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POPULAR COMMUNICATIONS

MARCH 2011

Shortwave Listening • Scanning • AM & FM • Radio History

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MFJ-706 Grab-and-Go EmComm Center Reviewed—And Modified, p. 22

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This radio may also be purchased separately for $29.95

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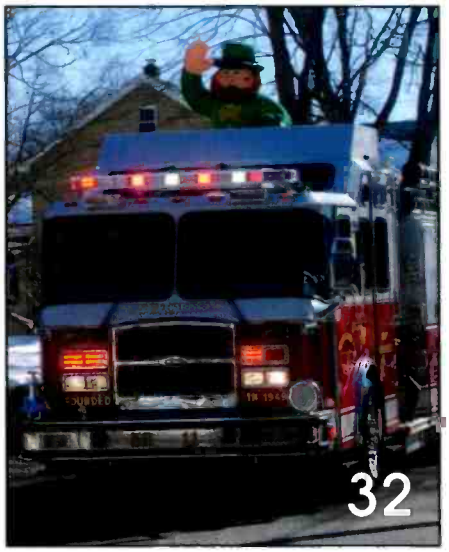

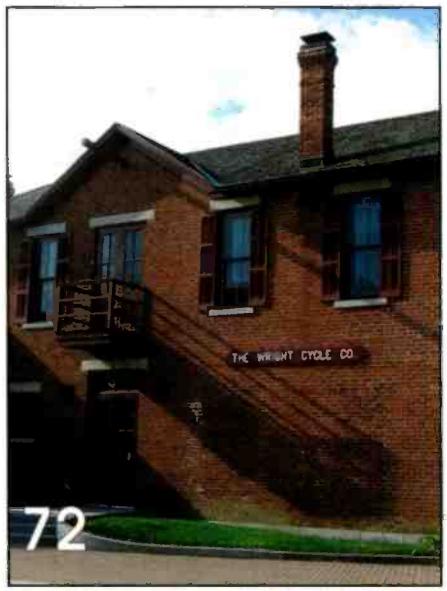

FEATURES

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ON THE COVER

Nearly anywhere you go, there's comms action all around you—and it's in listening range, if you bring along your scanner. See "Tips And Targets For Successful Event And Venue Scanning," by Chuck Gysi, N2DUP, starting on page 10, for ideas on where and how to look for it. (Cover photo: Amusement park in The Mall of America by Jeremy Noble, via Wikipedia Commons; Inset of woman in shopping mall using radio by Larry Mulvehill, WB2ZPI)

COLUMNS

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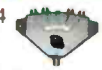

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EDITORIAL
Tuning In

by Edith Lennon, N2ZRW
editor@popular-communications.com

Signed, Sealed, Delivered—It's Law!

Editor's Note: In my last editorial, I expressed optimism that the United States Senate would follow the lead of the House of Representatives and pass the Local Community Radio Act. Well, guess what—that august body, too often swayed by powerful interests with deep pockets, did the right thing. Then, with a flourish of his pen, President Obama signed it into law. This is truly something to celebrate.

In our March 2008 issue, we introduced readers to an organization that was instrumental in making this happen: The Prometheus Radio Project. This month, Pop'Comm *invited Maggie Avener, CBRE, KB1PBZ, a technical and training organizer with Prometheus, to share with us some of the background of the grass-roots efforts behind and the implications of this achievement.*

Local Community Radio Act A Reality

by Maggie Avener, CBRE*, KB1PBZ, The Prometheus Radio Project

On January 4, 2011, President Obama signed the Local Community Radio Act into law. This important piece of legislation will open thousands of spots on the FM broadcast band for small community radio stations. The victory was made possible by a coalition of community radio advocates who have been fighting for a decade to make low-power radio a reality in U.S. cities. The coalition was led by the Prometheus Radio Project, a Philadelphia-based organization that builds, supports, and advocates for community radio stations across the country.

The Local Community Radio Act modifies the rules that govern Low Power FM radio (LPFM). The FCC created the Low Power FM service in 2000 to allow schools, churches, and community groups to get on the air with 100-watt FM radio stations. Larger broadcasters lobbied against the new service, and later in 2000 Congress passed the Radio Broadcast Preservation Act, ordering the FCC not to license LPFMs in regions where there was a full-power station on a third-adjacent channel (600 kHz away) to the LPFM. Congress ordered the FCC to investigate the potential problems of interference between LPFMs and third-adjacent channel full-power radio stations, and the resulting study indicated that the two classes of radio stations could co-exist without interference. The new legislation allows the FCC to waive the third-adjacent channel restrictions and license new low-power stations as it sees fit. This decision is especially notable because it means that there will be space for LPFMs in urban markets, where existing stations are closer together on the dial and there were few spaces available for LPFMs under the old rules.

While many of the urban community groups that wanted radio stations missed out in the first LPFM window, stations that did get licenses have been going strong for years. KDRT-LP in Davis, California, operates within a community television station and broadcasts everything from election coverage to jug band music. WCIW-LP in Immokalee, Florida, is run by the Coalition of Immokalee Workers, which uses the radio station as an organizing tool in its fight for agricultural workers' rights. WQRZ-LP in Bay St. Louis, Mississippi, is run by the Hancock County Amateur Radio Association and focuses on emergency preparedness. When Hurricane Katrina hit in 2005, one of the WQRZ operators swam across floodwaters with fuel strapped to his back to keep the station on the air. These stations are revitalizing the medium of FM radio by bringing in new listeners and creating new producers who are excited to hear and create content relevant to their communities.

After 10 years of fighting in the Capitol to open up the airwaves to more great stations like these, the Prometheus Radio Project is looking forward to working with new organizations that want to get on the air. Prometheus plans to launch some of the new stations with "Radio Station Barnraisings," where hundreds of volunteers converge for a long weekend to build the station, celebrate, and learn from each other. To learn more about the Prometheus Radio Project, visit www.prometheusradio.org.

* Certified Broadcast Radio Engineer

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- Cross-tone

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The Weirder Side Of Wireless

by Staff

Spoiler Alert!

Believe it or not, there are some people who find antennas unattractive, among them, potential buyers of the 2011 Chevy Camaro Convertible. According to the *CNET Review*'s Car Tech blog, Camaro fans squawked when photos of the new model were leaked, and antenna-phobes protested an AM/FM whip antenna on the rear deck (guess you can't call it a trunk if it doesn't open). Chevy may know cars, but if there's one group out there that knows antennas it's ham radio operators, especially how to conceal them. Antenna engineers Don Hibbard, W8BDH, and Gregg Kittinger were tasked with the job. Their solution? Turn the rear spoiler into an AM/FM antenna. Best of all, their approach didn't sacrifice radio reception. "We weren't sure that it would be possible," said Kittinger. "Typically antennas are hidden in a vehicle's rear window, but with a retractable soft-top roof, that's not an option." Hibbard said he loves "experimenting and seeing what I can do. After all, I'm a ham." Finally, man can drive a chick magnet and still get decent radio reception. Amateur radio saves the day again.

Bouncy, Bouncy Signal

In the early 1960s, German chemist Hanns-Peter Boehm theorized that an arrangement of carbon atoms in a lattice structure, one atom deep, could be created which would somewhat resemble a sheet of chicken wire and could be used in multiple electronic applications, including as a radio receiver. He called this material graphene. Now, according to a recent article in MIT's *Technology Review*, Yue Hand Xu at Columbia University in New York has constructed a "nanotrampoline" that can directly detect radio frequency signals using graphene. This technology could pave the way for a new generation of mobile phones and other radio frequency communicators. The nanotrampoline consists of a sheet of graphene stretched between two electrodes with a third detector electrode placed beneath it. The sheet resonates when hit with DC current changing at radio frequency signals, and this can be easily measured by monitoring the capacitance between the sheet and the third electrode below the sheet. According to the article, "The Graphene sheets are two orders of magnitude less massive than similar devices made of silicon and can measure signals at much higher frequency." This could be a game changer for cost, energy use, and size. Now that's a trampoline we can jump on.

Is It Stuffy In Here?

No, it's just your cell phone recharging. According to a piece by Tim Hornyak in *CNET News*, one day that may very well be the answer to that question. Hornyak reports that this year's list of predictions from the gang at IBM includes such tall orders as "...batteries that could last 10 times longer than those of today, and could be based on energy-dense metals that only need to interact with the air to recharge." Another prediction: "Homes of the near future, meanwhile, could be warmed by heat produced by data centers." (Sure, but who wants to live in a data center?) Other innovations predicted for the next five years include kinetically powered laptops, computers that predict traffic jams in real time, and mobile phones that project 3D images of callers. We may finally get to see the telemarketers who have been torturing us.

iPhone iDiot

Could someone smart enough to use a smartphone be dumb enough to think he could rob a store with it? Yes. PCMag.com reports that a Connecticut man entered an Indian restaurant one afternoon and pulled out his iPhone "in an attempt to pass off the expensive hunk of silicon as the cold, hard steel of a gun." Unfortunately, the cell-slinger didn't take into account that an iPhone doesn't look anything like a firearm. Cooks at the restaurant noticed the dissimilarity to a real weapon and grabbed knives, confronting the would-be robber, who fled the scene. He was captured by police several hours later. He told authorities that he needed to rob to secure money for his child. And apparently for his cell phone plan.

News, Trends, And Short Takes

by D. Prabakaran

Analog AM Stations Could Transmit Some Data

iBiquity has developed "ADDS"—the AM Digital Data Service—but the HD Radio developer says the concept doesn't depend on its AM digital technology. It can be used by stations broadcasting in regular analog, without having to install the full-boat AM IBOC (in-band on-channel) system. The data in question is something close to the long-elusive "RDS for AM radio." The American implementation of RDS (supplemental data sent to a receiver) for FM has been frustrating, and Europe is way ahead of the U.S. in consistently delivering music, station info, and other data to a car radio. The new AM Digital Data Service wouldn't have nearly that potential because of the more limited bandwidth of AM, but as the NAB and iBiquity say, it's at least a way for AM to get into the game. For more, see www.nabfastroad.org/AMDigitalDataSSSRpt.pdf.

(Source: www.radio-info.com)

Radio Slovakia International Ends Shortwave Service

Radio Slovakia International stopped broadcasting on shortwave on December 31, 2010, due to budget cuts. Explaining that broadcasting on shortwave uses a whopping 60 percent of its budget, the English presenter on a listener contact program said that the station had the choice of closing down completely or continuing on satellite and Internet. According to the station's website, the decision was made by the Government and the management of Slovak Radio in order to enable all sections of Radio Slovakia International to utilize modern technology and function effectively. The broadcasts will be available via satellite at www.wrn.org and via the Internet at www.rsi.sk.

(Source: Radio Netherlands Worldwide Media Network blog)

Southern Africa Selects DVB-T2

The Southern African Development Community (SADC) digital task force has selected DVB-T2 with MPEG-4 compression as the terrestrial transmission standard for the region. SADC member countries (Angola, Botswana, Democratic Republic of the Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe) had already selected DVB-T through the 2006 ITU Geneva agreements and may continue with this implementation if they have already started, migrating to DVB-T2 at a later date. It is expected that all SADC countries will each complete the formal adoption of DVB-T2 in the near future, paving the way for an ambitious digital switchover date of December 2013.

(Source: dvb.org)

"World's First" Glasses-Free 3D TV Hits Stores In Japan

Toshiba launched what it calls the world's first television that allows viewers to see 3D images without having to wear special glasses. Curious shoppers stopped to test out the screen at an electronics store in central Tokyo as the 12-inch LCD model of the Regza GL1 Series went on sale with a price tag of $1,400 (a 20-incher is $2,885). While other 3D-capable TVs require glasses that act as filters to separate images to each eye, creating the illusion of depth, Toshiba's new screens use processing technology to create depth-filled images. The Regza GL1 Series also allows users to switch between 2D and 3D on normal TV programs. Haruo Sato, analyst at Tokai Tokyo Research Centre, said it was "a big advantage" that the new series does not require viewers to wear glasses. Rival Sharp earlier this year unveiled a small glasses-free LCD touchscreen that shows 3D images for use in mobile phones, digital cameras, and game consoles such as Nintendo's 3DS, which was set for release in Japan in February.

(Source: AFP)

VODone Launches Radio Subway Line 0

VODone Group announced the launch of Radio Subway Line 0 in Beijing, providing subway commuters with tailored online radio programs. The Radio Subway Line 0 will enable underground subway riders to "enjoy a wholly new media experience in the country," according to a company announcement. Since the pre-launch test, during the trial period of 150 days, the Radio Subway Line 0 recorded more than one million software downloads. The radio platform, which requires users to pre-install the client applications on their mobile phones, covers eight radio programs or topics, ranging from early morning news, noon news, private cars to interactive, psychological talks. It begins broadcasting online at 4:30 a.m. each day and ends at midnight.

(Source: VODone Information Engineering Co.)

Capitol Hill And FCC Actions Affecting Communications

by Richard Fisher, KI6SN

U.S. Senate Passes Local Community Radio Act

The Local Community Radio Act, paving the way for potentially thousands more low-power FM stations in the United States, was passed by the U.S. Senate on December 18, 2010—a day after it had been approved in the U.S. House of Representatives. The legislation was headed to President Obama for his signature. The FCC created the low-power FM service in 2000, and there are several hundred non-commercial Low Power FMs (LPFMs) on the air now. The National Association of Broadcasters, had opposed the bill "over interference and other concerns," according to a report on the *Radio Ink* website, and "wrote to the House sponsors of the bill, Reps. Mike Doyle (D-Pennsylvania) and Lee Terry (R-Nebraska), offering support for a revised version of the bill that addressed the organization's concerns, and supporting passage in the Senate as well. "The Prometheus Radio Project, which held a protest...outside NAB headquarters urging the organization to drop its opposition, was delighted by the bill's passage, though it said the amendments 'will require some further work at the FCC,'" the report said (*see this month's "Tuning In"—ed.*).

APCO Applauds FCC Chairman's Next Generation 9-1-1 Inquiry

FCC Chairman Julius Genachowski's Notice of Inquiry seeking comment on transitioning from a voice-only 9-1-1 system to a broadband-enabled, Next Generation 9-1-1 system has drawn strong support from The Association of Public-Safety Communications Officials (APCO) International. The organization views it as a system "that is better equipped to accommodate all channels of 21st century communication."

"Rapid changes in the telecommunications industry have provided both challenges and opportunities for 9-1-1 services in the United States," said APCO President William Carrow. "It is critical that technical capabilities, standards, cost and operational impact are considered as we move to the next generation of 9-1-1 operations." APCO said that "an important lesson for Americans...is that in most cases, voice communication is the only way to reach a 911 operator."

"It is our hope that the Next Generation 9-1-1 Notice of Inquiry will lead to a world where individuals can send a text, email tweet, photo or video to 9-1-1 in a time of need," Carrow said. "But a number of technical, regulatory, funding, and operational issues will need to be resolved and gradually implemented before Public Safety Answering Points are fully capable of handling today's modern technology."

FCC Gives Some Amateur Callsign Seekers A Valentine's Gift

The FCC issued new rules regarding vanity and club station callsigns for U.S. radio amateurs that went in effect on Valentine's Day, February 14. More than a year ago Commissioners announced they were making changes to Part 97 and in November issued a Report and Order with details of the FCC's decisions. According to published reports, the FCC also made "certain minor, non-substantive amendments" to parts of Part 97. For complete details, visit http://edocket.access.gpo.gov/2010/pdf/2010-31349.pdf.

For Second Time, Company Cited For Marketing Illegal R/C Devices

The Federal Communications Commission issued a Citation to Hobby Lobby International in late 2010 for marketing non-compliant radio-frequency devices for radio-controlled models. The company has a retail store in Brentwood, Tennessee. According to the Commission, the devices are in violation of Section 302(b) of the Communications Act of 1934, as Amended and Section 2.803(a)(1) of the Commission's Rules. It is the second time HLI has been cited for the violation; the first was in July 2009 for selling the JETI Duplex 2.4-GHz System for radio-controlled model aircraft, boats and cars. The Commission said that if HLI continues the violations, fines and criminal sanctions "including imprisonment" may be imposed. The company was given 30 days to respond.

"The Internet Of Things"

by Rob de Santos
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What is the largest "communicator" in your home? Your HF rig? The TV? The computer? You might give different answers depending on how you define or how you measure communication. Perhaps one way to measure the communication would be to ask: how many devices in your home are now connected to the Internet?

Recent estimates suggest that the total number of devices connected to the internet is now somewhere between 2 and 5 billion—quite a spread there—and could reach 20 billion by 2020. In other words, there is now about one device connected for every two people on Earth and within a decade that will increase by a factor of four. That may yet prove to be an underestimate. What is your number? Take a minute and count how many devices in your home are now connected. In my home, the number is now at least 10, and I may have missed one or two. There isn't anywhere I go where I don't have at least one connected device with me, sometimes more.

Many have suggested that we aren't far away from almost every device having some sort of connection, even if it's an RFID chip talking to other devices and indirectly to a local network or the Internet. Speculation is that anything from toys to coffee makers to motion sensors, even food, may have sensors and detectors and transmit information. Would you want your refrigerator to report that power has been out and the food will last only three more hours? How about alerting you that the eggs are down to two and then automatically ordering more so that cake is made without the last-minute trip to the grocery? How about your car consulting your calendar and scheduling that oil change for you? You might see this development as a time saving benefit and a gain in efficiency in your daily life, or as something you don't feel you need or that's even disturbing. No matter, we're on the verge of a major change in the way we live.

What really happens with the technology depends on what we, as consumers and technophiles, do with it. To that end, experimenters are hard at work exploring this technology. The chipmaker ARM Holdings has launched a project called mbed (a play on the word embedded; see http://mbed.org). The idea is to open up the microcontroller world to those without the typical hardware and experience to develop programs for embedded firmware. In just a short time, numerous modules have been made available for downloading, or you can write your own (the language used is C++).

"Would you want your refrigerator to report that power has been out and the food will last only three more hours?"

For less than $60, you can purchase the development kit, including a chip and the software needed to program it from your PC via a USB connection. In the spirit of an open community, users are sharing their projects and results. Radio amateurs are, of course, prominent among the experimenters. Have you ever wanted your receiver to alert you when it detects a possible DX opening to Asia? It's possible now.

Is this beyond most hams or SWLs? Maybe, but if one hobbyist can do it, then all of us may well benefit.

More generally, we may be entering a world where we are connected not just socially by technology such as Facebook, but many of our day-to-day "things" will also be connected. What this may mean in terms of our daily lives is difficult to predict. One thing we can say for certain is that our "connectedness" is going to go up exponentially and the communication that will result will also grow dramatically.

The societal impact as well as the technological impact, in terms of bandwidth, RF density, and the potential for interference, will be huge. This is bound to affect the communications hobby in various ways, some good as mentioned already, others not so promising. As discussed in past columns, the need for bandwidth is going to put pressure on the amateur bands, raise issues of privacy affecting the scanner hobbyists (as did the advent of mobile phones two decades ago), and increase the interference affecting radio listening generally. Communications hobbyists will need to be engaged in the resulting public debate. It won't be enough to say "leave our spectrum alone"—we'll need to make effective arguments for the value of what we do against the potential benefits for society of other uses of the spectrum.

Are you part of the "Internet of Things"? Are you looking forward to its expansion? Send me your thoughts on the future using your choice of communications methods.

Tips And Targets For Successful Event And Venue Scanning

If You Want The Action To Come To You, Bring Your Scanner To It! Knowing The Right Frequencies To Search Makes It Easier To Listen In

by Chuck Gysi, N2DUP

Most scanner hobbyists have a scanner or two—or more—going at full tilt around the house, because they want to know what's going on in their communities. Many hobbyists have scanners in their vehicles, and others carry them with them wherever they travel.

Long ago, I learned that if I wanted to hear some exciting action, I needed to take my scanner *to* the action. Luckily for us, it's not hard to find that action, no matter where you are. Sometimes you just need to go a few miles outside your own neighborhood for interesting venues. And maybe heading a little farther will take you to some great monitoring locales.

I love taking a handheld scanner with me everywhere I go. With today's modern scanners, you can easily take a scanner to an event or venue and tune in exciting air-to-air comms during an air show, say, or at the traveling circus when it's setting up in town. When you're in the midst of the action, it's almost hard *not* to hear the two-way radio users who are all around you.

Knowing the right place to search is the key to having a fun time while monitoring. To help you, here's *Pop'Comm*'s guide to finding new and exciting communications wherever you go. So fire up that handheld scanner, no matter how old or new it is, follow our tips and suggestions, and you're sure to find something worth listening to over the VHF and UHF airwaves. Be sure to check out—and hang on to—the accompanying sidebar for a list of suggested frequency ranges to search and helpful hints for when you're taking your scanner on the go.

Amusement parks provide great everyday monitoring opportunities and are often the site of special celebrations as well. Here members of the armed forces and their families participate in the taping of the 2005 Walt Disney World Christmas Day Parade at the Magic Kingdom in Orlando, Florida. The mega amusement park has a variety of radio systems, including an 800-MHz trunked system for public safety operations. (U.S. Navy photo by Photographer's Mate 1st Class Toiete Jackson)

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

Shopping Malls And Retail

One of my favorite listening targets is retail operations and shopping malls and everything that's going on inside them. They're easy to monitor and almost everyone in at least fairly

populated areas seems to live within about 20 miles of a mall. You don't even need to find a shopping mall; any department store will do.

Although I'm more of an online buyer, my wife still likes to shop at malls and department stores, so we strike the perfect balance: She goes from store to store while I sit in the car in the parking lot, waiting to pick her up. All the while, I'm outside with the scanner going, listening to sales reports, security matters, and more from the heated or air-conditioned comfort of my vehicle.

Try downtown/service frequencies for big events, like this Mardi Gras parade on Canal Street, New Orleans. (Courtesy Larry Johnson, Via Wikimedia Commons)

Sometimes the real action starts after the main festivities end—keep your scanner ready! View from a balcony of police closing down a street at the end of Mardi Gras 2008. (Courtesy William Gunn, via Wikimedia Commons)

What types of things will you hear when you scan near a shopping mall, department store, factory outlet complex, or shopping center? You might be surprised. There's a world of activity going on inside shopping venues. The bigger they are, the more you can tune in to.

The most obvious scanning target at shopping malls and department stores is security operations. Monitoring security forces can be mundane, or it can be exciting. Despite the humorous movies and jokes made about the activities of "mall cops," they have a very serious role and perform essential functions. At some large malls, they are known as public safety, rather than security, but it's all the same job.

Large malls have interior foot patrols as well as security personnel who drive around the exterior of the mall property observing and assisting the shopping public. I know they observe, because once while I was sitting on the outskirts of a mall parking lot, listening to my scanner as my wife shopped inside, a security patrol car pulled up behind me, took note of my license plate and then pulled away. That's exactly what they're supposed to do. Don't be alarmed if they do the same to you if you're listening on their property. In addition to security operations, you may hear mall maintenance staff keeping mall facilities clean and engineering staff keeping the mall running.

Inside the mall, retail operations rule the airwaves. Stores of all sizes use two-way radios of various types to assist employees in their work. While malls typically use UHF radios with repeaters, retail businesses inside malls usually use UHF or VHF radios, often without repeaters, for their operations. Some larger department stores may use repeaters, but that's the exception and not the rule. The repeaters help extend the coverage of handheld radios inside the mall or store.

Because most communications inside malls are on low-power handheld radios, you really need to be on site to hear the communications inside the facility. But don't forget that while there is plenty to hear from inside the mall, there's a lot of listening fare outside, too. Is there an office supply store or a restaurant in a mall out lot? There's a good chance radios also are being used there.

The next time you visit a shopping center, be sure to take along your scanner. You'll hear sales reports from the

20-440

ANTENNA LOOP AN200

Accessory Antenna Loop for use with Other External Antenna Capable Radios

20-265

SATELLIT 750

AM/FM/Shortwave Radio with Aircraft Band, SSB (Single-Side Band) and a Rotating AM Antenna

20-439

GLOBE TRAVELER G3

AM/FM/Shortwave Digital Radio with Aircraft Band, SSB (Single-Side Band), RDS (Radio Data System) and Synchronous Detector

GRUNDIG

Start your travels

20-010
MINI 400
Super Compact AM/FM
Shortwave Radio with
Digital Display

20-012
FIELD RADIO S450DLX
AM/FM/Shortwave Field Radio with
Liquid Crystal Display

20-438
TRAVELER II DIGITAL G8
AM/FM/Shortwave Radio with World
Time, Great for The Global Traveler

Available at: amazon.com RadioShack. LA SOURCE

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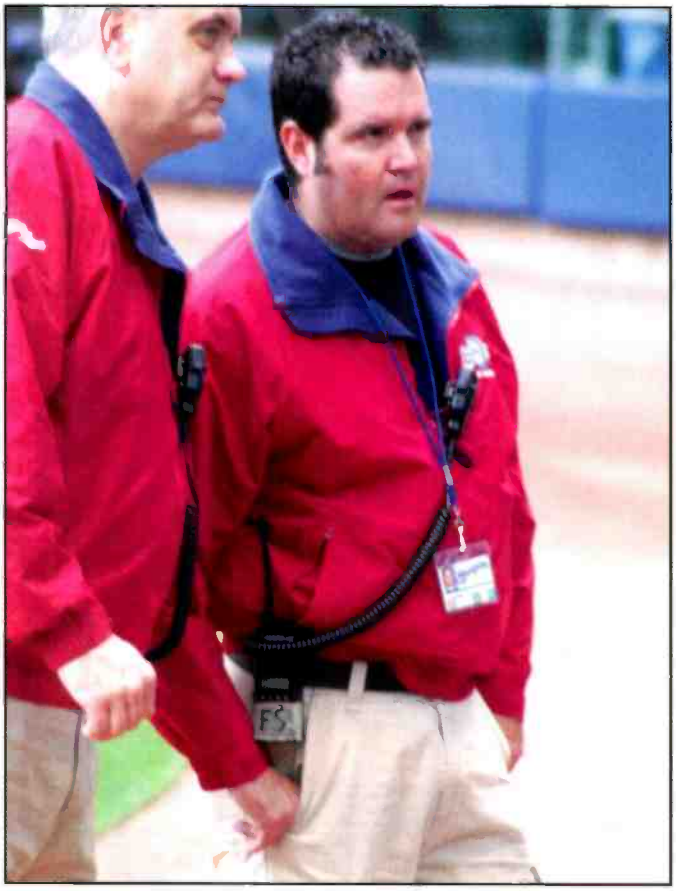
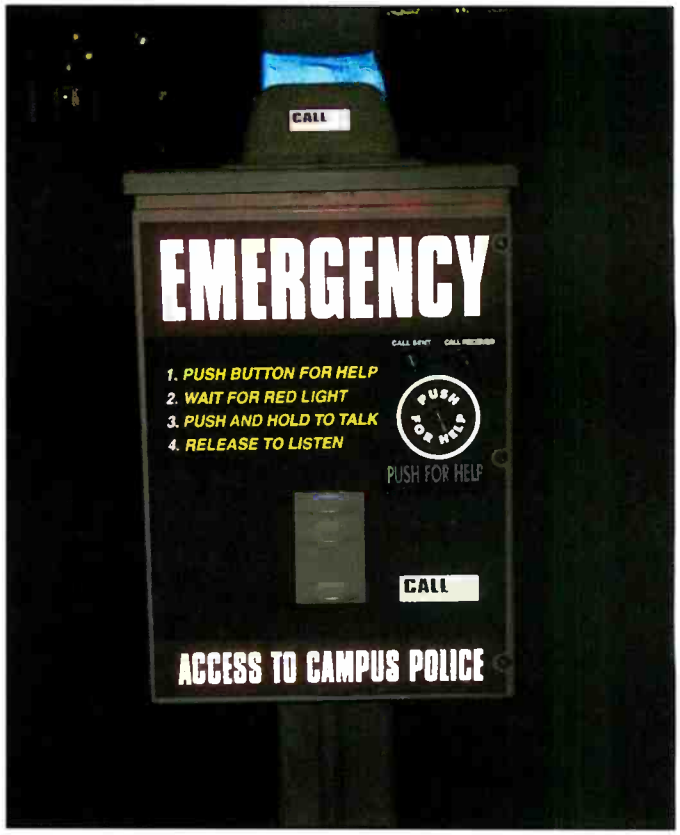
EMPOWERED BY NATURE



Two security guards at Miller Park, home of the Milwaukee Brewers baseball team, monitor the stands prior to a game. Most team operations are in the 900-MHz band there. *(Photo by Chuck Gysi, N2DUP/scancomm.net)*



A call box at Western Illinois University in Macomb, Illinois, operates on a 453.200-MHz repeater, relaying calls from students in emergency situations on campus to public safety dispatchers. Blue lights are mounted atop the call boxes so they are easily seen. *(Photo by Chuck Gysi, N2DUP/scancomm.net)*

larger clothing stores inside the mall, find out what items are popular as stocking crews work to keep displays stocked, and perhaps even monitor department store security watching a shoplifter in a surveillance operation.

While the malls have the most traffic, the standalone department stores, like Target and Walmart, as well as factory outlet shopping complexes, have plenty going on as well. All these retail facilities offer interesting scanning action.

Sporting Events

One popular scanning target is sporting events. Put a lot of people in one area, like the stadium of a sports game or auto race, and it's sure to bring out the two-way radios. Even if you just sit in the parking lot and don't enter the stands, you'll hear a lot on your scanner on game or race day.

Monitoring the communications at auto races is a particularly popular hobby, not only for scanner enthusiasts, but for the general race fans in the stands, too. Because race teams use radios to talk to each other as well as the drivers, there's plenty of action to be found. Most race chatter is on UHF business frequencies. If you search, you'll be able to find the drivers and their teams. At larger races, you can rent scanners with the teams' frequencies already programmed or you can purchase a list of frequencies to program your own scanner. Don't forget to monitor track officials, too, so you know when there are cautions on the track.

Major sporting events, such as baseball and football games, also bring out the cache of two-way radios. Most stadiums and arenas can be found using UHF frequencies because the UHF signal bounces around the canyons of sports facilities very easily. You may hear the radar operator call out the pitcher's speed with each pitch, food concession operators, security teams, grounds crews, ushers, and more. You may find a mix of simplex and repeater operations. At some venues, such as the Green Bay Packers' famed Lambeau Field in Wisconsin, you may find more complex radio systems. The Packers operate a 10-channel 900-MHz trunked system with quite a few talkgroups for operations such as maintenance, food service, press box, guest services, and more.

Casinos

Ever since casino gambling expanded from Las Vegas to Atlantic City in the 1970s, casinos have been popping up in many other areas of the country. From the Indian gambling establishments to the riverboats of the Midwest, casinos have become popular in many areas. Every casino uses two-way radios for a variety of operations, including security, surveillance, maintenance, slot technicians, and associated hotel operations.

