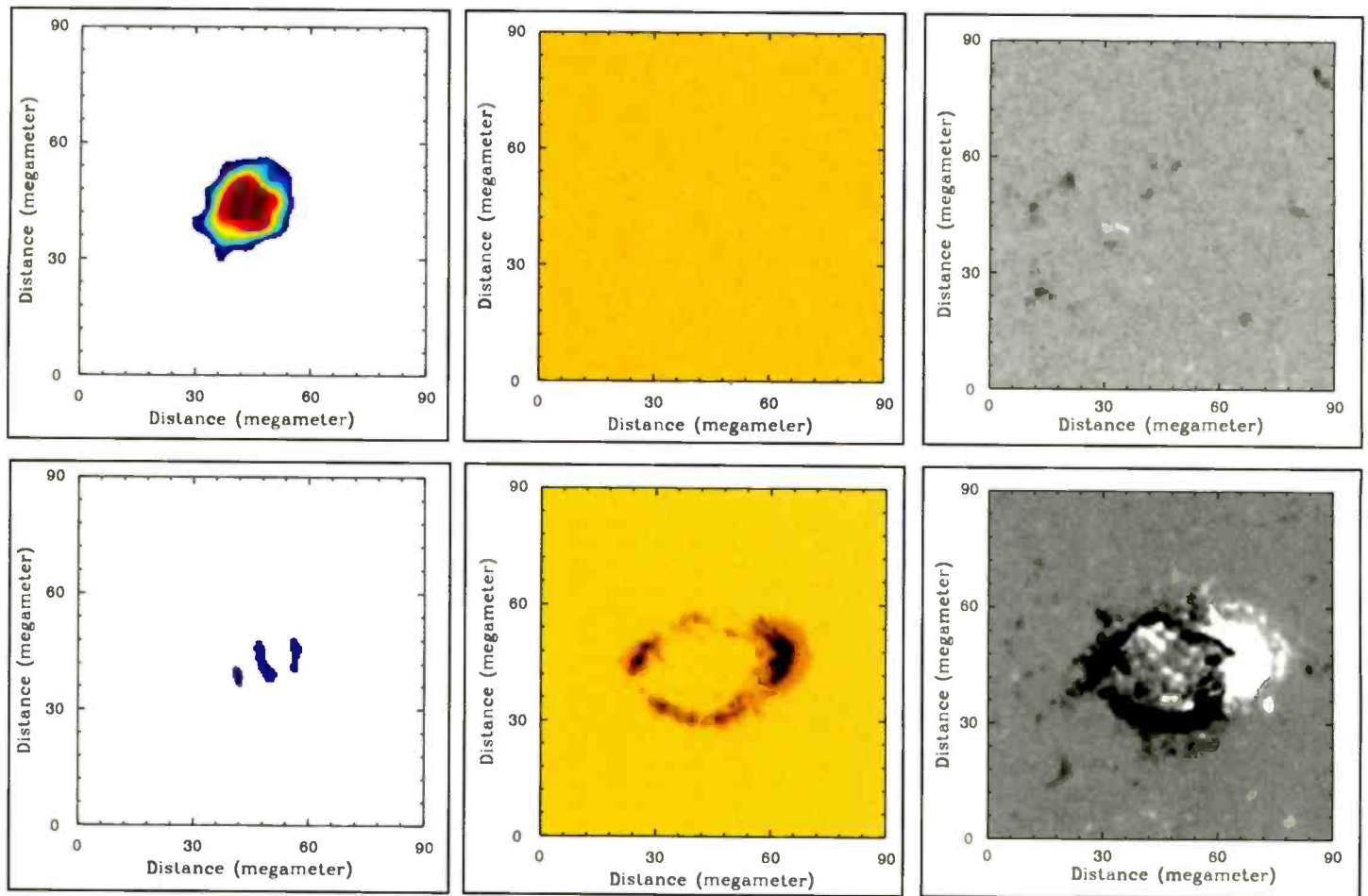


Figure 2: This shows acoustic travel-time perturbations detected at a depth of about 60,000 km (left), as well as simultaneous observations of the photospheric intensity (middle) and magnetic field (right). The images of the upper row were taken at about 0330 UTC, October 26, 2003 and those of the lower row about 2 days later. These “sound-wave” detections allow helioseismologists to detect sunspots up to two days before they emerge on the solar surface. See text. (Courtesy of NASA/SDO and the HMI science teams; SOHO/MDI: The SOHO/MDI Team, SOHO is a project of international cooperation between ESA and NASA)

the Sun’s ultra-hot corona to the final impact with the Earth 96 million miles away. This solves the 40-year mystery about each of the involved structures that cause space weather: How the structures that impact the Earth relate to the corresponding structures in the solar corona.

Despite many instruments that monitor the Sun and a fleet of near-Earth probes, the connection between near-Earth disturbances and their counterparts on the Sun has been obscure, because CMEs and the solar winds evolve and change during the 96 million-mile journey from the Sun to the Earth.

STEREO includes “heliospheric imager” cameras that monitor the sky at large angles from the Sun, but the starfield and galaxy are 1,000-times brighter than the faint rays of sunlight reflected by free-floating electron clouds inside CMEs and the solar wind. This has made direct imaging of these important structures difficult or impossible, and limited understanding of the connection between space storms and the coronal structures that cause them.

Newly-released imagery reveals absolute brightness of detailed features in a large geo-effective (Earth-directed) CME in late 2008, connecting the original magnetized structure in the Sun’s corona to the intricate anatomy of an interplanetary storm as it impacted the Earth three days later.

At the time the data were collected in late 2008, STEREO-A was nearly 45 degrees ahead of the Earth in its orbit, affording a very clear view of the Earth-Sun line.

Finally, scientists were able to methodically piece together the three-dimensional view of the entire trip of this CME — from Sun to Earth.

Now that this has been accomplished, they know how to do it for new events as they unfold. This empowers them to understand — and better predict — solar storms and space weather.

Combined with the ability to predict sunspots days before they emerge, solar researchers and forecasters will be better able to help us prepare for space weather.

High-Frequency Propagation for November

With a steady climb in solar activity this year, expect moderately better conditions this month compared with conditions from last year at this time.

If you remember last year’s season, more of the weaker DX on many shortwave bands was available, because even then there was enough solar energy to provide propagation on higher frequencies over many DX paths.

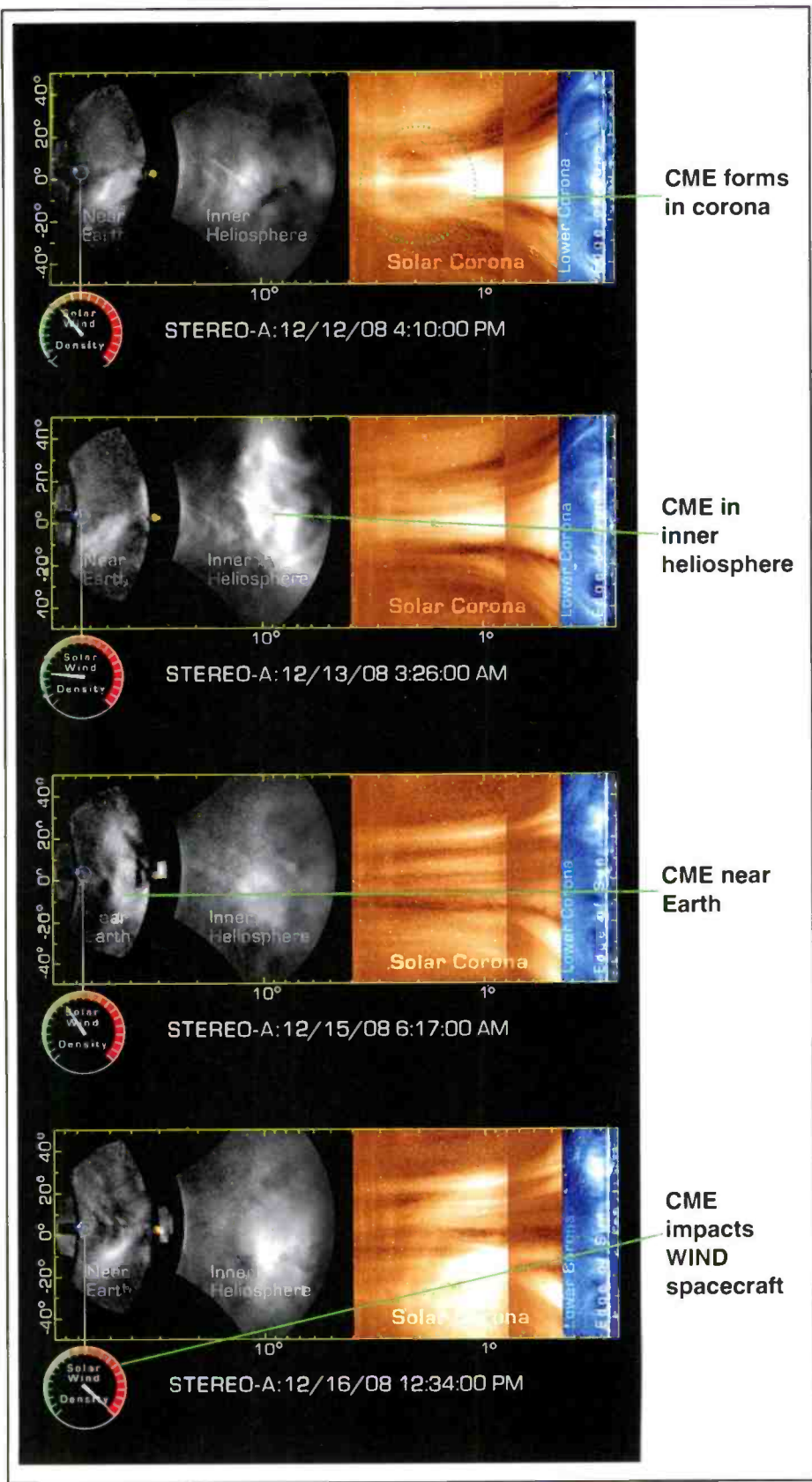


Figure 3: STEREO-A tracks a coronal mass ejection from the Sun to Earth. The ability to now see a coronal mass ejection in three dimensions, as it makes its way from the Sun toward Earth, can help space weather forecasters predict space weather and how it will affect power grids, satellites and radio communications. (Courtesy of Southwest Research Institute/Boulder, Colorado)

While the geomagnetic conditions may be more active this year, causing periods when the ionosphere will become weaker than normal, there will be windows of opportunity when the ionosphere will be increasingly more energized than a year ago, so much so that weak DX signals will become more reliable and higher frequencies will be more easily propagated over many paths. This is prime DX hunting season!

Expect a high-level of crowding on our all-season players, 31 and 25 meters. Signals on these bands are typically strong and stable. For medium distance DX (500 to 1,500 miles) during daylight hours, try 25 meters.

By late afternoon and through early evening, reception will “stretch out” in the range of 2,000 to 3,000 miles for domestics, and twice that for international broadcasters, continuing until an hour or two after local sunrise. There’s heavy use on this band since many domestic, and a good number of international broadcasters make use of the 25-meter band.

Thirty-one meters, the backbone of worldwide shortwave broadcasting, will provide medium-distance daytime reception ranging between 400 and 1,200 miles. During November, reception up to 2,500 miles is possible during the hours of darkness for domestic broadcasters, (easily double to triple that distance for international broadcasters), and until two to three hours after local sunrise. Thirty-one meters, too, is highly congested, making reception of weak, exotic signals a bit more of a challenge.

Seventy-five through 120 meters are coming alive, as well. Signals below 120 meters are improving, too. Throughout November, expect an improvement in nighttime DX conditions on these bands.

Since the night is longer, and there is the seasonal decrease in static-noise levels, expect good long-range DX on the low bands, starting with signals from closer locations right after sunset, and then extending to areas farther away as the night develops.

Signals from Europe should be possible to receive in the late evening. DX paths will move more westerly through the night. By morning openings from Asia should be common.

VHF Conditions — Meteor Showers

One of the largest yearly meteor showers — the Leonids — occurs during No-

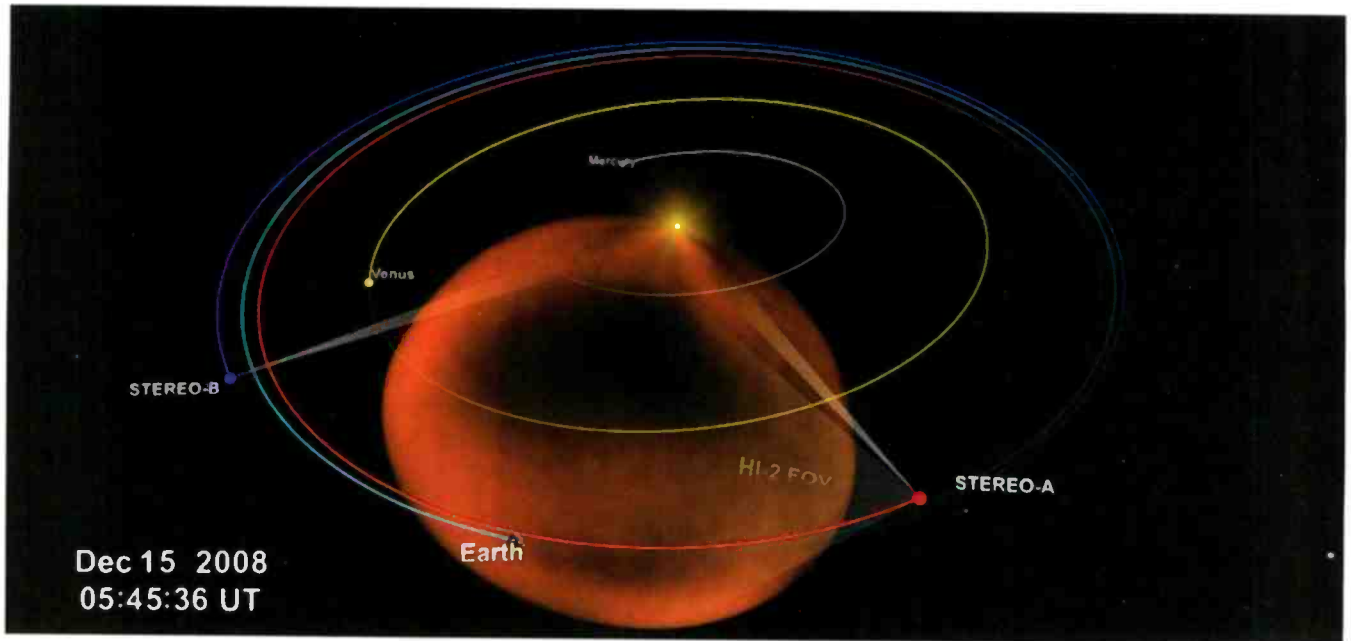


Figure 4: A still image from video of the orbital positions and fields of view of the STEREO spacecraft during the December 2008 CME. The orange area represents the CME. To see the video, visit: < <http://bit.ly/qI3EDw> >. (Courtesy of NASA/Goddard Space Flight Center/Scientific Visualization Studio)

vember. Appearing to radiate out of the constellation of Leo, this shower is known to create intense meteor bursts.

It starts on November 6 and lasts until November 30. Of course, the shower is not going to produce significant hourly rates until the days closest to the shower peak, which should be November 18.

There might be another peak at 2236 UTC on November 16 that involves incredibly small dust (hence, not visible to the human eye) that may produce radio-usable ionized meteor trails.

Another peak has been predicted, as well, on November 17, around 2100 UTC, with a repeat on the November 18 around 2300 UTC.

The main peak, though, is not expected to produce a heavy stream of hourly meteors, this year. At best, large, spectacular visuals might occur 10 to 20 times per hour during the peak on November 18 at 0340 UTC. (For a complete calendar of 2011 meteor showers, visit: < <http://bit.ly/ovFRAD> >.

From a radio perspective, when we are talking about meteor scatter radio propagation, we count any meteor-formed plasma clouds that will support VHF radio signals. With modern digital modes that enable very weak-signal detection (such as JT2 and JT4 < <http://bit.ly/qmPpmd> >), even small meteors that are not visually significant play a role for catching distant VHF signals.

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 94.2 for July. The 12-month smoothed 10.7-cm flux centered on January 2011 is 91.2. The predicted smoothed 10.7-cm solar flux for November 2011 is 120, give or take about 9 points.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for July 2011 is 43.9, up from June's 37.0 and May's 41.6. The lowest daily sunspot value of 20 was recorded on July 25. The highest daily sunspot count was

78 on July 18. The 12-month running smoothed sunspot number centered on January 2011 is 31.0. A smoothed sunspot count of 67, give or take about 9 points is expected for November 2011.

The observed monthly mean planetary A-Index (A_p) for July 2011 is 9. These figures remain fairly quiet, overall. The 12-month smoothed A_p index centered on January 2011 is 6.7.

Expect the overall geomagnetic activity to be varying greatly between active to moderate storm level during November, since the increased sunspot activity also includes flares and related space weather. Refer to the Last Minute Forecast at < <http://sunspotwatch.com> > for the outlook on conditions during this month.

Connections . . .

Do you have a question that you'd like me to tackle in this column? Drop me an e-mail 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 are on Facebook, check out < <http://www.facebook.com/spacewx.hfradio> > and < <http://www.facebook.com/NW7US> >. Speaking of Facebook, visit the *Popular Communications Magazine* fan page at < <http://www.facebook.com/PopComm> >.

As always, I 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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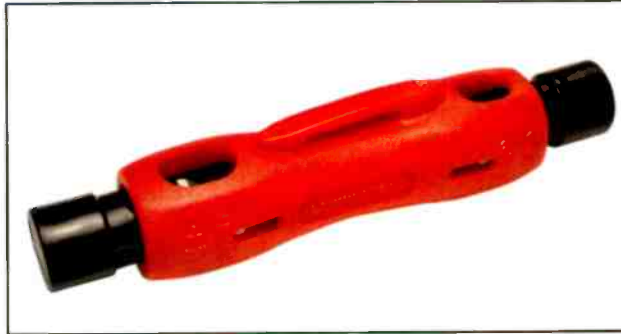
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New, Interesting and Useful Communications Products

The new Platinum Tools double-ended coax cable stripper is designed with preset blades for industry standard 0.25-inch cables, eliminating the need for blade depth adjustments, the company says. (Courtesy of Platinum Tools)



Coax Cable Stripper From Platinum Tools

Platinum Tools, a maker of items for the preparation, installation and hand termination of wire and cable, has announced that its new double-ended coax stripper is now available.

"Designed for the professional contractor, our new, lightweight, compact, double-ended coaxial cable stripper... is designed for fast, accurate stripping right out of the box," Lee Sachs, president and general manager of Platinum Tools, Inc., said. "The blades in this new tool are preset for industry standard 0.25-inch cable preparation, eliminating the need for time consuming blade depth adjustments."

Features:

- Works with RG7/11/213/8 and RG59/6/6 Quad cable types
- Quickly and easily remove the cable jacket and inner conductors in a single step
- Preset, no adjustments required
- Two stripping ports for a broader range of cables
- Rugged, high-impact plastic housing
- Long life stainless steel blades
- Compact: Conveniently fits into shirt pocket

According to Platinum Tools, the new coax cable stripper has an MSRP of \$9.95 and is available at: < <http://www.platinumtools.com> >.

Scanner Master Introduces HomePatrol Travel Case

Scanner Master has announced the availability of the Uniden HomePatrol Travel Case. Designed specifically for the

Uniden HomePatrol, this nylon travel case protects the radio during transport and use.

The inside of the travel case holds the radio in a sectioned compartment, which keeps the radio firmly in place. The radio is then covered by a clear plastic, with cutouts for the speaker, through which the user can see the HomePatrol display and operate the radio's touch screen. Cutouts on the sides of the case allow access to all jacks, including the antenna.

Another section of the case can be used to hold the AC and DC power cords, antenna, GPS, extra batteries, and so on. The zip-top case includes a handle for easy transport. Not only can the case be used to transport the HomePatrol safely, but the radio can be used in the case with the antenna extended from the side and angled up. According to Scanner Master, the MSRP is \$69.95 and is available at < <http://bit.ly/rj29n0> >

Wallet-Sized Reference Card For Uniden BC346XT & BCD396XT

MarksScanners has introduced a wallet-sized quick reference card of key sequences for Uniden BC346XT and BCD396XT scanners. The cards have 10 folded and laminated panels and measure 3.375-by 2.75-inches and will fit in a wallet or shirt pocket.

Quick Reference cards for other scanner models are now being written and will be available soon. According to Scanner Master, the quick reference card for Uniden BC346XT and BCD396XT scanners will be priced at \$7.95 and is available at < <http://www.scannermaster.com> >.