While the larger casinos in Vegas and Atlantic City can be found using multiple UHF repeaters or even 800- or 900-MHz trunking systems, most casinos use UHF radio systems. The trend with newer casinos, however, is to use UHF radios employing

MOTOTRBO, a professional digital two-way radio system from Motorola, which is not monitorable on scanners. It simply sounds like buzzing whenever these systems are on the air.

The chatter on casino channels when you can pick it up is often fun, ranging from the callout of jackpot payouts to the surveillance of possible cheats on the floor. Keep in mind that taking a scanner into a casino might well get you some undesired attention and prove grounds for your dismissal, or worse. If you sit in the parking lot, be aware that you may be under surveillance by camera, too. The best place to monitor casino communications is from the comfort of your casino hotel room.

Downtowns, Office Complexes, And Industrial Parks

Commercial downtowns throughout the country offer much for scanning enthusiasts to monitor, whether you are listening from your office, hotel room, or a parking ramp. Those big office buildings and industrial parks have plenty of radios in use for a variety of purposes, primarily on the UHF business frequencies.

Scanning through the UHF business channels, you'll hear building security and maintenance operations, hotel housekeepers, retail employees, and if you're really lucky, perhaps something special like the security communications for a visiting dignitary or celebrity in town.

Office complexes serve up the same security and maintenance operations, but don't be surprised if you find some unique users such as IT teams. While the buildings might be owned and operated by one entity, the tenants themselves, especially if they are major tenants, might have their own radios in use inside the building.

Industrial parks offer up additional listening enjoyment. Because industrial parks can house a variety of types of operations, you'll find a hodgepodge of scanning activity. For instance, you may hear warehouse operations from one building, while you monitor dock and shipping operations from a second one. At yet another facility, you may hear employees on the line at a manufacturing plant. In addition, you may hear security at any building in an industrial park.

The Rhythm City casino riverboat is docked at the Mississippi River riverfront in downtown Davenport, Iowa. Security operations on the boat are on 463.275 MHz. (Photo by Chuck Gysi, N2DUP/scancomm.net)

Amusement Parks

From the smallest to the largest amusement parks, two-way radios ensure the safety of park goers. They also ensure that

An ESPN crew does an on-field interview prior to a Milwaukee Brewers baseball game at Miller Park in Wisconsin, while Brewers security guards on 900-MHz radios stand in the background to watch the stands. (Photo by Chuck Gysi, N2DUP/scancomm.net)

Pop'Comm's Frequency Guide And Quick Tips For On-The-Go Scanning

Want to take your scanner on the road, but don't know where to begin searching? This easy frequency guide and our tips will help you use your scanner's search feature to successfully zero in on the action. Frequency ranges are presented with the most popular listed first and the least popular last. All frequencies are in MHz.

Malls and retail
Malls: 461–465, 451–453 (most malls can be found in the 464-MHz range)
Department stores: 461–465, 467.750–467.925, 466–470, 151.505–151.955, 154.515–154.600, 451–453
Smaller retail stores: 467.750–467.925, 151.505–151.955, 154.515–154.600, 461–465, 466–470

Sporting events
Car racing: 460.650–465.000, 465.650–470.000, 456–458, 451–453
Major league sports (baseball/football, etc.): 461–465, 451–453, 466–470
Stadiums and arenas: 461–465, 451–453
Media at sporting events: 450–451, 455–456

Casinos
Most: 461–465, 451–453
Las Vegas and Atlantic City: Also check 851–861, 935–940

Office buildings/downtowns/industrial parks
Downtown offices and hotels: 461–465, 451–453
Office complexes: 461–465 (mostly in the 464-MHz range)
Industrial parks: 467.750–467.925, 461–465

Amusement parks
Most: 461–465, 151.505–151.955, 154.515–154.600, 467.750–467.925
Large parks: Also check 851–861 and 935–940

Colleges and universities
Public and private: 461–465, 451–453, 467.750–467.925, 151.505–151.955
Public: 453–454, 460–460.625, 153.740–156.240, 158.730–159.465
Campus security/police: 460–465, 451–454, 153.740–156.240, 158.730–159.465
Large universities: Also check 851–861

Conventions and convention centers
Exhibitors, set-up teams: 464.500, 464.550, 469.500, 469.550, 151.625, 151.505, 158.400, 451.800, 456.800
Convention centers: 453–454, 461–465, 451–453, 466–470

Listening Tips

Be smart when you take your scanning on site. For instance, taking a scanner into a casino will surely generate questions, and perhaps get you tossed out, while taking a scanner onto a college campus and sitting on a bench isn't likely to raise any concerns. General rule: Don't be obvious.

Use headphones on your scanner so you don't raise the ire of those around you. I've sat at tables in the food court overlooking the interior of the mammoth Mall of America in Minnesota for hours on end with several handheld scanners going, but always with headphones, just so as to not raise suspicions by others nearby.

Don't use big antennas. Besides it making your activity more obvious, you technically don't need the big antenna. A small race-type scanner antenna, such as those sold at RadioShack, is perfect because it doesn't draw attention to your scanner and minimizes signals from outside your listening target because it minimizes gain. You don't need to stand up the scanner either. Let it lay down on a table so it's not obvious and it will work just fine for on-site communications.

Above all, be smart, be responsible, and be safe. When you achieve all that, on-site scanning is great fun.

everything runs smoothly for those who visit the parks.

At the smallest amusement parks, you may find single-channel VHF business frequencies in use, while at the largest parks you'll find systems as complex as 800-MHz trunking with many talkgroups helping the entire operation run efficiently behind the scenes. Walt Disney World in Florida uses an 800-MHz trunked radio system to support the public safety and governmental types of operations at its parks in that region. Business frequencies are used for more routine types of operations at Disney World, Epcot, etc.

Typical for most amusement parks is to use UHF business repeaters. You also may find some low-power simplex communications on UHF channels where short range only is needed. Scanning these frequencies you may hear ride operators, security, park hosts, entertainers, maintenance, electricians, and more.

In areas of the country with seasonal weather variations, major operation of amusement parks may be only during the spring through early fall months. However, don't discount listening for park activity on your scanner during the off months. While there may be no park patrons then, security and other operations continue, albeit to a lesser degree.

College And University Campuses

If you live in a community with a college or university campus, you might find some interesting communications during the usual school months. While security and perhaps maintenance operations might be carried out on VHF or UHF repeater channels with extended range, other campus operations may be more localized and include only handheld radios. Furthermore, you may hear these other radios only during specific events at on-campus venues.

Some examples of additional radio channels you may find on campus include those used by food service, resident hall operations, arena and stadium operations, athletic teams, and museums. One campus near where I once worked had call boxes in the student parking lots and around campus where callers could pick up the handset and report emergencies. These call boxes went out on 453-MHz local government frequencies to the campus dispatcher—it was an innovative use of radios in the campus setting.

You may find a variety of radio systems on campuses. While state and coun-

ATS-909X

RDS ECO Rechargeable

The Pattern of Excellence Continues...

Sangean's Legendary 2nd Generation ATS-909X World Band / LW / AM / FM / SW Portable Receiver...

The ATS-909X is the flagship of the Sangean line of AM/FM/SW Portable Radios. It provides performance and features generally found in more expensive table-top communication receivers and combines it all into a very compact and stylish package. Coverage includes all long wave, medium wave, short wave, and AM and FM stereo frequencies (FM Stereo through headphone jack). It's a clear step up from the predecessor ATS-909····· Compared to the predecessor ATS-909 model, the ATS-909X boasts a larger LCD with a brighter backlight for easier reading. With over three times the output power of the ATS-909 (1W vs. 0.3W) and a more rigid cabinet, the ATS-909X offers superior sound quality and reliability. An additional battery charger, Aux-in, DSP decode IC, and a longer telescopic antenna compared to the ATS-909 enhances the short-wave reception for improved signal fidelity. A squelch setting allows you to set the sensitivity rating for radio reception, rejecting residual noise and reducing scans to faulty stations. And all these features of the ATS-909X come in a package that's smaller than the original.

Main Features:

- 406 Presets (FM 3 Pages: 27 Presets / LW 1 page: 3 Presets / MW 2 Pages: 18 Presets / SW 39 Pages: 351 Presets) + 1 Priority Preset
- Five Tuning Methods: Direct Frequency Tuning, Auto Scan, Manual Tuning, Memory Recall and Rotary Tuning
- ATS (Auto Tuning System) Auto Scan and Preset Priority Signal Strength in FM / MW / LW Bands
- FM RDS / RBDS with PS, PTY, RT and CT Features
- DSP Decoder IC for Better Signal Selectivity
- Large LCD Screen with Bright White LED Backlight
- Automatically Searches for Strongest Signal Station within SW Station Pages
- SSB (Single Side Band): USB / LSB 40Hz / Set on Fine Tuning
- Rechargeable Battery
- Much Improved Audio Quality: 1W Amp Output Power
- AM Wide / Narrow filter
- Built-in 42 World Time & D.S.T. Device with 2 Editable City Names
- Power Sources: (Main Power, 4 X AA Alkaline or rechargeable batteries) or AC adapter
- 12 Segment High Resolution Signal Indicator compared to 7 Segment from the ATS-909 Predecessor

SANGEAN Sangean America, Inc. 2651 Troy Ave., S. El Monte, CA 91733 Tel: (626) 579-1600 Web-Site:www.sangean.com E-mail:sales@sangean.com

ty schools can use local government radio channels in the 153–156, 158–159, 453–454, and 460–460.625 MHz ranges as well as 800 MHz, private schools typically use business radio channels on VHF and UHF for their operations. However, private schools with security departments sometimes can be found using local government radio channels as listed above, depending on the certification of the security staff. Some of the largest universities use trunking systems. For instance, the University of Iowa in Iowa City shares an 800-MHz system with the city and is migrating some operations to a new digital trunking system being deployed by the county there. The University of Central Florida in Orlando uses a six-channel UHF LTR trunking system for various operations, including dining services, event security, IT (computer services), maintenance, parking, and resident advisers.

Conventions

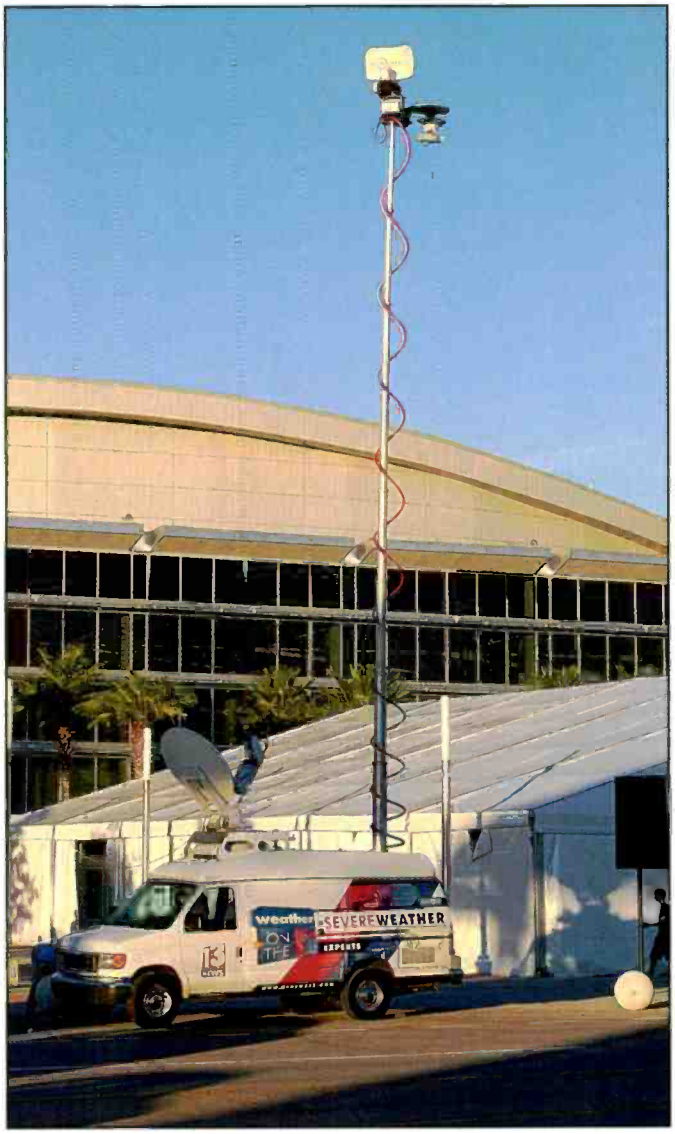
Conventions and convention centers can serve up a buffet of communications, especially the very largest events. Most oper-

Search business frequencies in downtown areas to find those used in office buildings, retail operations, and other institutions, such as medical facilities. This image shows office buildings, shopping facilities, and a large hotel in downtown Rochester, Minnesota. UHF business frequencies are favored by downtown business users because they bounce around buildings best. (Photo by Chuck Gysi, N2DUP/scancomm.net)

Downtown hotels might use frequencies for maintenance, security, housekeeping, banquet and convention services, and more. This image of the Kahler Hotel, across from the Mayo Clinic in Rochester, Minnesota, shows Mercedes Benz vehicles that belong to a security detail for Saudi Arabia's King Abdullah bin Abdulaziz, who was visiting Mayo Clinic for a physical. The Kahler uses 461.125 MHz for security and maintenance. (Photo by Chuck Gysi, N2DUP/scancomm.net)

The Mall of America in Bloomington, Minnesota, near Minneapolis, is a fun place to monitor. Not only will you hear all the retail operations inside and around the megamall, you'll also hear activity across the highway at the Minneapolis-St. Paul International Airport. The Mall of America uses a large LTR UHF trunking system that has many talkgroups for security, maintenance, housekeeping, and more. (Photo courtesy Mall of America)

Campus police officers direct traffic after an event at the University of Central Florida in Orlando, Florida. Most security operations at UCF take place on the campus UHF LTR trunking system. (Photo by Chuck Gysi, N2DUP/scancomm.net)



Media microwave trucks set up to broadcast live from the arena at the University of Central Florida in Orlando. Be sure to search the 450-451 and 455-456 media bands at any large-scale event if media are on the scene. (Photo by Chuck Gysi, N2DUP/scancomm.net)

ations are itinerant and may show up on the usual itinerant radio channels reserved for those businesses that travel from one event to another.

Some radio chatter simply may be related to the moving in and out of displays for a convention, however, there may be site crews working during the convention providing audio and video services, convention hosts, and more. If the event is being hosted by an organization, the association itself may be licensed to use radios.

A very large convention may bring thousands, even tens of thousands of people to the event. You'll hear exhibitors using their own radios in the exhibit area, convention center security personnel, technicians and electricians, food service teams, and more. One of the best conventions to monitor is the Consumer Electronics Show in Las Vegas. This yearly January show introduces the best of new technology—including many of the two-way radios that will be used in all those venues discussed above—to the news media and electronics retailers. Since I've followed it, the event has always proven very radio intensive.

Plenty To Hear

Scanning venues and events is an acquired skill. You have to recognize what frequencies are coming from outside and are not related and those that are definitely related to your intended target. For practice, try monitoring some events or venues around your locale to find some frequencies.

So the next time you're in the mood for a different type of scanning experience you'll be ready to throw a handheld scanner in the car, head to a different venue or nearby event, and use the radio's search feature for a successful monitoring outing. To make your hunt even easier, start by using our tuning guide to help you zero in on the communications you want to listen to. You'll hear the behind-the-scenes action that you don't typically hear going on in your neighborhood. And be sure to share your experiences with us here at *Pop'Comm*; you can email me directly at N2DUP@scanning1.com with your finds. Good luck!

For ALL your monitoring needs,

AR2300 "Black Box" Professional Grade Communications Receiver

First in a new generation of software-controlled black box receivers, the AR2300 covers 40kHz to 3.15 GHz* and monitors up to 3 channels simultaneously. Remote control functions. Internal SD audio recorder allows for unattended long term monitoring. Spectrum recording with optional AR-IQ software can be used for laboratory signal analysis. Using FFT, the unit scans large frequency segments quickly and accurately. Optional IP control port.

AR5001D Professional Grade Wide Coverage Communications Receiver

With amazing performance in terms of accuracy, sensitivity and speed, the AR5001D features ultra-wide frequency coverage from 40kHz to 3.15GHz* in 1 Hz steps with 1ppm accuracy and no interruptions. Large easy-to-read digital spectrum display and popular analog signal meter. The AR5001D makes it easy to monitor up to 3 channels simultaneously. Can also be controlled through a PC running Windows XP or higher. Great as a mobile or desktop receiver.

AR-Alpha with I/Q Control Software

Welcome to a new class of professional monitoring receivers. The AR-Alpha can perform unattended datalogging for extended periods and covers 10kHz to 3.3GHz* continuous. with no interruptions It boasts a 6-inch color TFT monitor that displays spectrum bandwidth a switchable time-lapse "waterfall" display or live video in NTSC or PAL. F ve VFOs, 2000 alphanumeric memories that can be computer programmed as 40 banks of 50 channels, 40 search banks, a "select memory" bank of 100 frequencies and a priority channel. Also includes APCO-25 digital capability and can record up to 52 minutes of audio.

AR-One Communications Receiver

Enjoy total command of frequencies, modes and tuning steps with this versatile performer that allows you to control up to 99 units with a single PC. Covers 10 kHz to 3.3 GHz and delivers excellent sensitivity, ultra-stable reference frequency oscillator, high intercept, adjustable BFO and multi-IF signal output (10.7 MHz or 455kHz) plus 1000 memory channels and 10 VFOs.

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Specifications subject to change without notice or obligation.
**Government version, cellular blocked for US consumer version.*

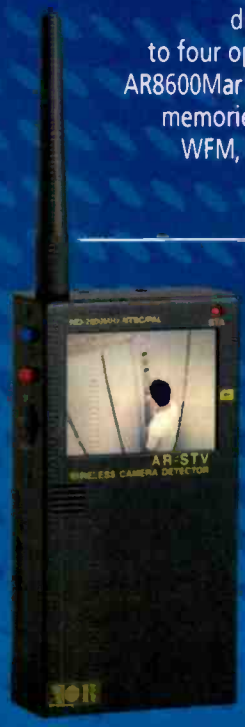
AOR is the Authority on Radio!

AR8200 Mark III
World Class Portable Receiver

With 1,000 alphanumeric memories and a TCXO that delivers solid frequency stability and performance not found in most desktop units, the AR8200 Mark III covers 500 kHz to 3GHz* and can be used with optional internal slot cards that expand its capabilities. It features true carrier reinsertion in USB and LSB modes and includes a 3kHz SSB filter. The data port can be used for computer control, memory configuration and transfer, cloning or tape recording output. A special government version, AR82000Mark III IR, features user-selectable infra-red illumination of the display and operating keys.

AR8600 Mark II Wide-Range Desktop Receiver

With an optional P25 (APCO25) decoder module, improved front end and receive audio response, display illumination control, ultra-stable TCXO and up to four optional cards that can enhance certain functions, the AR8600Mark II covers 100kHz to 3GHz* with 1000 alphanumeric memories and free downloadable control software. Receives WFM, NFM, Super-narrow FM, Wide and Narrow AM, USB, LSB and CW.



AR-STV Handheld Video Receiver

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

SR2000A Spectrum Display Monitor

Ultra sensitive, incredibly fast, yet easy to use, the SR2000A lets you SEE received signals in FULL color. Using the power of FFT, it covers 25 MHz to 3GHz* and features a color monitor that displays spectrum bandwidth, a switchable time-lapse "waterfall" display or live video in NTSC or PAL. High quality internal speaker delivers crisp, clean audio signals. Scans 10 MHz in as little as 0.2 seconds. Instantly detects, captures and displays transmitted signals. PC control through RS232C serial port or USB interface. With 12 VDC input, it's perfect for base, mobile or field use.

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

The MFJ-706 Grab-and-Go Emergency Communications Center

Pop'Comm Reviews—And Modifies—This Handy Docking Station For ICOM IC-706 Transceivers

by Phil Salas, AD5X

There's great product combination available for emergency communications radio operators, as well as for pretty much any hobbyist who appreciates mobile convenience. MFJ recently introduced its MFJ-706, an interesting "grab-and-go" docking station designed for the popular ICOM IC-706 series transceivers (www.icomamerica.com; see box) for EmComm and portable operation. Not only does this station simplify operating on the go, it also protects your valuable equipment. First let's take a look at what makes the MFJ-706 so useful, then I'll share a modification that further enhances its effectiveness.

The Nuts And Bolts

The MFJ-706 includes both an innovative voltage conditioner and a wide-range automatic antenna tuner in a compact 4-1/2 x 6-3/4 x 13-1/2-inch (HWD) package, which also houses your IC-706 transceiver. A 5-foot pendant power cable terminated in a standard automotive accessory plug is stored in a convenient rear cable-housing assembly. And a compartment underneath the transceiver may be used to stow your microphone, key, logbook, and other small accessories. When you're ready to operate portable, you just grab the handle and go—the MFJ-706 is perfectly balanced for carrying. Finally, a removable front cover fully protects your IC-706 transceiver, as you can see in **Photos A** and **B**.

Phil Salas, a licensed ham since the 9th grade, holds BSEE and MSEE degrees. Now retired from a 33-year career in engineering, he enjoys tinkering with electronic circuits.

Inside The MFJ-706

The MFJ-706's unique voltage conditioner uses MFJ's PeakPowerBoost circuitry to provide a full 100 watts SSB/CW signal when powered from a light-duty 10–15 amp 13.8-VDC power supply, or even a standard vehicle accessory socket. It accomplishes this with a 4-farad bank of super capacitors, which supplies the peak current needed for low duty cycle SSB and CW modes. As long as the external power source can supply more current than the idling current of the transceiver, the capacitor bank will continually

Photo A. Closed-up MFJ-706.

Photo B. Front panel removed.

Photo C. Front view with IC-706MKII mounted. Note storage space under radio.

recharge between speech and CW peaks. The voltage conditioner also includes a 70-amp 15-VDC transient suppressor diode which clamps any input voltage transients that exceed 15 volts. And there is also reverse-voltage protection should you accidentally connect the input power source improperly. Input and output automotive blade fuses are accessible through a bottom access plate.

You cannot connect an input DC source directly to a discharged 4-farad capacitor bank as this would blow the input fuse due to the high charge current that would occur. Therefore, pushing the ON/OFF switch on the front panel of the MFJ-706 begins a super-capacitor charging sequence that lasts 30–60 seconds before full power is available. An internal current-limiting resistor controls the charging current to the capacitor bank. When the capacitor bank is charged, an internal relay shorts the current-limiting resistor, so full input voltage and current is available to the charged capacitor bank. A CHARGING LED glows while the capacitor bank is charging, and goes out when the capacitors are charged.

Besides the EXTERNAL back-mounted SO-239 HF output connector, the MFJ-706 also includes a top-mounted 3/8 x 24 antenna mount and counterpoise connection for a loaded whip, such as a Hamstick (www.hamstick.com), and a top-mounted SO-239 connector for a VHF/UHF antenna. The internal automatic antenna tuner will tune most random wire or coax-fed antennas. Automatic tuning is enabled by a 1/2–1 second push of the transceiver's TUNER button. A front-panel slide switch selects either the ON-BOARD (top-mounted) or EXTERNAL(SO-239) HF antenna port, which is fed by the internal auto-tuner.

As you can see in **Photo C**, the IC-706 speaker is fully exposed so receiver audio

The ICOM IC-706 Series Transceivers

The ICOM IC-706 series of HF/VHF/UHF all-mode transceivers has been called the most successful of all amateur radio transceivers. Originally introduced in 1995, the IC-706 provided 100 watts from 1.8–54 MHz, and 10-watts on 2-meters. In 1997, ICOM upgraded the radio to the IC-706MKII, which added DSP, a second optional filter slot, and increased 2-meter power to 20 watts. In 1997 ICOM introduced the IC-706MKIIG which upped 2-meter power to 50 watts, and added 420–450 MHz capability at 20 watts. The IC-706MKIIG and earlier versions have been discontinued. But while no longer manufactured, you can readily find these radios at hamfests, in classified ads, and on on-line auction sites—it's estimated that the combined number sold of all three versions exceeds 70,000!

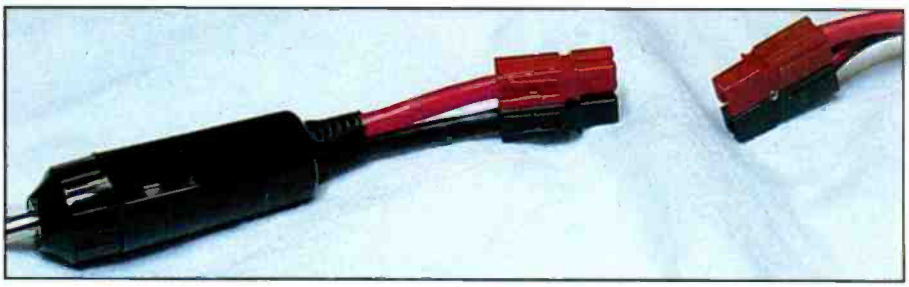


Photo D. Cut cable with PowerPoles.

Photo E. Modified pendant cable.

is unimpaired, and you still have full access to the headphone jack. Ventilation slots in the case ensure plenty of air flow to prevent transceiver overheating. And the IC-706 control head can still be removed and placed in a convenient location while the larger MFJ-706 box can be placed in the trunk, on the floor, or in the backseat of your vehicle.

Installing The IC-706 In The MFJ-706 Box

Mounting your IC-706 into the MFJ-706 box only requires a few minutes. You begin by removing the top handle plate and the finned access plate. Inside you'll find an HF/6-meter coax cable, a VHF/UHF coax cable, a DC power cable, and a tuner interface cable. Simply connect these MFJ-706 internal cables to the appropriate connectors on your IC-706. The IC-706 is then mounted in the box using the ICOM-supplied mounting screws normally used with a mobile mount. Now you simply re-attach the handle and access plates, connect the DC cable to an external source of power, and you are ready to go.

Operation

Operation is very straightforward. Connect your DC voltage source, attach an antenna to the appropriate port, select the correct antenna port on the MFJ-706 front panel, and depress the power button on the MFJ-706. The green POWER LED and the yellow CHARGING LED will both light. When the CHARGING LED goes out, you can turn on the IC-706. When the IC-706 is turned on, it automatically recognizes the MFJ-706 internal auto-tuner, which comes up in the bypassed mode. The auto-tuner also automatically bypasses itself when you change bands, or when you momentarily press the IC-706 TUNER button. To initiate a tune, simply push the TUNER button on the IC-706 for about 1/2 second.

The auto-tuner has 2,500 memories, so it will memorize your tuning solutions. Therefore, subsequent tuning requests on memorized frequencies will result in an almost instantaneous tune. If something has changed in the antenna system and the memorized tuning solution results in an SWR greater than 2:1, the MFJ-706 will automatically find a new solution.

Modifications To The MFJ-706

While the MFJ-706 works well as designed, I like to optimize my ham equipment, and MFJ products are easy to modify. First of all, EmComm and

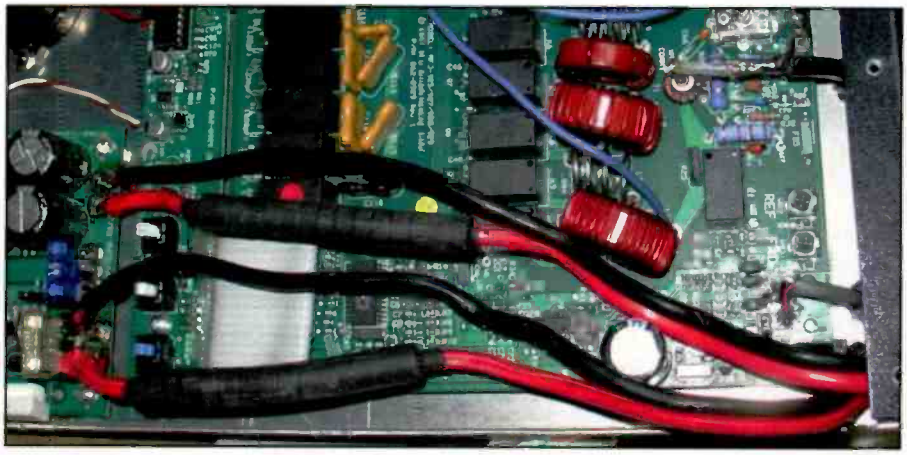


Photo F. Original 10-gauge DC wiring.

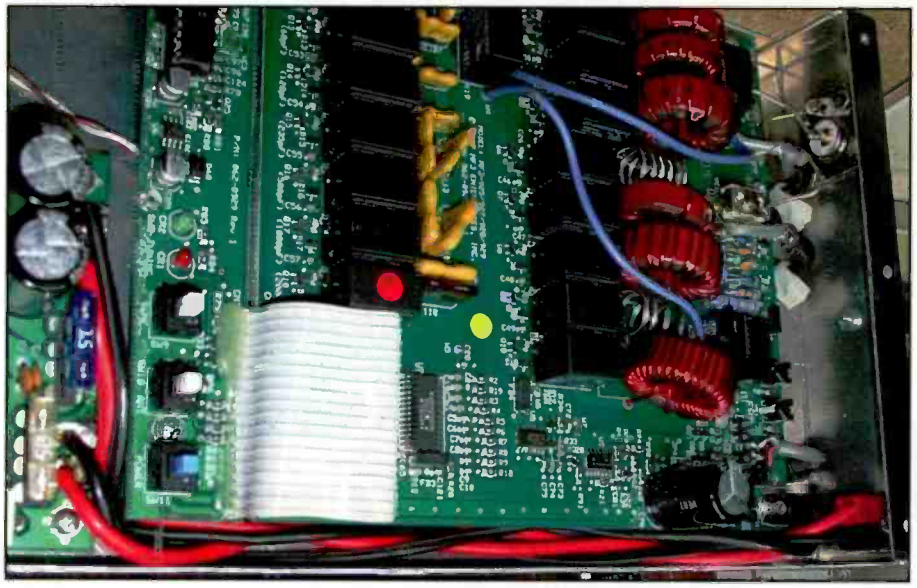


Photo G. New 14-gauge wiring.

Photo H. PowerPole DC interface.

At A Glance

The MFJ-706 Grab-and-Go Emergency Communications Center

Major Features:

Portable docking station for ICOM IC-706 series transceivers
Compact package (4-1/2 x 6-3/4 x 13-1/2-inches, HWD)
Wide-range auto-tuner
Voltage conditioner
Two HF antenna outputs
VHF/UHF antenna connection

List Price:

$399.95; "street price" is lower

Contact:

MFJ Enterprises
300 Industrial Park Road
Starkville, MS 39759
Phone: 800-647-1800
Web: www.mfjenterprises.com

RACES standard DC connectors are Anderson PowerPoles. But the MFJ-706 must be powered from an accessory socket as the pendant DC cable is terminated in an automotive accessory plug. There are two solutions: Either cut the cable and add two pairs of PowerPole connectors, or just put a PowerPole connector on the rear of the MFJ-706 and let folks add their own cable. I initially took the easiest way and cut the cable and installed PowerPole interfaces. The results are illustrated in **Photos D** and **E**.