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BROADCASTING

World Band Tuning Tips

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

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

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

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	15230	Radio Havana Cuba	SS	0300	7200	Sudan Radio TV Corp.	AA
0000	15190	Radio Inconfidencia, Brazil	PP	0300	6170	Voice of Turkey	
0000	11780	Radio Nacional Amazonia, Brazil	PP	0300	9665	Voice of Russia, via Moldova	
0000	11795	All India Radio	Tamil	0300	7335	Voice of Russia, via French Guiana	SS
0000	11595	Democratic Voice of Burma	Burmese	0300	11895	Radio Romania International	
0000	15720	Radio New Zealand		0300	9505	Adventist World Radio, via Germany	Oromo
0000	15275	Radio Thailand		0300	7415	WBCQ, Maine	
0000	15255	Channel Africa, South Africa		0300	6175	Voice of Vietnam, via Canada	
0000	7385	Radio Romania International		0300	9660	Vatican Radio, via Madagascar	
0030	11905	Sri Lanka Broadcasting Corp.	Hindi	0300	7305	Vatican Radio	SS
0100	9235	Galei Zahal, Israel	HH	0300	9635	RFE/RL, via Lithuania	Tartar
0100	15360	BBC, Thailand Relay		0300	4976	UBC Radio, Uganda	
0100	15180	Voice of Korea, North Korea		0300	7405	Radio Marti	SS
0130	15745	Sri Lanka Broadcasting Corp.		0300	4950	Radio Nacional, Angola	PP
0200	9820	Radio 9 de Julho, Brazil	PP	0300	4780	Radio Djibouti	AA
0200	9905	Islamic Republic of Iran Broadcasting	SS	0330	6030	Radio Oromiya	Oromo
0200	7445	BBC, Cyprus Relay	Pashto	0330	7215	Trans World Radio, via South Africa	
0200	9895	BBC, Cyprus Relay	Dari	0400	6005	Radio Havana Cuba	
0200	3320	Radio Sonder Grense, South Africa	Afrikaans	0400	5025	Radio Rebelde, Cuba	SS
0200	7440	Voice of Russia, via Ukraine		0400	7430	Voice of America Relay, Botswana	
0300	6101	La Voz de su Conciencia, Colombia	SS	0400	11765	Super Radio Deus e Amor, Brazil	PP
0300	6120	Radio Havana Cuba	SS	0400	11815	Radio Brazil Central	PP
0300	7425	Radio Tirana, Albania		0400	4875	Radio Roraima, Brazil	PP
0300	15240	Radio Australia		0400	7295	Radio Algerienne, Algeria, via France	AA
0300	11935	Radio Japan, via Bonaire		0400	7255	BBC, Ascension Island Relay	
0300	13740	Islamic Republic of Iran Broadcasting		0400	7310	BBC, via South Africa	
0300	11965	Deutsche Welle, Germany	Swahili	0400	11530	Denge Mesopotamia, to Iran	Kurdish
0300	7475	Voice of Greece	Greek	0400	9870	Radio Voice of the People, to Zimbabwe	
0300	9705	Radio Ethiopia	Amharic	0400	7275	RT Tunisienne, Tunisia	FF
0300	6110	Radio Fana, Ethiopia	Amharic	0400	9725	RT Tunisienne, Tunisia	AA
0300	7205	Voice of the Broad Masses, Eritrea	Tigrinya	0400	3345	Channel Africa, South Africa	
0300	6145	BBC, via South Africa		0400	4775	Trans World Radio, Swaziland	GG
0300	9305	Radio Cairo, Egypt		0400	4965	The Voice-Africa, Zambia	
0300	9915	BBC, via Cyprus	AA	0400	9370	WTJC, North Carolina	
0300	6050	HCJB, Ecuador	SS	0400	9780	Republic of Yemen Radio	AA
0300	11855	BBC, via Cyprus	Farsi	0430	6165	RN Tchadienne, Chad	FF
0300	13670	Voice of Korea, North Korea	FF	0500	6075	Deutsche Welle, Germany, via Portugal	
0300	9705	La Voix du Sahel, Niger	FF	0500	6070	CFRX, Canada	
0300	5010	Radio Madagasikara, Madagascar	Malagasy	0500	6005	Radio Australia	
0300	6185	Radio Educacion, Mexico	SS	0500	9535	Radio Algeria, via France	AA
0300	9615	Voice of Turkey		0500	6110	Radio Japan, via Canada	
0300	9750	BBC, Seychelles Relay		0500	4055	Radio Verdad, Guatemala	SS

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0500	5915	Deutsche Welle, via England	RR	1600	15700	Radio Bulgaria	SS
0500	6125	Radio Nederland, via Vatican	DD	1600	15740	Voice of America, Sao Tome Relay	Swahili
0500	6165	Radio Nederland, Bonaire Relay	DD	1700	9835	Radio Japan	JJ
0500	7245	Radio Mauritanie, Mauritania	AA	1700	15510	Deutsche Welle, Germany	RR
0500	5950	Radio Taiwan International		1700	9770	Polish Radio, via Austria	
0500	6095	Voice of America, Sao Tome Relay		1700	15410	Radio Y'Abaganda, to Uganda	Saturdays
0500	6055	Radio Exterior de Espana, Spain	SS	1700	15435	Broad. Service of Kingdom, Saudi Arabia	AA
0500	3350	Radio Exterior Espana, Costa Rica Relay	SS	1800	13625	Radio Free Asia, Northern Marianas Relay	CC
0500	9630	Radio Exterior Espana Spain	SS	1800	17680	CVC-La Voz, Chile	SS
0500	9500	Trans World Radio, Swaziland		1800	11880	Radio Australia	
0500	6030	Radio Marti, USA	SS	1800	15445	Radio Japan, via Germany	JJ
0500	11625	Vatican Radio		1800	15300	Radio France International	FF
0600	5910	Alcaravan Radio, Colombia	SS	1800	11895	RDP International, Portugal	PP
0600	6115	Voice of the Strait, China	CC	1800	15385	KJES, New Mexico	
0800	3290	Voice of Guyana		1900	11695	China Radio International, via Albania	FF
0800	7125	RN Guinee, Guinea	FF	1900	15630	Voice of Greece	Greek
0900	6135	Radio Santa Cruz, Bolivia	SS	1900	11615	Deutsche Welle, Germany	RR
0900	3310	Radio Mosoj Chaski, Bolivia	Quechua	1900	21690	Radio France Intl., via French Guiana	FF
0400	9665	Radio Voz Missionaria, Brazil	PP	1900	17610	Deutsche Welle, via Portugal	
1000	6040	China Radio International		1900	15560	RDP International, Portugal	PP
1000	4717	Radio Yura, Bolivia		1900	11800	Voice of Africa, Libya	Hausa
1000	2485	Northern Territories SW Service, Australia		1900	15345	RT Marocaine, Morocco	AA
1000	3330	Ondas del Huallaga, Peru	SS	1900	12005	RT Tunisienne, Tunisia	AA
1000	6170	Radio New Zealand		1900	17850	Radio Exterior Espana, Spain	SS
1000	6010	Radio Mil, Mexico	SS	1900	11760	Radio Nacional Venezuela, via Cuba	SS
1000	5985	Myanmar Radio	Burmese	2000	11770	Radio Havana Cuba	AA
1100	9580	Radio Australia		2000	15235	Radio Canada International	
1100	9870	All India Radio	Hindi	2000	17735	Radio Canada International	
1100	3385	NBC, Papua New Guinea	Tok Pisin	2000	7200	Islamic Republic of Iran Broadcasting	SS
1100	4775	Radio Tarma, Peru	SS	2000	11615	Radio Nederland, via Rwanda Relay	
1200	11675	Polish Radio, via Austria		2000	11655	Radio Nederland, Madagascar Relay	
1200	6120	Radio Japan, via Canada		2000	9840	KBS World Radio, South Korea	AA
1200	9595	Radio Nikkei, Japan	JJ	2000	11915	Broad. Service of Kingdom, Saudi Arabia	AA
1200	7420	All India Radio	Tibetan	2000	7250	Vatican Radio	
1200	15515	Radio France Intl, via French Guiana	SS	2100	9580	Africa Number One, Gabon	FF
1200	3205	NBC, Papua New Guinea	Tok Pisin	2100	9655	Radio PMR, Moldavia	
1200	12095	Far East Broadcasting Corp., Philippines		2100	9575	Radio Medi Un, Morocco	
1200	11980	Polish Radio,		2100	9330	Radio Damascus, Syria	
1200	9655	Radio New Zealand		2130	11670	Islamic Republic of Iran Broadcasting	
1200	9740	BBC, Singapore Relay		2200	15370	Radio Havana Cuba	PP
1200	5765	AFN/AFRTS, via Guam		2200	9925	Croatian Radio, via Germany	
1200	3945	Radio Vanuatu	Bislama	2200	15560	Radio Australia	
1200	9530	Voice of America, Philippine Relay	CC	2200	13680	Radio Japan	JJ
1200	11870	KNLS, Alaska		2200	9445	All India Radio	
1200	5050	Ozy Radio, Australia		2200	9420	Voice of Greece	Greek
1300	9625	CBC Northern Service, Canada		2200	9445	All India Radio	
1300	9525	Voice of Indonesia		2200	9800	Voice of Turkey	
1300	9870	All India Radio	Hindi	2200	15110	Radio Exterior Espana, Spain	SS
1300	11710	Voice of Korea, North Korea		2300	13670	Radio Havana Cuba	SS
1300	9835	Sarawak FM, Malaysia	Malay	2300	15345	Radiodifusion Argentina Exterior	SS
1300	6050	RT Malaysia	Malay	2300	13605	All India Radio	
1300	9335	Voice of Korea, North Korea		2300	5954	Radio Republica, to Cuba	SS
1300	15450	Voice of Turkey		2300	17550	Radio Kuwait	
1300	13680	Radio Free Asia, via Tajikistan	Tibetan	2300	13740	Radio Free Asia, Northern Marianas Relay	CC
1400	11775	University Network, Anguilla		2300	13680	Radio Nacional Venezuela, via Cuba	SS
1400	17575	RDP International, Portugal	PP	2300	15565	Radio Free Asia, Northern Marianas Relay	CC
1400	11795	KBS World Radio, South Korea	SS	2330	12100	WTWN, Tennessee	PP
1400	9520	Radio Veritas Asia, Philippines	Tamil				

Pop'Comm appreciates and encourages comment and feedback from our readers. Via email, please write: < editor@popular-communications.com >. Our postal service address is: Editor, Popular Communications, CQ Communications, Inc., 25 Newbridge Rd., Hicksville, NY 11801-2953 USA.

Hop to It, Ladies: August's DTV Antenna Project Is a Snap

Editor, *Pop'Comm*,

I saw Richard Fisher, K16SN's, instructions for a DTV antenna, **Photo A**, in August's *Pop'Comm* magazine (*"Seeing Is Believing: Build a Simple DTV Antenna,"* page 20. – Ed.), and immediately bought the magazine and proceeded to put the antenna together.

It was a snap and it works so well, considering that it was made from a bunch of scrap material I had taking up space in my garage. It actually works better than the antenna I had been using that has a power booster on it.

I purchased an indoor/outdoor (impedance) transformer and nailed the antenna onto my privacy fence, which is about 3 feet from my house. I have it facing my house, which has aluminum siding, and I am wondering if that is helping the great reception I am getting now.

I had it inside at first but I couldn't get one of my local stations. If I turned it one way I would lose one station. If I turned it another way, I would get that station back but lose another one. So the antenna went outside.



Photo A: With the K16SN DTV antenna described in August 2011's *Pop'Comm*, "I am getting all of the stations now perfectly . . . better than (with) the powered antenna I had been using. I was about ready to throw my TV out the window using that powered antenna," wrote Maggie, a reader from Toledo, Ohio. (Courtesy of K16SN)

I am getting all of the stations now perfectly. As I mentioned before, better than the (amplified) powered antenna I had been using. I was about ready to throw my TV out the window using that powered antenna.

I had actually stopped watching TV because it was so frustrating. I couldn't get some stations some of the time and then when they did come in they would break up at the most important point of the program.

I have noticed that everyone on my block has been getting either cable or (a satellite dish) since the changeover to digital TV. I feel good about the fact that, thanks to your article, I can still get free TV.

I might add that I am a female. So hop to it ladies, it's a piece of cake.

Maggie
(full name withheld by request)
Toledo, Ohio

Perhaps Some More 'Neighborly' DTV Assistance?

Editor, *Pop'Comm*,

Regarding articles written by Phil Karras, KE3FL, in the August and September issues of *Pop'Comm*: *"To A Neighbor's Rescue: Now She Can See Her DTV,"* and *"A Made-For DTV Mystery (Continued),"* respectively.

I live in Arkoma, Oklahoma, but I have a friend, "Packy," who lives in Mount Airy, Maryland (*where Phil lives.* – Ed.). He, too, is a ham operator.

My friend has tons of TV antennas but is not sure how to put one up (for best DTV reception) for Baltimore and Washington, DC. Maybe you could give him some advice.

He was thinking of installing a Winegard 8200 with rotor and preamp. Maybe he could go with something more simple — but only if it would get all the Baltimore and DC channels.

I think he is using an old RadioShack® antenna now, but not with good results. I would help him, but I live 1,400 miles away!

Gary Hickerson,
Arkoma, Oklahoma

(Gary: Phil Karras and your Mount Airy friend, "Packy," also know each other and "go way back," KE3FL says. With DTV, the biggest challenge for reception is your location — period. "This includes height as well as North-East-South-West location," Phil says. KE3FL is emailing "Packy" to check in on how his DTV reception is going. – Ed.)

Wanted: Details On the High-Gain UHF DTV Antenna

Editor, *Pop'Comm*,

In his September 2011 *Pop'Comm* article, *"A Made-For DTV Mystery (Continued),"* writer Phil Karras, KE3FL, mentioned purchase of a "new high-gain UHF antenna."



Photo: B: The high-gain DTV antenna in the living room of Phil Karras, KE3FL, is made by Stellar Labs, No. AV923. (Courtesy of KE3FL)

Can you please tell me what he bought? I haven't been able to find what is pictured anywhere (**Photo B**).

Ron Shire, N8APZ,
Toledo, Ohio

(Ron: Phil tells us it is a 30-2155 - HDTV/DTV/UHF Outdoor Antenna made by Stellar Labs — manufacturer No. AV923. According to Stellar, this "directional outdoor antenna is optimized to pick up UHF signals for digital television and high-definition television broadcasts." Visit: < <http://bit.ly/q3gfFw> >. — Ed.)

Fond Memories of CB Radio and a Correction On Class D

Editor, *Pop'Comm*,

I just purchased and read the September 2011 *Pop'Comm*, with Jeffrey Reed's article

"Reminiscing: A Rush of Nostalgia With A CB in His Hand."

It was very well written, but I take issue with one part of his main story under the headline "11-Meter Radio: A Brief History" where he states that CB's Class D license was first designated in 1948. (On page 13. — Ed.)

If my memory serves me correctly — and I was there — it was 1958 when CB Class D was created.

Class A, B and C were created much earlier and it is possible that Class A and B were created in 1948. But Jeffrey indicates Class D licenses were being issued in 1948.

I was only 13 when Class D was started and I had been using Class B Vocaline radios that my father had licensed from the time I was 10 years old. When Class D came about (making most U.S. radio amateurs very unhappy with the loss of the 11-meter band) I thought I was in heaven. Now I could use a band that had skip and a radio with 5-watts input, not a 0.3-watt UHF radio.

I built a Heathkit "Lunch Box" (AM transmitter) and worked the world as the 11-meter band was *hopping* with the great solar cycle we were in. My first call was from the family license of 10W2476. Then the FCC found out it had violated NTU rules with those calls below 30 MHz. They were legal on 462 MHz, but not below 30 MHz.

Later on I held a number of Kxx-xxxx calls on Class D. I still hold a GMRS license and have a UHF repeater on the air. But these days I spend my hobby time on the amateur radio bands.

I worked as a broadcast engineer and in land mobile since the 1960s, with some military operations mixed in. My career was started on CB, but not class D. It was Class B.

But my class D days are some of the best I can remember. I keep praying for another great solar cycle like then so I can work the world on 10-meters and maybe even on 6-meters.

Thanks for a great magazine.

Rick Sohl, K5RIC,
Nogal, New Mexico

(Rick: Thank you for such an interesting letter. You are right about Class D operation on 11 meters being launched in 1958. A bit of research shows CB actually dates to 1945 in the 460-470 MHz band. Maybe a *Pop'Comm* feature on Citizens Band history is in order. — Ed)

Shannon's Great 'Summer Read,' and Getting a Charge from Gordo

Editor, *Pop'Comm*,

Regarding Shannon's Broadcasting Classics in the August 2011 *Pop'Comm* under the headline "On A Given Day, the World's Most Boring Crystal Radio." This was an excellent "summer read" and perfection in story telling by Shannon Huniwell.

Also, in the same issue, "Charging Ahead:

Eyes on Big Battery Maintenance," by Gordon West, WB6NOA, was timely — especially since I have an AGM battery that is being stubborn. The Pulse Tech charger may save it.

Rick Hapanowicz
Arlington Heights, Illinois

Style Changes in *Pop'Comm* Typography?

Editor, *Pop'Comm*,

Regarding format changes in *Pop'Comm* — I guess that's what they are. I'm not sure.

In the July 2011 issue there are several changes in the way text is formatted. They are new to me. At least I don't remember them from before, and they really interfere with readability, in my opinion.

First, there is a lot of use of italics in the text, especially on technical terms. It kind of stops me every time, that is, it somehow interrupts the flow.

Second, URLs (Internet addresses) are printed in underlined type, which to me interferes with readability.

Third, URLs are bracketed in angle brackets and an extra space. For example, < <http://something> >. Both seem unnecessary, and also interfere with readability. I'd be happy with just <http://something>.

These observations are meant constructively, and I hope it comes across as such.

Gene E. Bloch
Redwood City, California

It's Still A Winner, After All These Years

Editor, *Pop'Comm*,

Just wanted to send you a note letting you know how much I still enjoy reading *Pop'Comm* after 27 years. I read my first issue — June 1984 — and immediately knew I had found exactly the radio hobby publication I'd been looking for.

My interest in shortwave radio and scanners actually led me to a ham radio license and a satisfying stint working in law enforcement communications for a time in the mid-1990s.

Although my interest in the radio hobby waxes and wanes (so many competing gadgets to get distracted by) I'm always pleased and excited when I pick up a current copy of *Pop'Comm* and get caught up on the latest developments in radio technology and equipment.

In 1984, there was only sporadic use of the 800 MHz band for public safety communications — in analog, of course. I swear, the scanners of today do everything but slap the cuffs on the perp!

(Founding *Pop'Comm* Editor) Tom Kneitel started a great enterprise. Congratulations on continuing his legacy with a great magazine!

Paul Judd,
British Columbia, Canada

Afghanistan Makes a Return to the Shortwaves — But Will Be a Challenge to Snag in North America

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

“Remember, your shortwave broadcast station logs are always welcome . . . Needed, as well, are spare QSLs, station schedules, brochures, pennants, station photos and anything else of interest.”

In a reversal of the usual pattern of negative news we normally have to deal with, this month we're in a positive mode.

Long missing from the list of shortwave broadcasters, Afghanistan has reactivated its foreign service, specifically in English and Urdu. These two will be followed shortly by Arabic and Russian and then French and German.

In total, the focus areas will be Asia, Africa and Europe. Note the United States is not included as a target area! The broadcaster is operating initially from 1530-1630 on 6100 — quite a terrible time-frequency pairing for reception in North America. You'll probably need to be an ESTer and try it in the deepest part of winter to have even the slightest chance at this one.

If you're successful, its old address was P.O. Box 544, Wnsari Wat, Afghanistan. So far, I haven't found a website. It has been seven or eight years since word of the proposed service was announced, so we must expect to wait — and hope — that helpful schedule changes will be made sometime down the road.

Pirate TCS Deep Sixed?

It seems the pirate — The Crystal Ship — has been raided and closed down by the FCC, a not-every-day event over the past few years.



The headquarters building of the Sri Lanka Broadcasting Corporation, being heard lately on 11905. (Thanks: Rich D'Angelo)

TCS operated off and on for quite some years on any number of frequencies. Operator “John Poet” believes a pirate operator was responsible for giving out his name and location to the feds.

I was not aware that the FCC no longer used those funny rotating circular antennas on top of those on ominous-looking vans. Maybe they didn't get *enough* use and were allowed to fall into disrepair.

CFVP Returns to 6030

Also on the positive side this month is news of the return to the air of CFVP in Calgary (Alberta), on its usual 6030, again using just 100 watts to relay country-formatted CKMX-1060 medium wave. That's just about the only North American shortwave station that really qualifies as a DX catch.

. . . And in Other News

The Australian station, **Ozy Radio** on 5050, is temporarily off the air. The station expects to open again in about six months. Meantime it is gearing up for operations on the web.

The **BBC** is reporting a drop in its worldwide audience of approximately 14 million, thanks to a 16 percent cut in funding. The drop was all tempered by a 40 percent increase in listening and viewing online. If anything puts the writing on the wall — in caps and bold type — it's figures like these!

Meantime, a reported explosion at the Zygi port on Cyprus has caused a reduction in the number of transmissions from the **BBC Middle Eastern Relay in Cyprus**.

The Israeli military broadcaster, **Galei Zahal**, has moved to 9235 from its former 6973 frequency. Meantime, 15785 continues as before.

Wanted: Your Logs, QSLs, Listening Post Photos

Remember, your shortwave broadcast station logs are always welcome. But *please* be sure to double or triple space between the items, list each logging according to its home country and include

Radio Ronin shortwave

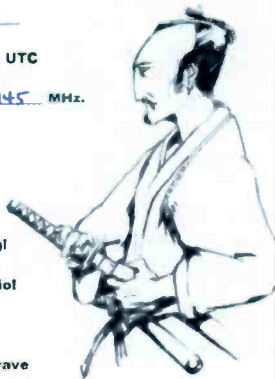
We are pleased to verify the reception report of

RICHARD D'ANGELO as described below.

Date: 4-30-2011

Time: 0206 UTC

Frequency: 6.945 MHz.



Thanks for listening!

Long Live Free Radiol

73,
Radio Ronin Shortwave

The pirate Radio Ronin Shortwave was QSL'd by Rich D'Angelo on 6945.

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.

How about sending a photo of you at your listening post? It's your turn to grace these pages! You've been certified as late. Tardy. Past due!