Later I decided to go ahead and put an Anderson PowerPole connector right on the MFJ-706. This is a little more work as you must disassemble the MFJ-706 to get inside, and you must nibble out the DC input hole so it will take the PowerPole connector pair. However, I decided this was worth the effort. I also wound up cleaning up the wiring inside the unit a bit, as the 10-gauge wire was overkill and the DC wires were not routed to my satisfaction due to the gauge, and 14-gauge wire is good enough for this application.

Figure F shows the original DC wiring, and **Photo G** shows the new wiring using 14-gauge wire. Note the PowerPole connector pair in the lower right of **Photo G**. I also eliminated the ferrite beads on the +13.8-VDC wires as

Photo I. Key jack wiring.

Photo J. New key jack on MFJ-706.

Photo K. New ground lug and stainless steel mounting screws on rear cover.

these were no longer needed since the DC wires now go around, rather than across, the antenna tuner. **Photo H** shows a view of the back panel with the PowerPole DC input.

Next I added an external key jack. Since I am an almost 100-percent CW operator, I didn't like having to remove the access panel to access the CW jack on the transceiver. Therefore I added a 1/8-inch stereo jack just below the VHF/UHF SO-239 connector on the top panel. An internal pendant cable terminated with a 1/4-inch stereo plug interfaces with the key jack on the IC-706, as you can see in **Photo I**. **Photo J** shows an external view of the new key jack mounted on the MFJ-706.

Finally, I wanted a ground lug on the case. I added this by removing one of the rear #8 spacer screws and replacing it with

Photo L. Logbook, pad, and DC cable.

Photo M. Rest of needed accessories.

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Product is not to scale *Some services not available in all areas. Operation is covered by patents including 5,784,388, 5,956,648, 6,192,223, 6,519,472, 6,941,120.

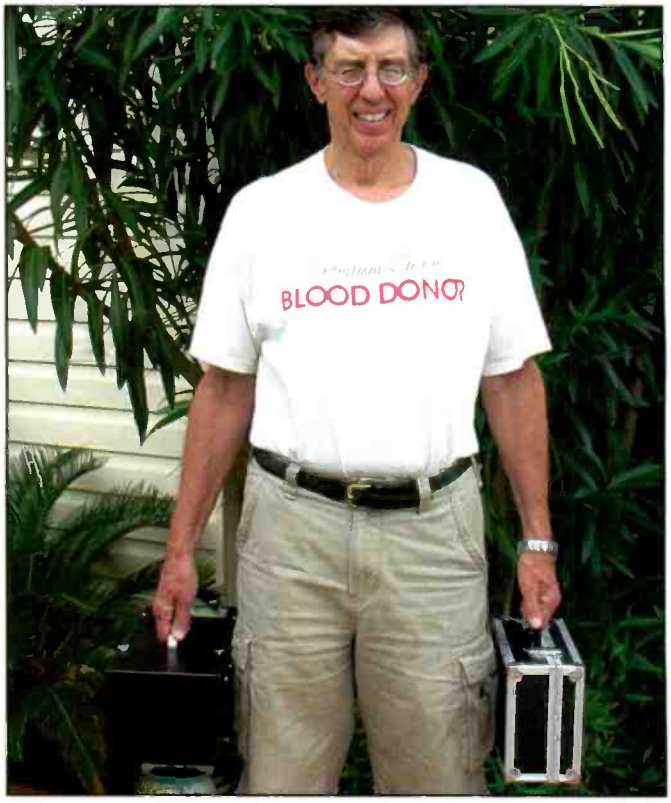

Photo N. Complete station ready for portable operation.

a 1-1/2-inch #8 screw. The head of the screw goes inside the case. The rubber spacer has an aluminum recessed spacer, and a #8 nut and lockwasher fit nicely into the recessed area. This permits the screw to be held tightly to the case, making a good electrical contact. An outside nut, two lockwashers, two flat washers, and a #8 wing nut finish up the ground post. To ensure that the rear panel makes good electrical contact with the rest of the box, I scraped the paint away from the six rear-panel screw-head mounting locations and replaced the original black screws with stainless steel screws and split-ring lock-washers. You can see these details in **Photo K**.

Additional Accessories

I put the log-book, writing pad, and a DC cable inside the MFJ-706 box, as you can see in **Photo L**. The rest of my accessories easily fit into an 11-1/2 x 7-1/2 x 4-1/2-inch aluminum tool case (Harbor Freight 36870, $14, www.harborfreight.com), as seen in **Photo M**. These accessories include my paddle, mic, MFJ-4125 power supply, 40–10 meter dipole, 25 feet of RG-174, earphones, Leatherman tool, masking tape, and extension cord, making a compact, ready-to-go portable station. (Details on the portable 40–10 meter dipole can be found in the "Articles" section on my website at www.ad5x.com.)

Summing Up

The MFJ-706, which lists for $399.95, is a neat package for EmComm and portable operation. It makes rapid deployment of a portable station possible in just a matter of minutes. And the simple modifications presented here make it that much more convenient.

With a fit like this, I bet it's only a matter of time before we see a MFJ-857 and MFJ-7000 versions!

Universal Radio — Quality equipment since 1942.

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 VR-5000

The **Yaesu VR-5000** provides sophisticated wideband reception. Coverage is from 100 kHz to 2600 MHz (2.6 GHz) less cellular, in AM, FM-N FM-W, LSB, USB and CW. This radio features a real-time bandscope that can display: 0.1, 0.2, 0.3, 0.5, 1.0, 2.0, 2.5, 5.0 or 10.0 MHz of spectrum and you get 2000 alphanumeric memories grouped into 100 banks. Optional aids such as a DSP unit and digital voice recorder are available. Jacks on the back panel include mute, 13.8 VDC input, external speaker, 10.7 MHz IF output, antenna input A (SO-239 50 ohm) & B (Hi Z 450 ohm), CAT interface jack (4800/9600/57600 bps). The VR-5000 comes with the PA28B 117 VAC adapter and a DC power cord. This radio is only 7.1 x 2.75 x 8 inches 4.2 Lbs.

Please visit **www.universal-radio.com** for specifications, color photos, accessories and price.

YAESU VX-8DR/GR

The **Yaesu VX-8DR** HT provides 5 watts FM on 50/144/430 MHz plus 1.5 watts on 222 MHz. It supports Blue Tooth hands-free operation with the optional BU-1 and BH-1A or BH-2A accessories. There is also an optional GPS unit and antenna with loads of features. This radio supports APRS® 1200/9600 bps data communication (B band only) and is WiRES compatible. In fact, this latest "D" version adds these APRS enhancements:

- ✔ Smart Beaconing™ Function,
- ✔ Station List memories raised from 40 to 50.
- ✔ APRS® Msg mems raised from 20 to 30.
- ✔ New DIGI-PATH route indication function.
- ✔ Heads up compass display.
- ✔ Msg LED flashing rate is selectable.
- ✔ DIGI-PATH route settings raised to 7.

The VX-8DR is submersible to IPX57 specs. A 7.4 V 1100 mAh Li-Ion battery is included. It supports simultaneous independent 2-signal dual receive function with both V+V or U+U. It has weather alert and a barometric sensor is included. The dot matrix LCD provides memory tags (to 16 characters). You even get a high-resolution spectrum analyzer with ±60 channels indication with wave monitoring of received/modulated signal! DCS and CTCSS encode/decode are standard. 2.36 x 3.74 x 0.92".

The **Yaesu VX-8GR** HT provides 5 watts FM on 144/430 MHz. Receive is 108-999 MHz in NFM/FM modes. Unlike the VX-8DR, this radio is not BlueTooth capable, does not have the SU-1 built in and is not submersible. It is however APRS capable (B band only) and even has a GPS built-in. Details at **www.RFfun.com**

YAESU

FT-857D

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

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

FT-897D

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

FT-817ND

FREE Yaesu canvas urban case with FT-817ND.

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

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At Your Service: The United States Navy

Here's The Latest Installment Of Our Multi-Part Acknowledgement Of The Military Branches That Serve Our Citizens

by Bob Sturtevant AD7IL

The Navy, with its 332,000 officers and enlisted personnel, is the second largest of our military branches, according to Defense Department figures. With a mission that covers land-based operations, sea-based warfare, and aviation in all of its military aspects, the Navy has plenty of specialists in general, and in electronics in particular.

Sailors take what's known as the ASVAB (Armed Service Vocational Aptitude Battery) test, and their scores determine what jobs they qualify for and what training they will receive. A sailor's first stop after boot camp into a technical field is the A school. The old stories of someone graduating from Electronics A school and going to work driving a truck are a thing of the past. Today's Navy can't afford to waste skilled Electronics Technicians; that's too expensive and the Navy is not a babysitting service. The men and women trained in electronics work hard in the Navy.

Operations Specialist 3rd Class Keegan Wigger, from Olympia, Washington, monitors air radar contacts in the Combat Direction Center aboard the Nimitz-class aircraft carrier USS *John C. Stennis* (CVN 74). (US Navy photo by Mass Communication Specialist Seaman Walter M. Wayman)

R.B. Sturtevant, AD7IL, is *Pop'Comm*'s "Trivia" columnist and has written many radio history features for the magazine as well.

"Like Admiral Redd, hams and other hobbyists in the Navy follow their careers all over the world and take the knowledge and love of radio with them."

Radio In The Navy

It's often said that the Navy has its own way of doing things, and when it comes to electronics, computers, and communications the Navy sets its standards high.

The Naval tradition of electronics excellence goes back as far as 1903 when the first fleet maneuvers were conducted using radio, or wireless as it was then called. Today, with missions that take the Navy over the waves, under the sea, across land, and into the sky—and even put it in charge of space satellite systems—you'll find sailors highly trained in electronics throughout the service. As far as comm gear goes, the Navy is on some of the lowest frequencies in the spectrum, with radios that send signals far into the sea to deeply submerged submarines as well as up to the GHz range, and perhaps beyond.

With more than 300 ships and 4,100 aircraft, each outfitted with computers and some of the most sophisticated hardware and software available, plenty of sailors are constantly kept busy installing, operating, and maintaining equipment.

Experts At Work

Electronics Techs are found in almost every facet of the Navy; indeed, hardly anything in the Navy will run without some form of electronics these days. Messages between ships must be coded and decoded, equipment must be tested, installed, repaired, and operated. Sailors with electronics skills maintain and operate communications gear as well as listen in and analyze the communications of other, possibly hostile, forces.

State-of-the-art information technology keeps the Navy's worldwide satellite system operating and keeps its mainframe

computers, local and wide area networks and micro-computers cooking—and Navy-trained IT specialists are experts in it. Telecommunications sailors maintain a full spectrum of communications, computer networks, mapping and navigational devices and classified coding and decoding equipment.

Branching Out Within The Navy

Some sailors add their language skills to their technical abilities to monitor, transcribe, and translate foreign language communications data. Others are assigned duties related to the Navy's use of nuclear power. The engineers and technicians responsible for the electrical generators that supply the power to run the Navy's nuclear ships are among the best in the world.

Operations Specialist Seaman Damian Bailey, from Crockett, Texas, stands radar watch in the Combat Direction Center aboard the Nimitz-class aircraft carrier *USS John C. Stennis* (CVN 74). (U.S. Navy photo by Mass Communication Specialist Seaman Walter M. Wayman)

Aviation Electronics Technician 3rd Class Ryan Clogston, right, from Woodinville, Washington, hands a flashlight to Aviation Electronics Technician 3rd Class Jacob Riese, from Wonewoc, Wisconsin, as they troubleshoot the electrical system on an F/A-18C Hornet from the "Blue Diamonds" of Strike Fighter Squadron (VFA) 147 in the hangar bay of the Nimitz-class aircraft carrier *USS John C. Stennis* (CVN 74). (U.S. Navy photo by Mass Communication Specialist 3rd Class Bryan M. Ilyankof)

Of course, there are sailors who maintain, install, and repair equipment on the aircraft used in Naval aviation. Not everyone in the aviation community is a Top Gun pilot—someone has to keep the radios, radar, and the hundreds of other black boxes that keep a plane or helicopter working in tip-top shape. Many Navy planes also have an REO (Radar and Electronics Officer) aboard, sometimes called the Guy In Back or GIB. He or she has plenty of toys to play with and they all need looking after. What are those, you ask? Sorry, we're getting into classified stuff here.

Places Of Honor

How far can hobbyists rise within the Navy? Well, Vice Admiral John Scott Redd, KØDQ (US Navy, retired), in an interview with the ARRL, said:

> Ham radio was my "Internet" in the 1950s. Growing up in a very small town (Sydney, Iowa, population 1,000), ham radio was my window on the world that generated an interest in far-away places and a vision to do something beyond my hometown. That turned out to be the US Navy, via the US Naval Academy. That changed my life. The Navy is a technological service and virtually everything in the military has a technical dimension. Electricity, electronics and especially, the electromagnetic spectrum, were key aspects of most of my seagoing tours and, indeed, even my later policy assignments. Being comfortable with technology, having built kits, antennas, and the like—and being zapped with 110 AC more than a few times—gave me a leg up.

Admiral Redd served in the Navy for 36 years and is now Director of the National Counterterrorism Center (NCTC). As active a ham as his Naval career would allow, Redd was inducted into the CQ Hall of Fame in 2008.

Like Admiral Redd, hams and other hobbyists in the Navy follow their careers all over the world and take the knowledge and love of radio with them. Often they connect with like-minded folks at their various ports of call and work the world on borrowed equipment.

Expertly trained, highly skilled, and deeply valued, these "radio-wise" sailors are also ambassadors of our hobby, whether working from a home port, shore base, or liberty port on the other side of the world. And we thank them for their service.

Lt. Lena Whitehead, from Camarillo, California, makes a radio logbook entry while standing junior officer of the watch on the bridge of the Nimitz-class aircraft carrier *USS John C. Stennis* (CVN 74). (U.S. Navy photo by Mass Communication Specialist 3rd Class Josue L. Escobosa)

Scanning St. Patrick's Day

by Ken Reiss
radioken@earthlink.net

No matter where you live, there's likely something going on for St. Patrick's Day, possibly even for the whole week. Larger cities have big parades that are always interesting to follow, while smaller towns will have more local celebrations, many at bars and taverns, which will get more interesting as the night progresses. A little planning will let you keep up with the action.

Saint Patrick himself is a bit of a mystery. He's the patron saint of Ireland and is credited with bringing Christianity to that land—and, of course, for driving the snakes from there! To this day, there aren't any of those reptiles in Ireland, but to be realistic, many experts believe there probably never were. The consensus is that the story of St. Patrick banishing the snakes is figurative of his successful conversion of the local pagans, since many of the older religions used serpents as symbols in their mythologies.

"Like any major event, a St. Patrick's Day parade is likely to involve multiple agencies. Listen to police for traffic and crowd control, fire and EMS for medical issues and other emergencies..."

One lingering symbol of Ireland itself is the color green, which this month you'll see proudly donned on March 17, the Feast of St. Patrick, by the sons and daughters of the Emerald Isle (and it seems most others as well—everyone's Irish on St. Paddy's Day!). In any event, any city or town with any substantial size Irish population is likely to celebrate. Even if you don't have many Irish around, all it takes is a few revelers to have an

South Boston citizens cheer sailors stationed aboard the guided-missile cruiser *USS Philippine Sea* (CG 58) as they march in Boston's 105th Annual St. Patrick's Day parade. *Philippine Sea* sailors stopped in Boston for a four-day port visit and participated in several St. Patrick's Day weekend events. (U.S. Navy photo by Journalist 1st Class Dave Kaylor)

New Orleans is host to a large parade as well, given their reputation for any excuse for a party. Agency frequencies seem to be in flux, but a scanner search should prove successful. (Photo courtesy Derek Bridges, via Wikimedia Commons)

Even Wappingers Falls New York gets into the St. Patrick's Day celebration with their Fire Department joining the Parade. Listen for them on 453.900 or 453.925. (Photo courtesy Juliancolton, via Wikimedia Commons)

Frequency Of The Month

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

Our frequency this month is **154.725**. Check it out and see what you hear, or don't. Let me know and we'll enter your name into the monthly drawing. Send your entries, as well as suggestions and questions, to radioken@earthlink.net or via more traditional methods to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Please note frequency of the month entries with the frequency on the envelope or subject line for correct routing. And don't forget that address!

The most recent winner of our drawing is **Lou Borkowski, K2EAI, of S. Tonawanda, New York**. Congratulations, Lou!

excuse for a party—just look for the "wearin' o' the green." Erin Go Bragh!

Where To Listen

Like any major event, a St. Patrick's Day parade is likely to involve multiple agencies. Listen to police for traffic and crowd control, fire and EMS for medical issues and other emergencies (or if the police fail to control the crowds or traffic). You might also find local ham radio operators (usually on 2-meter repeaters) helping with parade coordination, as well as GMRS frequencies in use for all kinds of things. You can also find private security outfits and local business owners, either involved themselves or allowing use of their radio systems to help out with the festivities.

The larger the city, and the larger the parade, the more agencies involved. In the following table we list frequencies likely to be in use in some of the cities that host large parades. If you're in a different area, use the frequencies you've already discovered, or do a search to see what you come up with, then share your findings with us. It's going to be a busy day, so keep your scanner running!

Pop'Comm March 2011 Reader Survey Questions

We're really squeezed for space this month, so we'll keep it short: what do you think of the technical level of writing in *Pop'Comm*. Please use the Reader Survey Card and circle all appropriate numbers. We'll pick one respondent at random for a free one-year subscription, or extension, to *Pop'Comm*, so don't forget your address. As always, we invite your specific comments and suggestions in the space provided. Thanks for participating.

Is the writing level of typical features...?
- Too technical 1
- Just right 2
- Too simplistic 3

How about for columns...?. . . . . .
- Too technical 4
- Just right 5
- Too simplistic 6

September Survey Winner

We're out of room for September highlights, but the winner of the free sub or extension for answering that survey is **Carl Rosell, of New Providence, New Jersey.** Congratulations, Carl!

Tuning St. Patrick's Day

New York

Fire

Frequency	Tone	Description
154.43	186.2 PL	Citywide Dispatch
154.4	186.2 PL	Queens Dispatch
154.37	186.2 PL	Brooklyn Dispatch
154.25	186.2 PL	Manhattan Dispatch
154.19	186.2 PL	Bronx/Staten Island Dispatch
156.65	CSQ	Fireboat Operations
482.23125	131.8 PL	Citywide 1 UHF Dispatch (was 85.4 PL)
483.38125	167.9 PL	Citywide 2 UHF Dispatch
482.03125	141.3 PL	Queens UHF Dispatch (was 71.9 PL)
482.01875	136.5 PL	Brooklyn UHF Dispatch (was 69.3 PL)
482.10625	146.2 PL	Manhattan UHF Dispatch (was 74.4 PL)
482.00625	131.8 PL	Bronx UHF Dispatch (was 67.0 PL)
482.04375	151.4 PL	Staten Island UHF Dispatch (was 77.0 PL)

Fireground (Handhelds)

Frequency	Tone	Description
486.1125	CSQ	TAC 1
485.1875	CSQ	CMD 1 - Command 1
486.2625	CSQ	TAC 2
487.2625	CSQ	HT4 - Fireground
487.1375	CSQ	HT5 - Fireground
485.2625	CSQ	HT6 - Fireground
486.1375	CSQ	HT7 - Fireground
485.0625	CSQ	HT8 - Fireground
486.01875		HT9 - Fireground
487.4875	85.4 PL	EMS TAC 2 - Fireground
483.0125	173.8 PL	High-Rise In-Building Repeater
484.7625	173.8 PL	Battalion Chief Vehicle Repeater
460.4875	241.8 PL	NYPD Tac U
460.575	110.9 PL	Subway Repeater 1
460.625	103.5 PL	Subway Repeater 2
486.7375	CSQ	Emergency
486.1125	CSQ	HT 1 Tac 1
485.1875	CSQ	HT 2 CMD 1
486.2625	CSQ	HT 3 Tac 2
487.2625	CSQ	HT 4
482.6875	110.9 PL	NYPD CW InterOp
482.3875	110.9 PL	NYPD CW-SI InterOp
482.7125	123.0 PL	NYPD Manhattan InterOp
482.7375	136.5 PL	NYPD Bronx InterOp
482.7875	151.4 PL	NYPD Brooklyn InterOp
482.8125	167.9 PL	NYPD Queens InterOp
482.8375	186.2 PL	NYPD SI-North InterOp
482.5375	186.2 PL	NYPD SI-South InterOp
486.7375	CSQ	Emergency

EMS

Frequency	Tone	Description
478.0125	85.4 PL	Citywide
478.2125	85.4 PL	Bronx North
477.8375	85.4 PL	Bronx South
483.2375	85.4 PL	Manhattan North
483.4875	85.4 PL	Manhattan Central
483.3625	85.4 PL	Manhattan South
477.9125	85.4 PL	Queens West
483.6125	85.4 PL	Queens East
478.2625	85.4 PL	Brooklyn North
477.8625	85.4 PL	Brooklyn Central
484.2375	85.4 PL	Brooklyn South
484.4875	85.4 PL	Staten Island
477.8625	85.4 PL	Tactical 1
487.4875	85.4 PL	Tactical 2
477.8375	167.9 PL	Staten Island Tactical
477.8625	167.9 PL	Queens West Tactical
477.9125	167.9 PL	Brooklyn Central Tactical
478.2125	167.9 PL	Brooklyn North Tactical
478.2625	167.9 PL	Manhattan Central Tactical
483.2375	167.9 PL	Queens East Tactical
483.3625	167.9 PL	Bronx South Tactical
483.4875	167.9 PL	Bronx North Tactical
483.6125	167.9 PL	Manhattan North Tactical
484.2375	167.9 PL	Manhattan South Tactical
487.2375	167.9 PL	Brooklyn South Tactical
854.9625		KDT/MDT Data Dispatch

EMS (Future Dispatch) - may not yet be active

Frequency	Tone	Description
482.16875	156.7 PL	CW1
482.21875	162.2 PL	CW2
483.20625	167.9 PL	BX N
482.76875	173.8 PL	BX S
482.75625	151.4 PL	MANH N
482.98125	156.7 PL	MANH C
483.21875	162.2 PL	MANH S
483.03125	141.3 PL	QNS E
482.51875	146.2 PL	QNS W
483.28125	173.8 PL	BKLYN N
482.50625	186.2 PL	BKLYN C
483.29375	192.8 PL	BKLYN S
482.24375	136.5 PL	S.I.

New York City Police Department

Manhattan

Frequency	Tone	Description
476.5625	100.0 PL	Precincts 1, 5, 7
476.4375	110.9 PL	Precincts 6, 9
476.3375	123.0 PL	Precincts 10, 13
476.5875	136.5 PL	Precincts MTS, 17, MTN
476.3875	151.4 PL	Precincts 19, 23
476.3125	167.9 PL	Precincts 20, CPk, 24
476.6375	186.2 PL	Precincts 25, 28, 32
476.3625	100.0 PL	Precincts 26, 30
476.8875	110.9 PL	Precincts 33, 34
471.0625	110.9 PL	Patrol Boro Manhattan
471.0875	100.0 PL	TRANSIT MN
482.7125	123.0 PL	MN IO

Bronx

Frequency	Tone	Description
476.5375	123.0 PL	Precincts 40, 41
476.8375	136.5 PL	Precincts 42, 44
476.9125	151.4 PL	Precincts 43, 45
476.4875	167.9 PL	Precincts 46, 48
476.9625	186.2 PL	Precincts 47, 49
476.6625	100.0 PL	Precincts 50, 52
471.0375	123.0 PL	Patrol Boro Bronx
482.8625	100.0 PL	TRANSIT
482.7375	136.5 PL	BX IO

Brooklyn

Frequency	Tone	Description
476.4625	110.9 PL	Precincts 60, 61
476.5125	123.0 PL	Precincts 62, 68
476.9375	136.5 PL	Precincts 63, 69
476.8625	151.4 PL	Precincts 66, 70
477.0125	167.9 PL	Precincts 67, 71
476.4125	186.2 PL	Precincts 72, 76, 78
476.9875	100.0 PL	Precincts 73, 75
476.7375	110.9 PL	Precincts 77, 79
476.7875	123.0 PL	Precincts 81, 83
476.7625	136.5 PL	Precincts 84,88
476.6875	151.4 PL	Precincts 90, 94
470.9875	136.5 PL	Patrol Boro Brooklyn
470.9625	151.4 PL	TRANSIT BK
482.7875	151.4 PL	BK IO

Queens

Frequency	Tone	Description
477.1375	167.9 PL	Precincts 100, 101
477.0875	186.2 PL	Precincts 102, 106
477.0375	100.0 PL	Precincts 103, 107
477.1125	110.9 PL	Precincts 105, 113

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476.7125	123.0 PL	Precincts 104, 112
476.6125	136.5 PL	Precincts 108, 114
477.0625	151.4 PL	Precinct 109
477.0625	151.4 PL	Precinct 111
476.8125	167.9 PL	Precincts 110, 115
470.9375	167.9 PL	Patrol Boro Queens
470.9125	186.2 PL	TRANSIT QN
482.8125	167.9 PL	QN IO

Staten Island

Frequency	Tone	Description
482.8875	186.2 PL	Precinct 120
482.5875	186.2 PL	Precincts 122, 123
482.4125	100.0 PL	PBSI
482.8375	186.2 PL	SI IO-N
482.5375	186.2 PL	SI IO-S

Citywide

Frequency	Tone	Description
470.6875	100.0 PL	CW1
482.6625	100.0 PL	SI CW1
470.7125	110.9 PL	CW2
482.6375	110.9 PL	SI CW2
470.8125	123.0 PL	TRAFFIC
482.4625	123.0 PL	SI TRAFFIC
470.8375	136.5 PL	SOD
482.4875	136.5 PL	SI SOD
470.8625	151.4 PL	CW3
482.4375	151.4 PL	SI CW3
470.6625	167.9 PL	Special Investigations (SPIN)
470.7375	186.2 PL	Detective 1
470.7875	100.0 PL	OCCB1
471.1125	110.9 PL	Communications Div., Fleet Services
470.8875	123.0 PL	CW4 (ENCR.)
470.6375	136.5 PL	Detective 2
470.7625	151.4 PL	IAB (ENCR.)
471.0125	167.9 PL	OCCB2
471.1375	186.2 PL	COMMAND (ENCR.)
482.6875	110.9 PL	CW IO
482.3875	110.9 PL	SI CW IO
485.6125	203.5 PL	Patrol Zones 1, 6, 11, 16, 21, 26, 31
485.5875	210.7 PL	Patrol Zones 2, 7, 12, 17, 22, 27, 32
485.5625	218.1 PL	Patrol Zones 3, 8, 13, 18, 23, 28, 33
485.4875	225.7 PL	Patrol Zones 4, 9, 14, 19, 24, 29, 34
485.4625	233.6 PL	Patrol Zones 5, 10, 15, 20, 25, 30, 35
485.4375	203.5 PL	Task Force, Housing Bureau
473.6875	210.7 PL	SOD & TFC
473.7125	218.1 PL	SOD & TFC
465.1125	203.5 PL	
465.1875	210.7 PL	
465.2375	218.1 PL	
465.3125	225.7 PL	
465.4625	233.6 PL	
465.4875	241.8 PL	
460.1125	203.5 PL	
460.1875	210.7 PL	
460.2375	218.1 PL	
460.3125	225.7 PL	
460.4625	233.6 PL	
460.4875	241.8 PL	Inter-Agency TAC
485.5375	233.6 PL	Communications Div., Fleet Services
458.825	225.7 PL	Special Commands (HQ Security)

Parking Enforcement

Frequency	Tone	Description
471.1625	151.4 PL	Intersection Ctrl/Tfc Intell/Nighthawks
472.6125	151.4 PL	Manhattan/S.I. Summons Enforcement
453.25	151.4 PL	Bronx Summons Enforcement
471.2125	151.4 PL	Brooklyn Summons Enforcement
471.1875		

Boston

City of

Frequency	Tone	Description
153.89	131.8 PL	Fire MBTA Tunnel Operations

No parade is complete without the Budweiser Clydesdales! Shown here from the 2008 Boston parade. (Photo courtesy Paul Keleher via Wikimedia Commons)

158.91	118.8 PL	Police Paging
453.1	165 DPL	EMS Tactical 15 Boston Ambulance Mutual Aid (BAMA)
453.2	118.8 PL	Police Services
453.35	532 DPL	Housing Police
453.65	131.8 PL	Fire Station Alerting
453.775	156.7 PL	EMS Communications
458.0625	210.7 PL	EMS Simplex TAC-13
458.1375	97.4 PL	EMS Simplex TAC-11
460.025	506 DPL	Police Telecommunications Unit
460.05	464 DPL	Police Special Operations
460.075	411 DPL	Police Talk-Around
460.125	371 DPL	Police Listings/Warrant Checks
460.15	465 DPL	Police Detectives
460.175	364 DPL	Police Patrol District C-6/C-11
460.225	343 DPL	Police Patrol District B-2/B-3
460.25	412 DPL	Police Command Units
460.275	466 DPL	Police Interagency Operations (BEMS, BFD)
460.3	365 DPL	Police Talk-Around
460.35	315 DPL	Police Citywide Events
460.375		Police Detectives (Encrypted)
460.4	346 DPL	Police Patrol District E-5/E-13/E-18
460.425	423 DPL	Police New Channel (active on Citywide patches
460.45	331 DPL	Police Patrol District A-1/A-7
460.475		Police Command Units (Encrypted)
460.5	351 DPL	Police Patrol District D-4/D-14
460.525	192.8 PL	EMS Secure communication
460.55	192.8 PL	EMS Tactical 12
462.95	151.4 PL	EMS Tactical 9

462.975	151.4 PL	EMS Citywide Dispatch
463	151.4 PL	EMS MED-1
463.025	151.4 PL	EMS MED-2
463.05	151.4 PL	EMS MED-3
463.075	151.4 PL	EMS MED-4
463.1	151.4 PL	EMS MED-5
463.125	151.4 PL	EMS MED-6
463.15	151.4 PL	EMS MED-7
463.175	151.4 PL	EMS MED-8
470.6625	131.8 PL	MBTA Transit Police
472.1625	671 NAC	Boston University Police
483.15	114 DPL	Fire District Repeater (West Roxbury)
483.1625	174 DPL	Fire Main Dispatch
483.175	125 DPL	Fire District Repeater (Brighton)
483.1875	265 DPL	Fire Primary Fireground
483.2	143 DPL	Fire District Repeater (South End)
483.2125	612 DPL	Fire HazMats/Second Fireground
483.225	311 DPL	Fire District Repeater (East Boston)
483.2375	712 DPL	Fire Evacuation Operations
483.25	411 DPL	Fire District Repeater (Dorchester)
483.5625	131.8 PL	Transit Police
486.15	532 DPL	Fire Tactical Special Operations
486.175	351 DPL	Fire Tactical 12
486.2	243 DPL	Fire Tactical 13
486.225	026 DPL	Fire Tactical 14
486.25	051 DPL	Fire Tactical 15
851.0875	125 DPL	Talk-Around
851.0875	173.8 PL	Traffic Department Ch. 11
851.0875	173.8 PL	Traffic Department Ch. 13
851.1125	173.8 PL	Traffic Department Ch. 12
866.0125	156.7 PL	I-CALL
866.5125	156.7 PL	I-TAC 1
867.0125	156.7 PL	I-TAC 2
867.5125	156.7 PL	I-TAC 3
868.0125	156.7 PL	I-TAC 4