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, 7315 with sign on at *0330 and into local music. (Maxant, WV)

ALGERIA—RT Algerienne, 7295 via France at 0420 with Koran recitations. (Brossell, WI) 9535 via France at 0555 with sudden sign off in AA. (Sellers, BC)

ANGUILLA—Caribbean Beacon, 11775 at 1405 with Melissa Scott preaching. (Maxant, WV)

ARGENTINA—Radio Argentina Exterior, 15345 at 2315 with local music and SS anmts. only fair on //6060. (Alexander, PA)

ASCENSION ISLAND—BBC South Atlantic Relay, 6005 at 0533 with *Network Africa*, 6105 in FF with news sound bites at 0602. 7255 at 0428 on political infighting in Mogadishu and 17885 in Hausa at 1929. (Parker, PA) 7255 at 0550 with W and sports news. (Sellers, BC) 9915 at 2200 with news.

Help Wanted

We believe the Global Information Guide — month after month — offers more logs than any other monthly SW publication! (Just over 600 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 Gerry Dexter, Global Information Guide, 213 Forest St., Lake Geneva, WI 53147 or email them to <gdex@wi.rr.com>. See the column text for formatting suggestions.

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

(Coady, ON) 12095 at 2144. (Padazopulos Greece)

AUSTRALIA—Radio Australia, 9580 at 1057 with a rugby contest, 15515 at 0220 with rugby and soccer news and 15560 at 2308 with *Correspondents' Report*. (Coady, ON) 9855 (unlisted) at 2312 with talks and ID. Also, 13690-Shepparton at 0331 with a press conference. (Parker, PA) 11880 at 1820, 15240 at 0345 with local ABC news pgm. 15515 at 2145, 15560 at 2235 with comments on the Four Corners, 17715 at 0011 with news comments and features and 17795 at 2328 on land issues, *Innovation* pgm. (MacKenzie, CA) 13690 with soccer scores at 0345. (Roberson, OK) 15160 at 1552 interviewing a Fiji official. (Sellers, BC) 15240 at 0350 on immigration and 15515 with soccer at 0430. (Maxant, WV) 17715 at 0040 with news on effects of climate change. (Linonis, PA)

ABC Northern Territories Service, 2385-Katherine with audio at 1020 noted for the first time in weeks. (Wilkner, FL)

HCB-Australia, 15525-Kununurra at 2240 with choir. (MacKenzie, CA)

BOLIVIA—Radio San Miguel, Riberalta, 4700 with a good signal in SS at 1015. (Wilkner, FL)

Radio Yura, Yura, 4717 with a good SS signal at 1044. (Wilkner, FL)

Radio Pio Doce, Oruro, 5952.4 at 0035 to 0059 close with SS talks, usual closing with Colonel Boogey March, (aka the River Kwai march). Usually closes at 0230. (Alexander, PA) 0026-0117* covering an apparent outdoor party or festival with lively M/W SS talk, music and shouting. Suddenly off at 0117. (Ronda, OK) 1030-1035 in SS. (Wilkner, FL)

Radio Santa Cruz, Santa Cruz de la Sierra, 6134 at 0037 but poor with romantic ballads. (Ronda, OK) *0857 sign on with choral music and SS talk, flute IS and opening SS anmts.

BONAIRE—Radio Nederland, 6165 Relay in SS at 0336. (MacKenzie, CA) ts. (Alexander, PA) 0931 with Bolivian music. Also noted well at 0055. (Perry, IL) Bonaire 0525 in DD with ID and anthem and close at 0527. (Parker, PA)

BOTSWANA—Voice of America Relay, 7430 at 0410 in (I) Kinyarwanda with talks and ID. (Parker, PA) 15580 at 1925 f/by *Press Conference USA*. (Brossell, WI)

BRAZIL—(All in PP – gld) Radio Di-

fusora do Amazonas, Manaus, 4805 at 0940-1010 fade with M and music. (Wilkner, FL)

Radio Difusora Roraima, Campinas, 4878.4 at 0403 with local ballads, anmts. Off with anthem at 0410. (Alexander, PA)

Radio Daqui, Goiania, 4915 at 0923 with religious music and anmts. //6080, both weak. (Alexander, PA)

Radio Brazil Central, Goiania, 4985 at 2340. (Wilkner, FL) 11815 at 0402 with M vocal and guitar. (Parker, PA)

Radio Voz Missionaria, Camboriu, 5939.8 at 0530 with PP religious music. //9665 weak. (Alexander, PA) 9665 at 0425 with a call-in pgm and long inspirational campo. And, 11749.8 at 0432 with long talk by man f/by upbeat hlife-type music. (Parker, PA)

Radio Inconfidencia, Belo Horizonte, 6010 at 0045 weak to fair with adjacent channel splatter. //15190 also weak. 15190 at 0145 with romantic Brazilian ballads. (Alexander, PA) 0000 with a possible Catholic Mass. (Linonis, PA)

Super Radio Deus e Amor, Curitiba, 6060 at 0902 with partial ID and into taped futbol highlights. //9565. (Perry, IL) 11765 at 0416 with preacher, W caller. (Parker, PA)

Radio Bandeirantes, Sao Paulo, 9645 at 0454 with sports commentary, then blasted by Vatican's sign on at 0458. (Ronda, OK)

Radio 9 de Julho, Sao Paulo, 9820 at 0243 with slow ballad, anc and comls. (Parker, PA)

Radio Nacional Amazonas, Brasilia, 11780 at 0000. (MacKenzie, CA) 1150 with PP songs. (Brossell, WI)

BULGARIA—Radio Bulgaria, 15700-Plovdiv in SS at 1648 with a slow ballad. (Parker, PA)

CANADA—Radio Canada International, 15235 at 2025, 15330 in FF at 2140, 15455 in PP at 2150, 17735 in FF at 1913, 17860 in PP at 2120. (MacKenzie, CA) 17725 at 2002. (Parker, PA)

CBC Northern Service, 9625 heard at 1325 on immigration. (Maxant, WV) 2145-2200 with comments on the hockey riots. (Linonis, PA)

CFRX, Toronto, 6070 relaying CFRB at 0000 with talk on Boston Bruins. (Linonis, PA) 0333 with ad string, into *In the Studio* pgm. (D'Angelo, PA) 0540 with a comedy pgm. (Sellers, BC) 0546. (Parker, PA) 1322 on candy production there. (Parker, PA)

X

Music To The Power of X

This is to confirm reception of X-FM on 6-3-11 at 0419 UTC on 6930 KHz USB by Rich D'Angelo QSL #032 Thanks For Listening!

Pirate X-FM was another recent Rich D'Angelo reception, this on 6930 USB back in June.

CHU, Ottawa, 3330 with time signals at 0410. (Roberson, OK) 14670 at 1325. (Maxant, WV)

CHAD—RN Tchadienne, 6165 at *0428 sign on with Balafon IS and anthem, FF anmts and local tribal and hilife music. (Alexander, PA) 0527 in vernacular with deep-voiced ancr. (Parker, PA) *0429 opening and lively pgm of hilife music. (D'Angelo, PA)

CHILE—CVC-La Voz, Santiago, 11665 with vocals at 0005. (MacKenzie, CA) 17680 at 1820 with SS choirs. (MacKenzie, CA) 2017 with SS talks. (Parker, PA)

CHINA—China Radio International, 6040 via Canada on economics at 1050. (Fraser, ME) 7435-Nanning in CC at 1225, 9760-Kunming with news at 1200, 11695-Xi'an in (I) Tagalog at 1446, 11695 via Albania in FF at 1940, 11990-Jinhua at 1717 comparing China and U.S. economics and 12070-Xi'an in Tagalog at 1155. (Brossell, WI) 5985 in CC at 0324, 9700 via Canada at 0338, 11840 in EE/CC at 2354 and off suddenly at 2359. Also 13580 in CC at 0047. (MacKenzie, CA) 9590-Kashi in SS at 0004. (D'Angelo, PA) 9860-Kashi in Esperanto at 2318 and 13790-Urumqi at 1344. (Parker, PA) 11660-Kashi in FF at 2137. (Padazopulos, Greece) 13860-Shijiazhuang in RR at 1624. (Ronda, OK) 17650-Kashi in CC at 0745. (Ng, Malaysia)

CPBS/China National Radio: Voice of the Strait, 6115-Fuzhou in (I) Amoy at 0603. (Parker, PA) 6175 in CC at 1200. (Brossell, WI) Voice of Pujiang, Shanghai, 9705 at 1254 in Mandarin. (D'Angelo, PA) 13800 in CC at 1948. (MacKenzie, CA)

Firedrake jammer, 13640 with the usual at 1416. (Parker, PA)

COLOMBIA—Alcaravan Radio, Puerto Lleras, 5910 at 0509 in SS with up-tempo music. (Parker, PA) 0638 with lively W vocals. (Ronda, OK)

La Voz de su Conciencia, Puerto Lleras, 6010 at 0305 with SS talk and mentions of Colombia, but drifting slightly. (Alexander, PA)

CROATIA—Voice of Croatia, 3985-Deanovec, //9925 with pops and W in Croatian, ID at 0130 and possible news, 9925 via Wertachtal at 2215 with ID and "You are listening to Croatia Today." (Coady, ON) 2200 with *Croatia Today* pgm. (Linonis, PA)

CUBA—Radio Havana Cuba, 5040 in SS at 0400, 6000 with Arnie Coro at 0320, 6005 with *Weekly Review* pgm, 6120 in SS at 0340, 12020 in SS at 1240, 13670 in SS at 0020, 15230 in SS at 0032, 15370 in PP at 2250 and 17560 in SS at 2208. (MacKenzie, CA) 5040 and 6000 in SS at 0350, 13670 in SS at 2135. (Padazopulos, Greece) 11770 in AA at 2048. (Brossell, WI)

Radio Rebelde, 5025 in SS at 0413. (MacKenzie, CA)

ECUADOR—HCJB Global, (Pinchincha - gld) 6050 in SS/EE at 0347. (MacKenzie, CA)

EGYPT—Radio Cairo, 9305 at 0350 with Egyptian music. (Maxant, WV)

ENGLAND—BBC, 5790-Skelton at 0545 in AA, 7310 via South

Africa with talk at 0424, 9895 Cyprus Relay in Dari at 0252, 9915 Cyrus in AA at 0358-0400 sign off, 11740 Cyprus in AA at 0452, 11820 Oman Relay in AA at 0357-0488*, 11855 Cyprus in Farsi at 0352, 11995 via UAE in Urdu at 0353, 15690-Skelton in Sinhala at 1655. (Parker, PA) 6145 via South Africa with African news items at 0335 and 7445 Cyprus in Pashto at 0220. (Ronda, OK) 9410 in EE at 0538 and 15360 with a report on NATO in Libya at 0110. (MacKenzie, CA)

ERITREA—Voice of the Broad Masses, 7175 at *0256 sign on with IS, vernacular talk and some HOA, 7204 VOBM, Pgm One at *0255 with IS and vernacular talk, HOA music, 9710 (nf) at 0315 with some HOA music, 9715 at 0255 with Program 2, 9730 at *0256 with sign on, 9820 sign on at 0256. (Alexander, PA) 7175 at *0255 with IS, ID and into news and 7205 Program One at *0256 in listed Tigrinya. (D'Angelo, PA) 7205 at 0453 in (I) Tigrinya (Ronda, OK)

ETHIOPIA—Radio Ethiopia, 9705 at 2040 to 2011 close with local folk music, U.S. and Euro-pops. Off with anthem at 2059. (Alexander, PA) 0308 with HOA vocals and Amharic anmts. (Ronda, OK)

Radio Fana, 6110 from *0256 with M in Amharic, several IDs, music, W with news. (D'Angelo, PA) 0318 with HOA instls. (Ronda, OK)

Radio Oromiya, 6030 at *0323 with marimba IS, anmts in (I) Oromo, lite music at 0322. (Radio Marti is off on Mondays. - Alexander, PA) *0329 with same sign on routine. (Ronda, OK)

FRANCE—Radio France International, 9805-Issoudun in EE at 0435, 11605 via South Africa in FF at 0535 and 11700-Issoudun in FF at 0457. (Parker, PA) 9805 on American baseball, 11995 at 0405 on gold hitting a new high. (Maxant, WV) 11705 in FF at 1940, 15515 in SS at 1220 and 17600 in PP at 1855. (Brossell, WI) 15300 in FF at 1823 and 21690 French Guiana Relay in FF at 2148. Off by 2157. (MacKenzie, CA)

GABON—Africa Number One, 9580 at 2121 with several pop songs in EE. (Ronda, OK)

GERMANY—Deutsche Welle, 5915 via Rampisham in RR at 0512, 6075 Portugal Relay in GG at 0557, 7240 Rwanda Relay with African feature at 0450, 9885 Rwanda Relay in GG at 0410, 11965 via Rampisham in Swahili at 0328, 15510 Kigali in RR at 1712 and 21780 Kigali (p) in an African dialect at 1315. (Parker, PA) 6165 Sri Lanka Relay at *2357 beginning sign on but covered by Radio Nederland's sign on. (D'Angelo, PA) 7420 at 0410 with news items. (Maxant, WV) 9545 Portugal Relay at 0611. (Sellers, BC) 11780 in RR at 0343 and 12070 Rwanda Relay in GG at 0052. (MacKenzie, CA) 11615 Sri Lanka Relay in RR at 1905, 15620 in Hausa at 1850 and 15640 Portugal Relay in GG at 1935. (Brossell, WI) 15275 Portugal and 15640 Singapore Relay at 2125. (Padazopulos, Greece) 15640 Rwanda Relay at 1725. (Fraser, ME) 15650 via Singapore at 0945 with *In Box* pgm. (Ng, Malaysia)

Deutschlandfunk Radio (p) 6190 at 0036 with classical music and GG talk. (D'Angelo, PA)

GREECE—Voice of Greece, 7475 in Greek at 0308 and 15630 in Greek at 1920. (MacKenzie, CA) 9420 at 2200 in Greek. (Linonis, PA) 15630 in Greek at 1934. (Brossell, WI)

GUATEMALA—Radio Verdad, 4055, 0407 with song, talk by W, short prayer and then religious talk, local ID at 0429. (D'Angelo, PA) 0410 with inspirational music in EE and ancr in either EE or SS. (Wood, TN) 0515 with *Through the Bible* pgm. (Alexander, PA) 1125 with EE preacher. (Sellers, BC)

GUINEA—RT Guinee, 7125 in FF at 0640 with slow talk and Afropops. (Wood, TN) 0649 with talk in FF: suddenly off at 0701 but back at 0730 recheck. (Ronda, OK) 2210-2257* with a variety of Afropops. (Alexander, PA)

GUYANA—Voice of Guyana, 3290 at 0830 with eclectic pgm of jazz, religious and sub-continental music. (Wilkner, FL)

HAWAII—WWVH, 15000 at 0012. (MacKenzie, CA)

INDIA—All India Radio, 4920-Chennai in Hindi at 1300 and 5010-Thiruvananthapuram in Hindi at 1242 with M speech, then W. (Sellers, BC) 0109 in Hindi. (D'Angelo, PA) 7420-Guwahati in (I) Tibetan at



This must be master control at Germany's Deutschlandfunk.
(Thanks: Rich D'Angelo)

1220, 9870-Bangaluru in Hindi at 1145. (Brossell, WI) 9445 at 2221 on Indian World Heritage sites. (Coady, ON) 2245 with music and talk about recent "Bollywood" movies. (Linonis, PA) 9870-Bangaluru with the Vividh Bharati service at 1340. (Ronda, OK) 13605 in EE at 2329 with M singing in AA. (MacKenzie, CA) 13795-Bangaluru in Tamil at 0011. (Parker, PA)

INDONESIA—Radio Republik Indonesia, 3345, Ternate (Malaku) at 1145 with an Islamic-sounding sound, possible Koran teaching. (Sellers, BC) 4790-FakFak (Irian Jaya) at 1030-44. (Wilkner, FL) 9680-Jakarta (Jawa) with songs, talk at 1307. (Ronda, OK)

Voice of Indonesia. 9525v in CC at 1110. (Ng, Malaysia) 1309 ending EE news. (Sellers, BC) 9680 at 2200 in II. (Ng, Malaysia)

IRAN—Islamic Republic of Iran Broadcasting, 7200 in SS at 2052. (Brossell, WI) 9905-Kalamabad in SS at 0247, 11920-Sirjan in EE at 0341, 11860-Zahedan in AA at 0516, 11875-Kalamabad in AA at 0353 with its "Voice of Palestine" service and 13740 in Dari at 0325. (Parker, PA) 11660-Zahedan in AA at 0355. (Ronda, OK) 11670 in EE at 2130. (Linonis, PA)

ISRAEL—Galei Zahal, 9235nf (ex-6976) at 0055 with local pops and rap, //15850. (Alexander, PA)

JAPAN—Radio Japan, 5960 via Canada in JJ at 0329, 9835 in JJ at 1747, 11935 via Bonaire in JJ at 0330, 13650 in Thai at 2326, 13680 in JJ at 2216, 15265 in JJ at 2252, 17810 in Indonesian at 2325. (MacKenzie, CA) 5975 via Rampisham at 0528, 6080 via Bonaire in JJ at 0513, 6110 via Canada, 11935 via Bonaire in JJ at 0333. (Parker, PA) 6120 at 1215. (Fraser, ME) 9620, probably via Canada, in JJ at 2200. (Linonis, PA) 9750-Yamata in JJ at 1244. (Ronda, OK) 11705 with African news at 1403. (Sellers, BC) 11880 via Santiago with news in PP at 2142. (Padazopulos, Greece) 15445 via Germany in JJ at 1844. (Brossell, WI)

Radio Nikkei, 9595 in JJ at 0535. (MacKenzie, CA) 1322 in JJ. (Ronda, OK)

KUWAIT—Radio Kuwait, 17550 in AA at 2155. (MacKenzie, CA) 2337 in AA, gone by 0011. (D'Angelo, PA)

LIBYA—Voice of Africa, 11800 in (I) Hausa at 1946. (Brossell, WI)

MADAGASCAR—Radio Madagasikara, 5010 at 0219 with corals, IS, anthem and opening annts in Malagasy, f/by lively local music. (Alexander, PA) 0251 with vocals, M in Malagasy, ID and news. (D'Angelo, PA)

MALAYSIA—Radio TV Malaysia Kuala Lumpur, 6049.7 at 1303 in Malay with W hosting pops. (Sellers, BC)

Sarawak FM, 9835, Kuching (Sarawak), at 1250 in Malay with W hosting pops, //5030. (Sellers, BC) 1332 with ballad-like songs in Malay. (Ronda, OK)

MAURITANIA—RT Mauritanie, Nouakchott, 7245 at 0538 with

Koran recitations. (Ronda, OK) *0557 with abrupt sign on with Koran. (Alexander, PA) 2215 with AA music. (Linonis, PA)

MEXICO—Radio Mil, Mexico City, 6010 noted weakly at 0940, but very good at 1025 recheck. (Perry, IL)

Radio Educacion, Mexico City, 6185 with SS ID at 0328 and SS songs with guitar. (Ronda, OK) 0330 in SS with comments and classical music. (MacKenzie, CA)

MOLDOVIA—Radio PMR, 9655 at 2136 with history features and schedule. Very good signal; (noted while in France). (D'Angelo, PA)

MOROCCO—RTV Marocaine, 9595 at 0715 with two M talking in AA. (Ronda, OK) 15345 in AA at 1926. (Brossell, WI)

Radio Medi Un, 9575 at 2103 with FF news, ID at 2131. (Noted while in France.) (D'Angelo, PA)

MYANMAR—Myanmar Radio, 5985 at 1050 with talk in Burmese. (Ng, Malaysia)

NETHERLANDS—Radio Nederland, 6125 via Vatican in DD at 0523 11615 Rwanda relay with *The State We're In* at 2008. (Coady, ON) 11655 at 2031 Madagascar Relay and 15495 via Germany at 1847. (Brossell, WI)

NEW ZEALAND—Radio New Zealand International, 6170 at 0721. (Wood, TN) 1040 on Easter Island. (Fraser, ME) 1024 with *Media Watch*, and 15720 at 0000 with time check and news. (Coady, ON) 2215. (MacKenzie, CA) 9655 with news at 1200. (Brossell, WI) 0400. (Roberson, OK) 0425 with rock. (Maxant, WV)

NIGER—La Voix du Sahel, 9705 at 2210 with vernacular talk and Afro-pops, Koran at 2254, IS and NA to 2259 close. Also, *0500 with on with NA and flute IS. (Alexander, PA)

NORTH KOREA—Voice of Korea, 9335 at 1205 comparing Kim Sung Il to Alexander the Great. (Maxant, WV) 11710 at 1300 with time pips, IS, ID and anthem. And 15245 at 2100 with IS, ID and into EE. (Coady, ON) 1341 on the Korean War. //9335. (Sellers, BC) 11535 in FF at 1802, 11910 in FF at 0058, 12015 in FF at 1822 and 13650 in CC at 0045 (MacKenzie, CA) 13650-Kujang in KK at 1407 and 13760-Kujang in FF at 0323. (Parker, PA) 1815 in EE and 15180-Kujang on technology development at 0115. (Ronda, OK)

Korea Central Broadcasting Station, 11680-Kanggye at 1745 with KK choral, not // to VOK-11710. (Ronda, OK) 11710 in KK at 1715. (Brossell, WI)

NORTHERN MARIANAS—Far East Broadcasting/KFBS, Saipan Island, on 11650 in RR at 1147. (Brossell, WI)

OPPOSITION—Hamada Radio International (to Nigeria), 9610 via Wertachtal in Hausa at 0532. (Ronda, OK)

Radio Voice of People (to Zimbabwe), 9870 via Madagascar at 0423 with talks and upbeat music bridges in heavily-accented EE. (Parker, PA)

Denge Mesopotamia (to Iran), 11530 at 0402 with NA, local Kurdish music. (Alexander, PA) (p) At 1931 in (I) Kurdish with local vocals and instl music. (Coady, ON)

Democratic Voice of Burma, 11595 via Armenia at *2329-0030* with local instls and talk in (I) Burmese. (Alexander, PA)

Radio Damal (to Somalia), 11740 at 1850 to 1929* in (I) Somali and some HOA style music. (Alexander, PA)

Radio Republica (to Cuba), 5954.2 in SS at 2335. (Wilkner, FL)

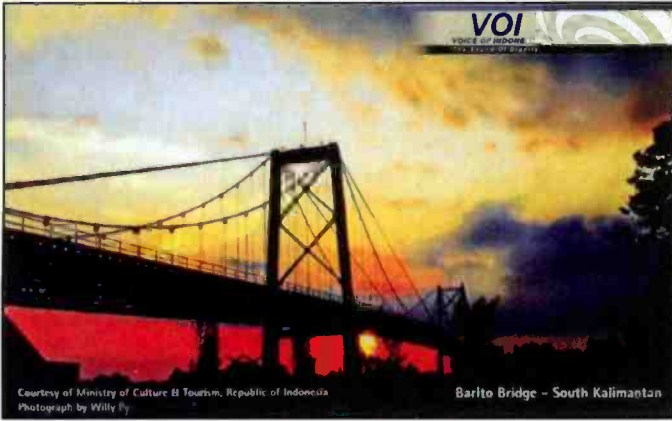
Radio Y'Abaganda (to Uganda), 15410 at *1700-1715* sign on with African choral music and vernacular talk to close at 1715. This airs Saturdays only. (Alexander, PA)

Nippon no Kaze (to North Korea), 9950 in KK at 1321 and into JJ at 1330. (Ronda, OK)

PAPUA NEW GUINEA—NBC Sanduan, Vanimo (New Guinea), 3205 at 1233 with M in Tok Pisin with time check, pop and country. (Sellers, BC)

In Times Past

Radio Caribe, Ciudad Trijillo (now Santo Domingo), Dominican Republic on 6500 at 0500 in SS on July 22, 1960



This Voice of Indonesia QSL to Rich D'Angelo shows the Barito Bridge in South Kalimantan.