Chelsea

Frequency	Tone	Description
470.8875	131.8 PL	Police Dispatch
155.745	151.4 PL	Schools/DPW
470.025	114.8 PL	Fire Dispatch (New)
470.0875	79.7 PL	Fire EMS
482.2375	77.0 PL	Fire Tactical

Revere

Frequency	Tone	Description
470.0625	123.0 PL	Fire Dispatch
470.8625	131.8 PL	Police Dispatch
453.9625		Emergency Management
482.2	127.3 PL	Fire Tactical

Winthrop

Frequency	Tone	Description
483.6375	131.8 PL	Fire Dispatch
471.7375	131.8 PL	PD Dispatch
155.58		Civil Defense/Aux. PD
453.2375	131.8 PL	DPW

Suffolk County
Boston Area Police Emergency Radio Network (BAPERN)

Frequency	Tone	Description
470.7875	131.8 PL	Tactical 3
470.5625	131.8 PL	Tactical 4
470.9875	654 DPL	Central Tactical
470.4875	131.8 PL	North Tactical
482.6875	146.2 PL	North West Tactical
470.9125	131.8 PL	South Tactical
470.7375	131.8 PL	West Tactical

County Fire

Frequency	Tone	Description
485.1875	127.3 PL	METRO FIRE Central Fire Ground (simplex)

An ambulance on patrol in Philadelphia. All EMS service for Philadelphia is provided by the fire department, as is also the case in many other locations. (Photo courtesy Jeffrey Vinocur, via Wikimedia Commons)

483.2875	131.8 PL	Metrofire Dispatch
483.3125	131.8 PL	Metrofire Red

Boston Metro Trunked System
(Police, Public Works, Parking Enforcement)

851.5375	852.1875	856.7625	856.9375	857.7625	857.93750
858.7625	858.93750	859.7625	859.9375	860.7625	860.93750
866.400	866.5875	867.350	867.9375	868.1125	868.575
868.700					

Philidelphia

Trunked

FD / PW system (Zone-1)

866.2875	866.3625	866.8375	867.0625	867.0875	867.5625
867.5875	867.8625	868.0625	868.0875	868.2875	868.5875
868.7875	868.81250	868.83750			

Police System (Zone-2)

866.100	866.3375	866.5875	866.6875	866.7875	866.800
866.8125	867.100	867.1125	867.350	867.575	867.8125
867.8375	867.9375	868.05	868.3125	868.3375	868.53750
868.55000	868.56250				

System Talkgroups
Fire Talkgroups

Talkgroup	Description
3760	Central Medic
3792	North Fire
3824	South Fire
3856	North Medic
3888	South Medic
3920	South Fire - Tac 1
3952	South Fire - Tac 2
3984	South Fire - Tac 3
4016	Fire Admin
4048	North Fire - Tac 1
4080	North Fire - Tac 2
4112	North Fire - Tac 3
4144	Fire All Group
4176	PPD/PFD interop 1
4208	PPD/PFD interop 2

4272	Hazmat
4368	Emergency Operations Center 1
4400	Emergency Operations Center 2
4432	Emergency Operations Center 3
4464	Emergency Operations Center 4
4528	Airport Fire

Zone 1 - Municipal Services Talkgroups

Talkgroup	Description
7600	Airport - Comm Center
4560	Airport - Emergency 1
4944	Airport - Emergency 2
4720	Airport - Engineering
4752	Airport - Maintenance 1
4784	Airport - Maintenance 2
4816	Airport - Maintenance 3
4688	Airport - NE (KPNE) Operations
4976	Airport - PFD Engine 78
4496	Airport - Police
5232	Citywide - Events 3
5168	Citywide - Events 1
5200	Citywide - Events 2
5136	Citywide - Municipal Dispatch
6192	Fairmount Park Commission - Operations
7536	First Judicial Distirct - Warrant Unit
5040	Fleet Management - Dispatch
6064	Fleet Management - Shop 1
6096	Fleet Management - Shop 2
8240	Health Department - Dispatch
7152	Licenses and Inspections - 1
7184	Licenses and Inspections - 2
5296	Licenses and Inspections - Dispatch
5104	Public Property - Disaptch
6448	Public Property - Events 1
6480	Public Property - Events 2
7280	Recreation Department
9808	School District of Philadelphia - Admin
9840	School District of Philadelphia - School Police
9904	School District of Philadelphia - Security Guards
9776	School District of Philadelphia - Supervisors
8560	Sheriff's Office - Admin
5360	Sheriff's Office - Dispatch
7376	Sheriff's Office - Warrants
5008	Water Department - Dispatch
5776	Water Department - Distribution
5648	Water Department - Flow Control
5616	Water Department - Inlet Cleaning
5744	Water Department - Load Control
5680	Water Department - Security
5584	Water Department - Sewer Maintenance

Zone 2 - Police Talkgroups

Zone 1 talkgroups for PFD North and South Fire and Medic Bands are also carried on the Zone 2 system.

Talkgroup	Description
16	Far Northeast Band - Districts 7/8
48	Northeast Band - Districts 2/15
80	North Central Band - Districts 22/23
112	Central Band - Districts 6/9
144	South Band - Districts 1/17 (W. of Broad St.)
176	Southwest Band - Districts 12/18
208	West Band - Districts 16/19
240	North Band - Districts 14/35
272	Northwest Band - Districts 5/39
304	East Band - Districts 24/26
336	25 Band - Distrct 25
368	J Band - Citywide Admin and Flash Messages
400	T Band - Traffic Unit and Tow Squad
432	M Band - Citywide
464	South 2 Band - Districts 3/4 (E. of Broad St.)
496	Special Events 1
528	Special Events 2
560	Police Academy - Radio Training
592	Civil Affairs
64016	Radio Maintenance / Testing

This photo from the 2007 Chicago parade shows a bigger than life St. Patrick. (Photo courtesy Fuzzy Gerdes, via Wikimedia Commons)

Chicago

Metro
Fire

Frequency	Tone	Description
155.97		High Rise Tactical (Fire, Police, EMS)
156.00		High Rise Tactical (Fire, Police, EMS)
158.88		High Rise Tactical (Fire, Police, EMS)
158.91		High Rise Tactical - Mobile Extenders (Fire, Police, EMS)
158.94		High Rise Tactical - Mobile Extenders (Fire, Police, EMS)
158.97		High Rise Tactical - Mobile Extenders (Fire, Police, EMS)
159.39		High Rise Tactical - Mobile Extenders (Fire, Police, EMS)
159.45		High Rise Tactical - Mobile Extenders (Fire, Police, EMS)

Police

Frequency	Tone	Description
460.475	107.2 PL	Police: Dispatch Zone 1 - Districts 16 17
460.05	127.3 PL	Police: Dispatch Zone 2 - Districts 19 23
460.225	110.9 PL	Police: Dispatch Zone 3 - Districts 13 14
460.15	114.8 PL	Police: Dispatch Zone 4 - Districts 1 18 (*DT)
460.5	167.9 PL	Police: Dispatch Zone 5 - Districts 2 21 (*DT)
460.4	156.7 PL	Police: Dispatch Zone 6 - Districts 7 8
460.075	146.2 PL	Police: Dispatch Zone 7 - District 3 (*DT)
460.2	136.5 PL	Police: Dispatch Zone 8 - Districts 4 6
460.025	91.5 PL	Police: Dispatch Zone 9 - Districts 5 22
460.1	151.4 PL	Police: Dispatch Zone 10 - Districts 10 11
460.375	186.2 PL	Police: Dispatch Zone 11 - Districts 20 24
460.425	94.8 PL	Police: Dispatch Zone 12 - Districts 15 25 (*)
460.45	103.5 PL	Police: Dispatch Zone 13 - Districts 9 12
156		Police: Aid with Metro Enforcement groups
155.475	CSQ	Nationwide Law Enforcement Emergency [F-1] (2500 mobiles, licensed to EMA)
154.65	CSQ	Chicago area Law Enforcement Emergency [F-2]
155.055	CSQ	Statewide Interagency Mutual Aid
155.37	CSQ	Statewide Point-to-Point AID (HF-5) "Aid"
155.37	CSQ	Statewide Point-to-Point (associated with WPMF808) (@ 6 Locations)
460.125	173.8 PL	Police: Citywide 1 (*)
460.175	123.0 PL	Police: Citywide 2

A Chicago Police Car ready for action. (Photo courtesy endlezz, via Wikimedia Commons)

460.275	141.3 PL	Police: Citywide 3 (*)
460.325	192.8 PL	Police: Citywide 4
460.35	97.4 PL	Police: Citywide 5
460.25	162.2 PL	Police: Citywide 6
460.3	131.8 PL	Police: Citywide 7
460.525	179.9 PL	Police: Citywide 8 - Car-to-Car (250-5wt)
460.5875	91.5 PL	Police: Mounted Units (heard at 2008 Taste)

Chicago Trunked (Cook County)

855.58750 856.93750 857.93750 858.93750 859.93750 860.78750 860.93750

Police - Detectives Talkgroups

Talkgroup	Description
29200	Auto Theft Unit
29696	Area Detectives - Common
29712	Area 1
29728	Area 2
29744	Area 3
29760	Area 4
29776	Area 5

Police - Gang Squad Talkgroups

Talkgroup	Description
18464	Gangs 1
18480	Gangs 2
18944	Gangs 3 (was Narcotics Ch. 5?)
18960	Gangs 4
18976	Gangs 5 (was 3?)
18992	Gangs 6 (was 4?)
19008	Gangs 7 (was 5?)
19024	Gangs 8 (was 6?)
19040	Gangs 9 (was 7?)
19056	Gangs 10 (was 8?)
19072	Gangs 11 (was 9?)
19088	Gangs 12 (was 10?)
19104	Gangs 13 (was 11?)
19120	Gangs 14 (was 12?)
19136	Gangs ??

Police - Investigation Talkgroups

Talkgroup	Description
40976	Office of Municipal Investigations (O.M.I.)
41056	Internal Affairs Division (I.A.D 1)
41072	Internal Affairs Division (I.A.D 2)

Police - Marine Division Talkgroups

Talkgroup	Description
45072	Primary
45088	Command/Alternate

Police - Narcotics Division Talkgroups

Talkgroup	Description
16384	Narcotics
16400	NARC Squad 1
16416	Narc A
16432	Narc B
16496	Narcotics
16528	Narcotics
16640	Narcotics
16656	Narcotics
16672	Narcotics
16720	Narcotics
16736	Narcotics
16768	Surveillance
16896	NARC C
16912	NARC D
16928	NARC E
16944	NARC F
16960	NARC G
16976	NARC H
16992	NARC I
17008	NARC J
17024	NARC K
17040	NARC L
17056	NARC M
17072	NARC N
17088	NARC O
17104	NARC P
17120	Police Surveillance
17136	NARC ?
17168	NARC Squad 16 (formerly listed as Encrypted)
17184	NARC Squad 17
17680	Maintenence & Supply
41216	States Attorney Narcotics w/Teletrac
41296	States Attorney Narcotics

Police - Organized Crime Division Talkgroups

Talkgroup	Description
32784	O.C.D.
32800	O.C.D.
32816	O.C.D.
32832	O.C.D.
32848	O.C.D.
32864	O.C.D.
32880	O.C.D.
32896	O.C.D.
32912	O.C.D.
32928	O.C.D.
32944	O.C.D.
32960	O.C.D.
32976	O.C.D.
32992	O.C.D.
33008	O.C.D.

Police - Vice Talkgroups

Talkgroup	Description
20496	Surveillance
20528	Prostitution Unit
24624	Prostitution Ops.

Fire Department Talkgroups

Talkgroup	Description
128	Alarm & Intercom Repair
784	Administration

Emergency Management Talkgroups

Talkgroup	Description
1088	Citywide Console

(Frequencies courtesy RadioReference.com)

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
z0000	6155	All India Radio	Urdu
0000	15360	BBC, Thailand Relay	
0000	11650	China Radio International	
0000	11820	China Radio International	CC
0000	6020	China Radio International, via Canada	
0000	17680	CVC, Chile	SS
0000	5970	Radio Exterior Espana, Spain	
0000	11760	Radio Havana Cuba	SS
0000	17795	Radio Australia	
0000	9880	Radio Canada International, via China	
0000	15345	Radio Nacional/RAE, Argentina	SS
0000	15720	Radio New Zealand	
0000	13745	Radio Thailand	
0000	11630	RDP International, Portugal	PP
0000	15180	Voice of Korea, North Korea	SS
0000	7250	Voice of Russia	
0100	5970	BBC, Oman Relay	
0100	9570	China Radio International, via Albania	
0100	11665	Deutsche Welle, Rwanda Relay	GG
0100	4747	Radio Huanta 2000, Peru	SS
0100	7215	Radio Liberty, USA, via Germany	Kazakh
0100	6165	Radio Nederland Relay, Bonaire	DD
0100	4755	Radio Immaculada Conceicao, Brazil	PP
0100	7315	Radio Marti, USA	SS
0100	4052.5	Radio Verdad, Guatemala	SS
0100	9445	RDP International, Portugal	PP
0100	15745	SLBC, Sri Lanka	
0100	9670	Vatican Radio	SS
0200	11735	All India Radio	Pashto
0200	7445	BBC, Ascension Is. Relay	
0200	11750	BBC, Oman Relay	
0200	6025	Radio Amanecer, Dominican Republic	SS
0200	4985	Radio Brazil Central	PP
0200	6120	Islamic Republic of Iran Broadcasting	
0200	11915	Radio Gaucha, Brazil	PP
0200	5015	Radio Rebelde, Cuba	SS
0200	6130	Radio Tirana, Albania	
0200	11710	Radio Nacional/RAE, Argentina	
0200	7305	Vatican Radio	
0200	7505	WRNO, Louisiana	
0200	4700	Radio San Miguel, Bolivia	SS
0200	3250	Radio Luz y Vida, Honduras	SS
0300	7325	BBC, England	AA
0300	6145	BBC, via South Africa	
0300	3255	BBC, via South Africa	
0300	6160	CKZN, Canada	
0300	6270	Radio Cairo, Egypt	
0300	11935	Radio Japan, via Bonaire	JJ
0300	6973	Galei Zahal, Israel	HH
0300	11590	Radio Cairo, Egypt	
0300	4780	Radio Djibouti	AA
0300	5010	Radio Nac. Malagasy, Madagascar	Malagasy
0300	7345	Radio Prague, Czech Republic	
0300	5954	Radio Republica, via Costa Rica	SS
0300	9645	Radio Romania International	
0300	3220	Radio Sondergrense, South Africa	Afrikaans
0300	5950	Radio Taiwan International, via Florida	
0300	7200	Sudan Radio TV	AA
0300	4976	UBC Radio, Uganda	
0300	6080	Voice of America, via Ascension	
0300	9965	Voice of Russia, via Armenia	SS
0300	6175	Voice of Vietnam, via Canada	SS
0300	7375	Voice of Croatia, via Germany	
0300	3200	TWR, Swaziland	Ndeble
0300	4950	Radio Nacional, Angola	PP
0300	5910	Marfil Estereo, Colombia	SS
0300	4828	Voice of Zimbabwe	
0330	7215	TWR, USA, via South Africa	Amharic
0400	7255	BBC, Ascension Is. Relay	
0400	7250	Vatican Radio	FF
0400	9430	CVC-One Africa, Zambia	
0400	11960	Radio Jordan	AA
0400	11690	Radio Okapi, Congo, via So. Africa	FF
0400	4885	Radio Clube do Para, Brazil	PP
0400	3340	Radio Misiones Intl, Honduras	SS
0400	7350	Radio Romania International	Romanian
0400	7275	RT Tunisienne,Tunisia	AA
0400	4775	TWR, Swaziland	GG
0400	4930	Voice of America, Botswana Relay	
0400	4960	Voice of America, Sao Tome Relay	
0400	9735	Voice of Russia, via French Guiana	SS
0400	11980	Voice of Turkey	TT
0400	6010	La Voz de su Concencia, Colombia	SS
0400	7385	Miraya FM, Sudan, via Slovakia	AA/EE

UTC	Freq.	Station/Country	Notes
0500	3350	Radio Ext. Espana, Costa Rica Relay	SS
0500	11995	Radio France International	FF
0500	5045	Radio Cultura do Para, Brazil	PP
0500	6110	Radio Japan	
0500	5865	RT Algerienne, Algeria	AA
0500	7255	Voice of Nigeria	
0500	5005	Radio Nacional, Equatorial Guinea	SS
0600	6185	Radio Educacion, Mexico	SS
0600	6250	Radio Nacional, Equatorial Guinea	SS
0600	4990	Radio Apinte, Suriname	EE/DD
0600	7350	Radio Nigeria	
0600	3290	Voice of Guyana	EE/DD
0700	5930	Radio Rossii, Russia	RR
0800	6020	Radio Victoria, Peru	SS
0800	15170	TWR, Guam	
0900	6050	HCJB Global, Ecuador	Quechua
0900	6020	Radio Australia	
0900	6010	Radio Mil, Mexico	SS
1000	3925	Radio Nikkei, Japan	
1000	11850	Radio Veritas Asia, Philippines	Khmer
1100	15495	Adventist World Radio, Guam	II
1100	11550	Family Radio, via Taiwan	II
1100	6185	Radio Japan	RR
1100	2905	R. New Ireland, Papua New Guinea	
1100	9655	Radio New Zealand	
1100	9615	Radio Veritas Asia, Philippines	CC
1100	6170	Radio New Zealand	
1100	11710	Voice of Korea, North Korea	FF
1100	2368.5	Radio Symban, Australia	Greek
1100	2485	ABC No.Territory Svc., Australia	
1200	9740	BBC, Singapore Relay	
1200	11535	Family Radio, via Taiwan	Mandarin
1200	11650	Far East Broadcasting, No. Marianas	RR
1200	9615	KNLS, Alaska	
1200	11675	Polish Radio, via Austria	
1200	9895	Radio Nederland Relay, Bonaire	SS
1200	9525	Voice of Indonesia	II, others
1220	6135	Radio Santa Cruz, Bolivia	SS
1300	15050	All India Radio	Sindhi
1300	11725	Family Radio,USA, via Russia	CC
1300	15265	Radio Taiwan International	CC
1300	15700	Radio Bulgaria	BB
1300	9875	Radio Japan	
1300	7465	Radio Thailand	CC
1300	11935	Voice of America, Philippine Relay	Korean
1300	15510	Voice of Russia	Pashto/Dari
1300	15450	Voice of Turkey	
1400	12080	BBC, England	
1400	6225	Bible Voice, Canada, via Uzbekistan	
1400	7240	Radio Australia	
1400	15080	Radio Cairo, Egypt	AA
1400	17695	Radio Farda, USA, via Germany	Farsi
1400	17725	Radio Jamahiriya, Libya	
1400	11600	Radio Prague, Czech Republic	
1400	15560	RDP International, Portugal	PP
1400	9935	RS Makedonias, Greece	Greek
1400	7280	Voice of America, Philippines Relay	Tibetan
1400	9420	Voice of Greece	Greek
1500	11955	Adventist World Radio, via Germany	Punjabi
1500	15275	Deutsche Welle, Rwanda Relay	GG
1500	11680	Radio Nacional, Venezuela, via Cuba	SS
1500	21655	RDP International, Portugal	PP
1500	15235	Vatican Radio	unid
1500	15185	Voice of America, Sri Lanka Relay	Uzbek
1500	6140	Voice of America, Thailand Relay	
1600	9870	Broad. Svc of Kingdom, Saudi Arabia	AA
1600	9560	Deutsche Welle, Sri Lanka Relay	
1600	9905	Radio Free Asia, USA, via Palau	CC
1600	11905	SLBC, Sri Lanka	
1600	9660	TWR, via South Africa	Somali
1700	9870	All India Radio	Hindi
1700	15235	Channel Africa, South Africa	
1700	11510	Radio Dabanga, Netherlands, to Sudan	AA
1700	9610	Radio Canada International	
1700	15140	Radio Sultanate of Oman	AA
1800	9770	Polish Radio, via Austria	
1800	11820	Broad. Svc. of Kingdom, Saudi Arabia	AA
1800	15540	Radio Kuwait	
1800	15360	KBS World Radio, South Korea	RR
1800	15190	Radio Africa, Equatorial Guinea	
1800	15120	Voice of Nigeria	
1800	9880	Voice of Russia	
1930	7290	IRRS, Italy, via Slovakia	
2000	9580	Africa No. One, Gabon	FF
2000	11610	Radio Nederland, Madagascar Relay	
2000	9705	La Voix du Sahel, Niger	FF, vern
2000	11880	Radio Romania International	
2000	11970	Radio France International	
2100	11620	All India Radio	
2100	11865	Deutsche Welle, Rwanda Relay	
2100	9545	Deutsche Welle, Sri Lanka Relay	
2200	6280	All India Radio	
2200	9445	All India Radio	
2200	9445	Far East Broadcasting, Philippines	
2200	6165	RN Tchadienne, Chad	FF
2200	7520	Radio Farda, USA, Sri Lanka Relay	Farsi
2200	11780	Radio Nacional Amazonas, Brazil	PP
2200	4319	AFN, Diego Garcia	usb
2230	4930	Cyprus Broadcasting Co.	Greek
2300	6070	CFRX, Canada	
2300	9305	Radio Cairo, Egypt	
2300	12020	Radio Havana Cuba	SS
2300	5927	Radio Nac. de la RASD, Algeria	SS/AA
2300	6240	Radio PMR, Pridnestrovie, Moldova	various
2300	6015	Radio Romania International	
2300	15525	HCJB Global, Australia	
2300	13710	Radio Canada International	PP
2300	9535	Radio Exterior Espana	SS
2300	15190	Radio Inconfidencia, Brazil	PP
2300	7245	Radio Mauritanie, Mauritania	AA
2300	13730	Radio New Zealand	
2300	7440	Radio Ukraine International	
2300	5960	Voice of Turkey	
2300	13670	Voice of Korea, North Korea	SS

Trivia And Toons

by R.B. Sturtevant, AD7IL

Q. I've heard that the plan the Germans used when they invaded France in World War I was considered unstoppable by military experts of the day. Did communications problems play any part in its failure?

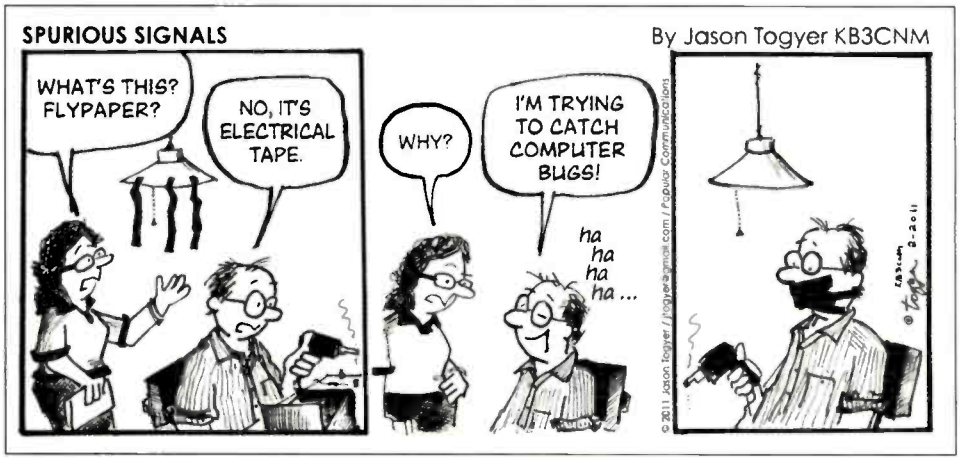
A. Indeed they did. The famous Schlieffen Plan for the invasion of France had been refined by the German General Staff until it was thought perfect. The problem, however, was that the Kaiser's vaunted General Staff had put all its planning into the Combat Arms side of the coming battle and left the Logistics and Communications folks to fend for themselves. Insufficient motor transport and the cutting of rail lines gave the German's supply problems they had not anticipated. Logistically, the deprivation suffered by the exhausted marching troops and their horses made the advance far less effective than had been planned. As far as Communications was concerned, the Chief Signal Officer had not been fully consulted on his part in the operation. The British and French systematically cut telephone and telegraph lines. When the systems were interrupted, the Germans had little information on the situation and could not restore them. Radio, which should have been the main back up for such a failure, could handle the load. Unable to carry the unexpected radio traffic, as well as that for telegraph and telephone, the system collapsed. Central command and control of the widespread German armies was lost and the invasion plan fell apart.

Q. You've mentioned airdropped sensors being used to radio back intelligence on enemy positions. Can't the enemy find these sensors and use them to mislead or confuse an intelligence gathering system?

A. Yes, they can. During the Vietnam War we used sensors all along the Ho Chi Min Trail in an operation called Igloo White. Dropped by parachute, the sensors were basically tubes of several feet in length intended to lie hidden in the grass, picking up the surrounding sounds. Occasionally the Viet Cong would find one of these that wasn't well concealed. They would then drive a single truck around and around the sensor. Igloo White would send back this constant truck noise, which made analysts think there was a huge convoy of trucks heading south with tons of war materiel. Cross checking with other sensors along the trail north or south of the compromised senor was the only way to detect the deception.

Q. Isn't the use of shortwave radio as a tool of espionage communications pretty much out of the picture in these days? With email, cell phones, and all the other new methods of communication available, I'd think that shortwave had seen its day.

A. Maybe so, or maybe not. While those in the espionage business are always trying to find new and better ways to keep their information flowing, they're not likely to completely give up on such an easy and cheap way to communicate that make the sender and recipient hard to identify and locate. For instance, in the 1980s a defecting Polish Intelligence officer who had worked inside the United States said that shortwave was still in wide use by foreign agents. More recently, the Russian Spy ring that operated in the U.S. for more than a decade before being broken up in June 2010 also made used of shortwave radio signals and coded messages. The effectiveness of radio in espionage is one reason why an American citizen who is working for a foreign nation, say in public relations or as an sales agent for a corporation owned by a foreign government, cannot hold an amateur radio license at the same time.



by Staff

New, Interesting, And Useful Communications Products

New UK Antenna Manufacturer And Parts Supplier Launches

New UK-based company Vortex Antenna Systems offers "home-grown HF antenna products" including this lightweight 10-meter 2-element Delta Loop from its Whirlwind line.

Vortex Antenna Systems has opened its doors in Peterborough, England, to offer "home-grown HF antenna products," particularly beams. Owned and operated by IOTA-enthusiast Steve Lawman (GØUIH/VK2IAY/3D2FI), the company started its retailing operations after an "extended period of R&D," according to a company news release.

Initial offerings feature Vortex's Tornado line of HF Yagis and its Whirlwind line of HF Delta Loops with mono and mult-band variants. Most antennas are heavy duty, but certain products are also available as lightweight alternatives. Also offered are 6- and 4-meter antennas, and linear loaded designs and vertical antennas are planned for availability later in 2011. A variety of hardware and accessories aimed at the home constructor augment the current Vortex product line.

Vortex Antenna Systems is primarily an on-line only retailer and can ship to most worldwide destinations. For more information, visit www.vortexantennas.co.uk.

On The Web

Free Video Tutorials For The Uniden HomePatrol-1 From Computer Aided Technologies

When Computer Aided Technologies released its Scancat-Lite-Plus version 1.5.0 for the new Uniden HomePatrol-1 scanner, the Scancat publisher promised Video Tutorials for the HomePatrol programming. Honoring that promise, the company has produced two new Video Tutorials specific to the groundbreaking scanner and posted them to YouTube. According to Computer Aided Technologies, Scancat has received much positive response to its Video Tutorials, so if you need "one-on-one" help, check them out at www.scancat.com/youtube.

After learning the basics of the HomePatrol-1's operation, you may choose to soup up your new scanner with Scancat-Lite-Plus version 1.5.0. While the Uniden-supplied Sentinel software in the HomePatrol-1 enables programming with a subset of RadioReference.com's information, it does not allow the user to program in frequencies not included in that datebase. Scancat-Lite-Plus enhances that preprogrammed capability by allowing the user to program into the HomePatrol-1 *any* frequency, no matter what or where. Additionally, Scancat-Lite-Plus makes it easy to transfer the memory contents of other radios into RSD files and reprogram them back into the HomePatrol-1 as "favorites," so you can customize it. Complete info for Scancat-Lite-Plus is available online at www.scancat.com/scl. You can also call the company at 888-722-6228 (toll-free U.S. orders); 318-687-4444 (non-U.S. orders); 318-686-1999 (Tech Support).

Alas, Poor Europe...But A New Clandestine And Familiar South American Outlets Arise

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

It's time to dig out the black armbands again. Over the past few weeks of late last fall and early winter more shortwave stations announced impending closures, two of them in tired old Europe. Radio Prague, a long-time international voice, has run out of money and sources for same so it had to pull the plug on shortwave at the end of January. Shortly before that unhappy announcement, came word that International Radio of Serbia planned to go silent at the end of 2010, for essentially the same reason.

Then came a final insult: KNR, Greenland's State Radio, decided to end it all—everything! All the mediumwave stations were closed and the transmitters dismantled. That included the only shortwave still operating in Greenland, when the low-power station at Tassiilaq on 3815 went quiet.

The ranks of the so-called clandestine or opposition or "target" broadcasters keep increasing. The latest in that classification is Radio Free Sarawak, which took to the air in mid-November. The station airs broadcasts daily at 1000–1100 on 15680 and 2230–2330 on 7590. At this early date the transmitter site is still unidentified, though it may be Tadzhikistan. The studio is thought to be in London. The station says its purpose is to provide an independent voice for people in Sarawak, especially in the interior, who otherwise must rely on media controlled by the state and the various logging companies who control everything else. RFS program content is produced locally and then sent on to London, but beyond that we're still in the dark. I'm already seeing logs of RFS on 7590 during the late afternoon hour.

"The ranks of the so-called clandestine or opposition or 'target' broadcasters keep increasing. The latest in that classification is Radio Free Sarawak..."

A little-known Belgian FM station has opened on shortwave. RTR-2 Power Station is being relayed on shortwave via Wertachtal, Germany, on Sundays from 1300–1400 on 6180. The broadcaster is in the town of Raeren, also little known

Programs from Radio Fila, a Greek station from Athens, are being carried as part of the schedule from the Voice of Greece. The Radio Fila programs, which are mostly in languages other than Greek, are currently aired on 11645 (sometimes 12105) from 0500–1000, with English at 0600.

Radio PMR from Pridnestrovie/Moldova has increased its broadcasts on 6240. What used to be 15-minute broadcasts per language, beginning at 2230, have now been doubled to half an hour each.

It looks as though CVC One Africa has discontinued the use of 4965 for the local (U.S.) evening hours, instead using it only from 1700–2200. The 0400–0600 period is now on 9430, the 0600–2000 on 13590, and the 2000–2200 on 9505.

Is something going on with the AFN/AFRTS outlets? Hawaii has gone off (temporarily, they say) after a change in format, and lately the others seem not to be running in parallel. The outlet at Guam is also reported to have gone operationally erratic. The rarest of the group, Diego Garcia (4319), is still heard now and then.

Radio Misiones International (HRMI) in Comayaguela, Honduras, has returned on 3340 after a brief silent period. I'm also hearing that longtime Brazilian Radio Rio Mar from Manaus

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24.09.2010 № 07/209
На № ад

Richard D' Angelo

Not all good DX catches come with fancy QSLs. Witness this one to Rich D'Angelo, confirming his reception of Byelorussian Radio's First Channel.

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Help Wanted

We believe the "Global Information Guide" offers more logs than any other monthly SW publication (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 "Global Information Guide," 213 Forest St., Lake Geneva, WI 53147. Or you can email them to gdex@wi.rr.com. Please note that attachment files do not always go through. See the column text for formatting tips, and *please* check over your submissions, making sure you've included frequency and UTC time.

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

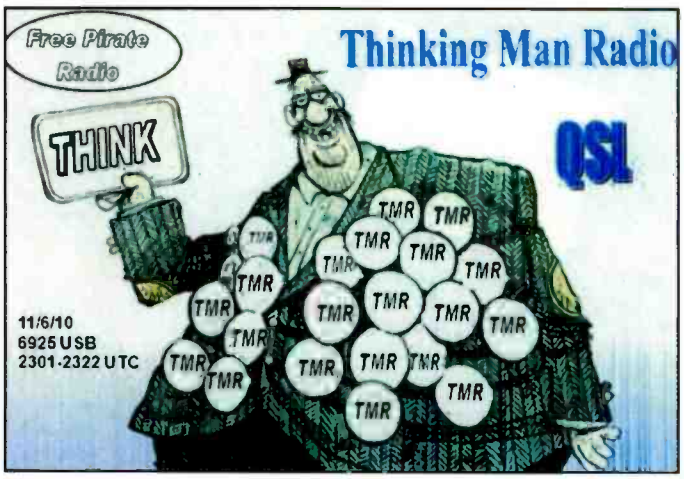
has been reactivated on its old 9695 spot in the early morning. Nice to have both of them back. In what I hope is a very temporary situation, RAE in Argentina has been experiencing technical troubles with its 11710 transmitter and may have to discontinue operations until things are fixed. The station wants to hear from listeners (this means you!) via email at dxrae2010@gmail.com.

Reader Logs

Remember, your shortwave broadcast station logs are always welcome. But *please* be sure to double or triple space between the items, list each logging according to *home* country, and include your last name and state abbreviation after each. Also needed are spare QSLs or good copies you don't need returned, station schedules, brochures, pennants, station photos, and anything else you think would be of interest. And how about sending a photo of you at your listening post? It's high time you appeared in these pages!

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

ALBANIA—Radio Tirana, 6130 heard at 0132 with M and news, press review. (Coady, ON) 0250 on a possible merge with Kosovo. (Maxant, WV)



The pirate Thinking Man Radio confirmed D'Angelo's reception on 6925usb.

ALGERIA—Radio Algerienne, 5865 via Issoudun, 0547–058* in AA and abruptly off in mid-sentence. (Parker, PA)

ANTARCTICA—Radio Nacional Arcangel/LRA36, 15476 at 1315 with weak audio for a few minutes. SS anmts and ballads. (Strawman, IA)

ARGENTINA—Radio Argentina al Exterior/Radio Nacional, 11710 at 0200 with M and SS, FF and EE IDs and anmts to EE pgm start at 0205. (Sellers, BC) 0305 in FF with nice swing-type music. (Parker, PA) 0321 in FF with time pips, ID and news at 0330 and into romantic vocals. (D'Angelo, PA) 15345 in SS at 0048 with soccer. (MacKenzie, CA) 2250 with Spanish guitar. (Barton, AZ)

ASCENSION ISLAND—BBC South Atlantic Relay, 7255 at 0400 with ID and into news. (Coady, ON) 7455 at 0333 ending news, time check and into item about abortions in Ghana. (Sellers, BC) 17780 at 1428 in Hausa with soccer coverage. (MacKenzie, CA)

AUSTRALIA—Radio Australia, 6020 at 0950 in Tok Pisin with a radio play. (Coady, ON) 7340 at 1402 with news and 11660 weak at 2046. (Yohnicki, ON) 11695 with *AM Program* at 2110. (Ng, Malaysia) 12080 at 0625 on the lobster season ending in the Solomon Islands. Also, 13630 at 0340 about unlisted immigrants in Australia. (Maxant, WV) 13630 at 0545, 17795 at 0033 on fires there, vocal, W with comments. (MacKenzie, CA)

HCJB, 15525-Kununurra at 2315 in Mandarin. (Strawman, IA)

BANGLADESH—Bangladesh Betar, 4750 at 1152 with local vocals with flutes and several anmts in (l) Bengali. Flutes to time tone, ID and news by W at 1200. (D'Angelo, PA)

BAHRAIN—Radio Bahrain, 9745 at 0040 using reduced carrier USB, weak with ME music. Held until 0135 tune out. (Alexander, PA)

BOLIVIA—Radio Santa Cruz, Santa Cruz, 6135 monitored at 2347 mixing with a slightly stronger Radio Aparecida. (Strawman, IA)

BONAIRE—Radio Nederland Relay, 6195 in DD at 0105. (MacKenzie, CA) 9895 in SS at 1209. (Brossell, WI)

BOTSWANA—VOA Relay, Mopeng Hill, 4930 with news at 0433, also 9855 at 0441 with *Encounter* pgm. (Parker, PA) 12080 at 0447 and 15580 at 1825 with *Africa News Tonight*. (Brossell, WI)

BRAZIL—(*All in PP—gld*) Radio Imaculada Conceicao, 4755 monitored at 2346 with M/W talk, religious talk by M, ID, and several anmts on the hour. (D'Angelo, PA)

Radio Difusora Roraima, Boa Vista, 4878.2 at 2349–0358* with several Brazilian pop tunes, then closedown amnts at 0356 f/by NA. (D'Angelo, PA)

Radio Difusora Acreana, Rio Branco, 4885 at 0108 with talks. (Brossell, WI)

Radio Clube do Para, Belem, 4885 heard at 0437 with reggae. (Parker, PA)

Radio Difusora, Macapa, 4915 at 0528 with M talk. (Parker, PA)

Radio Brazil Central, Goiania, 4985 at 0017 with upbeat music. (Parker, PA) 0214 with long talk, ID 0230 and pgm of music. 11815 at 0048 with Brazilian pops and M host. (D'Angelo, PA) 0214 with lively anmts. (Parker, PA)

Radio Cultura do Para, Belem, 5045 at 0538 with upbeat jazz. (Parker, PA)

Radio Capital, Rio de Janeiro, 6070, carrying Super Radio Deus e Amor monitored at 0254 with exited M preacher. (D'Angelo, PA)

Radio Transmudial, 11735 heard at 0015 with fast-paced comments by M. (Strawman, IA)

Voz Misionaria, Camboriu, 11750 heard at 0243 with M/W talk, phone calls. (Parker, PA)

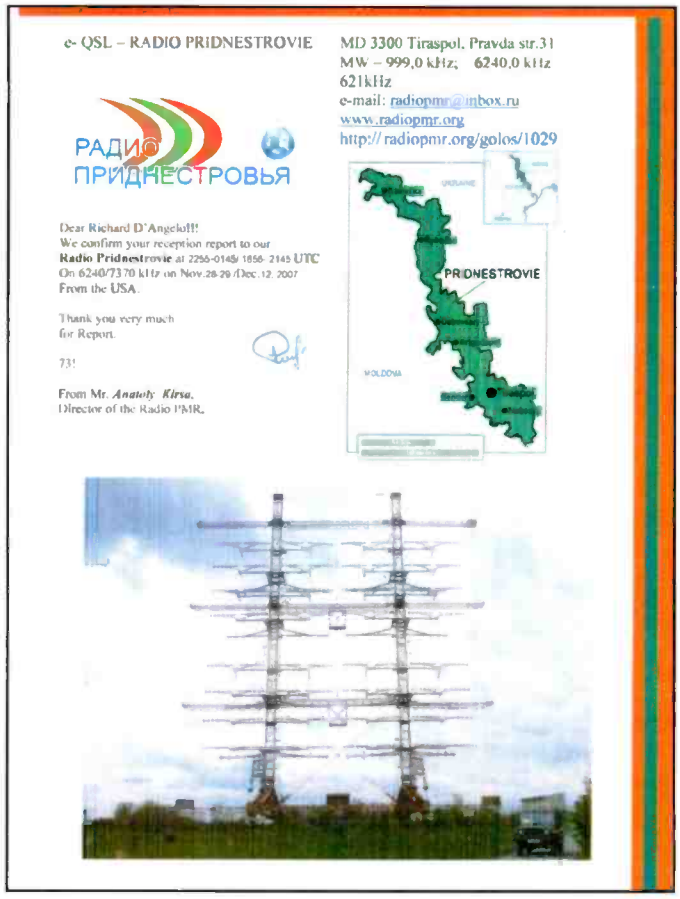
Super Radio Deus e Amor, Curitiba, 11765 at 0015 with M preacher, group vocals, more preaching. (D'Angelo, PA) 0235. (Parker, PA)

Radio Nacional da Amazonia, Brasilia, 11780 with talks at 2205. (Brossell, WI) 0217 with phone interview. (Parker, PA)

Radio Gaucha, Porto Aegre, 11915 heard at 0205 with ad string. (Parker, PA)

Radio Bandeirantes, Sao Paulo, 11925 heard at 0216 with M taking calls, ads. (Parker, PA)

Radio Inconfidencia, Belem, 15190 at 2140 with talks, Brazilian music. Poor to fair. (Alexander, PA) (t) at 2238 mixing with Equatorial Guinea. (Sellers, BC)



Radio PMR sent D'Angelo this attractive email confirmation.

BULGARIA—Radio Bulgaria, 15700 at 1340 in (l) Bulgarian. (Brossell, WI)

CANADA—Radio Canada International, 9610 at 1702 on 2012 Olympics. (Barton, AZ) 13710 in PP at 2354. (MacKenzie, CA) 9880 via China at 0000 with *The Link*. (Ng, Malaysia)

CFRX, Toronto, 6070 at 0315 with commercials. (Maxant, WV) 2330 and 1246. (Sellers, BC)

CKZN, St. John's (Newfoundland), 6160 with news monitored at 0000. (Brossell WI) 0002. (Montgomery, PA) 1005 with news. (Maxant, WV) 2242 with a domestic CBC pgm. (Coady, ON) 2330. (Sellers, BC)

CFVP, Calgary, 6030 heard at 1556 and 2245 with country songs. (Sellers, BC)

CHU, Ottawa, 3330 monitored at 0452. (MacKenzie, CA) 7850 at 0350. (Maxant, WV)

CHAD—Radio National Tchadienne, 6165 heard at 2151 with highlife and M host in FF. (D'Angelo, PA) 2205 with speeches and recordings of talks, highlife. (Sellers, BC)

CHILE—CVC, 17680 in SS at 0030. (MacKenzie, CA)

CHINA—China Radio International, 6020 via Sackville at 0010, also, 9570 via Cuba. (Fraser, ME) 6080 at 0400. (Yohnicki, ON) 7220 in JJ at 1530. (Barton, AZ) 7250 in CC at 0115, 9415 in VV at 2335, 9425 in Cantonese at 2343, 9560 in PP at 2327, 9570 via Albania at 0137, 9590 in SS at 0142, 11650 at 0020, 11820 in Cantonese at 0047, 13715 in Tamil at 0230, 15160 in CC at 0345 and 17495 in Cantonese at 0048. (MacKenzie, CA) 7390-Hohhot in (l) Mongolian at 1140, 11600-Baoji in VV at 1200 and 11610-Xi'an in (l) Mongolian at 1111. (Brossell, WI) 9720-Urumqi in (l) Bulgarian at 2155. (Strawman, IA) 9760 at 1220. (Coady, ON) 11875-(p) Urumqi in (l) Mongolian at 0018. (D'Angelo, PA) 11885 via Canada at 1347 with *Mediascan* pgm. (Sellers, BC)

China National Radio/China Peoples Broadcasting Station: 5925-Beijing at *1056 with soft instl music, opening ID at 1100, M/W in CC. (D'Angelo, PA) 6065-Beijing with pops at 2120. (Ng, Malaysia) 11610 in CC at 0017, 11685 in CC at 0105, 11750 in CC at 0040, 11960 in CC at 0525 and 15670 in CC at 0038. (MacKenzie, CA)

CNR-1, 11710 in CC at 2324. (D'Angelo, PA) 11960-Beijing in CC at 0207. (Parker, PA) CNR-2, 11845 Xianyang in CC at 0225. (Parker, PA) CNR-8, 13700-Lingshi at 0005 in Uighur service. (Strawman, IA)

Xinjiang PBS, Urumqi, 11975 at 1148 in (l) Kyrgyz. (Brossell, WI)

Xizang PBS, 7385-Lhasa (Tibet) in CC at 1121. (Coady, ON)

Firedrake music jammer, 11500 at 1154. (Brossell, WI)

CROATIA—Voice of Croatia, 3985-Deanovic, at *0000 with ID, news, //7375. (Sellers, BC) 7375 via Germany at 0305 giving times and frequencies. (Maxant, WV) 0307 with news. (Sellers, BC) 11675 via Singapore at 1000 and 17860 via Singapore in Croat heard at 0845. (Ng, Malaysia)

CUBA—Radio Havana Cuba, 5040 in SS at 0306, 11760 in SS at 0042 and 12020 in SS at 2332. (MacKenzie, CA)

Radio Rebelde, 5025 in SS at 0140. (MacKenzie, CA) 0820. (Maxant, WV) 2259 with "La Voz de la revolucion" ID. (Coady, ON)

CYPRUS—Cyprus Broadcasting Corp., 5930-Zygi at 2215 in Greek with music and anmts. //7210 and 9760. (Sellers, BC) (*Fri–Sun—gld*)

CZECH REPUBLIC—Radio Prague, 7345-Litomysl at 0305 on picking mushrooms. (Brossell, WI) 7355 at 2336 with their African service. (Maxant, WV) 9790 at 0008 discussing problems of sports on TV. (Fraser, ME) 11600 at 1400 with news and a magazine program. (Coady, ON)

DJIBOUTI—Radio Djibouti, 4780 opening heard at 0300 with anthem, rustic local music, AA anmt and Koran. (Alexander, PA)

DOMINICAN REPUBLIC—Radio Amanecer, Sto Domingo, 6025 at 0035 in SS with contemporary Christian music and preacher. (Sellers, BC) 0330 on late this night with SS religious talk, IDs at 0400, light music. Went past 0500. Also noted at 1103. (Alexander, PA) 2330 with phone interview in SS. (D'Angelo, PA)

ECUADOR—La Voz del Napo, Tena, 3280 in SS until 0308 sign off and various days from around 0950 sign on, in SS. (Alexander, PA)

HCJB, 6050-Pinchincha, at 0920 in Quechua with lively Andean vocals and M with inspirational talk. (Coady, ON)

EGYPT—Radio Cairo, 6270 with ME music at 0310. (Maxant, WV) 9305 in AA at 2320. (MacKenzie, CA) 11590-Zaabal in AA at 0323 and 15080-Abis in AA at 1424. (Parker, PA)

ENGLAND—BBC, 3255 via South Africa with news featured at 0256. (D'Angelo, PA) 5970 Oman Relay on economics at 0120. (Sellers, BC) 6145 South Africa very strong at 0300. (Montgomery, PA) 7310 South Africa at 0437. (Brossell, WI) 7375 with AA/EE lesson at 2045. Also 17790 Oman Relay at 0905 with *World Briefing*. (Ng, Malaysia) 7375 in AA at 0247 and 15360 Thailand Relay at 0045. (MacKenzie, CA) 9720 via Vladivostok at 2234. (Strawman, IA) 11750 Oman Relay in RR at 0245. (Parker, PA) 12080 at 1450. (Padazopulos, Greece)

CVC Intl, 6260 via Uzbekistan in Hindi at 1508. (Sellers, BC)

Bible Voice Network, 6225 via Kazakhstan with hymns heard at 1407. (Sellers, BC)

EQUATORIAL GUINEA—Radio Nacional, Malabo, 6250 at 0534 with SS talk, Afro-pops. (Alexander, PA)

Radio Africa, 15190-Bata heard at 1825 with U.S.-produced religious pgm. (Alexander, PA)

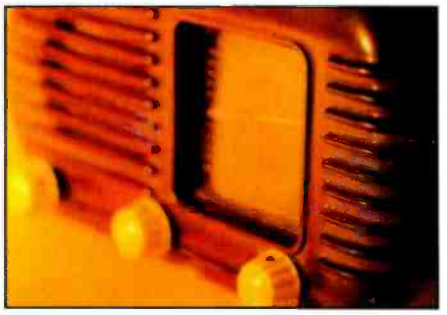
FRANCE—Radio France Intl, 11995 in FF at 0510. (Brossell, WI)

GABON—Africa Number One, 9580 in FF with Afro-pops heard at 2048. (Yohnicki, ON)

In Times Past...

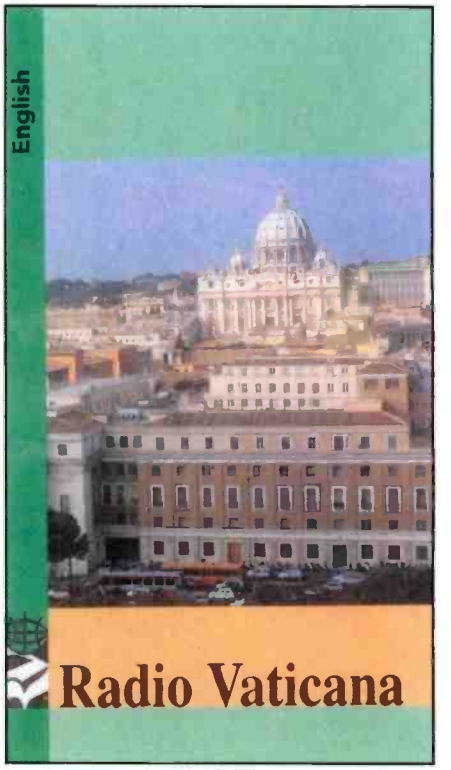
Here's your blast from the past for this month...

Dominican Republic—La Voz de Fuerzas Amardas, Santo Domingo, on 4825 in SS at 2330 on March 23, 1970. Operated by the Dominican Republic armed forces. (Dexter, WI)



Another QSL featuring radio, this one from Radio Slovakia International. (Thanks David Weronka, North Carolina)

One of Radio Tirana's interesting native costume QSLs.



GERMANY—Deutsche Welle, 6075 in GG at 1442. (Padazopulos, (Greece) 9545 Sri Lanka Relay at 2130 and 17710 with GG/EE lesson a 0920. (Ng, Malaysia) 9560 Sri Lanka with news at 1602. (Sellers, BC) 1605 with *Newslink*. (Barton, AZ) 1600, also 11795 via England at 1902 and 11865 Rwanda Relay at 2130. (Coady, ON) 9655 Rwanda in GG at 2358. Also 11665 in GG at 0030. (MacKenzie, CA) 9825 Portugal Relay in GG at 0350, 12005 Sri Lanka at 0312 and 15275 Rwanda in GG at 1525. (Parker, PA) 11965 Rwanda in (l) Hausa heard at 1843, 13650 via England in AA at 1821 and 15610 Sri Lanka at 1917. (Brossell, WI)

GREECE—Voice of Greece, 9420 in Greek monitored at 0133. (MacKenzie, CA) 0330 with U.S. vocals and 11645 in Greek monitored at 0630. (Maxant, WV) 1444. (Padazopulos, Greece)

RS Macedonias, 9935 in Greek at 1450. (Padazopulos, Greece)

GUAM—Adventist World Radio/ KSDA, 15495 in II heard at 1100. (Ng, Malaysia) 11720 at 1613 with Indian-produced pgm in EE. (Sellers, ON)

TWR/KTWR, 15170 with *Heart Beat* pgm at 0805. (Ng, Malaysia)

GUATEMALA—Radio Verdad, Chiquimula, 4052.5 weak with SS vocals heard at 0058. (Montgomery, PA) 0107 with xylophone, W in SS, then M. (Sellers, BC) 0249 with rustic music, SS talk by W, M preacher. (D'Angelo, PA) *1112 with organ music, SS anmts. (Alexander, PA)

GUYANA—Voice of Guyana, 3290 heard at 0653 with BBC-produced pgms including news at 0700. (Sellers, BC) 0840 with Indian-inspired ballads and M with a Caribbean accent in small talk. (Coady, ON)

HAWAII—WWVH time station, 5000 at 0900 with W time anmts. Good under WWV. (Coady, ON)

HONDURAS—Radio Misiones Intl, Comayguela, 3340 monitored at 0406–0502* with M preaching in SS and soft religious vocals. (D'Angelo, PA) 0500–0519 with SS anmts, mostly continuous religious music. (Alexander, PA)

INDIA—All India Radio, 4920-Chennai with EE news at 1538. (Sellers, BC) 6155-Bangaluru at 0014 with IS and sign on in (l) Urdu, 6280 at 2130, //7550, 9445 with news at 2220, 9690 signing on in EE at 1330 and 12025-Panaji (Goa) in Hindi at 1720. (Sellers, BC) 6280-Bangaluru at 2153 on archaeological digs in India and 9445-Bangaluru at 2105 in their General Overseas Service. (Coady, ON) 9870-Bangaluru in Hindi at 1737. (Montgomery, ON) 11735-Bangaluru in (l) Pashto at 0253. (Parker, PA) 11620-Bangaluru at 2130 on theater in India. (Ng, Malaysia) 15050-Delhi/Kamphur at 1314 in (l) Sindhi. (Strawman, IA)

INDONESIA—Voice of Indonesia, 9525 at *0953 with abrupt sign on in (l) Korean. Into EE at 1000. (Alexander, PA) 1145 with soft vocals and II talks. (Brossell, WI) 1300 starting an hour of EE. (Sellers, BC)

IRAN—Islamic Republic of Iran Broadcasting, 6120 at 0130 in EE with ID, into Koran, various comments and headlines at 0138. (Montgomery, PA) 6145 in JJ at 2105, 13680 in Bengali and into Koran at 0830. 17630 with *Listener's Special* at 1115. (Ng, Malaysia)

ISRAEL—Galei Zahal, 6973 at 0337 in HH with sexy-voiced W over slow music. (Parker, PA)

ITALY—Italian Radio Relay Service, 7290 via Rimavska Sobota, Slovakia, at 1826 with DX pgm. (Sellers, BC) 1945–2000* with the *DX Partyline* pgm. (D'Angelo, PA)

JAPAN—NHK World Radio Japan, 5960 via Canada in JJ at 0314, 11910 in JJ at 2344, 13640 in JJ at 2340 and 15325 in JJ at 0350. (MacKenzie, CA) 6220 at 0507 ending news and into top hits. (Coady, ON) 6185 in RR at 1131, 11815 in JJ at 1143. (Brossell, WI) 9790 via Wertachtal in EE at 1205. (Strawman, IA) 9850 via Wertachtal in FF at 0516 and 11935 via Bonaire in JJ at 0318 (Parker, PA) 9875 with *Radio Japan Focus* at 1320. (Barton, AZ)

Radio Nikkei, 3925 in JJ heard at 1002. (Brossell, WI)

JORDAN—Radio Jordan, 11960-Al Karanah in AA at 0415. (Parker, PA)

KUWAIT—Radio Kuwait, 15540 with U.S. pops at 1815. (Brossell, WI)

LIBYA—Radio Jamahiriya/Voice of Africa, 17725 at 1402 ending Swahili and starting EE with ID and talking about this being "the era of the masses." (Sellers, BC) 1423 on a national congress coming up. (Coady, ON) 21695 at 1438 with music, ID and news in EE. (D'Angelo, PA) 1500 with EE news, ID, Afropops. (Alexander, PA)

MADAGASCAR—Radio Madagasikara, 5010 at 0222 in Malagasy with lively local vocals, instl. choral and M/W with ID and frequency. (Coady, ON) 0226 with songs and W in Malagasy. On earlier than listed 0300. (Sellers, BC)

MAURITANIA—Radio Mauritanie, 7245 at 2249 with 2-M and interview in AA. (Sellers, BC) 2249-0016 with M/W in AA hosting music pgm, ID on the hour. (D'Angelo, PA) 0025 past 0230 with local guitar, rustic vocals, AA talk. (Alexander, PA; Coady, ON)

MEXICO—Radio Mil, Mexico City, 6010 with SS vocals heard at 0830. (Maxant, WV) 1025 with SS pops and anmts. (Alexander, PA)

Radio Educacion, Mexico City, 6185 at 0028 with Mexican music, W in SS with ID, then introducing next piece in EE. (Sellers, BC) 0815 in SS with nice mix of classical music, W with ID at 0831. (Coady, ON) 1015. (Maxant, WV)

NETHERLANDS—Radio Nederland, 6040 via Moldova at 2014 in DD with reports and interviews. (Sellers, BC) 7325 via French

Guiana in SS at 0120. (MacKenzie, CA) 11610 at 2010 with *The State We're In* reports. (Fraser, ME) 2025. (Brossell, WI)

NEW ZEALAND—Radio New Zealand Intl, 5950 at 1312 with RNZ News. (Sellers, BC) 1415 with pops. (Barton, AZ) 6170 with ID and frequencies at 1055 and 9655 at 1151. (Brossell, WI) 9765 at 1030 with jazz, ID. (Montgomery, PA) 9765 with an interview at 0935. (Coady, ON) 11725 with news at 0501. (Yohnicki, ON) 0620. (Maxant, WV) 13660 at 1105 with *Dateline Pacific*. (Ng, Malaysia) 15720 at 0025. (MacKenzie, CA)

NIGER—La Voix du Sahel, Niamey, 9705 at 2015 with local tribal rhythms and vocals, M in local language and more Afropops. (Coady, ON) 2050 with FF talk, Afropops and Europops, phone interviews. Off with their flute IS and NA at 2159. The 2200 sign off is on Sundays only, other days it's 2300. (Alexander, PA) 2232 with traditional and modern African vocals, W in FF. (Sellers, BC)

NIGERIA—Voice of Nigeria, 7255 in Hausa at 2256 with W talk, many mentions of "Nigeria," email address as hause@voiceofnigeria.org, f/by NA and off at 2300. (Alexander, PA)

Radio Nigeria, Abuja, 7350 from *0540 with local tribal drumming and whistling at 0545, talk, local music. News at 0600. (Alexander, PA)

NORTH KOREA—Voice of Korea, 9345 with commentary at 0322, 15180 with news at 0105. (Sellers, BC) 11730 at 1135 with ID and news in FF, 11865 in JJ at 1209. (Brossell, WI) 9665 at 1650 with vocal. (Barton, AZ) 11735 in SS at 0035, 13760 in SS at 2359, 15100 in CC at 0010, and 15180 in SS at 0054. 13760 in FF at 0340. (MacKenzie, CA)

KCBS, 6185 heard t 1400 with NA, W in KK. (Sellers, BC) 9345 in KK at 2327. (Mackenzie, CA)

NORTHERN MARIANAS—KFBS/Far East Broadcasting, 11650 at 1230 with ID and into RR. (Brossell, WI)

OMAN—Radio Sultanate of Oman, 15140 heard at 1659 with AA vocals. (Strawman, IA)

OPPOSITION—Voice of Peace and Democracy (to Eritrea), 7165 at *0354 on with HOA music IS and opening ID, talk in (l) Tigrinya. Noise jammer came on at 0355. (Alexander, PA) 9560.6 at *0349, HOA music at 0355, f/by M in Tigrinya and a newscast at 0400. (D'Angelo, PA)

Radio Darbanga, Netherlands (to Sudan), 7315 at 0455 with AA talk. (Alexander, PA) 11510 in AA at 1700. (Coady, ON)

Radio Republica (to Cuba), 5954 monitored at 0330–0355* with SS talk and anmt with sound of a touch-tone phone. Jammed. (Alexander, PA)

Radio Free Sarawak, (t) 7590 heard at 2230 sign on with M talk in unid language. Fair at best. (Sellers, BC) *(believed to be via Tadzhikistan—gld)*

Radio Y'Abaganda (to Uganda), 17725 via France at 1700 with modern African music, and M with remote interview. Carrier off suddenly at 1715. (D'Angelo, PA)

Radio Nacional de la RASD (to Morocco), 6297 at 2135 in AA. (Sellers, ON) 2310 with M and SS news and talk to anthem at 2330 and off. (Coady, ON)

Shiokaze (to North Korea), 5965 in JJ to 2100*. (Ng, Malaysia)

Radio Okapi (to Congo), 11690 at *0359 sign on in FF, then news in FF f/by discussion. (D'Angelo, PA) 0443 in FF. (Brossell, WI)

PAKISTAN—Radio Pakistan, 15100 with EE news at 0900. (Ng, Malaysia)

PAPUA NEW GUINEA—Radio New Ireland, Kavaieng (New Ireland), 3905 heard at 1041 in (p) Tok Pisin. (Brossell, WI)

PERU—Radio Huanta 2000, Huanta, (p) 4747 in SS at 1043 with huaynos. (Coady, ON)

Radio Vision, Chiclayo, 4790 at 0112 with 2-M in SS covering "futbol" f/by soft intls to 0254 close. (D'Angelo, PA) 0825 with lively LA music and excited promos. (Coady, ON)

Radio Pacifico, Lima, 4975 barely audible in SS at 0023. (Parker, PA)

Radio Victoria, Lima, 6020 heard at 0701 with ID over "Beethoven's Fifth," SS talk and sound effects. (Sellers, BC) 0835 with emotional preacher in SS. (Alexander, PA)

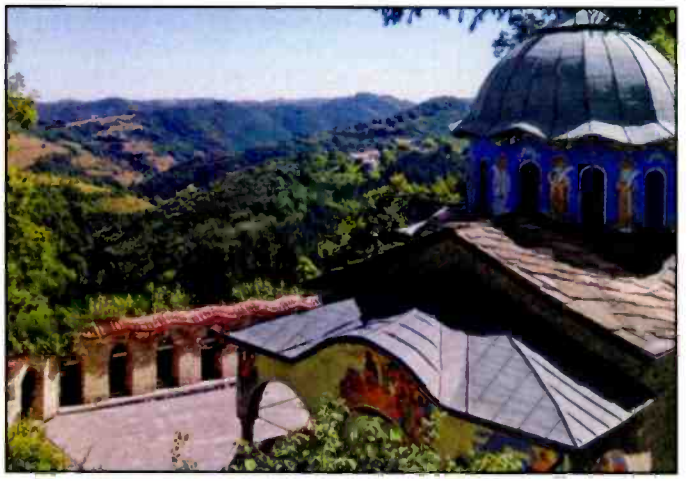
PHILIPPINES—FEBC, 9440 in CC at 1144, 2-M and W in religious talk, instl music.