Radio East New Britain, Rabaul (New Britain), 3395 at 1151 with W in Tok Pisin, songs, news. (Sellers, BC)

PERU—Ondas del Huallaga, Huanuco, 3330 with OA music after seeming sign on at 1020. (Wilkner, FL)

Radio Tarma, Tarma, 4775 (p) at 1100 in SS. (Wilkner, FL)

PHILIPPINES—Far East Broadcasting Corp., 12095 at 1240, only fair to poor. (Ronda, OK)

PIRATES—Captain Morgan Shortwave, 6924 at 0015 and 6950 at 0325 with blues and rock. Sign off at 0015*. (Alexander, PA) 6925 at 0102 and 2340 with largely blues. < captrainmorganshortwave@gmail.com > for reports. (Zeller, OH) 0105 with country bits, blues-rock and gmail address. (Hassig, IL) 0125 with rock oldies. (Ronda, OK) 0434 with Twilight /Zone theme just before 0437* close. (D'Angelo, PA)

MAC Shortwave, 6925 at *0055 signing on with the old Radio Prague anthem and into the Paul Star show with primarily rock oldies with several old professional jingles mixed in. (Zeller, OH) 0130 with rock with a youngster giving < macshortwave@yahoo.com > and < macshortwave@gmail.com > for reports during and *The Ultra Man Show*. (D'Angelo, PA) 2200 opening with Radio Prague theme, poor copy with young boy hosting rock, but multiple clear IDs. (Zeller, OH) 2355 with *Ultra Man Show*, Secret Agent Man theme and others. (Alexander, PA)

Wolverine Radio, 6925u at 0219 with wide variety of oldie pops. (Ronda, OK) 0235 with pops and ID at 0245. (Alexander, PA)

Rave On Radio, 6925u at *0057 with classic rock. < raveonradio@gmail.com > for reports. Also asked for reports to FRN, which is back in service. (Zeller, OH)

WMPR, 6925 at *2239 with ID at sign on, but the rest was difficult to copy due to a weaker signal. Never known to announce an address. (Zeller, OH)

Liquid Radio, 6925 poor at 0240, one number sounded like an Australian didgeridoo. (Hassig, IL)

Radio Free Mars, 6925 at 0310-0331* with Elton John songs. (Alexander, PA)

XFM, 6940u with rock/pop at 0345. (Alexander, PA)

Radio Ronin Shortwave, 6945 with special best at 0414. (Alexander, PA)

Metro Radio International, 6925 at 2330 with IDs with rock/pop and M/W talk. (Alexander, PA)

KARR, 6925 at 0430 with rock and computer-generated IDs. (Alexander, PA)

Atlantic Radio (Euro), 6965.5 at 0115 with pops, but very weak. Confirmed by their streaming audio at < www.atlanticradio.ie >. (Alexander, PA)

POLAND—Polish Radio, 9770 via Austria at 1700 with *Europe East* and 11675 via Austria with news and *European Diplomatic Bag* pgm. (Coady, ON)

PORTUGAL—Radio Difusora Portugal Intl, 11895 in PP at 1824.

(MacKenzie, CA) 11980 with news at 1252. (Maxant, WV) 12020 at 2150 in PP at 2150. (Linonis, PA) 15560 in PP at 1928 and 17575 in PP at 1438. (Brossell, WI) 11610 at 11907 via Sines on Euro Zone crisis. (Ronda, OK)

ROMANIA—Radio Romania International, 7385-Galbeni at 0030 with *People and Places*. (Fraser, ME) 9645 at 0350 with Romanian folk music. (Maxant, WV) 9770-Galbeni in Romanian at 0439 and 11895-Galbeni at 0342 with a classical music pgm. (Parker, PA) 15160 at 0015 in SS. (Linonis, PA) 15310 in Romanian at 1828. (Brossell, WI)

RUSSIA—Voice of Russia, 7330 in RR at 0321. (MacKenzie, CA) 7335 via French Guiana in SS at 0319, 9665 via Moldova at 0320, 9735 in RR at 0345 and off at 0359. (MacKenzie, CA) 11870 in RR at 0349 in RR. (Parker, PA) 7440-Lvov (Ukraine) 0208 with news. (Ronda, OK) 9665 at 0320 and 13775 at 0355 with on Russian classical composers. (Maxant, WV) 12085-Chita at 1332 and 13775-Vladivostok with *In Focus* at 0525. (Sellers, BC) 13870-St.Petersburg in RR at 1349. (Ronda, OK)

Tartarstan Wave, 15110 at 0411 but poor with fragments of talk and lively flute music. (Ronda, OK)

Radio Kyzyl, 11935 with clear ID at 1200, this is apparently via Shijiazhuang (China). Usual 6100 was silent. (Brossell, WI)

Magadan Radio, 7320 at 1215 in RR. (Brossell, WI)

SAO TOME—Voice of America Relay, 6080-Pinheira at 0541 with news in EE. (Sellers, BC) 6095 in FF with hiliife and calypso at 0557, 15620 in Swahili with talks and Afro music bridge, IS loop and off at 1658, 15740 in Swahili at 1644. (Parker, PA)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 11820 with Koran at 2145-2200. (Linonis, PA) 15435 with call in pgm in AA at 1720 and 11915 with Koran at 2038. (Brossell, WI)

SEYCHELLES—BBC Indian Ocean Relay, Mahe, 9420 with African choral music and pgm previews at 1950. (Coady, ON) 9750 at 0300 sign on and news. (Ronda, OK)

SINGAPORE—BBC Far East Relay, 9740 with news item at 1250. (Ronda, OK)

SOUTH AFRICA—Channel Africa, 3345-Meyerton at 0410. (Ronda, OK) 15225 (t) at 0015 in possible FF. (Linonis, PA)

Radio Sonder Grense, 3320-Meyerton at 0142 with light classical music and 7285 at 0509 with news in Afrikaans. (Ronda, OK) 0238 in Afrikaans. (Coady, ON)

SOUTH KOREA—KBS World Radio, 9840 in AA at 2045 and 11795 in SS at 1420. (Brossell, WI)

SPAIN—Radio Exterior Espana, 3350 Costa Rica Relay in SS at 0530. (Sellers, BC) 6020 Costa Rica in SS at 0316, 6055 in SS at 0345, 9630 in SS at 0520, 9690 in RR at 0327, 11815 Costa Rica in SS at

This Month's Winner

To show our appreciation for your loggings and support of this column, each month we select one "GIG" contributor to receive a free book 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 prizewinner is Robert Fraser, who receives a coffee mug from our friends at Universal Radio, Reynoldsburg, Ohio. That should keep him company while he tunes the bands from his Belfast, Maine, shack. Universal Radio is your err... universal source for everything for, about and associated with your radio hobby. Their fabulous catalog describes their full content, or check out their website at < www.universal-radio.com > For telephone inquires or to request a catalog, call (614) 866-4267.



Radio Station Belarus.

1805, 15110 in SS at 2210, 15160 in SS at 0034, 17550 Costa Rica in SS at 2155 and 17850 Costa Rica in SS in SS at 1910 (MacKenzie, CA) 6055 in SS at 0546 and 17850 Costa Rica in SS at 1943. (Parker, PA)

SRI LANKA—Sri Lanka Broadcasting Corp., 11905 at 0020 sign on with local drums and NA. f/by drums and local music. Also, 15745 at *0125 sign on. (Alexander, PA) 0046 with a nice pgm of Hindi music hosted by a W ancr in Hindi. (D'Angelo, PA)

SUDAN—Sudan Radio TV Corp., 7200 at *0234 sign on with local chants and AA talk. (Alexander, PA) 0310 with AA talk and acapella vocals. (Ronda, OK)

SWAZILAND—TWR, 4775 at 0403 with with a religious pgm in GG. (Ronda, OK) 0423 in GG. (Brossell, WI) 0545 with EE religious pgm. (Sellers, BC)

TAIWAN—Radio Taiwan International, 5950 via Florida at 0516 with talk. Not shown at this hour. (Parker, PA)

THAILAND—Radio Thailand, 15275 at 0011 with M/W with news in EE, ID and promo anmt. (D'Angelo, PA) 0015 with talk about Hugo Chavez's health, comls for a Thai airline. (Linonis, PA)

THAILAND—RT Tunisienne, 7275-Sfax at 0427 in AA, 9725-Sfax in AA at 0454, and 12005-Sfax in AA at 0319. (Parker, PA) 12005 in AA at 1951. (Brossell, WI)

TURKEY—Voice of Turkey, 6170-Emirler with EE news at 0345. (Padazopoulos, Greece) 9615 at 0310 on western society and customs. (Maxant, WV) 9800 at 2210 with EE sports pgm and into Turkish music. (Linonis, PA) 9830 at 3320 ending news and into a press review. (Coady, ON) 13710-Emirler in Urdu from *1358 sign on. (Parker, PA) 15450 with ID and Turkish music at 1320. (Maxant, WV)

UGANDA—UBC Radio, 4976 at 0326 with Europops and more traditional African things. (Ronda, OK)

UNITED STATES—Voice of America, 7575-Thailand Relay at 1206 and 12150-Philippine Relay at 1327 with *Jazz America*. (Sellers, BC) 9530 Philippine Relay in CC at 1258, 11805 in (I) Mandarin at 1425 and 11990 in CC at 1210. (Brossell, WI) 9815-Nauen at *0300 in AA with the Afia Darfur service and 12015 Sri Lanka Relay in Pashto at 0315. (Parker, PA) 15385 in CC at 0042. (MacKenzie, CA)

Radio Free Asia, 13625 Northern Marianas Relay in CC at 1832, 13740 Northern Marianas in CC at 2312 and 15585 Northern Marianas in CC at 2340. (MacKenzie, CA) 13830 via Dushanbe in Tibetan at 1326. (Parker, PA)

Radio Liberty, 9635 via Lithuania at *0300 with opening music and W with anmts in (I) Tatar. (D'Angelo, PA) 9760 Lampertheim Relay in RR at 0452, 15545-Lampertheim in RR at 1709 and 13745 Philippine Relay in RR at 1346, presumably beamed to Siberia, although not listed at this hour. (Parker, PA)

Radio Marti, 6030-Greenville in SS at 0542. (Parker, PA) 7405-Greenville in SS at 0317 and 13820-Greenville in SS at 1840. (MacKenzie, CA)

Radio Farda, 11635 Sri Lanka Relay in Farsi at 0521 with AA pops. (Parker, PA)

AFN/AFRTS, 5446.5-Key West at 0707 with ESPN Sports Center. (Wood, TN) 7811-Key West carrying Sporting News Radio at 0017. (D'Angelo, PA) 5764 Guam at 1227 with messages for military personnel. (Sellers, BC)

WWCR, Tennessee, 3215 at 0425, 4840 at 0325, 5980 at 0352, 5935 at 0350, 7465 at 0025, 9980 at 1827, 12160 at 1828, 13845 at 1820 and 15825 at 1826. (MacKenzie, CA) 15825 at 1639. (Think we got 'em all? - gld)

KJES, New Mexico, 11715 at 1310. (Maxant, WV) 15385 at 1833. (MacKenzie, CA)

WEWN, Alabama, 5810 in SS at 0330. (MacKenzie, CA) 11520 at 0440. (Maxant, WV) 15610 at 2128. (Padazopoulos, Greece)

WTWW, Tennessee, 9480 at 0355 and 12100 in PP at 2325. (MacKenzie, CA) 5755 at 0357. (Wood, TN)

WTJC, North Carolina, 9370 at 0400. (Maxant, WV)

WTWN, Tennessee, 12100 in PP at 2336. (MacKenzie, CA)

WBCQ, Maine, 7415 at 0315. (MacKenzie, CA)

WWRB, Tennessee, 3185 at 0430. (MacKenzie, CA)

World Harvest Radio, 7385 at 11250. (Maxant, WV) 9840 in RR at 0332. (MacKenzie, CA)

Family Radio, California, 9635 via Kazakhstan opening English at 1400. (Sellers, BC) 11875 via Ascension at 1949 in (I) Igbo. (Brossell, WI) 12060 via Ascension at 2152. (Padazopoulos, Greece)

Adventist World Radio, 9505 via Wertachtal at 0321 in an East African language, shifting into Farsi at 0330. (Ronda, OK) 11755 via South Africa in (I) Yoruba at 2035, 17605 via Austria in AA at 1441. (Brossell, WI)

Trans World Radio, 7125 via South Africa at *0328 alternating EE ID with listed Sidama pgm starting at 0338. (D'Angelo, PA) 9800 via "Monaco" at 0720 with EE religion pgm, then off at 0750. (Ronda, OK)

Sudan Radio Service, 11800 via Rampisham with news reports in AA at 0432. (D'Angelo, PA)

WBAP, Dallas, 25910 at 1820 with news features. FM mode Studio-transmitter link. (Alexander, PA)

KCSC, Ft. Worth, 25990 at 1820 with country songs, local comls. FM mode STL. (Alexander, PA)

VANUATU—Radio Vanuatu, Port Vila, 3945 at 1214 with anmts in (p) Bislama with orchestral anthem, leading to apparent sign off. (Sellers, BC)

VATICAN CITY—7250 at 2058 on worldwide terrorist attacks. (Brossell, WI) 7305 in SS at 0325. (MacKenzie, CA) 9660 via Madagascar at 0318. (Ronda, OK) 11625 at 0524. Abruptly off at 0527. (D'Angelo, PA)

VENEZUELA—Radio Nacional, 11760 in SS at 1935 and 13680



One of a zillion or so Radio Japan QSL pictures a "sky garden." (Thanks: David Weronka)

WorldRadio Online

Here's a peek at a few of the columns
scheduled for the October issue of
WorldRadio Online

* **Trail-Friendly Radio**

* **DX World**

* **Rules & Regs**

* **Propagation**

* **Aerials**

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InfoCentral (from page 7)

remote and rural telephony, emergency communications, tele-education and tele-medicine.

The satellite was carried into space by a Long March-3B rocket from Xichang Satellite Launch Center in Sichuan province.

PakSat-1R was built by scientists and engineers from Pakistan's Space and Upper Atmosphere Research Commission (SUPARCO) with technical guidance and financial aid from the China National Space Administration. It is expected to have a lifespan of 15 years and will be operated from SUPARCO's satellite ground stations in Lahore and Karachi. (Source: Asia-Pacific Broadcasting Union)

Success: DRM+ Test Conducted in New Delhi

An All India Radio-DRM Consortium-organized test of DRM (digital radio mondiale) was conducted during a showcase and workshop in New Delhi, India in May — establishing that DRM in the FM band is capable of wide coverage at reduced power levels compared to analog FM. (DRM+ is an initiative by the consortium to extend DRM to higher frequencies. — Ed.)

DRM members Nautel, Fraunhofer, RFmondial, Analog Devices and the BBC participated. The test was under the supervision of scientist Friederike Maier from the University of Hannover in Germany.

Live radio programs FM Rainbow and FM Gold; Journaline text information service; and a PRBS test sequence were transmitted.

The report, written by Maier, carried measurements that were conducted in four radial directions from the transmitter located at All India Radio. (Source: DRM Consortium)

QSL



A recent Radio Prague, via WRMI, received by David Weronka.

in SS at 2314. (MacKenzie, CA) 17705 in SS at 2008. (Parker, PA) (All via Cuba — gld.)

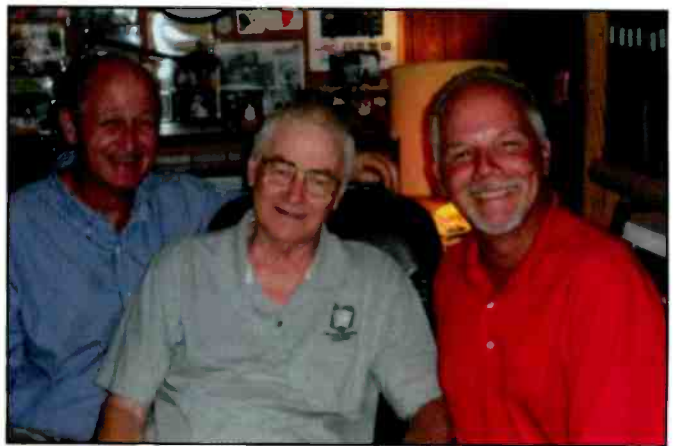
VIETNAM—Voice of Vietnam, 6175 at 0340 on traffic accidents there. (MacKenzie, CA)

YEMEN—Republic of Yemen Radio, 9780 at 0306 on earlier than usual with AA talk and traditional AA music. Irregular operation. (Alexander, PA) 0358 with flute IS. into AA talk, songs. (Ronda, OK) 0411 with nice M.E. music, M briefly in AA. (D'Angelo, PA) 2042 in AA. (Brossell, WI)

ZAMBIA—The Voice-Africa, 4965 with Christian pops at 0425. (Brossell, WI)

Generous thanks and high fives to the following who checked in this month: Brian Alexander, Mechanicsburg, PA; Harold Sellers, Vernon, BC; Stewart MacKenzie, Huntington Beach, CA; George Zeller, Cleveland, OH; Jim Ronda, Tulsa, OK; Gary Roberson, Broken Arrow, OK (welcome); Rich D'Angelo, Wyomissing, PA; Willaim Hassig, Mt. Pleasant, IL; Robert Wilkner, Pampano Beach, FL; Robert Brossell, Pewaukee, WI; Ralph Perry, Wheaton, IL; Joe Wood, Greenback, TN; Peter Ng, Johor Bharu, Malaysia; Robert Fraser, Belfast, ME; Fotios Padazopoulos, Zaharo, Greece; Richard Parker, Pennsburg, PA and Mark Coady, Peterborough, ON. Thanks to you all!

Until next month — good listening!



More visitors to the GIG shack: (L) Reporter Ralph Perry from Wheaton, Illinois, and (R) ham operator Mike Nikolich, who identifies himself as a "well-known Chicago vagrant."

Spread Spectrum: Taking It Apart, Putting It Back Together

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

“Secure communication is a continuing battle between more and more complex transmitters and specialized receivers with more and more complex software.”

The term “spread spectrum” covers a large number of technologies and techniques, but we will cover the basics here.

Starting With An Abacus

In **Photo A**, we have a good ol’ 23-channel Citizens Band radio. Yes, a pre-1976 antique.

Let’s say we come up with a circuit that lets us electronically switch channels. And we connect that circuit to a computer circuit that is always changing the channels for us.

Next, we build two: One for me and one for you. The radios are changing channels about once a second in a nearly-random pattern, but the same nearly-random pattern for both radios.

When the radios are well synchronized, the conversation would seem quite normal. To someone listening on a channel, about three times per minute they would hear a single word, or just a few syllables. This would be the simplest spread spectrum communications system. It is known as frequency-hopping spread spectrum and it has a modest level of security.

For this system, our adversary could have 23 CBs — each tuned to a different channel. And if

the squelch controls were set just right, he could listen to our conversation. The conversation would bounce between 23 speakers, but you would pick up all of the conversation, and the super duper secret number that figures out the hopping pattern is bypassed. With the new software defined radios (SDRs), this could be achieved merely through programming.

During World War II, the Soviet Army used an eight-channel system much like this on its teletype networks — code named *Wolf*. It is the earliest use of this frequency-hopping technique I’ve been able to find.

Enter: Software Defined Radio

Our next step to keep our conversation private would be to add hundreds, thousands or even millions of channels and to hop between channels even faster. This faster-hopping rate — with gazillions of channels — pretty much eliminates having rows and rows of receivers following us around. For the SDRs, it means more bandwidth and some new programming. Now you can begin to understand why SDRs are so popular with intelligence agencies.



Photo A: A pre-1976 Surveyor 2400 Citizens Band transceiver — complete with 23 channels and lots of knobs and switches — when painstakingly configured serves as our example of a most primitive spread-spectrum communications system. (Courtesy of WA5VJB)

SDRs also have the ability to record or save a block of spectrum. Now if the operator picks up a strange and unusual signal, the entire block of spectrum can be saved as a file to a computer hard drive and analyzed in depth at a later time.

And Then We Go Digital

Now, let's take our spread spectrum system from the analog world to the digital world.

If you have a CDMA phone like the ones used by Sprint and Verizon, your phone hops frequency 1.2288 Million times a second. (*CDMA is spread spectrum technology. AT&T and T-Mobile use GSM technology — originally Groupe Special Mobile, and now referred to as Global System for Mobile Communications. — Ed.*)

With CDMA, the hopping pattern takes about eight days before it repeats. That's a *very long* hopping code. Each 1 or 0 bit is transmitted approximately 50 times on 50 different frequencies.

The processors in the receivers at the cell site listen 50 times on 50 frequencies then decides: "Hummmm. I heard the number 1 a total of 47 times. I'll assume that bit was a 1." Or, alternately, "I listened 50 times and heard the number 1 only twice, so I'll assume that bit was a 0."

This ability to average is called "processing gain." It follows a logarithmic curve.

If we average 10 bits, we have 10 dB of processing gain. Average 100 bits and we have 20 dB of processing gain. Average 10,000 bits and we are up to 50 dB of processing gain.

Back to the example of our CDMA phone, the hops or "chips" per bit have about 17 dB of processing gain. When signals are weak, the phone can switch to over 100 chips per bit.

You can often hear this as a slightly lower voice quality since the phone has to compress the audio more at this lower data rate.

These techniques are especially popular in military systems where commands are sent to a missile. It is possible to average too many bits. After all, we have a missile we want to tell to go up, down, left, right.

When it's traveling at a high-mach number, we have to keep things short. The plus side, though, is that it makes it very difficult for the other side to electronically take our missile away from us, or jam the signal.

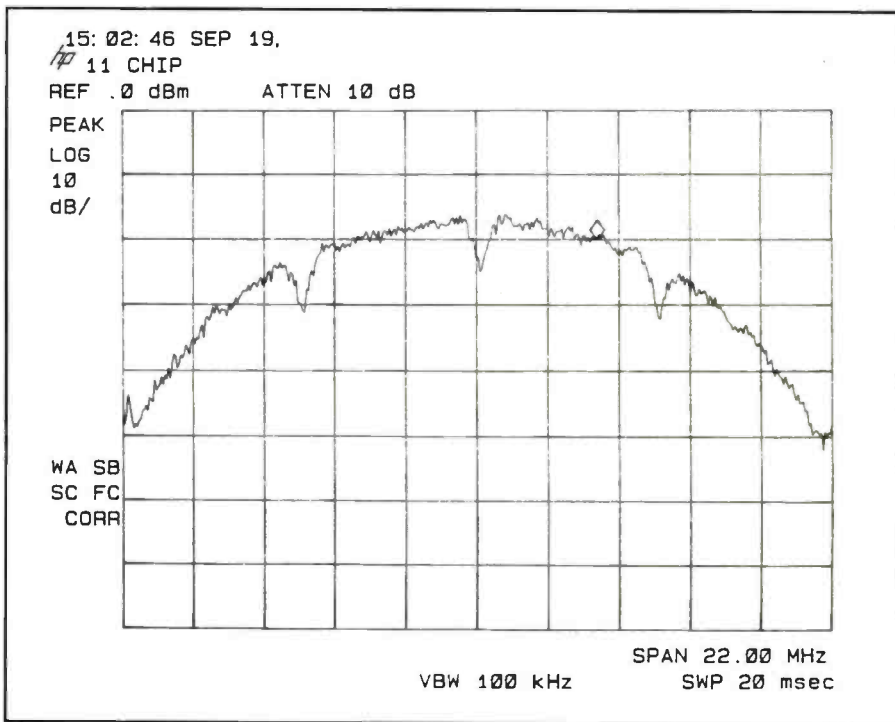


Figure 1: Here is the actual direct-sequence spread spectrum (DSSS) frequency plot from an FCC report at SpreadNet in the 1990s. (Courtesy of WA5VJB)

Diagram 1 is the function block for a direct-sequence spread spectrum (DSSS) modulator. The PN code is our super-duper classified code based on: *The square root of Pi calculated to 200 places and divided by your grandmother's shoe size. Or insert your favorite prime number here.*

Put On Your Thinking Cap

Warning, I'm going to have some math here.

This is a simple AM modulator in that like AM, it generates an upper sideband (USB) and a lower sideband (LSB) — pairs of modulation sidebands.

Let's say the digital signal is 915 MHz — a popular frequency for many spread

spectrum radios. If the PN code looks like a 5 MHz signal at this instant, then modulation sidebands are generated at 910 MHz and 920 MHz. If the PN code looks like a 3.5 MHz signal, then the pair of modulation sidebands is 911.5 MHz and 918.5 MHz. The signal is spread out and scrambled. *Or is it?*

In 1993, I was the chief engineer at SpreadNet. I believe we were the first company to get a 2.4 GHz DSSS radio through FCC Part 15-type acceptance.

In **Figure 1**, I have the spectrum analyzer output from that same FCC report. Oh, the problems we had with the FCC engineers in Columbia, Maryland since they had never been through this procedure before. Of course neither had I. I know that several frequency-hopping 2.4

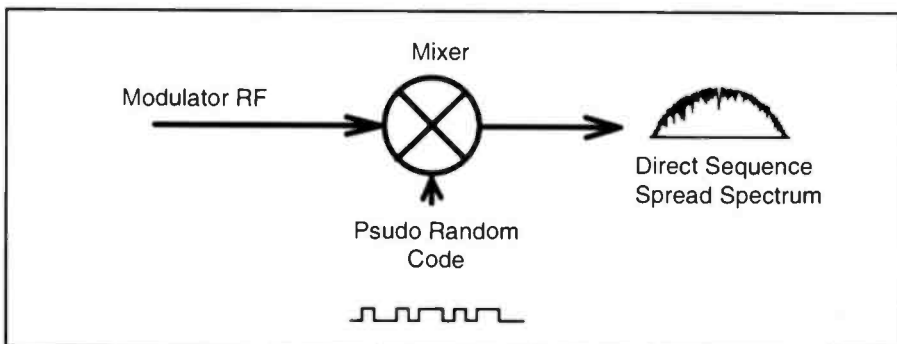


Diagram 1: Function block for a direct-sequence spread spectrum (DSSS) modulator.

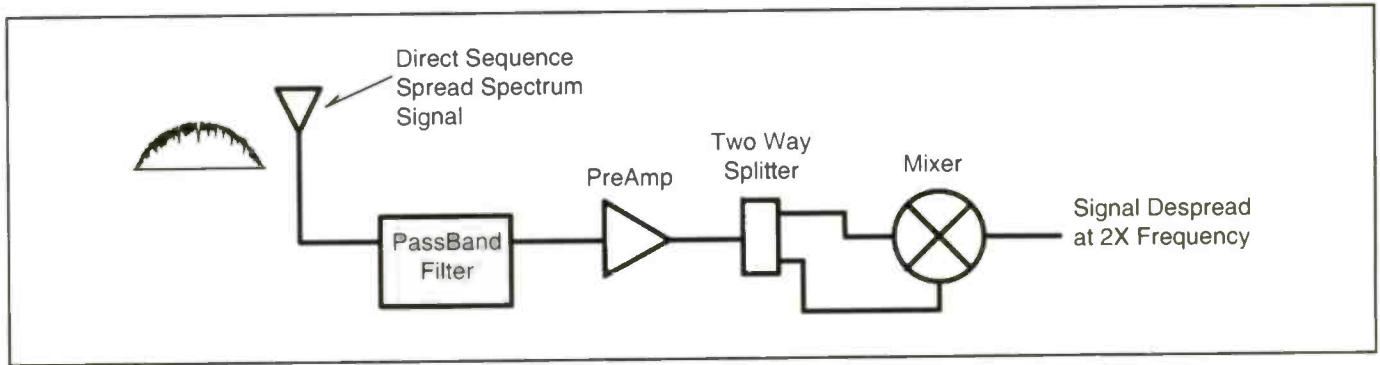


Diagram 2: Function block for a direct-sequence spread spectrum de-spreader.

GHz systems had been processed in 1993, but I think we were the first DSSS system.

Now back to those pairs of sidebands. Note they are symmetrical: $910 + 920 = 1830$ MHz or two-times the original modulation frequency. $911.5 + 918.5$ again equals 1830 MHz. Here is how we take advantage of this symmetry.

In the circuit in **Diagram 2**, the signal is amplified to a usable level — split in two.

The signal is now mixed with itself in a mixer much like a Mini-Circuits SRA-1, but chosen for the frequency of interest.

Now the 910 MHz sideband mixes with the 920 MHz sideband, and results in the original modulated signal at 1830 MHz. No matter what the spreading code was, the signal comes out as the original signal at 1830 MHz.

This circuit is an over-simplification, of course. The gain needs to be carefully controlled. And there are single-sideband spread spectrum systems, we might call them, where this technique won't work. In the case of QPSK or quadrature modulation systems, as well, you have to double the double: That is, run this circuit into another one and listen at 3660 MHz (4×915 MHz) for the recombined signal.

What It Boils Down To . . .

Secure communication is a continuing battle between more and more complex transmitters and specialized receivers with more and more complex software.

If we transmit a signal into an antenna, it can be picked up and decoded. Everything else is just seeing how difficult you can make it for the other side to do just that.

Now for one last little tidbit of information: The FCC required me to run a jamming margin test. That is, I spend

most of a day jamming our DSSS and measuring its dB-of-jamming resistance.

That little notch in the middle of **Figure 1** is where a DSSS data system is most vulnerable to jamming.

Now, Your Thoughts, Please

Slowly growing in my word processor are two articles. One is about the ultimate in DX hunting: Listening to pulsars. The

other is on spread-spectrum RADAR. Do you have a preference for which you'd like to see first? Drop me an email: <wa5vjb@cq-vhf.com>.

I welcome your questions, suggested construction projects, and possible topics for future columns. For other information about antenna projects, visit: <http://www.wa5vjb.com>. *We always look forward to hearing from our readers.*

CQ 2012-13 calendar

Fifteen spectacular color images of some of the biggest, most photogenic shacks, antennas, scenics and personalities from across the country!

Each month includes the dates of Important Ham Radio events, major contests and other operating events, meteor showers, phases of the moon, and other astronomical information, plus Important and popular holidays. CQ's 15-month calendar (January 2012 through March 2013) is great to look at, truly useful and makes a great gift!



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Scanning Opportunities at Smaller Airports May Be Dwindling

by Tom Swisher, WA8PYR

“As this is being written, 10 airports across the lower 48 states are in danger of losing most or all airline service due to the proposed federal subsidy cuts.”

As if members of Congress being unable to agree on anything weren't bad enough, their prolonged refusal to work together for the common good may eventually cost scheduled air service at 10 airports around the United States.

Through a program known as Essential Air Service, the United States Department of Transportation subsidizes scheduled airline service to a variety of regional and municipal airports across the country. Implemented after the airlines were deregulated in the late 1970s, the program pays airlines to fly less-profitable routes to remote communities.

The goal of the EAS program is to maintain minimal scheduled air service to rural communities which otherwise would be without air service — other than charter flights.

The program currently serves 152 communities. Forty-five of those are in Alaska, where the guidelines for scheduled air service are different than those used for the rest of the United States due to the relative lack of transportation infrastructure there.

Some critics of the program state that many communities currently receiving subsidized air service do not qualify due to their proximity to a larger airport — in some cases less than an hour drive. In any case, this program promises to continue to be a political hot potato.

As this is being written, 10 airports across the lower 48 states are in danger of losing most or all airline service due to the proposed federal subsidy cuts. **Photos D, E, F and G** show some of the airports in danger of losing service:

Jonesboro Municipal Airport (KJBR) — Jonesboro, AR

Ben Epps Airport (KAHN) — Athens, GA - **(Photo C)**

Hagerstown Regional Airport (KHGR) — Hagerstown, MD

Dawson Community Airport (KGDV) — Glendive, MT

White Sands Regional Airport (KALM) — Alamogordo, NM

Chautauqua County Airport (KJHW) — Jamestown, NY

Yelland Field (KELY) — Ely, NV

Bradford Regional Airport (KBFD) — Bradford, PA

John Murtha Cambria County Airport (KJST) — Johnstown, PA

Venango Regional Airport (KFKL) — Franklin/Oil City, PA

Lancaster Airport (KLNS) — Lancaster, PA

McKellar-Sipes Regional Airport (KMKL) — Jackson, TN

Morgantown Municipal Airport (KMGW) — Morgantown, WV

Since there is a chance of service reductions at these airports, now would be a good time to grab the scanner, grab the camera, pack some stuff in a bag, and hit the road.

At first glance, small airports might not seem like hotbeds of activity. While they're not particularly busy compared to a facility like JFK, Dulles or even Port Columbus International, each has a character all its own.

Many, like Ben Epps Airport in Athens, Georgia, entered service during the “Golden Age”



Photo A: A P-51D Mustang at the Kemble Airport Open Day, Gloucestershire, England. (Courtesy of Wikimedia Commons)

Jonesboro Municipal Airport (KJBR) — Jonesboro, AR

123.6	CTAF
123.0	Unicom
118.525	ASOS
120.075/289.4	Approach/Departure (Memphis ARTCC)

Ben Epps Airport (KAHN) — Athens, GA

126.3/338.275	Tower/CTAF (0800-2000)
121.8	Ground
122.95	Unicom
127.5/316.05	Approach/Departure above 7,000 feet
132.475	Approach/Departure below 7,000 feet
127.5/316.05	Clearance Delivery
132.875	ASOS

Hagerstown Regional Airport (KHGR) — Hagerstown, MD

120.3	Tower/CTAF (0700-2200)
120.8	Ground
122.95	Unicom
126.375	ASOS
134.15/227.125	Approach/Departure (Washington ARTCC)
32.3	Army Reserve

Dawson Community Airport (KGDV) — Glendive, MT

122.8	CTAF/Unicom
135.075	AWOS
122.55	Great Falls FSS

White Sands Regional Airport (KALM) — Alamogordo, NM

122.8	CTAF/Unicom
127.825	AWOS
120.6	Approach (Holloman AFB)
128.1	Departure (Holloman AFB)
132.65/257.6	Approach/Departure (Albuquerque ARTCC)

Chautauqua County Airport (KJHW) — Jamestown, NY

122.7	CTAF/Unicom
118.425	AWOS
126.05	Approach/Departure 0600-0000 (Erie, PA)
132.4/323.2	Approach/Departure 0000-0600 (Cleveland ARTCC)

Yelland Field (KELY) — Ely, NV

122.8	CTAF/Unicom
120.625	ASOS
133.45/317.625	Approach/Departure (Salt Lake ARTCC)

Bradford Regional Airport (KBFD) — Bradford, PA

123.075	CTAF/Unicom
133.825	ASOS
124.325/353.85	Approach/Departure (Cleveland ARTCC)



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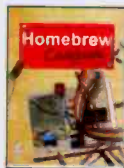
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John Murtha Cambria County Airport (KJST) — Johnstown, PA

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121.6	Ground
122.95	Unicom
121.2/299.2	Approach/Departure (Cleveland ARTCC)
118.325	ATIS
118.325	ASOS
139.15	Army National Guard
241.35	Army National Guard (Keystone Ops)
36.5	Army National Guard

Venango Regional Airport (KFKL) — Franklin/Oil City, PA

122.7	CTAF/Unicom
126.25	Approach/Clearance Delivery (Youngstown)
133.95	Departure (Youngstown)
118.175	AWOS
126.725/291.65	Approach/Departure (Cleveland ARTCC)

Lancaster Airport (KLNS) — Lancaster, PA

120.9/251.1	Tower/CTAF (0600-2300)
121.8	Ground
122.95	Unicom
125.675	ATIS
126.45	Approach/Departure (Harrisburg)

McKellar-Sipes Regional Airport (KMKL) — Jackson, TN

127.15/249.95	Tower/CTAF (0700-1900)
120.9	Ground
122.95	Unicom
119.325	ASOS
138.75	National Guard
373.9	National Guard
41.5	National Guard
134.65/315.15	Approach/Departure (Memphis ARTCC)

Morgantown Municipal Airport (KMGW) — Morgantown, WV

125.1	Tower/CTAF
121.7	Ground
122.95	Unicom
120.675	ASOS
121.15	Approach/Departure
126.95/239.3	Approach/Departure 2300-0700 (Cleveland ARTCC)

of aviation between the world wars — when flying was a daredevil, seat-of-the-pants activity.

Airfields were built by the local flying club to provide a place to fly, and as aviation grew were turned over to the nearby town so there would be a municipal airport to aid in local growth and development.

Other facilities, like McKellar-Sipes Regional Airport in Jackson, Tennessee, were built just before or during World War II, when there was a great deal of small airport construction in order to provide pilot and aircrew training. Most of these fields were deactivated at the end of the war and later turned over to the nearby city as an engine for economic development.



Photo B: Aero Adventure Aventura II kit aircraft at the Sun n' Fun Airshow, Lakeland Florida. (Courtesy of Wikimedia Commons)



Photo C: Ben Epps is called the father of Georgia aviation. The airport in Athens, which bears his name, is on the list of facilities threatened with losing federal funding. (Courtesy of Wikimedia Commons)

While a few of these airports are fairly substantial regional facilities, there are some really small airports here, folks. Several don't even have control towers, even on a part-time basis!

Don't discount smaller airports as a lost cause for the plane watcher. Usually limited to general aviation traffic, much of what you might see may be weekend pilots taking to the skies for their weekly fix of the *wild blue yonder*. However, there are often some interesting gems out there, sitting quietly, waiting to be discovered.

Old warbirds, such as the P-51 fighter, (Photo A), often find homes at small airports, just waiting to take to the skies again. Many of the classic planes seen at air shows these days fly in from regional and local airfields, and when not out touring the country may often be found flying the local area for practice and post-maintenance test flights.

Something else you might see at small airports is experimental aircraft, especially homebuilt. Supported by the Experimental Aircraft Association in Oshkosh, Wisconsin,



Photo D: An Allegiant Air flight from Hagerstown (Maryland) Regional Airport is headed to Orlando-Sanford International Airport. The aircraft is an MD-83 A. (Courtesy of Wikimedia Commons)



Photo E: This is the airport terminal building at Alamogordo-White Sands Regional Airport in Alamogordo, New Mexico. (Courtesy of Wikimedia Commons)



Photo F: Things appear pretty quiet at John Murtha Cambria County Airport in Johnstown, Pennsylvania. (Courtesy of Wikimedia Commons)



Photo G: You're looking down on McKellar-Sipes Regional Airport in Jackson, Tennessee, circa 1997. (Courtesy of U.S. Geological Survey, Wikimedia Commons)

many folks take an active interest in building and flying kit aircraft such as the Aero Adventure, (Photo B), or even scratch-built planes, where the homebuilder builds a plane from scratch using a set of plans — much like what radio hobbyists did in the early days. There's even a kit replica of the Fokker DR-1 triplane, made famous by "The Red Baron," Manfred von Richthofen.

Scanning the smaller airport can sometimes be a challenge. If the field has a control tower, it's usually only open part time, generally during peak daytime and early evening hours.

Most of these airports only have a tower and ground control channel, and in most cases the tower frequency also serves as the Common Traffic Advisory Frequency (CTAF), where pilots simply transmit their position and intentions to anyone listening on the frequency when the tower (if any) is closed.

They'll also usually have a Unicom channel, which is monitored by the flight service company handling fuel and other services on the field. Approach-departure services at most of these airports is provided by either a nearby larger airport, or by the Air Route Traffic Control Center during hours the tower is closed.

Tiny airports abound in the United States, and they're calling you!

Comm Along: What I Did On My Summer Vacation

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

“In preparation for the trip, I did some online research into what amateur repeaters — both analog and D-Star — might be available for use . . . and decided to take the ICOM IC-91AD handheld with me.”

As the late autumn coolness sets in here in New Jersey, I am glad that the extreme heat of this past summer has been left behind. This past summertime was hot not only in temperature, but full of radio-related online and computer heat as well.

In keeping with that great American back-to-school tradition — the essay exploring “what I did on my summer vacation” — here is my submission. Hopefully you will give me a good grade for my efforts.

Summertime Social Networking

Summertime is a great time to socialize with others. For better or worse, so much social activity has gone online nowadays. I’ve been trying to figure out Google+, the newest entry into the social media world.

While Facebook has proved invaluable for sharing hobby-related information, I’ve opted out

of its application platform for privacy reasons. It forces the user to share private information with third parties. I simply do not accept the idea that in order to play an online game such as Farmville, I must agree to expose my entire contact list and all of my other personal information.

I also find it irritating that Facebook frequently makes changes to privacy default settings, requiring users to scramble to reset preferences. Some have attributed the recent decline in Facebook user counts to privacy concerns.