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 winner is **Jerry Strawman** who receives a 2011 edition of the *World Radio TV Handbook*. The *WRTH* has been a listening companion of mine for more years than I care to name. It's an absolutely essential volume if you expect to have any success at the shortwave dials. Your local bookstore has it in stock or can order it. You'll also find it through bookstores on the Web and at radio hobby dealers. If you don't have your 2011 edition yet, why not?

One of the many QSLs offered by the former AWR Radio Lira International, Costa Rica.



This site, pictured on a Radio Bulgaria QSL, looks like it would be great for DXing.

(Coady, ON) 9445 at 2252 with IS and EE ID on a tape loop to 2300 and into (l) Khmer. (Sellers, BC) 15450 in II at 0900. (Ng, Malaysia)

Radio Veritas Asia, 9615 at 1150 with talks in CC. (Brossell, WI) 11850 with EE ID monitored at 1030 and into Khmer. (Ng, Malaysia)

PIRATES—Wolverine Radio, 6925u at 0123 and 0132 with classic rock, very old pops, rock and jazz. "Help Me 1-2-3" IS at open. (Zeller, OH) 6950u at 0234 and 2325 including SSTV and FAX tones, howling wolves SFX. (Hassig, IL)

WBNY, 6900am at 2114 with some rock oldies, clear WBNY jingle. (Zeller, OH) 2315 weak but parts of the ID were readable. Also at 2330. (Hassig, IL)

WEAK Radio, 6960u monitored at 2140 with electronic music, also noted at 2328. (Alexander, PA) 2333 with eerie music and 2346 ID "WEAK, Radio turning off. Thank you for listening." (D'Angelo, PA) 2320 with ads for scary movies. (Hassig, IL)

Thinking Man Radio, 6925u at 2305-2318 with several IDs and rock, email as thinkingmanradio@gmail.com. Suddenly off at 2321. (D'Angelo, PA) 2315 with rock/pop. (Hassig, IL)

Germany Calling, 6925u at 0318-9329* with old German songs and talks in German. Off at 0329. (D'Angelo, PA)

Captain Morgan, 6924.3am at 2125 with instls and howling/shrieking noises. Later had many *Twilight Zone* audio clips. (Zeller, OH)

WMPR, 6925u at 1701–1751* with various techno instls and numerous IDs. SSTV digital test ancd before sign off. (Zeller, OH)

WFUQ, 6925u at *2058 to past 2130. (Zeller, OH)

Outhouse Radio, 6925 at *0002-0026* with instl rock. IDs at 0006 and 0010. (Zeller, OH)

Radio Casablanca, 6940am at 2230 with big band swing and British WWII tunes. Email to radiocasablanca@gmail.com. (Coady, ON)

Hunk A Dunk Radio, 6925u at *2225–2248, an apparently new station with an old pgm including old commercials, Abbot and Costello's "Who's on First?" routine and various stand-up comic bits. Email: hunkadunk6925@gmail.com. (Zeller, OH)

Cupid Radio, (Euro) tent, 15070 at 1525 with pops and talk but very weak. (Alexander, PA)

PRIDNESTROVIE (Moldova)—Radio PMR, 6240 at 2230 opening EE and into news, contact info at 2242. Into FF at 2300. (Alexander, PA; Coady, ON) 2320 in unid language (Maxant, WV)

POLAND—Polish Radio, 9770 via Austria at 1705 with *Europe East*. (Coady, ON) 11675 with news at 1204. (Brossell, WI)

PORTUGAL—9455 at 0057 with pops, PP anmts, time pips and ID on the hour and into sports discussion pgm. (D'Angelo, PA) 11630 in PP at 0040. (MacKenzie, CA) 15560 in PP at 1437. (Padazopulos, Greece) 21655 in PP at 1552 with pops and PP talk. (Coady, ON)

ROMANIA—Radio Romania Intl, 6015 at 2308 with *Radio Newsreel*. (Coady, ON) 6130 at 0411 with *Weekly Review* and *World of Culture*. (Sellers, BC) 7310 with *Song of the Day* at 2145. (Ng, Malaysia) 7350 in Romanian at 0440 and 11880 with news at 2035. (Brossell, WI) 7380 at 2130. (Ng, Malaysia) 9645 with features at 0330. (D'Angelo, PA)

RUSSIA—Voice of Russia, 7250 at 2335 on Russian composers. (Maxant, WV) 0004 with news, //6240; 9880-Petropavlovsk-Kamchatsky at 1504 with news. //7330. (Sellers, BC) 9735 via French Guiana in SS at 0402 and 9965 via Armenia in SS at 0350. (Parker, PA) 9880 at 1810 on Alexander Pushkin. (Barton, AZ) 12030-Petropavlovsk at 0530 and *Music Around Us* pgm. Also 13775-Vladivostok at 0336. (MacKenzie, CA) 12070-Moscow in RR at 0446 and 15510-Samara in (l) Pashto/Dari at 1335. (Brossell, WI) 17650 with news at 0905. (Ng, Malaysia)

SAO TOME—Voice of America Relay, Pinheira, 4960 at 0430 worth *International Edition*. (Parker, PA)

SAUDI ARABIA—Broadcasting Service of the Kingdom, 9870 at 1650 with W and ME music. (Barton, AZ) 11820 with Koran at 1846. (Brossell, WI) 13710 in AA with Koran monitored at 1546. (Coady, ON)

SINGAPORE—BBC Far East Relay, 9740 at 1228 with ID, pgm promos and into *Newshour*. (Coady, ON)

SLOVAKIA—Radio Slovakia Intl, 6040 at 0100 with ID, news, *Topical Issues*. (Coady, ON) 0126 with ID and address to close EE pgm, then multi-lingual IDs, //9440. (Sellers, BC)

SOUTH AFRICA—Channel Africa, 15235 with *Africa Digest* heard at 1710. (Coady, ON)

Radio Sondergrense, 3320 with M in Afrikaans and music heard at 0333. (Yohnicki, ON)

SOUTH KOREA—KBS World Radio, 15360 via England in RR at 1824. (Brossell, WI)

SPAIN—Radio Exterior de Espana, 3350 Costa Rica Relay in SS at 0436. (Brossell, WI) 0530. //6055. Also 5970 at 0030 with *This, That and the Other Thing*. (Coady, ON) 5970 monitored at 0000 beginning EE segment. (Sellers, BC) 9535 in SS at 2352. (MacKenzie, CA) 15585//21570 and 21680 with an SS interview heard at 1436. (Padazopulos, Greece)

SRI LANKA—SLBC/Radio Ceylon, 11905 at *1529 sudden sign on with coml. for the National Savings Bank, M with ID and TC and 1520 "Radio Ceylon calling out to India." M in EE, W in Hindi. (D'Angelo, PA) *2530 with economic news, IDs as Radio Ceylon and Radio Sri Lanka, local music. (Alexander, PA) 1539 on suddenly in middle of newscast, ID, M/W in Hindi and EE. (Sellers, BC) 1559 in (l) Hindi service with vocals. (Strawman, IA)

SUDAN—Sudan Radio TV, 7200 at *0237 with Koran, AA talk, chants, HOA music. (Alexander, PA)

Miraya FM, 7385 (ex-9740) via Slovakia at 0401 with news in EE, "Miraya" jingles. (Alexander, PA)

SURINAME—Radio Apinte, Paramaribo, 4990 at 0519 playing pops. (Parker, PA) 0613 with pop songs in EE and local language ID heard at 0631. (Sellers, BC)

SWAZILAND—TWR, 4775 at 0503 in GG with a Christian song. (Sellers, BC)

TAIWAN—Radio Taiwan Intl, 5950 via Florida at 0310. (MacKenzie, CA) 6875 at 0346 on Taiwanese athletes and ending mail-bag pgm. (Sellers, BC) 15265 in (l) Mandarin at 1345. (Brossell, WI) 15320 heard at 0435 in Hakka dialect. (Ng, Malaysia)

Sound of Hope, 15150 monitored at 1445 with W over peaceful background music. (Parker, PA)

THAILAND—Radio Thailand, 7465 at 1314 ending JJ segment, local time check and ID then into Mandarin. 9720 at 1251 with M/W *Global News* and 13745 at 0000 with EE segment opening. (Sellers, BC) 0000. (Ng, Malaysia) 0003–0029 with EE news, several promo anmts, more news and promos. (D'Angelo, PA)

TURKEY—Voice of Turkey, 5960 at 2301 with M/W doing news, f/by press review. (Coady, ON) 11980-Emirler at 0410 in TT with inane pops. (Parker, PA) 15220 in EE at 1240. (Ng, Malaysia)

TUNISIA—RT Tunisienne, 7275 in AA at 0440. (Brossell, WI)

UGANDA—UBC Radio, 4976 with vocals at 0315. (Maxant, WV) 2147–2225* with romantic songs and short anmts. Carrier cut in mid-sentence. (D'Angelo, PA)

UKRAINE—Radio Ukraine Intl, 7440 at 0255 with sign on with a harp-like IS. (Maxant, WV) 2235 with EE features. (Coady, ON) 2248 reading a story aloud. (Fraser, ME)

UNITED STATES—Voice of America, 5835 Philippines Relay in EE at 2305 and 15670 in Mandarin at 0800. (Ng, Malaysia) 6080 via Ascension at 0320. (Maxant, WV) 7235 Tinian, NM Relay at 1348 in KK, 7280 Philippines with IS at 1359 IS and ID, into Tibetan, 7430 Kuwait Relay at 0134. (Sellers, BC) 9880 via South Africa in FF at 0532, 11925 Philippines in CC at 0200 and 15185 Sri Lanka Relay in Uzbek at 1510. (Parker, PA) 1315 in (l) KK. (Brossell, WI) 15580 at 1436. (Padazopulos, Greece) 21580 Northern Marianas in CC at 0025. (MacKenzie, CA)

Radio Free Europe/Radio Liberty, 7215 via German Relay in Kazakh heard at 0105. (Parker, PA) 0131. (Brossell, WI) 7285 Germany at 0451–0500* in (l) Tartar. (D'Angelo, PA) 9465 Thailand Relay in RR at 2054. (Coady, ON) 13680 in Farsi at 1440. (Padazopulos, Greece)

Radio Farda, 7520 Sri Lanka Relay at 2203 with mix of rock, rap and local styles with M ancr in Farsi. (D'Angelo, PA) 7595 Sri Lanka at 2238 in Farsi with ME songs and old U.S. things. (Sellers, BC) 15690 in Farsi at 0830. (Ng, Malaysia) 17695 German Relay in Farsi at 1415. (Coady, ON)

Radio Free Asia, 5850 in VV at 2330. (Ng, Malaysia) 9905 via Palau in CC at 1600. (Coady, ON) 11980 via Irkutsk in CC at 0538. (MacKenzie, CA) 15585 Northern Marianas Relay in CC at 2354. (Brossell, WI)

Radio Marti, 7315-Greenville in SS at 0124. (MacKenzie, CA)

Family Radio, 7395 via Madagascar at 1828 with Harold Camping. (Sellers, BC) 11535 in (l) Mandarin at 1215 and 11725 via Petropavlovsk-Kamchatka in CC at 1210. (Brossell, WI)

Southern Sudan Interactive Radio Service, 17700 via Ascension monitored at *1558 with HOA music, IS, M ancr and into AA. To 1659*. (D'Angelo, PA; Alexander, PA)

Trans World Radio, 7215 via South Africa at *0327 with EE ID and music box IS repeating. Opening at 0330 with M preacher at 0332. Closed at 0345. (D'Angelo, PA) 9660 via South Africa at 1655 with long talk in (l) Somali. (Barton, AZ) 9800 via Fontbonne (France) at 0825. (Maxant, WV)

KNLS, Anchor Point, 9615 with ID at 1254, schedule and song. Closed just before 1300. (Sellers, BC)

Adventist World Radio, 9815 via Germany in Amharic at 0355. (Parker, PA) 11955 via Germany at 1518 in Punjabi. (Sellers, BC)

WWCR, Tennessee, 3215 at 0447, 4840 at 0253 and 5890 at 0315. (Mackenzie, CA)

WWRB, Tennessee, 3185 heard at 0237 and 5050 at 0145. (MacKenzie, CA)

KAIJ, Texas, 5755 heard at 0310. (MacKenzie, CA)

WRNO, Louisiana, 7505 heard at 0240. (MacKenzie, CA)

WEWB, Alabama, 9390 heard at 1035. (Maxant, WV)

VATICAN—Vatican Radio, 5985 via Novosibirsk ending CC at 1314. (Sellers, BC) 7250 at 0439 with IS and ID in FF. (Brossell, WI) 7305 in EE at 0255. (Maxant, WV) 9670 in SS at 0145. (MacKenzie, CA) 13765 in EE service at 1730. (Coady, NY) 15235 in Malay at 1520. (Parker, PA)

VENEZUELA—Radio Nacional, 6150 at 0845. (Maxant, WV) 11680 in SS at 1505. (Fraser, ME) 15250 in SS at 2328, //13680. (Sellers, BC) (*all via Cuba—gld*)

VIETNAM—Voice of Vietnam, 6175 via Canada heard at 0245 on doctors trained in Hanoi. (Maxant, WV) 0300 with W and ID. (Yohnicki, ON)

ZAMBIA—CVC-One Africa, 9430 with IDs, promos, music and testimonials from 0358 to past 0400. (D'Angelo, PA) 0424 with Australian-accented preacher, contact info at 0427 and Christian pops. (Coady, ON) 9540 sign on at *1859 with a sermon. Also 13590 at 1858 with music. (Yohnicki, ON)

And, once again, order is restored! Raise a toast to those who carried the water this month: Harold Sellers, Vernon, BC; Brian Alexander, Mechanicsburg, PA; Stewart MacKenzie, Huntington Beach; CA; Peter Ng, Johor Bahru, Malaysia; Mark Coady, Peterborough, ON; Rich D'Angelo, Wyomissing, PA; George Zeller, Cleveland, OH; Robert Montgomery, Levittown, PA; Robert Brossell, Pewaukee, WI; William Hassig, Mt. Prospect, IL; Fotios Padazopulos, Saharo, Greece; Jerry Strawman, Des Moines, IA; Rich Parker, Pennsburg, PA; Robert Fraser, Belfast, ME; Charles Maxant, Hinton WV; Michael Yohnicki, London, ON; and Rick Barton, Phoenix, AZ. Thanks to you all and—until next month—Good Listening!

HDTV Spec Mysteries Unraveled

by Bruce A. Conti
contiba@gmail.com

"...becoming familiar with the terminology and sales hype may prevent you from getting sucked into spending too much money on something you don't necessarily need or want."

You're still watching a cathode ray tube television with a digital-to-analog set-top converter? Don't be embarrassed. I'm still watching an analog TV with one of those government-supplied coupon converter boxes, too. Now that the rush to digital is over, maybe it's finally time to make the switch to a real digital TV. If you're like me and it's been a few years (or decades) since you were last in the market for a new TV, the advances in technology and the huge number of choices available might be downright overwhelming—maybe even enough to make you delay that major man-cave upgrade for a few *more* years (or decades).

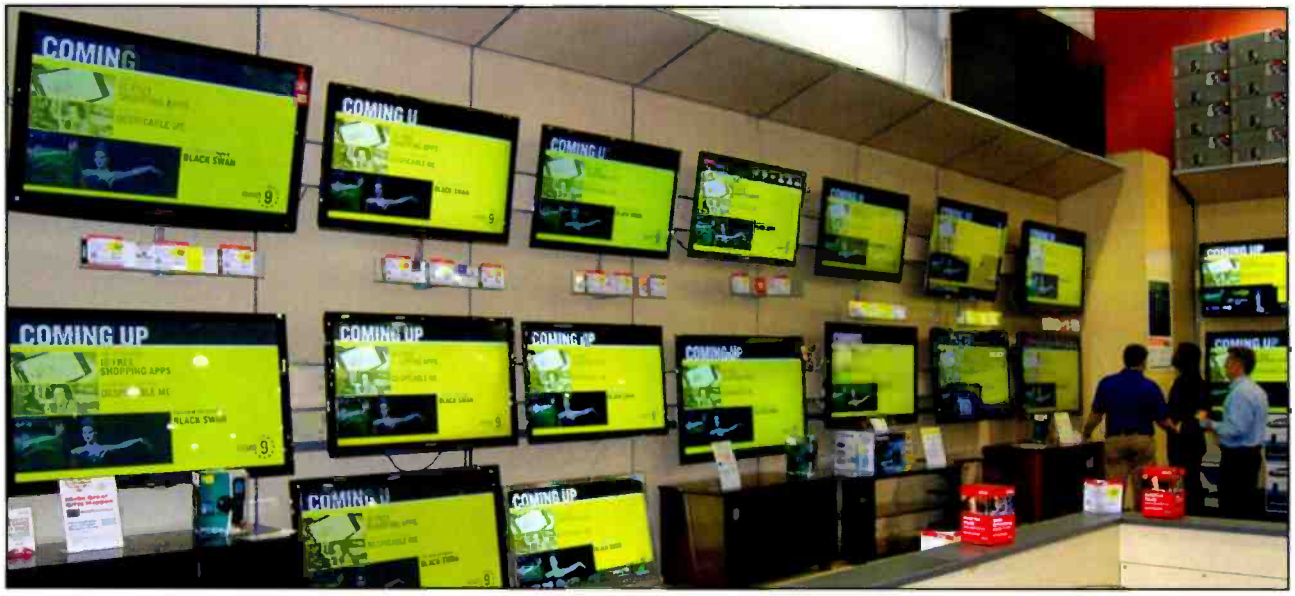
Never fear, "Broadcast Technology" is here! Well, okay, perhaps I'm being just a little silly, but seriously, it's a whole new world out there. So to help you navigate in it, here are some tips for getting beyond the HDTV culture shock.

High Definitions

When shopping for any big-ticket item, it's always a good strategy to do some homework first. At least becoming familiar with the terminology and sales hype may prevent you from getting sucked into spending too much money on something you don't necessarily need or want. A high-definition TV is no exception. A few of the most commonly used (and exploited) terms are defined as follows:

720p/1080p Resolution—The current standard number of horizontal lines across the TV screen that results in a high-definition digital picture is either 720 or 1080 lines. The "p" suffix stands for "progressive," meaning the picture is composed of either 720 or 1080 progressive lines. We used to see 720i and 1080i, the "i" indicating "interleaved" composition, but this format has faded out of fashion with improved and more cost-effective high-speed circuitry, though most HD broadcasts are only 1080i at best. Interleaving alternates between refresh of even and odd lines, as opposed to refreshing each line progressively. If you have a few thousand dollars burning a hole in your pocket, 1440p is the latest and greatest thing in high-end big screen 3D home theater installations.

Deep Color—This is a high-tech color palette capable of displaying trillions of different colors, resulting in a more natural and precise picture.



TVs on display under the harsh glare of bright white lighting in a Best Buy store.

The old RGB (red-green-blue) color scheme, though capable of producing millions of colors, is said to appear more cartoonish by comparison. However deep color isn't yet widely available in film and broadcast, limited primarily to video gaming applications, so it's more or less marketing hype. Though a Blu-Ray player is capable of providing deep color output, it's typically just interpolating and/or up-converting commercially available 8-bit RGB program material.

Digital Living Network Alliance (DLNA)—This alliance is developing standards to harmonize all digital devices regardless of type and manufacturer. The standards will allow for wired and wireless interconnection of various digital devices via a home network. This includes home entertainment, consumer electronics, computers, and mobile communications devices from competing manufacturers. It allows all devices to easily share content. DLNA certification of products is obtained through independent laboratory testing. Visit www.dlna.org to learn more.

Dynamic Contrast Ratio—This is a non-standardized, undefined, unreliable, and otherwise useless spec! Each manufacturer has its own method of measuring contrast. Your own eyes are the best tool for measuring contrast. Keep in mind that the department store display models are usually preset to "in-store mode" eye-popping brightness, a level that would burn your eyes out at home. Most if not all models will provide plenty of contrast, but if it's a concern then ask a sales person for the remote control to adjust brightness and/or contrast, or look at various models in a darkened home theater demo room if possible.

High-Definition Multimedia Interface (HDMI)—This is the current digital interface standard for interconnection of the TV with various home entertainment equipment, such as home theater amplifiers, Blu-Ray/DVD players, and multimedia computers. HDMI 1.4 is the latest rev, which allows the TV to be connected to a surround-sound audio system through the Audio Return Channel of a single HDMI cable, eliminating the need for separate audio cables from the TV to the audio system when the TV is the central source for antenna, computer, Blu-Ray, etc. As a central source, HDMI also provides "Lip Sync" capability, compensating for processor delays between systems to match audio to the video. A

Check out the February issue of *WorldRadio Online*! Featured articles include:

- PJ4D DXpedition to Bonaire, Part II – Oh, the Pile-Ups!
- Join KF5BOC On A Wild Ride Aboard the Space Station
- Radio Amateurs' ECHO From the Past
- Krusty Ol' Kurt Gives Us the Skinny on "Skin Effect"

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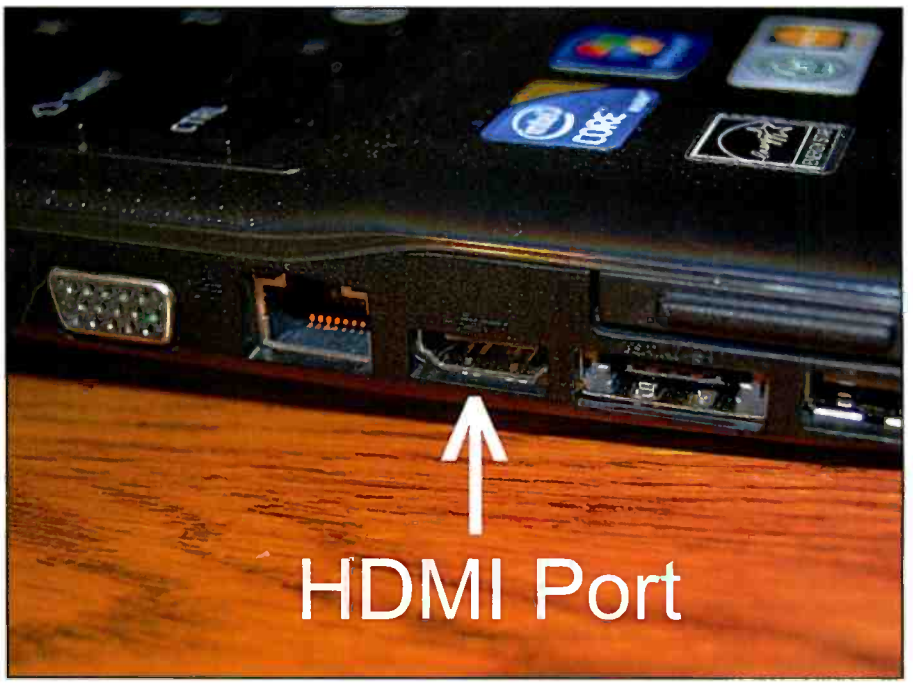


The HDMI port on a multimedia laptop computer.

standard-speed HDMI cable will accept 720p and 1080i bandwidth. A high-speed HDMI cable is capable of handling up to 10.2 GB per second, more than twice the bandwidth needed for 1080p, and enough bandwidth for emerging technologies such as deep color, 3D, and 1440p. HDMI spec revisions are backward compatible, so older versions don't become obsolete when a new rev is released. See www.hdmi.org for the latest developments.

Light Emitting Diode/Liquid Crystal Display (LED/LCD)—The early LCD televisions used cold cathode fluorescent lamp (CCFL) backlighting, but reliability became an issue as CCFL bulbs tended to burn out just like the familiar fluorescent bulbs that provide lighting for home and office, so regular replacement of the CCFL bulbs was required. LED/LCD technology has supplanted the older CCFL type. Consisting of an LCD screen with solid-state white LED backlighting, the new technology should last "forever" (60,000 hours typical) and consumes less energy. Backlighting in this case is somewhat a misnomer. More correctly speaking, LED edge-lighting is dispersed to backlight the LCD screen. Although advanced LED/LCD big screen models may implement true RGB LED backlighting, it's more likely the next generation will introduce Organic Light Emitting Diode (OLED) displays that don't require any backlighting. An LED/LCD TV is the preferred choice for a bright sun-lit room because the picture brightness can be increased enough to overcome glare.

Plasma—An array of individual miniature gas cells together form the plasma that produces a picture as each cell is excited by an electric charge. Though there are a few models as small as 42-inches, plasma TV's are typically big screens, 50-inches or larger. First-generation plasma TV's exhibited burn-in issues, especially when viewing news and sports channels with a ticker running continuously at the bottom of the screen. This problem is virtually eliminated on new plasmas with the implementation of anti burn-in technology. Still, if the TV is primarily used for watching static images, such as Internet and 24/7 news channels, then an LED/LCD TV might be a better choice. In-store wall display of plasmas often appears darker in comparison to LED/LCD models, in part due to the glare of bright white store lighting, but in a dimly-lit media room setting the plasmas really stand out. Plasmas receive highest acclaim for responsiveness over comparable LED/LCD counterparts that are known to exhibit "motion blur" of fast action scenes, though the gap in performance is narrowing. Be wary of lower-tier plasmas though; don't even bother with 720p.

Refresh Rate—Also known as frame rate and field rate, this refers to the num-

ber of video frames per second or the number of times the TV screen is updated in one second. Rates of 60 and 120 Hz are standard. The rate of broadcast DTV is 60 Hz, so an upgrade to 120 Hz would essentially show no visible improvement there. Anything less than 120 Hz might be discernable to discriminating viewers as graininess and motion blur on a big screen, but it's highly debatable whether or not the human eye can really detect any difference on a small screen. The refresh rate spec is generally associated with LED/LCD TV. The advertised plasma standard rate of 600 Hz is nothing more than a marketing ploy, simply because the response time of plasma pixels is typically 0.001 seconds by default.

Start Shopping

Now that you've got the basics, let's put this information to the test with a visit to the showroom. A "big box" store like Best Buy or Sears is a good place to start for a general overview of available models and price ranges, beginning with some Internet homework.

After a look at the Best Buy website, I went to the local store where I met in-house digital TV consultant Darnel Beasley to discuss all the options. My first question: What's better, LED/LCD or plasma? "That's the most common question I get from customers," said Beasley with some amusement. "It's really hard to say what's better. Plasma is definitely better for contrast, deeper black, whiter white, and for truer color. But you really need to get something that fits your situation."

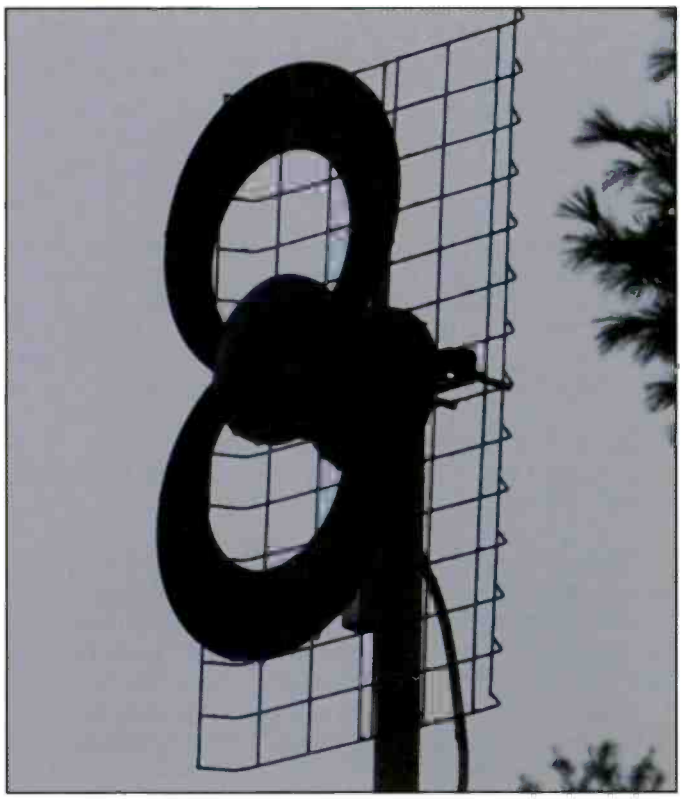
Beasley suggested that room size and lighting should be primary considerations when selecting a TV. "For the kitchen a 19-inch LED/LCD, for the bedroom a 32-inch LED/LCD, and for a viewing distance of 15 feet or more a 50-inch plasma." Professional calibration of the picture to the ambience of the room was advised for critical viewing. Beasley confirmed that the TV's on display were indeed set to an "in-store mode" with the brightness cranked up to look good under the harsh overhead white lighting.

In terms of refresh rate, to save money Beasley steered me toward 720p 60 Hz for screen sizes less than 32 inches. "Don't worry about 120 or 240, that's just a marketing gimmick." 1080p 120 Hz does represent a significant improvement on larger screens, especially for sports and fast action films. However, unless you're a videophile or into uplevel video gaming, jumping up to 240 Hz is considered negligible for average TV viewing.

For over-the-air antenna TV reception, there doesn't appear to be much difference between models. All digital TV's use similar ATSC DTV chip sets with only minor variations. Beasley said there's parity between manufacturers, and agreed with the old axiom that a receiver is only as good as its antenna. Best Buy carries the ClearStream line of outdoor antennas from Antennas Direct (www.antennasdirect.com), with the appropriate antenna for the local area in stock at most stores.

Of all TV brands, Beasley cited Samsung as the most consistent in terms of overall reliability and performance, while Panasonic is rated the absolute leader in plasma by a wide margin. However in discussing the DLNA standard, Beasley warned that compatibility between manufacturers' devices can be an issue. For instance, Samsung Internet TV only works with the Samsung dongle. "Two to three HDMI ports are typical on most TVs, and USB ports are good for playback of photos, music, and videos from flash memory." Of course many models continue to provide separate audio and video input/output connections for legacy equipment, such as a VCR and analog stereo audio system.

Lastly for those who have been holding off the purchase of a new TV, always waiting for the next best thing, Beasley said it's no different than buying a new computer, video game, or communications gear for that matter. After all, doesn't a corollary of Murphy's Law state that after you buy the latest tech-



The ClearStream-2 UHF antenna from Antennas Direct.

This Month In Broadcast History

75 Years Ago (1936)—Under the commission of the British Mandate for Palestine, the Palestine Broadcasting Service, predecessor to Kol Israel, The Voice of Israel, was inaugurated from Ramallah, Israel, on 668 kHz.