So, is Google+ a kinder, gentler approach to social networking? So far, I like the idea that it is based upon circles (Figure 1). I can have a circle of friends, my family circle, a circle of *Pop’Comm* readers, my ham buddies, SWL friends, and so on. It does not even force me to have a gmail email address. I can use it with an email account of my choice.

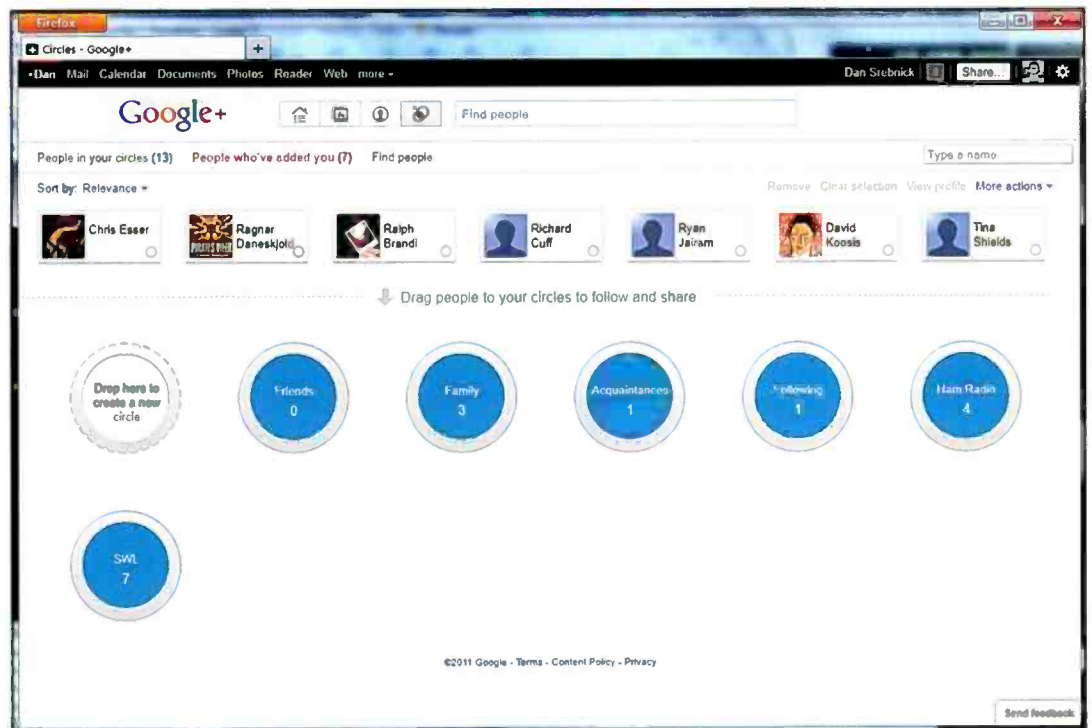


Figure 1: Google+ allows the user to organize “circles” of friends, acquaintances and other interests. Any contact can be dragged into a circle of your choice. (Screen grab from Google+)



Photo A: Laurie Brown, host of "The Signal" on CBC 2. (Courtesy of < www.cbc.ca >)

But a privacy downside seems to be that I *must* share my primary email address with my circles. On Facebook, I could choose not to reveal my email address and to force all my contacts to contact me via Facebook.

As I write this, Google+ is still in "beta," undergoing testing. If you want to give it a try and see what you think, use your web browser and connect to < <http://plus.google.com> >.

This past summer, it was announced that Microsoft was acquiring Skype and that Facebook would be embedding Skype technology to enable video chat. I have been keeping Skype loaded when I'm in the shack. A few of the hams in my area also do so and we use the chat function of Skype to "IM" or instant message any news on good DX, operating conditions, or just let the others know where a good rag chew is going on.

It is really effective and easy to setup group IM chat or even group audio chat. Group video chat is also possible but this is not part of the free service and requires a subscription.

On The Road Again . . .

Our summer vacation plans included a week in Quebec. As the characters of South Park once observed, *there is no Canada like French Canada:* < <http://cart.mn/nFyniO> >.

Our timing proved interesting, as some British royals kept following us around from Montreal to Quebec City. I thought that Will and Kate would be joining us for a pint and a game of darts, but it never came to pass.

In preparation for the trip, I did some online research into what amateur repeaters, both analog and D-Star, might be available for use. I found a comprehensive list of D-Star repeaters in the province of Quebec at < <http://bit.ly/>

ok9jNR > and decided that I would take the ICOM IC-91AD handheld with me on this trip.

Through the Association D-Star Montréal website, I got in touch with Denis Caron. VE2DTZ, a vice president of the association. He graciously advised that I would be able to use the Montreal VA2RKA D-Star machine on 446.150 MHz and that this machine had an operable Internet gateway in case I needed to connect back to my home area.

While in Montreal, I had the opportunity to use my D-Star HT and in fact, ran into VE2DTZ on the air. Denis was very hospitable as I spoke to him from the island Parc Jean Drapeau, where the 446.150 machine had a terrific signal. English, as well as French, is spoken on this repeater, and we talked about Montreal, D-Star in general, and activity on the repeater — including a weekly French language net with check-ins from around the world.

We also enjoyed the festivities of Canada Day and the Jazz Festival, which is not just jazz. It features rock and blues, as well. It's held from late June through early July — a good time to visit Montreal. There is music in the air and on the streets from acts that you know and acts that you never would have known otherwise.

My favorite was a couple of young ladies calling themselves "Misses Satchmo," doing credible covers of Louis

Armstrong material. The grand finale of this year's festival included a free concert from the B-52s.

Back in the hotel one evening I started tuning around the mediumwave band on my Grundig G6. This is a relatively small portable I decided to carry with me, with AM, FM (including RDS), and shortwave. The mediumwave section is not all that sensitive, but at home I get a fair amount of stations.

In Montreal, the only AM station I could receive well while inside my hotel was CJAD on 800 kHz. So I switched to FM, and tuned around a bit until I came upon the local CBC 2 station on 93.5 MHz. I discovered a fantastic nightly program of contemporary music hosted by Laurie Brown (**Photo A**). The program is called "The Signal" and airs at 10 p.m. nightly except Sunday. It is well worth listening to, especially if you are interested in eclectic contemporary sounds and Canadian artists. For information, visit the CBC website: < <http://bit.ly/qIwJOi> >. Give it a listen, whether on your computer, an Internet radio, or some other device.

On our last morning in Montreal, we met up with some shortwave radio listeners who also host a weekly radio program on CKUT radio (90.3 MHz) called the International Radio Report.

Janice Laws and Sheldon Harvey are well known in the SWL community and host this weekly program covering local



Photo B: As seen from behind the console are, from left, Sheldon Harvey; Tina Shields; and Dan Srebnick. (Courtesy of Janice Laws)

radio news in and around Montreal as well as highlights on international broadcasting. The program is carried locally on CKUT on Sunday from 10:30 to 11 a.m. Eastern time. It is also available as an Internet simulcast via < <http://bit.ly/rhN74T> >, a podcast (also on the CKUT website), and is repeated via WBCQ shortwave in Maine as part of the Area 51 program block < <http://bit.ly/qnEKU7> >.

I was unaware at the time that the International Radio Report program was carried over WBCQ. It was therefore ironic that some of the conversation revolved around some of Allan H. Weiner's radio endeavors. Allan is known to many as the owner of WBCQ and of the radio ship Sarah, the onetime home of offshore station Radio Newyork International.

Anyway, it was great to sit with Janice and Sheldon in the CKUT studios and talk about radio (Photo B). They are regulars at the annual SWL Winterfest in Plymouth Meeting, Pennsylvania where I've met up with each of them a number of times. It was nice to return the visit.

VIA Rail is Connected

Right after the CKUT visit, it was time to get on the train to Quebec City, arguably one of the most charming places in North America.

Sheldon offered to drop us off at the station and this was most convenient. VIA Rail Canada runs comfortable trains on this route and it takes a little more than three hours to make the trip between the two cities.

I was happy to discover the Gare Central in Montreal (Central Train Station) had good quality Wi-Fi service at no charge, so I was able to use the Internet while waiting for the train. The scheduled departure was around midday, so before boarding we bought some lunch-to-go at a delicatessen in the station.

Once the train departed, we enjoyed our meal, and then I settled in for the duration of the ride. In an attempt to find some amusement, I borrowed my travel partner Tina's T-Mobile G2 smartphone. It runs Android 2.2, although the 2.3 (Gingerbread) update is coming any day now. I thought it would be nice to listen to some music and I had been wondering about the app (application) for Sirius Satellite Radio they have been promoting.

Rolling WiFi

So I was both surprised and pleased to see that on the Montreal to Quebec City

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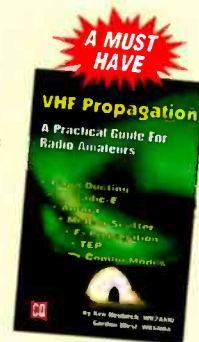
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line, VIA Rail offers onboard WiFi at no additional cost. I connected and headed over to the Android Market. I searched for Sirius, and found and installed the app with no problem at all (Figure 4).

The end result was really outstanding. While riding on a train, using free WiFi, my mobile phone became a receiver for Sirius Satellite Radio. I put on headphones and sat back to enjoy contemporary music from The Pulse as the train rolled down the track to our destination.

There were no dropouts and the audio quality was fine. I listened as I read a chapter of Jerry Berg's fascinating book on shortwave listening history, *Listening on the Shortwaves*.

Quebec City is absolutely charming. It is also a place that causes its residents to be fit and have strong legs from walking the steep hills encountered in this former fortress city. It is very French, although polite English speakers who understand that English is not everyone's native language will have no difficulties here.

There is much less English language media in Quebec than in Montreal. I was, however, able to find the local English CBC 1 and CBC 2 FM frequencies without trouble and fell asleep to "The Signal" on CBC 2 at night.

I had programmed some potential Quebec D-Star repeaters into my IC-91AD, but did not have any luck raising one in the limited time I tried.

The 64-bit Serial to USB Cable Caper

This summer was also a summer of computer upgrades. My shack computer is now an HP i7 laptop with 4 cores and 8 execution threads. This should be fast enough to further extend my ability to use digital signal processing-based software in the shack.

On this new computer, I can easily run the Perseus at a 2 MHz bandwidth while editing this article and still be at under 10 percent total CPU utilization. However, the upgrade was not entirely pleasant.

Ham Radio Deluxe, my logging and control program of choice, kept losing connection to the Ten-Tec Orion II. I was connecting via a Sabrent serial to USB cable that I had purchased from Tiger Direct. The cable worked just fine prior to adding the new computer to the shack.

The old computer had a 32-bit processor and the new one a 64-bit processor. The new computer just could not function properly with the old cable and would frequently offer me the dreaded *Blue Screen of Death*.

The Sabrent cable is based upon the Prolific chipset. I cannot say for certain that the reliability problem is directly caused by either the chipset or the 64-bit drivers, but since the cable worked fine under 32-bit Windows I would conclude that the problem is with the software drivers.

I tried a Staples branded serial to USB converter that is readily available and well-reviewed, and it worked much better than the Sabrent. It is based on an MCT chipset and has 64-bit drivers that must be downloaded from the Staples website. It turned out not to be completely reliable either. Sometimes the connection would be lost in 10 minutes, sometimes 10 hours, but HRD would not remain reliably connected for an indefinite period.

I did some more reading and decided that I would go with a Belkin device that is specially certified by Microsoft for 64-bit Windows 7. It, like the original Sabrent cable, was based upon



Figure 4: The Sirius App was a snap to install on an Android phone, has an attractive interface, and performed well — even on the moving train. (Screen grab from Sirius-XM website)

a Prolific chipset, but the driver itself is distributed with Windows, not requiring any add-on driver installation. This seemed like a reasonable approach. The Belkin turned out to be as unreliable as the Sabrent, causing my computer to *Blue Screen*.

This was really crimping my style when it came to DXing. I like to be able to click on a DX cluster spot and have the radio change frequency automatically. I also like the logbook to automatically pick up my mode, band and frequency from the radio. Without the software connection to the Orion, I was working harder than necessary.

One night toward the end of July, I was speaking with Rob Kabilyo, KC2GLR, of Marlboro, New Jersey on 2-meter FM simplex, recounting my story of serial to USB misery. Rob pointed out he uses HRD and 64-bit Windows 7 with no problem. "No problem, you say? What kind of cable do you use?" I asked with anticipation and hoping for salvation from this ugly episode.

It turns out Rob was using a cable sold by RT Systems < <http://bit.ly/mUirBU> >, known to many as a distributor of radio programming software that allows for interoperability of frequency listings between different radio types.

The cable is an RTS-03, based upon a chipset from FTDI. I asked Rob if I could borrow his cable for the weekend, wanting to be sure before spending any more greenstamps on this debacle. In the true spirit of the hobby, Rob and I met at a local 7-11 parking lot and exchanged the package.

It worked, worked reliably, and we agreed that I could keep the cable and order a new one for Rob. KC2GLR gets an A+ for providing good advice on this thorny problem.

How was your summer vacation? Email k2dls.rfbits@gmail.com. 73 de K2DLS



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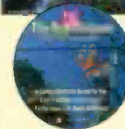
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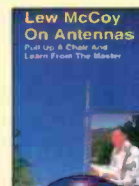


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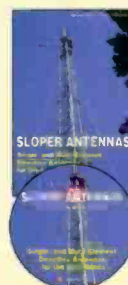
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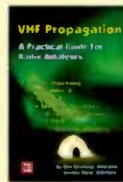
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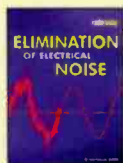


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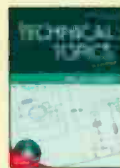
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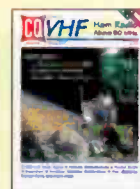
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Wrapping the Ribbons On the Hallicrafters HT-32A!

Enhancements for Enriching Your On-Air Experience

This is the last of a four-part series

by Peter J. Bertini
<radioconnection@juno.com >

“Here’s a potpourri of suggestions and simple modifications to enhance your on-air experiences with this fine old transmitter”

It’s difficult to convey everything needed to successfully complete a restoration — as involved and challenging as the Hallicrafters HT-32A has been.

As your host, I assume my audience for the past few columns would be mostly amateur radio enthusiasts with an interest and some experience in servicing older ham radio boat-anchor-type tube equipment.

I have similarly complex equipment in the restoration cue — but I’ll continue offering simpler restorations and projects for the less experienced or non-ham readers, as well. Suggestions for future columns are always welcomed, as is constructive criticism.

Our previous column dealt with the HT-32 power supply, and that pretty much wrapped up the major areas for this restoration. I’d like to

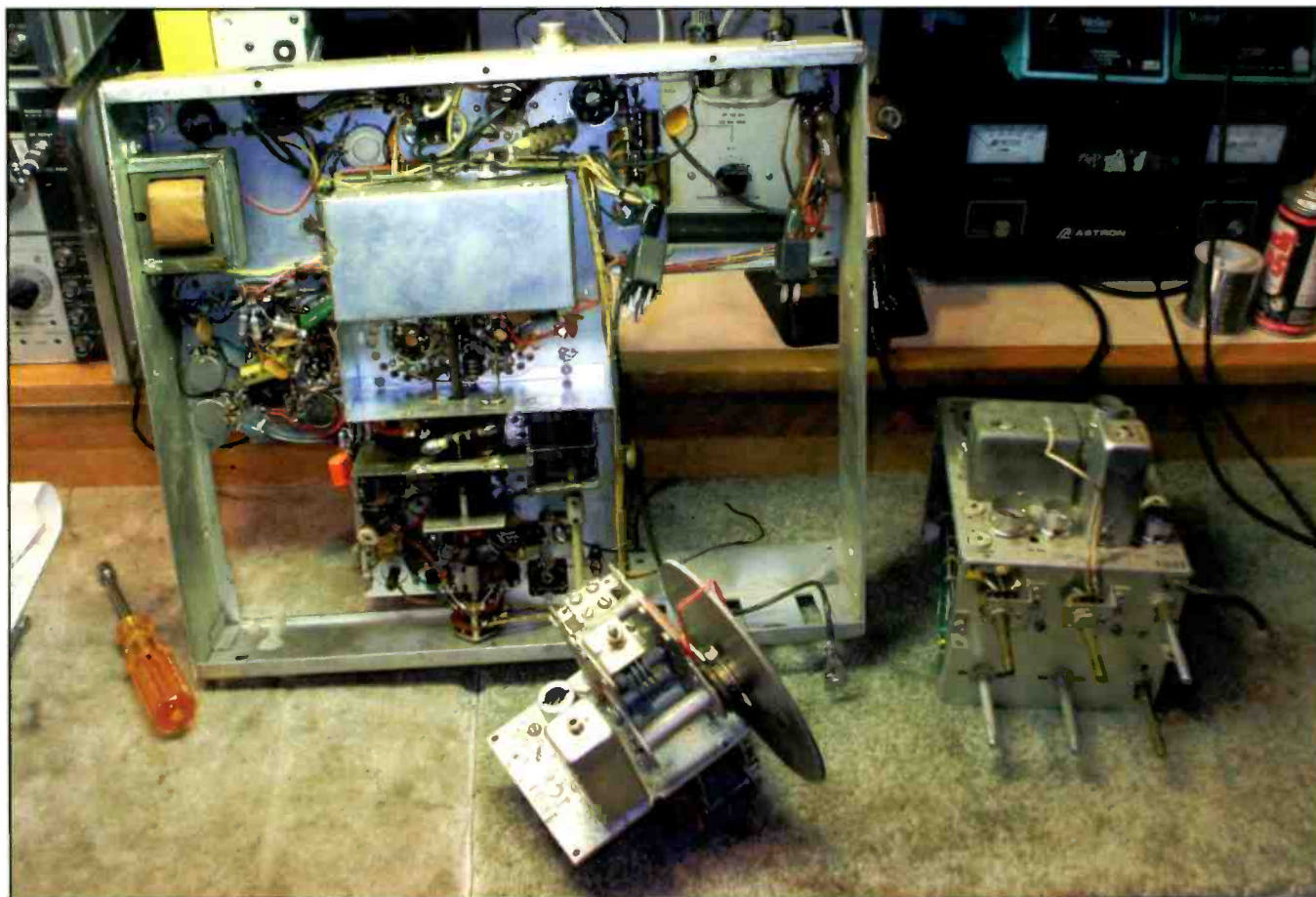


Photo A: Here is the HT-32A chassis with most of the major subassemblies and larger components removed.
(Photography courtesy of K1ZJH)



Photo B: Despite careful handling, I did have one “oops” experience when I damaged the 9-MHz IF transformer on the SSB generator. This added another several hours time to the restoration while a replacement was fabricated from junkbox parts.

wrap it up with a potpourri of suggestions and a few simple modifications to enhance your *on-air* experiences with this fine old transmitter!

Heathkit HP-23 To The Rescue!

Did I mention that a HT-32 with a bad transformer isn't the end of the world? There are vendors who will rewind a bad transformer, or another option is to pick up an orphan Heathkit model HP-23 power supply!

These were intended to allow AC operation for several Heathkit ham transceiver models. The HP-23 has the necessary filament voltage, high and low B+ voltages and the negative bias voltage needed to power an HT-32A.

These supplies are often long separated from their companion transceiver, and are abundant and easy to find, as well. Interfacing the HP-23 will involve adding an 11-pin socket and making up a power harness to interconnect the two units.

Since I had to strip the larger subassemblies and components in order to clean and paint the rust-damaged chassis, I also had the opportunity to work on the SSB generator and VFO assemblies while they were removed from the main chassis, as shown in **Photo A**.

The SSB generator is very difficult to service unless it is removed from the chassis. Unfortunately, my careless handling managed to damage the 9-MHz output transformer coil. (See **Photo B**)

Replacing the damaged form involved several hours of

scrounging for a suitable replacement coil form (one was found in an old TV coil) followed by the tedious job of rewinding the two windings with the correct degree of coupling! Be careful not to damage the small coax pigtail that interconnects the 9-MHz output from the SSB generator to the main chassis. This is a special high-impedance cable with very low capacitance to avoid detuning or loading the output signal!

Earlier versions used a 220K resistor for R160. This should be changed to 100K (a factory change in later models) for better RF gain control range.

Removing the VFO section made it much easier to clean and polish its chassis and other metal components. As shown in **Photo C**, I was able to power and test the VFO using my Stark PS-501 A power supply to ensure that it was working before reinstalling it on the main chassis. Note that the dial pointer metal is very brittle and can be easily damaged if handled roughly.

As seen in **Photo D**, I took some other liberties with my restoration. I was fortunate to locate a small supply of military-grade IERC heat-dissipating tube shields being offered on an Internet radio forum. They replaced the original lower-cost original factory-supplied tube shields.

The tubes will run cooler and last longer, and the new shields also dress up the chassis appearance. I added a small knob for the VOX controls on the chassis-mounted potentiometers, making it easier to reach inside the transmitter to make VOX adjustments.

Modifications For CW Break-In And PTT

While researching the HT-32 transmitter on the Internet, I uncovered several modifications published in the early 1960s. I'd like to share two that are particularly useful, involve changes that can be easily reversed, and don't require drilling holes in the chassis or front-panel.

The HT-32 featured VOX (voice-operated transmitter) operation, but it lacked *CW break-in* or PTT (push-to-talk) features. Fortunately, both can be easily added with little cost or effort.

Despite being published in two different magazines by different authors, both modifications are incorporated in **Figure 1**. Let's deal with the CW break-in modification first.