50 Years Ago (1961)—Channel 63 KDWB-AM in Minneapolis-St. Paul was the first radio station penalized under new enforcement regulations that allowed the FCC to assess monetary fines for rules violations. KDWB was fined $10,000 for willfully exceeding authorized nighttime power of 500 watts, broadcasting 24/7 with 5-kW daytime power. It was perhaps appropriate that "Surrender" by Elvis Presley topped the KDWB Fabulous Forty music survey.

25 Years Ago (1986)—Turner Broadcasting obtained the entire MGM film library through the buyout of MGM/UA Entertainment for over $1.4 billion. The MGM library became the foundation upon which the TNT cable channel was launched.

nology, something better will be introduced? "New TV's are coming in every two to three weeks," said Beasley. "So if you find something you like, go for it."

Broadcast Loggings

If you're not watching TV, then you must be listening to the radio like these broadcast DXers. Curious about power ratings of various stations, John Diefenback, K1TLV, found last November's DXpedition edition to be interesting with the distances over which some AM broadcasts could be received. "I am well aware of QRP [low power amateur radio] stations, DX under 'ideal conditions' and how far some of them can reach," wrote Diefenback. Ben Johnson, NYØO, also commented on the ability to receive distant signals. "Doesn't take a fancy radio to get some good loggings," said Johnson. More impressive distances are covered in this month's selected logs. All times are UTC.

530 CIAO Brampton, Ontario, at 0115 one cycle of the Radio Vaticana interval signal was heard through Radio Enciclopedia Cuba. At 0130 two cycles of the interval signal, parallel delayed AM 530 Multicultural Radio streaming audio. (Conti-NH)

531 RNE5 Spain, heard at 2144 fair over Algeria with a dance tune similar to Lady Gaga, ID, "Radio Cinco, todo noticias," into "Luka" by Suzanne Vega, parallel to webstream via delicast.com. (DeLorenzo-MA)

549 Chaîne 1, Les Trembles, Algeria, at 2141 loud and clear with a discussion in Arabic; parallel to a weaker 531 kHz. By far the most reliable transatlantic signal. (DeLorenzo-MA)

576 SWR Baden-Wurttemberg/ Muhlacker, Germany, at 2200 German talk, "drei und zwanzig uhr" time check, and "Nachrichten" news; over RNE Canaries/Spain. (Connelly-MA)

594 Radio Sim, Muge, Portugal, at 0148 just able to pull out some weak audio from this one despite heavy spill over from 590 WEZE, heard with an English big band-style song, then a Portuguese ballad. No announcements, but it fit their format. (Wood-MA)

630 CFCL Chatham, Ontario, at 2256 heard an ad for a racing program, then a PSA about drunk driving and losing your license in Ontario for blood alcohol of 0.05 to 0.08%. Listened for about five minutes. (Johnson-IA)

639 RNE1 La Coruña, Spain, at 2141 good with Spanish teletalk over a second transatlantic signal in an unknown language. Two IDs heard, "Radio Nacional" and "Radio Nacional de España." (DeLorenzo-MA)

640 WCRV Collierville, Tennessee, at 2257 religious programming from Memphis about giving thanks, ad for *World Magazine*. Also talk about full body imaging and body searches at airports. Ad for worldmag.com and giving a goat to needy folks in Asia. (Johnson-IA)

693 BBC Radio 5, England, at 0100 good; "On digital and online, this is BBC Radio, Five Live" into news with 1 o'clock time check. (Conti-NH) At 2200 good with discussion about soccer and cricket matches on "Five Live Sports." Then at 2203, "This is BBC Radio Five Live" into news of protests in London, government deficit in Ireland, etc. (DeLorenzo-MA)

702 RMC-Info, Le Col de la Madonne, France, heard at 2200 French program and ID, "Ici Radio Chine International," into news about Jintao-Obama meeting; very good. (Connelly-MA)

720 RDP Antena 1, Portugal, at 2159 Portuguese talk into newscast, heard fast code "HIH" that I have noted before. Something inserted into RDP's news to separate items maybe? Similar type of thing was done with "stingers" in the late '50s on U.S. station newscasts (and now seems popular in the Middle East). (Connelly-MA)

756 Deutschlandfunk, Braunschweig/ Ravensburg, Germany, at 2250 excellent; news/talk in German, at one point with an English sound bite accompanied by German translation. (Conti-NH)

790 KABC Los Angeles, California, at 1358 "Huckabee Report" to ID and ABC news. (Barton-AZ)

810 Radio Skopje 1, Ovce Polje, Macedonia, at 2131 classical music, then "Radio Makedonia" ID; atop jumble. 2200 Radio Makedonia ID, Slavic news; dominating what is usually a very busy frequency. (Connelly-MA)

810 BBC Radio Scotland, at 2114 Scots-accented interview about European tour; mixed with Spain. 2300 excellent Celtic fiddling, then time check and ID, "This is BBC Radio Scotland. It's news time." Mentions of 98 and 95 FM. (Connelly-MA) At 2202 heard Scottish-accented sports talk. Poor to fair under co-channel CJVA. (Black-MA)

900 Rai Radiouno, Milano, Italy, at 2130 Italian sportstalk, Fiat advert, chat about Parma-Sampdoria football match; over CKDH and WGHM. Thanks to Sylvain Naud, Jean Burnell, and Alessandro Groppazzi on RealDX list for ID help. (Connelly-MA)

990 CBW Winnipeg, Manitoba, at 1020 with weather and sports results. CBC news on the half hour. Had only begun hearing them recently, was not able to catch ID until now. (Barton-AZ)

1062 Danmarks Radio, Kalundborg, Denmark, at 0435 signing on with open carrier, 0440 interval signal, 0445 sign-on of program into weather. (Conti-NH)

1120 KZSJ San Martin, California, at 0100 heard ID into program in Asian language, sounded like Vietnamese, with several references to San Jose. Strong, and a departure from the frequency usually dominated by KANN Roy, Utah. Have heard KMOX St. Louis on a null of KANN, but this is the first time I've heard anything else here. (Barton-AZ)

1330 KWKW Los Angeles, California, at 1400 hearing what I thought was a Mexican station with sports talk in Spanish, then ID, "AM 1330 KWKW Los Angeles" before fading out. (Barton-AZ)

1215 VOR Bolshakovo, Kaliningrad, at 2101 Russian national anthem, and later at 2200 heard TWR interval signal, "You're listening to TransWorld Radio," and "You're tuned to the World Service of the Voice of Russia." Mixed with UK. (Connelly-MA) At 2207 rising up and way over Absolute Radio with ID, "And that's the end of the news from the Voice of Russia World Service," followed by "The Voice of Russia World Service will present News and Views." Previously logged but this the first time in English. (DeLorenzo-MA)

1215 Absolute Radio, United Kingdom, heard at 2047 talk about show featuring '90s hits, comment, "We're on Facebook." At 2201, "Rock 'n' Roll Football Live" promo, "Hear all this on DAB digital and on 1215 AM," Sky and Best Buy ads; a good signal. (Connelly-MA)

1341 BBC Radio Ulster, Lisnagarvey, Northern Ireland, at 2158 poor, but clearly parallel to webstream via http://delicast.com/ with rock music, local news on two Belfast men arrested for sex crimes, ID at 2203, "BBC Radio Ulster" and back to rock music. Country #103 heard from Cape Cod and one I have been chasing for years! Both 693 and 909 BBC5 were strong at this time. (DeLorenzo-MA)

Thanks to Rick Barton; Chris Black, N1CP; Mark Connelly, WA1ION; Marc DeLorenzo; Ben Johnson, NYØO; and Steve Wood.

One final note: The trend toward abandoning AM radio broadcasting in favor of FM and Internet continues. Last year Sweden and Switzerland went dark, and now Greenland is the latest to replace all services on the medium and shortwave bands with economically feasible and more desirable local FM. Although the loss of these AM radio countries is lamented, it also opens up frequencies for potential new catches by some DXers. Let us know what you're hearing before more radio stations make the switch.

In the meantime, as always, 73 and Good DX!

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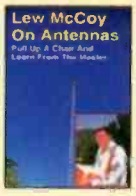

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The October VOIP Surprise

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

Something interesting happened in the world of amateur radio VOIP systems last October. A growing community of open source software enthusiasts had been connecting their radios to the Internet Radio Linking Project (IRLP; www.irlp.net) network, without using the required IRLP hardware. This was possible through the power of a software module that was developed for the Asterisk Open Source Telephony Project. The module, called app_rpt, turns an Asterisk telephone switch running under the Linux operating system into a repeater controller, an Echolink node, an AllStar node, and for a brief time, into an IRLP node.

The authors of app_rpt were able to emulate the IRLP protocol as part of their software system. IRLP operators were trying out this new system in droves. I had an opportunity to hear this in action on the Raritan Valley Radio Club (RVRC) W2QW repeater system. James Cameron, VE7LTD, the man behind IRLP was becoming concerned that some of the IRLP protocols were being violated. According to a posting on eham.net (www.eham.net/articles/24821), he asked the author of app_rpt to drop the IRLP code from the project. James has received reports that IRLP nodes were being linked to non-radio end-points through the AllStar system. The philosophy of IRLP is that all endpoints *must* be a radio node. As a result, the app_rpt developers voluntarily dropped IRLP support from what had become the universal ham VOIP radio gateway software system.

"In the true ham spirit, the app_rpt package can come as a turnkey solution or it is possible to piece together your own solution from source code."

According to one ham I spoke with, the number of active IRLP nodes immediately declined by several hundred. I have not substantiated this statement, but if true, a large number of app_rpt nodes were connected to IRLP.

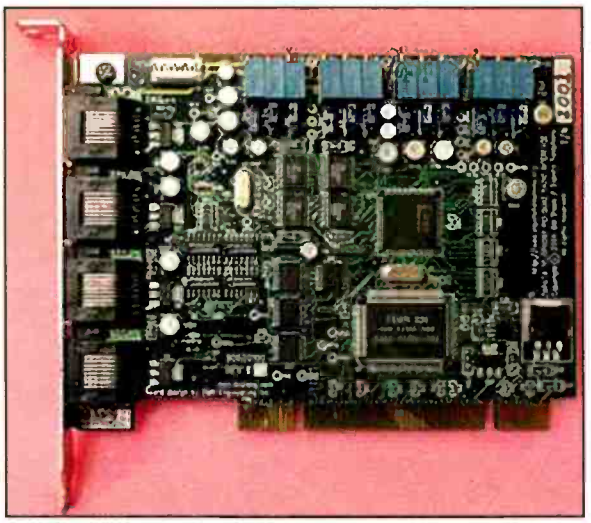

Figure 1. Jim Dixon's Quad Radio PCI Card. It features four 8-pin modular connectors to interface four separate radios to the app_rpt software repeater controller.

Asterisk* Is More Than A Footnote

Jim Dixon, WB6NIL, is the primary author of app_rpt. He created a Linux-based open source software system that supports modern radio interface hardware and addresses some of his pet peeves about how repeater controllers function. Asterisk/app_rpt is called "The fusion of 2 way radio systems and VOIP," according to the website at http://app-rpt.qrvc.com.

In the true ham spirit, the app_rpt package can come as a turnkey solution or it is possible to piece together your own solution from source code. The turnkey solution, based upon Limey Linux, is compact enough to install on a flash memory card and to run without a hard drive. This is a boon if the control computer is at a remote repeater site. The skill level required to build your own software system involves understanding how to obtain the source code from a software repository, set compile time directives in a Makefile, and finally run the compile process. The advantage of this option is that if you can read C code, you can change anything that you want to your liking. The choice is yours.

Asterisk/app_rpt also has flexible interface options. WB6NIL sells a Quad Radio PCI Card (**Figure 1**), which he says is the best way to interface with app_rpt. However, you can also use the DMK Engineering Universal Radio Interface (URI) card, or you can fabricate your

Figure 2. Non-ICOM D-Star software from Satoshi, 7M3TJZ/AD6GZ.

Figure 3. Want to listen to public service activity in your area but don't want to spend time programming a radio? A new breed of scanners linked to RadioReference.com allows you to enter your zip code and go!

own USB radio interface from instructions found on the Asterisk/app_rpt website.

Hey Now, You're On AllStar

Many hams running app_rpt are linked together via a new network called AllStar (www.allstar.org). According to the AllStar website:

The AllStar Link network consists of a number of large (and small) individuals and groups who wish to provide efficient large-area communications to the Amateur Radio public in their respective local areas. This is done by providing a local VHF or UHF repeater system controlled by a Linux-based computer system running the open-source Asterisk PBX telephone switch platform along with the app_rpt repeater/remote base controller/linking software module (which is included in the distribution of Asterisk) connected to a high speed (broadband, such as Cable Modem or DSL) Internet connection.

AllStar is very flexible and you can set up a node without having a repeater. You can set up a transceiver on your favorite local simplex frequency and remote in from anywhere in the world—do remember, however, that you need to set up some system for the node to identify every 10 minutes to be in compliance with FCC regulations. You can set up a remote base on top of the mountain where your summer home is located and remotely access it via AllStar, or you can set up a hub with no radio at all to act as a conference bridge to tie in multiple radio systems around the world. The possibilities are limited only by your imagination, time, and budget.

The RVRC W2QW repeater has retired its hardware repeater controller and is managing its operation via app_rpt. It can get interesting on Sunday evenings when RVRC runs its club net and links together several different repeaters on different bands in order to extend coverage out to 1.25 and 70-cm users. It works well, with one small annoyance. Most repeater controllers are intelligent enough to send a CW identification rather than a voice announcement while QSO audio is being repeated. In the case of this operation, the repeater voice announcements often conflict with a QSO in progress. This is reported to be a design issue that will be addressed in a later version of the software.

Other 'Stars

There's another interesting project out there called FREE STAR*. This project is an amateur radio experiment around the implementation of a vendor-neutral, open source, digital communication network. One of the most frequent criticisms of the JARL D-Star system is that it uses a proprietary voice encoder/decoder algorithm, requiring the use of a proprietary chipset. FREE STAR* has had some success linking non-ICOM D-Star repeaters together through its FREE STAR* gateway system. These systems seem to be mostly in the UK and Canada.

For the hardware hacker, Satoshi Yasuda, 7M3TJZ/AD6GZ, has a node adapter project based upon the same CMX589A GMSK modem chip used in ICOM radios (**Figure 2**). The advantage of the project is that you are not tied to ICOM hardware for D-Star operation; however, Satoshi seems to be involved in some proprietary dispute with some other hams for selling similar boards. That makes the offering more like a com-

mercial venture than an open source sharing of ideas. Ham radio as a hobby seems to suffer when the lawyers have to get involved. As Rodney King once said, "Why can't we all just get along?"

RadioReference.com

Have you tried RadioReference.com ("RR") on the Internet yet? If you own a scanner, or are interested in public safety communication, you should. There's a lot to like about this site, which you'll find at www.radioreference.com. Select your geographic or metropolitan area and RR will tell you what's out there to listen to. If your scanner supports RR, you can download entire frequency lists for your region and automatically program the scanner. You can find software, such as that offered by BuTel for the GRE, RadioShack, and Uniden lines, that has this functionality.

RR has forums and message boards to ask questions, trade frequency tips, and buy and sell scanner equipment. There are regional forums, arranged by state, and topical ones as well. The forums appear to be well used by the community of 360,000 registered users. In a recent one-month period, there were almost 2,500 new threads containing over 17,000 posts. A very nice feature is that you can set up your county or counties of interest and be notified when new frequencies for your area are added to the listing. There is no charge to use RR for some basic functions, but the download function does require a reasonably priced membership. Since the old *Police Call* books are no longer published, this is an excellent online alternative.

Another very interesting feature of RR is the more than 1,500 live scanner feeds. Hobbyists are able to feed the audio of their scanner on a 24 x 7 basis over the Internet to the streaming servers run by RR. If you want to see what goes on in different parts of the country, or to tune in on a news event as it happens, check out the live scanner feeds on RadioReRence.com. Provide them with a feed from your area and get a free premium membership!

Last year, RadioShack and GRE came to market with a portable scanner in partnership with RR. The iScan portable scanner comes with the entire RR database installed on an SD memory card. Instead of programming frequencies into the scanner in a normal fashion, RR reports that you simply set up the scanner with your geographical location and your listening preferences, and the scanner takes care of the rest.

The latest development is the Uniden Homepatrol-1 Scanner (**Figure 3**), reviewed in *Pop'Comm*'s October 2010 issue. Set up can be as simple as entering your zip code, city name, or geographical coordinates. Depending on which option you chose, you will immediately find yourself listening to police, fire, and other public safety traffic within a 10-, 20-, or 30-mile radius. You could also plug in a GPS receiver and have the radio figure out what frequencies to scan. Trunked systems and Digital P25 are included. Lazy scanner listeners, take note!

We have certainly come a long way since the days of installing individual crystals cut for a favorite repeater or our local fire department. I saw one of those just the other day. I think it was a 10-channel Bearcat model. It was on display at a local antique store. That says it all.

Until next time, 73 de K2DLS

RF Bits Web Links

AllStar	www.allstar.org
Asterisk Open Source Telephony Project	www.asterisk.org
Asterisk/app_rpt	http://app-rpt.qrvc.com
BuTel Software	www.butel.nl
Building a USB Radio Interface	http://app-rpt.qrvc.com/node/27
DV Node Hardware Hacking	http://d-star.dyndns.org
eham.net posting	www.eham.net/articles/24821
FREE STAR*	www.va3uv.com/freestar.htm
Internet Radio Linking Project	www.irlp.net
RadioReference.com	www.radioreference.com

Just What Are Those Spots On The Sun, Anyway?

by Tomas Hood,
NW7US, nw7us@arrl.net

Each month, this column contains a report on the smoothed sunspot number for the current sunspot cycle, but just what are these spots? Why do we keep watching the sun for them, and how do they affect radio propagation? I'm guessing a lot of us aren't sure, so this issue let's take a look at what it is we're referring to when we talk about this phenomenon that has such importance to our hobby.

Sunspots are magnetic regions on the sun with magnetic field strengths thousands of times stronger than the Earth's magnetic field. Plasma flows in these magnetic field lines of the sun, and sunspots appear as dark spots on its surface (**Figure 1**). Temperatures in the dark centers of sunspots (the "umbra") drop to about 3700 K, compared to 5700 K for the surrounding photosphere, and it's this difference in temperature that makes the spots appear darker. Sunspots typically last for several days, although very large ones may last for several weeks. They are seen to rotate around the sun, since they are on the surface, and the sun rotates fully every 27.5 days.

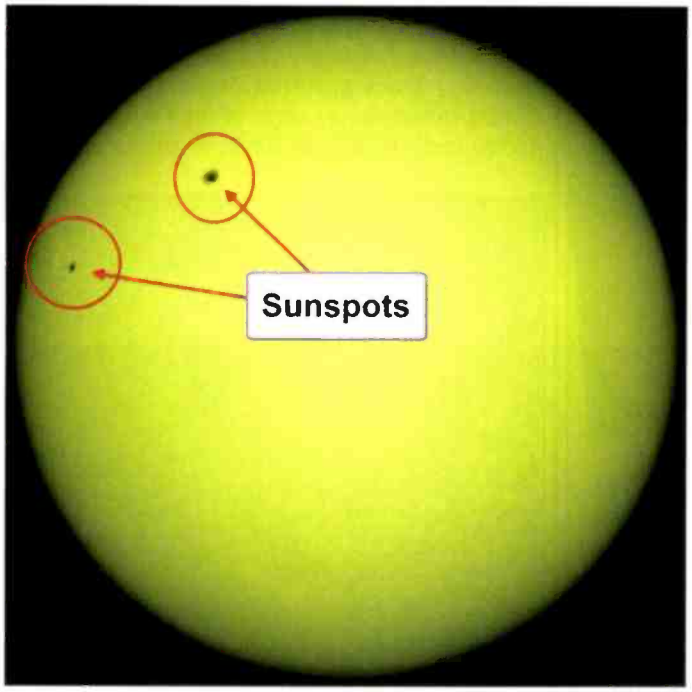

Figure 1. A view of the sun as seen by the Solar Dynamics Observatory (SDO) at the 4500 Angstrom wavelength filters of the Atmospheric Imaging Assembly (AIA) on December 6, 2010. The two very large sunspots are regions of cooler plasma. Sunspots are caused by a restriction of normal solar convection. Complex magnetic activity hinders normal distribution of hot plasma, resulting in these cooler areas (see text). (Source: NASA/SDO/AIA)

"Galileo Galilei made the first European observations of sunspots in 1610. The Chinese and other early civilizations have records of sunspots dating from even earlier."

Sunspots usually form in groups containing two sets of spots. One set will have a positive, or north, magnetic field, while the other set will have a negative, or south, magnetic field. The magnetic field is strongest in the darker parts of the sunspot; the field is weaker and more horizontal in the lighter part (the "penumbra"; **Figure 2**).

Galileo Galilei made the first European observations of sunspots in 1610. The Chinese and other early civilizations have records of sunspots dating from even earlier. Daily sunspot observations were started at the Zurich Observatory in 1749. By 1849, continuous sunspot observations were recorded.

The sunspot number is calculated by first counting the number of sunspot groups and then the number of individual sunspots. The sunspot number is then given by the sum of the number of individual sunspots and 10 times the number of groups. Since most sunspot groups have, on average, about 10 spots, this formula for counting sunspots gives reliable numbers even when the observing conditions are less than ideal and small spots are hard to see. Monthly averages (updated

monthly) of the sunspot numbers show that the number of sunspots visible on the sun waxes and wanes with an approximate 11-year cycle.

Sunspot numbers give us a way to measure the sun's overall activity; the more active the sun, the higher the sunspot count. Scientists have studied the correlation between the sun's activity and the resulting events, like a solar flare or a coronal mass ejection (CME), and our ionosphere and geomagnetic field activities. The sun directly influences the Earth's environment, and by keeping close records of the sunspot number and the overall propagation conditions, scientists have developed models that help us forecast HF openings on any given path.

Sunspots do not give us specific daily insight to the condition of our ionosphere and geomagnetic field. We also watch and forecast flares, coronal holes, CMEs, plasma streams, and other phenomena. Next month, we'll look at solar flares.

HF Propagation

March is one of the optimal DX months. As the spring equinox approaches, the gray-line begins to run straight north and south. With the return of sunlight to the polar north, north to south openings on 11 through 25 meters are improving. However, since we are still at the very beginning of the new solar cycle, openings on east/west paths on higher frequencies will be short, if they occur at all.

Sixteen meters will still stay open into the evenings. You will occasionally find 16 meters open all night long into regions in the other hemisphere. Daytime paths will not significantly degrade until midsummer. You will experience early closures if you live closer to the North Pole, if any openings occur at your latitude.

Twenty-two and 19 meters will remain in excellent shape. Both short- and long-path circuits are reliable and solid. All nighttime paths are open during March, though they will be short and weak. The prime evening hours in the United States are sunrise hours across Russia, Africa, and both the Near East and Far East. Expect occasional short- and long-path DX from these areas of the world.

Between sunset and midnight, expect occasional DX openings on all bands between 15 and 41 meters. Conditions should favor openings from the east and south. These bands should peak for openings from Europe and Africa near midnight.

From midnight to sunrise, expect optimum DX conditions on 31 through 90 meters, and occasionally, 120 meters. Conditions should favor openings from the west and south. Some rather good openings on 19 and 22 meters should also be possible from the south and west during this time.

Noise levels are slowly increasing as we move toward the spring season. Geomagnetic storms will increase, disrupting the mid- and high-latitude ionosphere. During the spring equinox, Earth's magnetic field is sufficiently perturbed by solar wind particles flowing into the auroral zone (between 50 and 70 degrees north geographic latitude) to cause the ionosphere to be depleted. During days of high solar activity (CMEs, high-speed solar winds, flares, and so on), an increase in aurora and geomagnetic storms will shut down many paths, while VHF openings off the auroral zone may increase.

Daytime maximum usable frequencies continue to drop and the planetary A index (A_p) is on the rise, so take advantage of the current conditions, and hunt for those weaker signals. Look for gray-line DX in the mornings and evenings on lower frequencies. Transequatorial propagation will be more likely toward sunset during days of high solar flux and a disturbed geomagnetic field (look for days with an A_p greater than 15, or

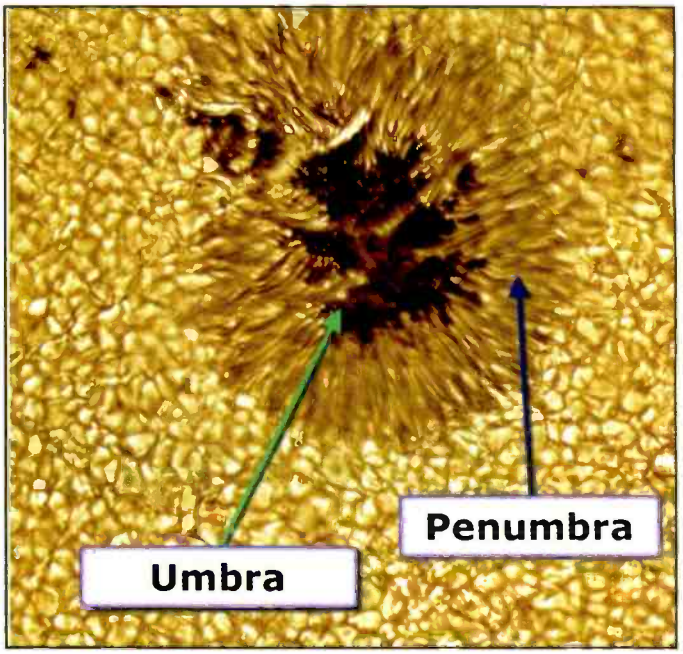

Figure 2. A sunspot, showing the darker (cooler) center, the "umbra," and the outer "penumbra." (Source: NASA)

Optimum Working Frequencies (MHz) - For March 2011 - Flux = 102, Created by NW7US

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

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

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

a planetary K index (K_p) greater than 3). Sporadic-*E* openings should be increasing, for shorter-range openings.

VHF And Above

Check for low-VHF short-skip openings during the daylight hours. Some short-skip openings over distances of about 1,200 to 2,300 miles may occur. The best times for such openings are during the afternoon hours.

Auroral activity often occurs during periods of radio storminess on the HF bands. Look for days where the A_p is climbing, when the K_p reaches 4 or higher. These are the days on which VHF auroral-type openings are most likely to occur.

Current Sunspot Cycle 24 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for November 2010 is 21.6, just slightly lower than October's 23.5. It is typical to see such swings between months during a sunspot cycle; the smoothed monthly numbers never move along a smooth, straight trend line. The lowest daily sunspot value of eight (8) was recorded for November 24 and 27. The highest daily sunspot count was 43 on November 13. The 12-month running smoothed sunspot number centered on May 2010 is 15.5, up from April's 14.0. A smoothed sunspot count of 47, give or take about 9 points is expected for March 2011.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 82.5 for November 2010 (about one point higher than October). The 12-month smoothed 10.7-cm flux centered on May 2010 is 79.0. The predicted smoothed 10.7-cm solar flux for March 2011 is 102, give or take about 9 points. If we do see this high of a flux in February, expect some openings on 10 and 12 meters, and a good amount of activity on 15 meters.

The observed monthly mean A_p index for November 2010 is 5, which is still very quiet. The 12-month smoothed A_p index centered on May 2010 is 5.7. Expect the overall geomagnetic activity to be varying greatly between quiet to minor storm levels during March. Visit the last-minute forecast page at http://hfradio.org/lastminute_propagation.html for an up-to-the-minute propagation condition forecast that incorporates the geomagnetic conditions expected based on the 27-day rotation of the sun.

Connections...

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

I invite you to visit my online propagation resource at http://propagation.hfradio.org/, 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://hfradio.org/forums/. If you are on Facebook, check out www.facebook.com/spacewx.hfradio and www.facebook.com/NW7US. Speaking of Facebook, also check out the *Popular Communications* magazine fan page at www.facebook.com/PopComm.

Until next month, 73 de NW7US

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Rules—Golden And Otherwise—To Live By

by Kirk Kleinschmidt, NTØZ
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Although this month marks the official beginning of spring, it's been a little hard for me to get in to the groove (maybe the fact that I live in the upper Midwest contributes to that). It just seems that there's a lot overshadowing the traditional optimism of the new season. We're still listening to endless waves of political bickering, still making repairs from a tough winter, and many of us still are merely surviving in an economy gone mad.

The weight such stresses can really pile up, causing a general breakdown of civility. Frustrations in one area can prompt us to misbehave in other areas that were once sacred—such as amateur radio.

When times are tough, as they currently are, we need to be particularly vigilant when it comes to keeping the "creeping crud" out of our favorite hobby. Amateur radio is, by nature, a friendly, collegial activity, but enough exposure to the outside world can affect our on-air behavior.

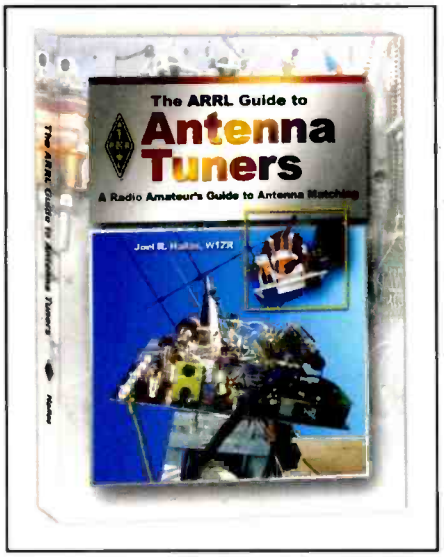
What starts out as a minor transgression can fester into major-league misbehavior. You might let the thrill of chasing DX transform you into an amateur radio monster, then may come other forms of on-air rudeness: thinking you and your net buddies "own" a particular frequency, kerchunking the repeater, tuning up on top of other ops, even intentional interference. All of these bad behaviors are committed by ops who started out as helpful, friendly hams.

Sometimes, breaking the rules happens without intention. The other day I heard two hams discussing the proper way to tune up on 60 meters, which only allows USB voice operation on five discrete channels. The guys were wondering exactly how to tune up and not violate the rules, as transmitting an unmodulated carrier (while adjusting your antenna tuner or mic gain) seems to be specifically not allowed. And whistling or saying "ahhhhh" while tweaking your settings, which would transmit a USB voice signal that likely strictly complies with the rules, isn't exactly good amateur form.

There may be an "answer" to the 60-meter conundrum, and if I uncover it, I will report on it in the future. Sixty-meter operations are being discussed by the FCC and its counterpart organizations in other parts of the world, so the "tuner upper" question may be resolved if other emission modes are allowed in the future, etc.

"Every generation of new hams seems to think radio rudeness is a modern problem. It's not."

Need to tune your antenna tuner without transmitting a signal? With an antenna bridge, such as this MFJ-204B (similar to the MFJ-207), you can do just that, and more. You can also build a 50-ohm noise bridge or find one of the many Palomar bridges on eBay or other amateur radio online classifieds (these were sold for years, but for some reason are no longer available).