The idea came from an article written by Robert W. Godwin, M.D., W6EVX, titled, “Some Simple HT-32 Modifications.” It ran in the February 1960 issue of *QST*.

Robert's approach involved rewiring switch contacts inside of the SSB generator, as well as changes for the Jones connector wiring between the SSB generator assembly and main chassis. Shortly, I'll suggest an easier way to do this.

The CW key jack is also connected to the plate of the 6AL5 VOX diode, which immediately activates the VOX relay when the key is closed. The setting for the 5-megohm pot determines the *dropout* time before the transmitter relay would drop and unmute the companion receiver.

This system is more correctly called *semi-break-in* CW since true break-in allows immediate reception when the key is released, allowing the operator to hear stations between dots and dashes.

CW Break-In, the Easy Way!

I came up with a simpler scheme that skirted the need to trace out and rewire the complex switch arrangement in the SSB generator. Instead, I replaced the 0.25-inch “panel jack” with a special 0.25-inch “open-frame jack” made by Switchcraft. This one — Switchcraft model C55B — is shown in **Photo E**. What

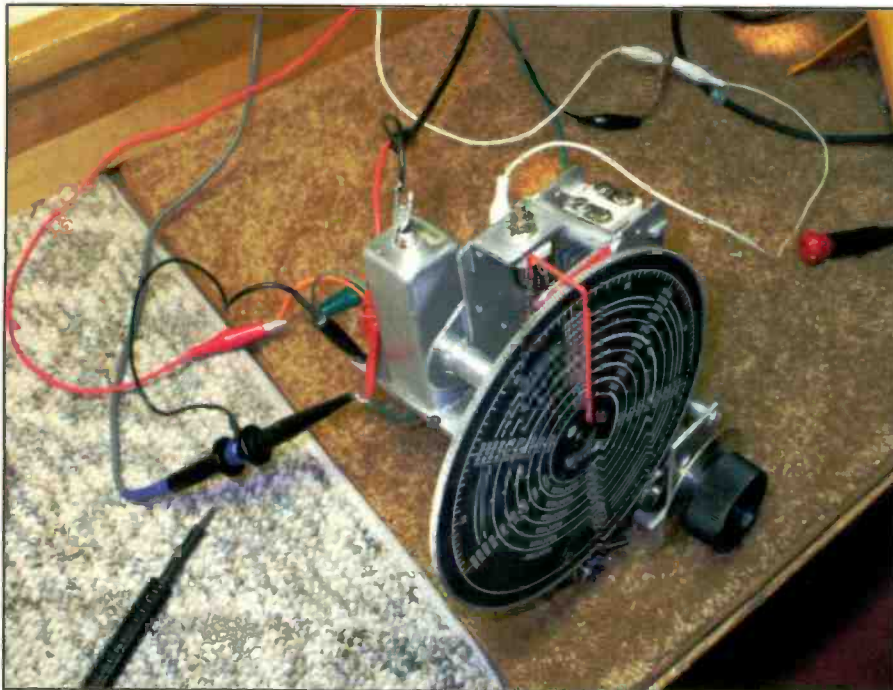


Photo C: The VFO was cleaned and tested on the shop's high-voltage, Stark DC supply before being reinstalled on the HT-32A chassis.

makes this jack unusual is the presence of an isolated set of SPDT contacts that are activated when a 0.25-inch phono plug is inserted.

I used these contacts to switch the additional time-delay components for CW dropout delay when a CW key is plugged into the transmitter. These jacks may be difficult to locate, so you may have to search your friends' junk boxes or frequent the parts-sellers tables at ham-fests to locate one.

This URL lists the current suppliers who have remaining inventories for the C55B jack: < <http://bit.ly/noDpwI> >.

Add PTT: Push-to-Talk

While the *QST* article showed how to add PTT keying, as well, I used a different approach for this feature.

The impetus came from an article written by Rolf Carlson, W2ZBS, in the May 1964 issue of *73* magazine. Although Rolf's article is titled "Push-To-Talk Operation for the HT-37," the HT-37 is

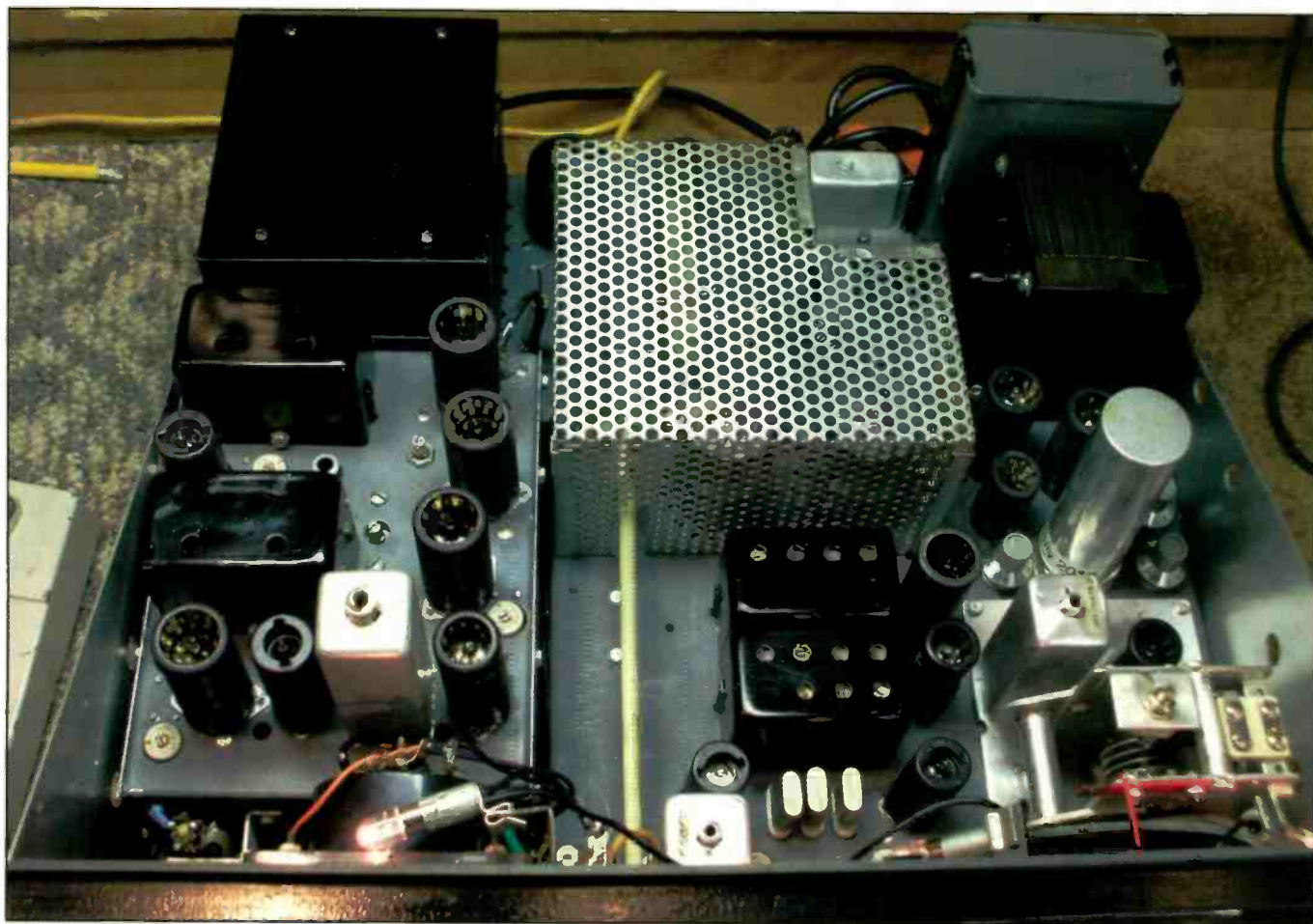


Photo D: The chassis is now presentable, although it is far from being restored to factory original condition. I took the liberty of adding high-quality IERC style heat-dissipating tube shields in lieu of the inexpensive factory supplied parts. I also added small knobs on the shafts for the VOX controls. Those can be seen clustered near the can filter capacitor.

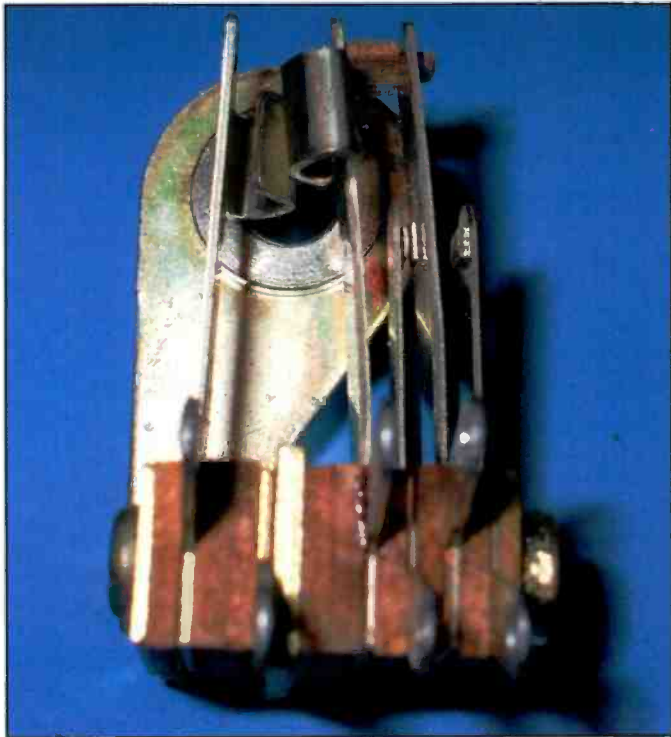


Photo E: Although it is apparently no longer in production, the Switchcraft C55B jack includes an isolated set of auxiliary SPDT contacts. These contacts simplify adapting W6EXV's semi-break-in CW scheme for the HT-32 by eliminating modifications to the SSB Generator switch assemblies.

virtually a clone of the earlier HT-32, with the exception being the use of a phasing-type SSB generator instead of the crystal filter system used in the HT-32. The VOX and relay driver circuits are identical.

Step-by-step, let me detail what needs to be done. Follow along by using **Figure 1**.

For this CW Dropout Modification for Semi-Break-in CW Keying:

- First, replace the single mono, 0.25-inch phono jack used for SO6 (the CW key jack) with a Switchcraft C55B phono jack with the auxiliary isolated SPDT contacts.
- Add a 5-megohm potentiometer on the rear apron. One arm of this potentiometer will be connected to an 8-megohm, 1-watt fixed resistor. I'd suggest using a metal oxide resistor here.
- The other end of the resistor is connected to pin 2 of the tube socket for V17B (12AT7 relay tube.)
- The open arm and center of the pot are connected together so it acts as a rheostat. Maximum resistance should be at fully clockwise rotation for the longest CW *hold* time.
- The center of the pot is connected to one of the normally-open contacts on the Switchcraft C55B auxiliary switch.
- The other switch contact is connected to the minus 49 VDC bias supply, which can be found on pin 6 of SO3 on the cable jack going to the SSB generator. When the CW key is plugged in, the switch contacts should apply minus 49 volts to the CW *hold* circuit.
- Next, run a wire jumper between the CW jack (SO6) to pin 1 (plate of the 6AL5 VOX diode.) This will activate

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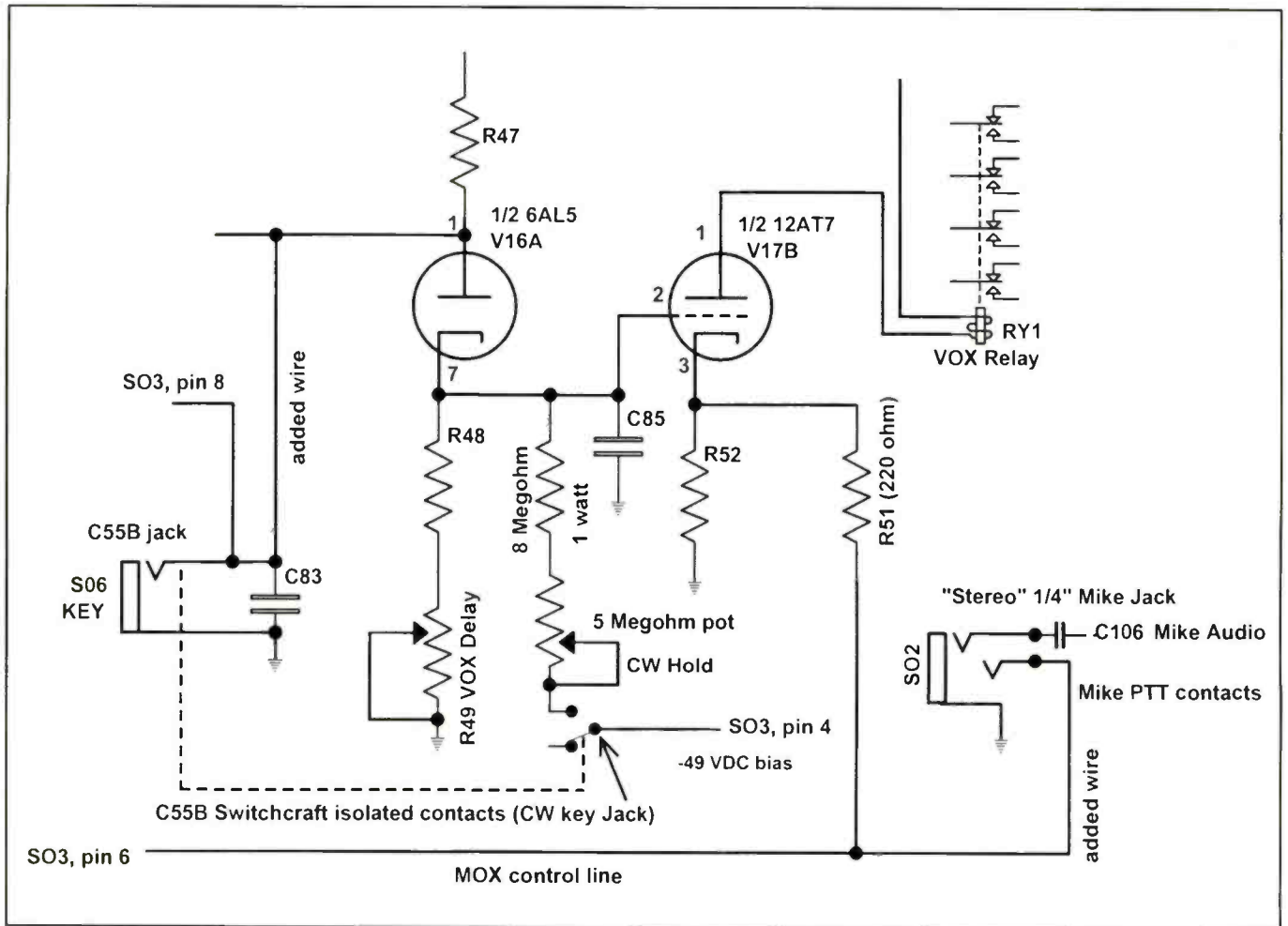


Figure 1: This partial schematic for the HT-32 transmitter shows the modifications added for CW semi-break-in operation, and for microphone PTT control.

the VOX relay R11 when the key is depressed. When the key is released, the time constant determined by the setting of the 5-megohm pot will determine the CW release time.

Your HT-32 now has semi-break-in CW keying! You may need to remove the key when operating other modes, as it will affect the SSB VOX time constant otherwise.

PTT Microphone Control

This modification is even easier!

- The original HT-32 single-button Amphenol microphone jack is replaced with a stereo 0.25-inch phone jack for an easy swap-out that involves no drilling.
- One contact is used for the mike audio; the other contact for the PTT switch contacts from the microphone. This connects to the MOX (manually-operated transmit) control line from the SSB generator.
- Run a new wire between the jack contacts to be used for the microphone PTT control to the MOX control line. This is on pin 6 of S03, which is a Jones-type jack. The wire connects to R51 from pin 3 of tube V17B, the 12AT7 relay driver cathode.
- I changed resistor R51 to 220 ohms from the original 470-

ohm factory value. This change was incorporated in the later HT-37.

Now, when the mike is keyed, the MOX line is activated and keys the transmitter.

A Nice Station Package

The Hallicrafters SX-101 receiver is an ideal mate for the HT-32A transmitter. These two classics complement each other and are a favorite pair in many boat-anchor ham stations.

I'll be restoring a companion SX-101 for a future column — hopefully by mid-2012. I'd like to suggest another vintage ham article that was penned by the late, legendary William B. Orr, W6SAI. It appeared in the September 1960 issue of *CQ Amateur Radio* magazine, titled "A 'Control Central' for the HT-32/SX-101 Combo."

While beyond the scope of today's column, Bill shows a nifty control scheme that simplifies the antenna changeover and usual haywire interfacing between the two units into a neat, compact accessory package.

I hope to build one and share the information when the SX-101 restoration is completed and is put on the air with the HT-32A.

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

Communications Trivia and a 'Toon

by R.B. Sturtevant, AD7IL



This political cartoon, circa about 1911 and drawn by Clifford Berryman, is titled "Two Bees or Not Two Bees — That is the Question!" In it, Theodore Roosevelt, contemplating whether to run for a third term as President, is posed as Hamlet with a pun on the famous soliloquy. Note the iconic "Teddy Bear" to the lower left. (Courtesy of Berryman Political Cartoon Collection, National Archives, and Wikimedia Commons)

Q: At the turn of the century, how far from "civilization" could a radio contact the outside world?

A: Back in 1905, radio was called "wireless telegraph." In May, Teddy Roosevelt, our outdoorsman president and from whom the "Teddy Bear" is named, went to Glenwood, Colorado for a bear hunt.

In 1905, this was considered about as far away from everything as you could get. Roosevelt kept in touch with his secretary at the White House with wireless telegraph equipment and operators supplied by the Signal Corps.

The Signal Corps and our other services are still doing the same job for our president today, although the equipment has been upgraded.

Q: When did moving trains start using radio to communicate with their headquarters?

A: In August 1905, *Popular Mechanics* reported on an experiment of wireless telegraphy being used by trains on the Alton line running between St. Louis and Chicago from fixed stations in those two cities and in Springfield, Illinois.

The best results came when the train was at right angles with the sending station, but became very weak when the train crossed steel bridges. The equipment used was of DeForest design. Exactly when and which railroad lines started using wireless telegraph on a regular basis is not known.

Q: Why are crystals used in radio circuits, especially in the older or simpler radio circuits?

A: First off, the quartz crystal — also referred to by old-time radio amateurs as a "rock" — is set to vibrate (oscillate) at only one frequency. In most applications it is not expected to be changed from that frequency without grinding it or using highly-technical procedures.

Heat, vibration and other factors can knock other tuning methods off their assigned frequency. For example, a tuning circuit made up of capacitors and tuning coils can change frequency when it is heated by the components surrounding it — especially vacuum tubes. This problem can be remedied by using a quartz crystal to set a circuit's frequency.

A variable-frequency oscillator (VFO) is more expensive to build and more susceptible to frequency drift. That is why crystals were so widely used during World War II.

Love them rocks!

SPURIOUS SIGNALS

By Jason Togyer KB3CNM



The Colorful Girl in CBS' Hotel Room

by Shannon Huniwell
< melodyfm@yahoo.com >

“Perhaps no other performer in the history of television has made so many appearances before the cameras and been seen by so few people” — The New Yorker, August 11, 1951

When a *Pop Comm* subscriber suggested he possessed details about CBS inviting FCC officials to see a pretty girl in a fancy hotel room that the “Tiffany” broadcast network had rented, I reminded him that mine is not an X-rated column.

Dex Chajkowski’s email response included a big “lol,” or *laughing out loud*, abbreviation and a clarification that his story idea featured no questionable content — unless some partisan NBC historian decided to take issue with it.

My sigh of relief was accented by another of Dex’s emails in which he cleverly prefaced the scenario that led to his long-time fascination with a little known fashion model of whom a writer for *The New Yorker* noted (in the magazine’s August 11, 1951 issue) the following: “Perhaps no other performer in the history of television has made so many appearances before the cameras and been seen by so few people.”

Dex turned 14 on the mid-November 1946 day

that his father miraculously returned home from World War II. It was a wonderful present and one that Dex and his mom had come to believe would never happen . . .

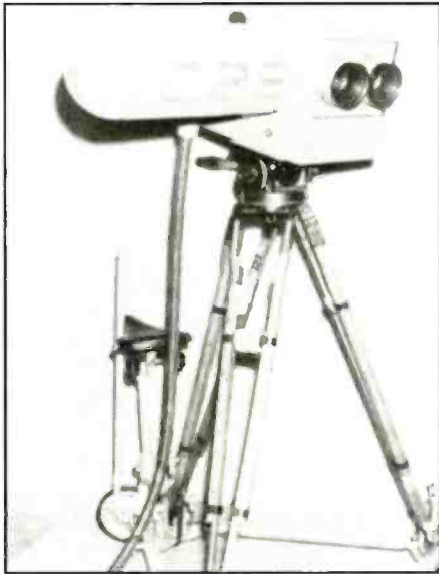
In early 1945 she had received a dreaded telegram regretting to inform her that *Private Louis Chajkowski is missing in action* somewhere in Belgium. It turned out, though, that their soldier was found half-naked and unconscious — amid several dead buddies — apparently by a small band of ad-hoc French Resistance fighters who hurriedly dragged him to the basement of a bombed-out Belgian farm house.

There, through early summer, an elderly woman nursed Private Chajkowski back to relative health. She was convinced that the Nazis were going to blast through the town again, so kept a remarkably low profile, foraging for food after nightfall at other nearby ravaged venues.

Her communication with others — all of whom



You’re looking at the Tappan Zee Bridge, which spans one of the widest points of the Hudson River, some 25 miles north of New York City’s midtown Manhattan hub. Though in use since shortly before Christmas 1955 and now slated for replacement, it still routinely routes seven lanes of traffic in and out of America’s most populous region. Nine years before the approximately three-mile-long bridge debuted and not far from this locale, the Columbia Broadcasting System transported a colorful video signal to FCC officials watching a special television set the CBS engineers had installed in the Tappan Zee Inn. Instead of a concrete and asphalt roadway, CBS’ highway used an electronic pathway on the Ultra High Frequency spectrum.



"Take me to your leader," this pre-WWII CBS experimental color TV camera looks like it might say when encountering a studio audience for the first time. Note the bicycle seat apparently for the cameraman tasked with spending hours shooting a test subject that only a handful of other human eyes would be privileged to see. Because CBS' early color system was partially "mechanical," rather than all-electronic in nature, a motorized scanner that spun a trio of green, red and blue color filters was employed and fitted into the protrusion at the left.

she suspected of some degree of German collaboration — was extremely limited. Plus, the old lady spoke no English, which made deciphering the identity of a shell-shocked American Army man with amnesia and no dog tags, rather unlikely.

By the time U.S. military clean-up crews found them in mid-July, and persuaded them of the enemy's defeat, the elder Chajkowski's memory was reappearing in flashes of mind's-eye pictures. He believed he had a family — a delicate brunette wife and maybe a smiley school-age boy, somewhere. But for several months he couldn't help the military psychiatrists at the hospital in England where he'd been transported for official rehabilitation and identification.

Finally, near the end of October 1946, sufficient memory returned and a cheerful registration clerk with a voracious fascination in Chajkowski's case combined to solve the mystery. A second Army telegram and a letter penned from a little desk near his hospital bed serendipitously arrived at the Chajkowski household on the same fall Friday afternoon.

What a joyous weekend those correspondences produced! During therapy, Private Chajkowski recalled perennial promises to his wife that he'd take the family "on a real vacation. One that included at least five days 'at some fancy inn overlooking the water.'"

His re-introductory letter home simply declared, "Guess what? It's me back from who-knows-where. Remember that *someday* vacation? I sure do, so book reservations somewhere real nice for about a month from now. They say they're kicking me out of this *hotel* (ha-ha!) very soon and then back to New York with a boatload of other broken down, but happier-than-heck GIs in no time at all! All my love to you, *Sweet Girl*, and to our little Dexter — who I bet isn't such a little kiddo anymore. Your loving and grateful husband, *Lou*."

Dex says that at the beginning of the last week of January 1946, the beaming trio checked into the Tappan Zee Inn, a swanky old venue with a birds-eye view of the Hudson River's widest point. Though this was nearly a decade prior to the huge Tappan Zee Bridge rising above those riparian waters, he cites the span as a conversation starter responsible for his telling of the "Inn" incident story to his kids and later to his grandchildren each time they drove from one side of the Hudson River to the other.

"Our stay at the Inn was slated to end on January 30th," Dex notes, "but a combination of another party's last-minute cancellation, as well as the management having learned of my Dad's wartime experience and unique nature of our family's reunion, prompted hotel honchos to extend our booking by a few days.

"It probably didn't hurt that a reporter for the *New York World-Telegram* also found out about father's human interest story and hinted at free publicity for the Inn if they could arrange an interview. Needless to say, my folks focused on enjoying getting reacquainted, so were uncharacteristically liberal in allowing me to explore the Inn's corridors as long as I pledged not to be a nuisance to any of the other guests — especially those Mom and Dad playfully dubbed, *pish-posh*.

"In one particular hallway, a handful of ordinary men in shirtsleeves and vests were ferrying — into a suite with no beds — electrical test instruments, small reels of wires, and what I figured to be the strangest cathedral radio with the biggest dial window I'd ever seen. 'What's the

matter, kid?' one of the guys chuckled. 'Don't you know what a television set looks like?'"

Sometimes Innocent Ignorance Yields a Neat Opportunity

Of course, one can't blame Dex for not having recognized a TV. Few were in general circulation in late 1946. In fact, it would be three more years before he and his dad hefted the family's big Zenith AM/shortwave up to his mom's sewing room, making way for small screen video in the form of a late model *demonstrator* that the local DuMont dealer incentivized at some irresistible price.

But, even as he helped rig-up the rabbit ears and watched a respectable black-and-white image materialize on the DuMont's picture tube, Dex recalled the chance meeting with those technicians in the hotel hallway and realized that no new 1949 TV in any dealership came close to



When I was a kid, one of my girlfriends had an empty console TV set in her basement playroom. When it went on the blink, instead of putting the entire monstrosity to the curb, her father had removed the picture tube and chassis so we could stage Barbie doll puppet shows in faux broadcast style. Though the screen was a lot bigger and its logo was plastic — as opposed to customized wooden lettering that some prop builder fashioned on a CBS jigsaw — the pictured box sure brings back memories. Truth be told, however, the only people who would recall the pictured experimental color set firsthand are a tiny cadre of CBS technicians working under electronics whiz Dr. Peter Goldmark.



By 1951, when this publicity still was snapped, CBS' color video cameras didn't appear to be much different than the ones being field tested by rival NBC. In fact, though, the Columbia gear was fitted for sequential image scanning while the NBC units scanned the whole subject simultaneously, as did standard black-and-white cameras of the era. B&W studios could be illuminated with 75 percent less candlepower than did the CBS field-sequential scan studio setup shown here. This photo dates to 1951. Old-timers will instantly recognize CBS' star, Ed Sullivan. To his right is Francis Buss, a program director, along with Patty Painter, the lass who had — at that time — logged more hours in front of a color TV camera than anybody. Her vivaciousness, reddish-blond hair, photogenic skin tone, and willingness to act naturally in an incredibly hot studio filled with engineering-types, made her a perfect model for CBS' fledgling color television work.

conveying the vibrant colors he'd spied on the strange set at the Tappan Zee Inn.

Throughout January 29th, Dex quietly watched the techs' occasional traversing of the corridor with their interesting stuff. When one of the gentlemen spotted him the next morning and invited Dex to "make himself useful," the boy ran back to his family's room to excitedly explain that he had a chance to help some men from the Columbia Broadcasting System.

Both mother and father requested further facts, so promised they'd chat with the network people on the way to breakfast. Dex introduced them and heard of CBS' plan to demonstrate television to some government officials who'd be watching a special TV set in one of the hotel rooms. And as icing on this opportune cake, the video these brass would be seeing would be transmitted in color!

Dex's parents were understandably incredulous at first, but after the CBS crew pointed out its unmistakably labeled company vehicle in the parking lot, his folks warmed to the idea that their son might have the chance to witness a bit of broadcasting history.

With such an auspicious introduction, I gathered that Dex's description of what followed on January 31st would overflow with vividly verdant detail. All that he could concentrate on, however, was the young woman who appeared across the 12-inch screens of the televisions positioned in the specially prepared hotel suite.

"She came through so clear and so startlingly present," Dex writes, "that I quickly became mesmerized with the perfection of her complexion, the gentle smile on her inviting lips, soft blue eyes, and the pleasantly authentic blondish hair that, even

as a fledgling girl-watcher, I dreamed to someday find on the pillow next to mine." Dex says it wasn't until one of the FCC bigwigs involuntarily chanted softly, *'bee-u-tee-full!'* that he started thinking that the petite model two dozen miles away and sitting in front of CBS-TV cameras was an actual girl who certainly didn't deserve to be ogled over by some old guy.

Did Dex recall *anything* about the other adults in the room? I wondered.

"That's just it," he replied. "Besides the lasting effects of that lovely lass in the pink, yellow, green and blue striped sundress, all that comes to mind is the distinguished gentleman who introduced the demonstration — with some sort of slight foreign accent — and then my rapt amazement when, a few seconds later, the girl seemed to be there in the wooden box with the red viewing window."

He does emphasize the memory of "an incredibly sharp color picture," an image so sparkling true-to-life that it wasn't until his seeing a SONY *Trinitron* TV nearly three decades later when any color television reminded him of CBS' 1946 life-like exhibition.

Now, Dex wanted me to help him separate fantasy from reality regarding the long-ago demonstration. Specifically, he hoped to know more about the young woman he has burned into the picture tube of his mind's eye.

But First, A Word From Our Sponsor . . .

Because this column exists in order to advance oft-intriguing nuances of radio and television history, it is only fitting to advertise some background information about the premier battle for color TV.



Few "regular" viewers in WCBS-TV's New York metropolitan audience saw this test pattern in color. Color TV set ownership was extremely rare when this early 1950s placard-slide was current. And those lucky enough to have equipment capable of picking up the "mechanical" CBS color system were an even smaller legion — a few Columbia engineers often tasked with "working from home" with a critics corner of family and friends who could help the CBS technical staff member answer a performance questionnaire. Incidentally, WCBS-TV was on analog VHF channel 2, a serendipitous spot for a group owner that originally believed that the Ultra High Frequencies were the only way to go for color transmission. By 1950, Dr. Goldmark devised a way to shift his color system from UHF to VHF (hence this WCBS-TV Channel 2 slide). His reconnoitering resulted in an even clearer picture than before, and one much nicer than the color sharpness NBC/RCA experimenters had at the time.



We might title this slide, “Gottcha, Goldmark and Paley!” That’s because the image was used to trumpet the FCC’s reversal of an original Commission decision to make CBS’ sequential/UHF color TV process an industry standard. The “compatible” headline heralds the fact that NBC’s (or RCA’s) way of color broadcasting didn’t make existing B&W sets obsolete. While in the race for FCC approval, CBS head Bill Paley and his wunderkind engineer, Peter Goldmark, understood that every time somebody bought a B&W TV, the opposing forces at NBC/RCA could argue to the Commission that CBS’ non-B&W-compatible color system would prove a financial hardship to the quickly-growing number of television set owners.

As one might expect, the combatants were the heads of two American broadcast networks — CBS and NBC. William Paley, of CBS, and David Sarnoff, of NBC/RCA, approached their sorties with very different weaponry. Theirs was an embodiment of the old prediction that one usually does and enjoys doing whatever one is good at. That is to say, David Sarnoff’s penchant was technology and equipment research and development, while William Paley focused upon securing stars and entertainment that he somehow knew would appeal to a wide broadcast audience.

In fact, the CBS chief candidly divulged being rather bored whenever one of his engineering-types explained how the company’s electronic gear worked, though Paley loved to figure ways to best maximize his network’s programming via Hollywood and Broadway star power.

Sarnoff, on the other hand, had begun his career tapping-out Morse code prior to World War I and is said to have presciently envisioned powerful transmitters capable of issuing voice and music — rather than code — so that the general public would be motivated to buy receivers. Maybe Sarnoff’s NBC/RCA could best Paley in the consumer electronics avenue, but Paley was ready to retaliate by getting top NBC performers — such as Jack Benny — to jump ship at contract renewal time and sign with CBS.

In the midst of the mid-1930s’ serious onset of the race for consumer-friendly television, it was Sarnoff who was naturally consumed with getting an FCC-approved video signal into American homes. He relentlessly admonished scientists and engineers at his Camden, New Jersey research center and experimental New York City-based TV station to get the job done without settling for the mechanical image scanning option employed by previous television inventors such as John Logie Baird.

These TV experimenters generated primitive video images by capturing pictures through lenses on the perimeter of a rotating disc inside the television camera. A similar wheel within the TV receiving set — spinning synchronously with the one inside the camera — translated these flickers of light back into a live moving picture of whatever was in front of the camera.

Even the best mechanically-produced results, however, required the viewer to use his or her imagination. And then there was the real possibility that the high-speed wheel in one’s living room set might fly off of its shaft and smash through the TV cabinetry — or worse yet, fatally injure nearby viewers!

Sarnoff knew the mechanical angle was a dead end, so he didn’t even want to hear anybody in his employ taking it seriously. Instead, they put their energies into simultaneous (or *what the lens sees at any given instant is what the receiver gets*) electronic image scanning and aimed for FCC-acceptable black and white.

Meantime, it was a Hungarian immigrant who essentially begged Bill Paley to start CBS thinking about television technology. The CBS head had hired physicist Peter Goldmark in 1936, three years after the newly-minted Ph.D. arrived in the U.S. Originally, Paley just wanted him to keep the radio operation up to date technologically, but Goldmark offered his new boss a way to score against CBS’ nemesis — a cornered future market in the television game and Sarnoff’s supposed sacred cow.

Paley rather anemically OK’d the plan, authorizing his eager whiz kid to get started by using some TV cameras CBS purchased from RCA several years earlier.

In the summer of 1940, Goldmark reported to a television symposium that he had recently succeeded in jumping over others’ clear black and white picture quest and devised a workable way to bring video to America . . . in color. He did so through mixing state-of-the-art, all-electronic cathode-ray technology with some of the mechanical image scanning that had been dismissed by the RCA crowd as primitive.



Are you old enough to remember what the NBC booth announcer intoned when this peacock image spread its wings? “The following program is presented in *living* color!” An ingenious symbol for the promotion of color set sales and for fine-tuning one’s hues, the NBC peacock was the brainchild of NBC Artistic Director John Graham. His initial contribution to NBC video history took place in the late 1940s when he painted an artist’s conception of the famed three-note NBC Radio chimes for early NBC-TV use.

Using rotating discs (in both camera and receiver) fitted with translucent blue, green and red filters, Goldmark and his handful of CBS TV development team members invited skeptical FCC and industry officials for a look-see.

As Fisher and Fisher chronicled in their outstanding television history tome *TUBE*, the incredulous group "met at the CBS labs on Madison Avenue (in New York City) to view color broadcasts from the Chrysler tower.

"On several screens, only 3-inches wide, models could be seen parading in colorful dresses. Then bouquets of flowers moved across the screen, their colors registering quite well. Everyone came away impressed, none more so than the FCC chairman, who said, 'If we can start television off as a color proposition, instead of black and white, it will have a greater acceptance with the public.'"

Members of the FCC brass were also the honored guests at the January 1946 color video shindig witnessed as a boy by *Pop' Comm* reader Dexter Chajkowski.

Regarding that important second date, Fisher and Fisher quote Goldmark as saying, "I gave the necessary introduction, threw the switch, silently prayed a bit in

Hungarian, and waited. In an instant Patty Painter, our 19-year-old heroine, filled the 12-inch tube. Her skin glowed a natural flesh pink, her long auburn blonde hair glistened, and the piquant smile and dancing blue eyes drew appreciative smiles from all of us."

She Could Have Been a Colorful Contender

It's unlikely that Patty Painter had ever heard of color television when a booking secretary at the Powers fashion model agency sent the teenage West Virginia native to CBS' studios as an afterthought.

Though the modeling agency didn't mention it to her, Patty was not the first girl they'd suggested for Goldmark's color cameras. Several more sophisticated others who looked fine in magazine layouts apparently appeared rather dull on the TV screen . . . but Patty Painter turned out to be an instant hit with the video lens and color filters.

Reportedly, as soon as Goldmark saw her image move in his control room monitor, he did a double take and directed that she be put under contract for all of CBS' color work. In any event, she was the main subject of the 1946 Tappan Zee test program. And for five years, her chief assignment was to be life-like while under extremely hot studio lighting in Columbia's ever-evolving color studio.

An October 1950 article by United Press International's Elizabeth Toomey noted that Painter admitted she usually just sat "in a folding leather chair in the color laboratories while they photograph (her). Sometimes (she) knitted, and sometimes (she) talked about the brightly-colored props that (CBS staff) put in front of her. (She typically) just said whatever came into (her) head."

In early summer 1951, Painter helped host CBS' commercially-sponsored color broadcast debut. Few could say they saw her performance, however, as the colorful transmission was only sent over an ad-hoc sub-network of five east coast CBS affiliates, serving fewer than 100 TVs capable of decoding the field-sequentially-scanned show.

No matter the enthusiastic kudos from those who could view the offering's vivid spectrum, CBS folded its color operation a few months later, having lost FCC favor when RCA put extra pressure on Commission officials to reverse the agency's previous blessing on CBS color and grant a definitive go-ahead for RCA-style color transmission.

Patty Painter could be considered a casualty of the CBS/RCA (NBC) color war, as her agreement with Columbia had been limited to color broadcasts. But in addition to her great looks, she was blessed with a good attitude on life.

After marrying in 1953, Painter raised

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by Mark Francis, K1OPF



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On par with my father in the "Historical Hogwash Department," (*Just kidding, Dad!*) NBC officials often took liberties when seeking to embellish their momentous achievements. Here is an example in postcard form. It shows a building that shouts NBC kudos for having pioneered the first color TV studios. Those bragging rights arguably belong to CBS, though the stunning kibosh on its FCC color system-approval assigned Columbia's earliest colorful efforts to a nearly-forgotten chronological footnote.

a family and was always ready with a delightful story for her kids and grandchildren about the exciting years she served as CBS' colorful TV girl whom only a few select viewers ever got the chance to see.

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



Colorvision's Colorful Genius

Because blood and guts don't look particularly authentic in B&W, officials at a pharmaceutical company — hoping to show doctors the intricacies of a particular surgical procedure — were thrilled to hear how much vivid detail CBS' color system could convey. This February 1950 *Mechanix Illustrated* page pictures the result — albeit mostly in pulpy dull B&W — a late-1949 closed circuit transmission of an operation performed at Atlantic City Hospital. The real life "medical show's" audience was some 15,000 doctors in a nearby seaside New Jersey convention center, some of whom admitted that the TV picture looked so colorfully clear that it almost made them faint. Word of the successful educational colorcast's detail even reached Washington, prompting one congressman to praise CBS for making "an important contribution to mankind." Check out that giant "studio" lighting over the patient. No nefarious organism had much of a chance of multiplying under that heat! CBS' Dr. Peter Goldmark is shown (top, middle) at the color control console highlighting his video inventions.

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A Heck, Or Two, of a Way to Be Enticed to Work 2 Meters

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“(After the ‘quake), I would have liked to have had a 2-meter rig . . . hams would not feel so obligated to keep talking when there was nothing to say.”

Now we’ve lived through them all. The great Virginia Earthquake was felt here in Cowfield County and taught us a little about communications: Cell phones are worthless during an emergency.

I guess it’s good that we learned that now, rather than later.

The Virginia Earthquake was not earthshaking. OK, it was, but in a small way. Very, very few people were injured, and not severely. Very little property was damaged, though it’s not little if it happens to *your* property — and I don’t mean to make light of it.

Then after a dozen or so aftershocks, we had Hurricane Irene. Every broadcast outlet showed news people being blown around on beaches, a few errant surfers, and people boarding up their windows. Oh, and the obligatory giant reddish-orange blob on the weather radar.

Lots of people heeded warnings. Dire predictions for some areas didn’t come true, though meteorologists’ track prediction was pretty accurate. It was a lucky break for many people that the storm’s intensity waned somewhat.

So, which of your favorite *Pop’Comm* writers turned down an offer of a *free* — and very nice, I might add — 2-meter handheld transceiver just weeks before the Virginia Earthquake shut down cell-phone communications in Cowfield County for, well, a few minutes? *None other than me.*

I confess. My good friend and email confidant David G. (the remainder of his name is withheld to protect the innocent) really wants me to get on to the local repeater, and perhaps even some simplex operation — so much so that he offered me the rig that he had intended to sell.

If we ever had a really big earthquake around here (not likely) or some other emergency (a little more likely), the cell phone circuits would be immediately jammed and after that, government agencies would take precedence and we mere mortals would still be precluded from cell phone use while important government people called home and told their families that they were all right. And ordered pizza. Don’t forget which major metropolitan center is just 45 miles east-northeast of me. I know about this stuff.

Those of you who have read enough of my dri-

vel have come to know that I am a radio junkie. I listen to radio during all my waking hours — lots of news, some talk, some classical music, and even static when a thunder storm passes through. As I drift off to sleep, I play one of more than 600 hours of old Jean Shepherd recordings from WOR-AM. *Excelsior, you fathead!*

I never felt the Virginia Earthquake, because I was driving my van at the time. Between the van’s suspension, its tires, and the horrendous condition of the pavement on Interstate 66, I probably couldn’t have felt an 8 or a 9, let alone the 5.8 quake that happened some 70 miles away from me. I only learned about it because one of the talking heads on the local AM station told me about it.

Within mere moments, every radio station on the dial (and there are a lot of them) went to the new “All Earthquake. All-the-Time” format. Most quickly ran out of their own information and invited callers to tell of their experiences. Most of the callers’ experiences were about a few things falling from shelves.

There was some damage to “non-reinforced masonry structures” (bricks and concrete blocks) and the networks broke in often to tell pretty much the same thing as the locals, except without time, temperature and traffic reports.

I would have liked to have had a 2-meter rig with me at the time. I’m sure the repeaters would have been pretty busy, but unlike broadcast professionals, hams would not feel so obligated to keep talking when there was nothing to say. I might yet get into 2-meter operation someday.

Meanwhile, my HF antenna remains coiled in a cardboard box in the kitchen, under the fatter of the two cats. Both Norm and Beezer (my antenna crew) have had their visits to Cowfield County postponed. I really do promise to get on the air, and I’ll be glad to give secret schedule information to all you loyal readers. The decoder rings will come later.

(Bill has been seen recently wearing an old Civil Defense helmet and yelling “Put out that light!” around Cowfield County. They’re still letting him out of the Cowfield Home for the Silly on weekends and holidays — with supervision. — Ed.)

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