A new book by Joel Hallas, W1ZR, *QST* technical editor and former telecomm systems engineer, can help you figure out when to use an antenna tuner (or whether one is needed at all), which type of tuner to use, and where to place the tuner (in the shack or at the antenna). Along the way you'll learn about tuner types, baluns and feed lines, and losses introduced by antenna tuners themselves (as with antennas and feed lines, tuner efficiency is important!). *The ARRL Guide to Antenna Tuners: A Radio Amateur's Guide to Antenna Matching* is available from your favorite amateur radio bookseller or from www.arrl.org.

Unless you just got your ticket last week, you've undoubtedly been on butt end of more than a few bad radio encounters, and if you haven't yet, you will. If only as antidote to encroaching societal stress, I suggest you practice forgiveness in advance. Taking the high road isn't always easy!

The specifics of how bad radio behavior comes about are irrelevant. The fact is, ham operators, whether technical types, housewives, or carpenters, are people, too. And people act inappropriately every now and then. There's no getting around that.

Every generation of new hams seems to think radio rudeness is a modern problem. It's not. Old-timers often contribute to this myth by recounting radio's "good old days," which when reviewed impartially, weren't always so good. Uncrowded, yes. Pioneering, sure. Filled with friendship and imbued with a sense of wonder, absolutely. Free of bad behavior—no way!

Poor operating is more noticeable nowadays because the number of hams has dramatically increased over the decades, which ironically, increases the need for better on-air behavior.

As members of a radio service, the number of hams who are habitual, serious offenders is relatively small. But a healthy dose of prevention is always a good idea. And erring on the side of courtesy is always the best course of action. This month's column is really about common sense and common courtesy, qualities every new amateur should cultivate (along with the aforementioned patience!).

Rules To Operate By

Even if everyone else isn't playing by the rules, *you* should. Here are a few Golden Rules practiced by considerate operators everywhere:

• Nobody, individuals or groups, *owns* a frequency. FCC regulations and common courtesy clearly indicate that emergency communications *always* have priority. And when emergencies do not exist, frequencies are appropriately utilized on a "first-come, first-served" basis. That rule isn't suspended for contests, but you'd never know it. I'm often amazed by the few intrepid hams who are able to ragchew during crowded "push and shove" contest conditions. Some modes, such as PSK 31, are better able to support ongoing QSOs during extreme contest conditions.

• Before you call CQ, tune the part of the band you want to operate on and listen. Then listen some more. You'll get a good initial idea of propagation and general activity, both of which vary daily, seasonally, and yearly. If you're lucky enough to have a software-defined radio, a quick glance at the band scope will give you a good indication of propagation, general activity and where to call CQ.

• Tune up your transmitter and/or antenna tuner with as little power as possible. Carelessly transmitting a strong carrier on an active frequency is rude at best, and life-threatening at worst. Most modern antenna tuners and SWR/power meters will tune up just fine with 5 or 10 watts instead of 100 or 1,000. Superconsiderate ops can choose to use one of several devices that allow antenna systems to be tuned without radiating *any* power. Examples include MFJ's 204B and 207 antenna impedance bridges.

• If a frequency seems to be clear and not in use, before transmitting say (for voice modes): "Is this frequency in use? This is NTØZ" (use your own callsign). If you're using Morse code, send: "QRL?" No matter what QRL? meant in the early days, it now means, "Is this frequency in use?"

If a frequency *is* occupied you should hear a polite, "Yes it is, thanks for asking," or something similar. On CW you might hear "QRL" or the Morse letters "C" or "R."

The Amateur's Code

The Amateur's Code, written by Paul M. Segal, W9EEA, in 1928 has appeared in every *ARRL Handbook* for decades. This "non-religious" version is a lot less "ARRL-centric," but the essence of his message is still completely relevant.

THE RADIO AMATEUR IS:

CONSIDERATE...never knowingly operates in such a way as to lessen the pleasure of others.

LOYAL...offers loyalty, encouragement and support to other amateurs, local clubs, and the American Radio Relay League, through which Amateur Radio in the United States is represented nationally and internationally.

PROGRESSIVE...with knowledge abreast of science, a well-built and efficient station and operation above reproach.

FRIENDLY...slow and patient operating when requested; friendly advice and counsel to the beginner; kindly assistance, cooperation and consideration for the interests of others. These are the hallmarks of the amateur spirit.

BALANCED...radio is an avocation, never interfering with duties owed to family, job, school or community.

PATRIOTIC...station and skill always ready for service to country and community.

Remember that even if you don't get a reply to your query, the frequency may still be in use. This happens most often on 15 through 6 meters where, because of propagation, two ops may be conversing, but you can hear only one. Be patient! Keep your first transmission short just in case.

• Considerate operating procedures should be the rule, not the exception. Set the best possible example for others. When that DX station says he's "listening for nines," if your callsign doesn't have a nine, don't transmit—even if a dozen other ops do. When the DX is listening "up five," don't transmit on the DX op's calling frequency.

• Always listen *before* you key up a repeater. If others are using the machine and you need to make a call, simply say your callsign between their transmissions. When one of the ops acknowledges you, say, "This is NTØZ, I'd like to make a quick call." Wait for the go-ahead, then make your call. If your friend responds, ask him to move to a simplex frequency where you both can talk. Then, thank the others for letting you make the call and pop over to your new simplex frequency. If your call gets no reply, offer a quick "thanks" and clear off the machine so the others can resume. Common courtesy is usually this simple.

• During communication emergencies, all bets are off. You can interrupt an in-use repeater or other on-air conversation by saying, "Break," or "Break—emergency." Emergency situations *always* take priority, so don't worry about upsetting anyone's conversation.

• On voice modes (on HF or on the repeater), pause a bit between transmissions so others can break in if necessary. And don't blab on endlessly during "prime time" repeater hours (early morning and late afternoon for most regions).

Its Own Reward

Good behavior isn't always easy, and it may even mean that you don't get through to the rare DX or Special Event station. That long-winded op in Wyoming or Antarctica (or wherever) may chat endlessly with his friend all morning and never get around to working you. That's just how things go sometimes, but if you maintain good operating practices, your dignity will still be intact. That's good for you, and good for us all.

Destination Dayton, Ohio—Birthplace Of Aviation And Holy Grail For Hams

by Mark Meece, N8ICW
ohioscan@gmail.com

Editor's Note: Tom Swisher was unable to submit a his regular column this month, so "Military Radio Monitoring's" Mark Meece takes the controls for our visit to the Dayton, Ohio, area.

"For 60 years radio hobbyists and professionals alike have made their way to Ohio's sixth largest city, by plane, train, or automobile...So in honor of that annual pilgrimage, we now take a look at where aviation itself originated: Dayton, Ohio."

As you stand holding this issue of *Popular Communications* in your hands, we are just around the corner from the Mecca of the radio hobby: the Dayton Hamvention. When the Hamvention opens its doors for the weekend starting May 20, 2011, thousands upon thousands of excited radio enthusiasts from all over the globe will make the trek to Dayton, Ohio.

One of Dayton's nicknames is "the Gem City." Although the original connection has been lost over the years, the moniker has nevertheless been adopted by several local minor league teams, including the Dayton's Central Hockey League team, which plays its games in Hara Arena—the site of the Dayton Hamvention.

For 60 years radio hobbyists and professionals alike have made their way to Ohio's sixth largest city, by plane, train, or automobile. This coming May, they'll do it again. So in honor of that annual pilgrimage, we now take a look at where aviation itself originated: Dayton, Ohio.

James M. Cox Dayton International Airport

The James M. Cox Dayton International Airport, locally referred to as "Cox-Dayton" or "Dayton International," is actually located in the northern Dayton suburb of Vandalia, some nine miles from downtown Dayton. From here travelers have access to 21 destinations serviced by 10 airlines. It's an equidistant 78 miles from both Port Columbus Airport and Northern Kentucky-Cincinnati International Airport, forming a unique regional triangle for worldwide travelers. Luckily for us, it also happens to be on the same side of town as Hamvention.

Operated by The City of Dayton, the airport's communications concerning facilities' opera-

Orville Wright in 1903.

Wilbur Wright, also in 1903.

tions take place on the City of Dayton trunked radio system. (See the "Listening In" sidebar for all frequencies for James M. Cox Dayton International Airport operations, as well as for the other facilities mentioned in this piece.)

James M. Cox Dayton International Airport is also home to the Vectren Dayton Air Show, which is held annually in late July and considered one of the best air shows in the country. The 2011 show is scheduled for July 23 and 24 and will feature the USAF Thunderbirds. Some frequencies confirmed at the 2010 show are also listed in the sidebar.

Nearby Airports

Ten miles south of downtown Dayton is the city-owned municipal airport, Dayton Wright Brothers Airport, known for many years as Dayton General South, although a portion of the south end of the runway actually lies in the City of Springboro in Warren County. While it is an instrument-rated airport, it does not have a control tower. It serves corporate

Replica of The Wright Cycle Shop, part of the Dayton Aviation Heritage National Historical Park.

Wright Model E Flyer in flight near Dayton, Ohio, in 1913.

Listening In

James M. Cox Dayton International Airport (KDAY)

Aeronautical Operations

118.0000	Approach/Departure
118.4250	Approach/Departure North (360-090)
118.8500	Approach/Departure South (091-180)
119.9000	Tower
121.7500	Clearance Delivery
121.9000	Ground
122.9500	Unicom
125.8000	ATIS
126.5000	Approach/Departure South (091-180)
134.4500	Approach/Departure West (181-359)
257.8000	Military Tower Common
294.5000	Approach/Departure East (000-090)
294.7000	Ground Controlled Approach (Radar)
324.5000	Approach/Departure
327.1250	Approach/Departure South(091-180)
352.0500	Approach/Departure West (181-359)
353.7000	Approach/Departure

SYSID: City Of Dayton
TYPE: Motorola Type II Smartnet
VOICE: Analog
SYSID: 103f

Frequencies

856.21250	856.46250	856.71250	856.96250
857.21250c	857.46250	857.71250	857.96250
858.21250c	858.46250	858.71250	858.96250
859.21250c	859.46250	859.71250	859.96250
860.21250c	860.46250	860.71250	860.96250

C = Control Channels

Dayton Airport Talkgroups

46960	Airport Emergency Calling
46992	Airport Maintenance Primary
47024	Airport Fire Dispatch
47056	Airport Police/Help (PD)
47088	Airport Command
47120	Airport Administration
47152	Airport Repeater
47184	Airport Maintenance Secondary
47216	Airport Common
47472	Airport Police LEADS
47984	Airport Police
48944	Shuttle Bus Operations
49552	Airport training

Vectren Dayton Air Show

123.0250	U.S. Army Helos
123.1250	Aerobatic Team
123.150	Air Show Discrete
123.475	Sean Tucker
124.900	Air Boss
139.8125 NFM 67.0 PL	Blue Angels Maintenance
141.575 NFM 127.3 PL	Air show Base
142.6125 NFM 67.0 PL	Blue Angels Tower Spotter
237.800	Blue Angels Solos
275.350	Blue Angels Diamond
284.250	Blue Angels Show Box
305.900	Fat Albert
346.500	Blue Angels Check List
384.550	Unknown Use
451.500 NFM	Air show operations? (repeater)
451.800 NFM	Shuttle Buses
453.000R NFM	Event Staff
456.800 NFM	Gate Operations
460.4625 NFM	Parking
462.3375 NFM	Gate Operations
469.500 NFM	Vendors
469.550 NFM	Vendors

Dayton Wright Brothers Airport (KMGY)

118.3750	Automated Weather Observation Station (AWOS)
118.8500	Dayton Approach
119.4000	Clearance Delivery
122.8000	CTAF/Unicom
126.5000	Dayton Departure

Aeronautical Enroute Frequencies

123.5000	WQBB644	Aero Enroute
128.9500	WEJ3	Aero Enroute
129.1250	KBF7	Aero Enroute
129.3000	WGD3	Aero Enroute
129.5500	WZV8	Aero Enroute
129.7250	WPUZ881	Aero Enroute
130.0250	KBF7	Aero Enroute
130.5500	KAQ5	Aero Enroute
130.6000	KUC6	Aero Enroute
130.6250	WQDM845	Aero Enroute
130.6750	WJS7	Aero Enroute
131.0250	WOB5	Comair Ops
131.1500	KXX2	American Eagle Ops
131.2000	KCM2	Aero Enroute
131.2250	KYW7	Aero Enroute
131.4250	WPTS624	Aero Enroute
131.5500	KBF7	Aero Enroute
131.8500	KPT6	Aero Enroute
131.8500	KXO8	Wright Brothers Aero Service
131.9250	KGO8	Aero Enroute
132.0000	WSO38	Aero Enroute
136.8500	WPUZ539	Aero Enroute
136.8500	WSP38	Aero Enroute
136.9750	WQDK760	Aero Enroute

Other Dayton Area Airports

Moraine Airpark (I73)	122.7000	CTAF/Unicom
Dahio-Trotwood Airport (I44)	122.8000	CTAF/Unicom
Phillipsburg Airport (3I7)		
	118.0000	Dayton Departure
	122.7000	CTAF/Unicom
	134.4500	Dayton Approach

Aerial view of downtown Dayton looking to the southwest.

One of Dayton's notable landmarks, the Masonic Temple.

Dayton's historic Carillon Park Tower. (Photo by Mark Meece)

and general aviation users and can function as a reliever airport for Dayton International.

Also nearby is Wright-Patterson Air Force Base, which *Pop'Comm* featured in its cover story in June 2007 and which we'll revisit in a future "Military Radio Monitoring" column.

Other Area Attractions

If you're in the area for Hamvention, or any other reason, you'll also want to make time to check out a few of the following points of interest Dayton has to offer.

Prior to the Centennial of Flight celebration back in 2003, the State of Ohio adopted the slogan "Birthplace of Aviation." Of course Orville and Wilbur Wright as you may know owned a bicycle shop in Dayton where their ideas of flight initially took shape. The Wright Cycle Shop and the Huffman Prairie Flying Field Interpretive Center make up a part of the Dayton Aviation Heritage National Historic Park and are well worth a visit. For more information on the Dayton Aviation Heritage check out www.nps.gov/daav/index.htm.

If you travel south to the Dayton Wright Brothers Airport you can find a working replica of the 1911 Wright "B" Flyer on display and, on occasion, even taking flight in the vicinity of the airport. The hangar/museum with the aircraft is open to the public, free of charge, on Tuesdays, Thursdays, and Saturdays from 9 a.m. to 2:30 p.m. No appointment is necessary during normal hour of operations; other times are available by appointment. While an actual visit is much better, you can also check it out online at www.wright-b-flyer.org/index. html and take a virtual tour. A newly opened exit (41) off Interstate 75 can lead you right to the airport, so drop by for a visit. And bring your scanner.

Overnight, Over Salt Lake, And Then Throughout North America

by Shannon Huniwell
melodyfm@yahoo.com

It wasn't much of a clue, but the way one *Pop'Comm* reader signed her email got me thinking that her nickname might spark a unique story. "The Captive Midnight DXer" is how Jenna Cooper had identified herself. Might this mean she was a homebound listener? Did insomnia trouble her? Or was the Northern California woman making a facetious reference to the way the wee hours can hook a serious radio listener into an addiction of dials and headphones? It turns out I was wrong about the possible explanations, but right in my hunch that Jenna's handle was a signpost leading us down another of broadcast history's fascinating sideroads.

In her initial message to me, Jenna had suggested that pioneer radio talk show host Herb Jepko might make an interesting subject for my monthly column. I'd heard my father link Jepko with Salt Lake City's 50,000-watt non-directional flamethrower KSL. He'd also said there was a relationship with the Mutual Broadcasting System and—if I recall correctly—some connection to better-known talker Larry King.

When I queried Dad for more details, he wanted specifics about Jenna's request, making me a bit nosey in my email response to her. She replied to my request quickly, offering great detail regarding her interest in Jepko, as follows:

"Jepko's initial suggestions [for an overnight call-in show] fell on deaf ears until he backed up the idea with an agreement to make the switch from morning-drive to overnights at a reduction in pay."

Neither Jenna Cooper nor I know why the Radio Motel has such a name, but she recalls seeing the Redding, California, establishment as a girl when traveling from her Susanville home to her grandparent's place on the coast. Anybody in *Pop'Comm*-land have an explanation?

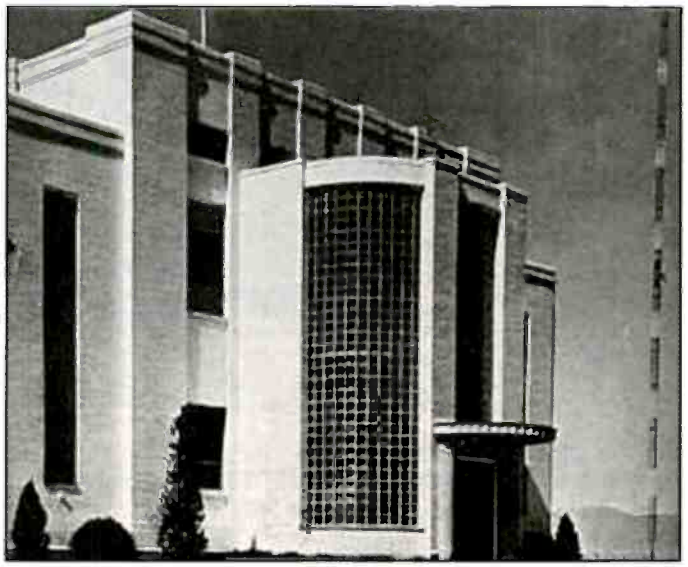
My mother had a distant, elderly shirtsleeve relative who came to live with us in our modest Susanville, California, home. I do mean modest, too, as it was just a two-bedroom ranch in a little development at the edge of the desert. Aunt Gretchen had apparently run out of money and it somehow fell on Mom to take her in. My parents said it was their Christian duty to care for Aunt Gretchen and convinced me that I'd be rewarded in Heaven for sharing my room with her.

To describe that arrangement as a tight fit would be extreme understatement, as there were only about 20 inches between my bed and the one Dad found for Aunt Gretchen at a place we called the Second Chance Shop. Also shoehorned into those shrimpy quarters was my Aunt's rickety cane seat rocking chair, which issued eerie squeaks in our dry climate; a box of old lady clothes tied shut with thick brown string; and a cracked-up transistor radio held together with several skinny rubber bands. From Sears, or somewhere similarly discount-ish, my father bought one of those cardboard dresser drawer things that comes flat and gets folded into shape. It got wedged between the beds, held Aunt Gretchen's apparel, and served as a place of honor for her sad little radio.

She lived with us from 1975 until around September 1979, when she died after being in the hospital for a few days. And that's why I'm asking you about Herb Jepko, because I remember that when he stopped broadcasting (for whatever reason) and Aunt Gretchen couldn't listen to him anymore, she seemed to simply give up the ghost.

But What About That "Captive Midnight DXer" Handle?

It took me another email to clearly net the nexus between Jenna's roommate and her apparent penchant for tuning-in during the witching



KSL's new (1940) transmitter building in Saltair, Utah, sure can't be called an Xmitter *shack*: It looks more like a transmitter *tabernacle* suitable for broadcasts of the Mormon Choir!

What radio buff wouldn't mind eating off the floor in front of this squeaky-clean Western Electric 50-kW AM rig? It, and a 455 tower mate, was new to KSL in 1940.

hour. Jenna remembers the first night she and her aunt shared the room. Aunt Gretchen hadn't said much or smiled more than a couple of times since arriving that morning. At bedtime, she offered Jenna a sincere apology for "invading her room and young world." The senior citizen promised not to butt into Jenna's business, but begged one indulgence: "I guess you could say I'm addicted to a radio program that comes on overnight," Aunt Gretchen confessed. "You and your parents' kind offer of a place to stay is an answer to prayer. I've also been praying that my radio can get KSL out here, because the show I listen to on that station has been like family to me. I hope you can sleep if I switch on the radio later," she said and then nodded off. Jenna fell asleep, too, but not before considering how her 12-year-old world had suddenly changed.

Shortly before midnight, Jenna awoke to the sound of something falling onto the floor. No wonder this radio is so battered, she thought while listening to a frustrated Aunt Gretchen explain how she was prone to dropping the portable transistor when reaching for it in the dark. Jenna clicked on the light and retrieved the radio. Her aunt asked her to tune in KSL. "It's a station in Salt Lake City," the old lady said. "Its call number is 1160 on the dial, so on my radio KSL comes in right before the numeral 1 of the twelve."

To Jenna, Utah seemed like a distant planet. She'd traveled west of Susanville, through Redding, and onto the coastal community of Eureka, for visits with her paternal grandparents. But everything east of her hometown was still a blank screen, with places like Salt Lake, Denver, Kansas City, Chicago, and New York only names on a roll-up map over her schoolteacher's desk.

Aunt Gertrude's excited exclamation of, "That's it! You've found it! That's Herb talking!" truly delighted Jenna when the youngster managed to pinpoint KSL's frequency and hold a piece of Salt Lake City in her hands. Within a few minutes, she could understand why Aunt Gretchen enjoyed the station's overnight host, Herb Jepko. Even to a kid, his avuncular voice was soothing and turned the wee hours into time spent with a dependable friend. Though never having anything particularly interesting to divulge, the callers who Jepko piped into his show also provided a secure consistency, like the polite conversation Jenna's folks and their friends exchanged after church or when they'd come over for supper.

Truth be told, Jenna didn't pay much attention to what was being said on Jepko's *Nitecap* program. There was little of contemporary value to a young girl, or later, a teenager, as Jenna navigated through those formative years. But listening through the occasional fading in and out of KSL's mighty skywave signal, the show's gentle patter often pleasantly lulled her, like waves gently lapping some sandy shore.

And there was another benefit... because Aunt Gretchen's bruised Realistic AM set couldn't quite detect KSL during the daylight hours, she asked Jenna to do her a daily favor: dial it to the local station before breakfast. Jenna learned from her Mom that this simply meant tuning up the band a touch to hit 1240 kHz for Susanville's aptly named KSUE. Within a year or so of this dial shifting (particularly during the post-sunset twist back to 1160 kHz), Jenna discovered that the radio contained lots of other voices and interesting places. It wasn't too long before she'd heard the entire range of clear channel facilities (and some lower-wattage "frequent flyers") familiar to a 10 transistor's ferrite rod antenna stationed in the Golden State's north.

In preparation for a daunting 7th-grade science research project, Jenna, at Aunt Gretchen's suggestion, decided upon a paper on electromagnetic waves. She sent off reception reports that gained her some nice QSL cards to verify her RF catches and which provided very suitable graphics to accompany her assignment.

When Aunt Gretchen mentioned to Jenna's Mom and Dad that a "more powerful" radio might make Jenna a good birthday present, she insisted upon chipping in some of her Social Security check on the deal. Her father got a great one at the Second Chance Shop, picking up a well-maintained Hallicrafters Deluxe SX-62A communications receiver and matching speaker for $75. The guy at the store told Jenna's father that the radio had cost over $400 new (circa 1963) and was pawned by a military guy who brought it

in with an outboard motor and several vintage handguns.

The Hallicrafters performed wonderfully when mated to a long-wire Jenna's dad strung out of her bedroom window. He also hooked an old pair of TV rabbit ears to the generously tubed radio, as its upper bandwidth included frequency modulation and the family's first portal into KSUE's new, predominantly beautiful music-format FM sister on 92.7 MHz.

It was the universe of AM signals, however, that Jenna loved most about her birthday gift. DXing and the Hallicrafters captured her imagination and started her in a hobby that she continues to enjoy with her husband and teenage son. Though they've equipped their attic-based "shack" with digital, solid-state gear from the likes of ICOM and AOR, Jenna's classic SX-62A is kept at the ready for ventures into the ether whenever a nostalgic mood strikes.

Jenna Cooper believes this "super-sensitive Realistic 10 transistor AM portable with TRF feature" to be identical to the set described in our story and owned by her elderly aunt. Jenna does say, though, that her aunt's version had a dented speaker grille and shopworn back cover sustained in many midnight falls it took from her bedside. No matter the damage, that Radio Shack product gave years of service pulling in KSL several states away.

A KSL Exposé

Our good friend and renowned radio historian, Jan Lowry, recently dropped me a line, then fired off another of his fascinating station histories after hearing that this column required some precise information about Utah's oldest continuously licensed broadcast operation. He clarified that KSL—with three-lettered calls characteristic of a station retaining its original identity—was known by several other names prior to being crowned with a west of the Mississippi River "K" and an "S-L" for city-of-license, Salt Lake.

Jan indicates KZN were the letters assigned to Salt Lake City's *Deseret News* when the paper secured a permit to build a 500-watt broadcast outlet on 833 kilocycles in the spring of 1922. This was the organization's second radio venture, as it had founded an "experimental amateur" station (6ZM) two years earlier. When KZN debuted on May 6 of that year with a homebrew transmitter, "it used an 8-wire inverted "L" antenna, 40 feet above the *Deseret News* building and adjacent to a smoke stack. A counterpoise system was directly below," Jan added.

The paper opened KZN with the words, "KZN calling! Greetings!" each weekday and Saturday for only an hour and a half (typically, 8 p.m. to 9:30 p.m.) per night via the identifier slogan, "The Center of Scenic America." By May of 1924, KZN's originators decided to focus on its print business, so sold the station to an 18-year-old radio enthusiast named John Cope and his investor.

In a filing to Washington regulators, the new owners stated that they wanted a different call for KZN to eliminate any possible connection with the former *Deseret News* station. The Department of Commerce staff obliged by assigning the partners with the name KFPT and a jump to 1120 kilocycles. Continued was the use of the erstwhile KZN's "500-watt machine," though Cope pledged that his fledgling company "planned to purchase and install a new Western Electric 5,000-watt set."

It appears, though, that KFPT's people ran out of money before that dream could be realized. Instead, in early 1925, they felt compelled to sell the broadcast property to a group comprised by the Mormon Church, which held 51 percent of the shares, and the publisher of another paper, The Salt Lake Tribune Publishing Company, which owned remaining 49 percent. This partnership saw the newspaper generating promotion and all the station's news programming, while the Church paid for commercially produced equipment, such as a 1,000-watt transmitter and six-wire cage antenna system, with each cage measuring 18 inches in diameter, and installed on the Northwest Temple Street studio building's roof.

Just as Cope and his moneyman had wanted distance from the *Deseret News* relationship with KZN, Cope's successor sought a disconnection from the previous "crass commercial venture," as it labeled Cope and his associate's brief RF dalliance. Consequently, the Mormons and partner Tribune asked the Government to ditch the KFPT identity in favor of a logically lettered triple call. Commerce Department officials obliged in late February 1925 with K-S-L and a move to 900 kilocycles. This preceded another swing to 1000 kc a few months later and then to 990 by summer 1927. The following year marked the start of Mormon Tabernacle Choir coverage. Via a hookup with upstart National Broadcasting Company, KSL fed the reverent music throughout the NBC chain.

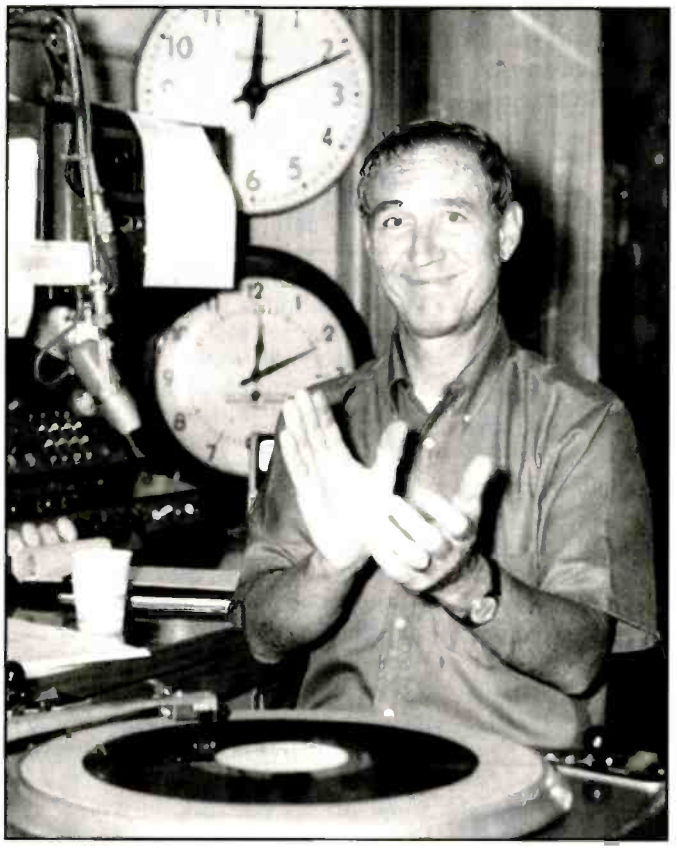
Locally, the station's footprint expanded, too. In a late 1928 frequency shift, KSL flipped to 1130 kilocycles, still with a rooftop array. In early 1929, it inaugurated a new site some eight miles west of Salt Lake City where a 5-kW transmitter was debuted through "a vertical 3-wire fan." "The Voice of the Intermountain West," as it called itself, sent its signal from there until October of 1932 when KSL joined the 50,000-watt club via yet another new site, this one at Saltair, Utah, a recreational area 14 miles west of Salt Lake on the shores of the Great Salt Lake. KSL's output now featured CBS fare, as the station's NBC affiliation had ended, and it maintained a robust 6 a.m. to 1 a.m. schedule. New studios were prepared for the bigger KSL, recast as "The Crossroads of the West."

In 1940, station owners purchased a new Blaw-Knox 455-foot steel radiator and Western Electric transmitter for the Saltair site. Finally, the 1941 frequency reallocation treaty placed KSL at its long-famous after-sunset sole residence, 1160 kilocycles.

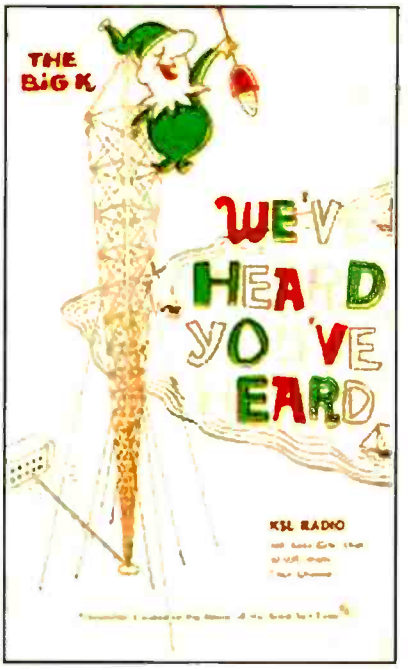
Jan Lowry reports that KSL's old 50-kW box "was transferred to the U.S. Government's Office of War Information for use on a floating propaganda ship, the *Triton Maris*, an old freighter converted to an ocean-going radio station in World War II."

Herb Jepko's Winning Format

Jumping ahead to summer 1964, KSL was still king of 1160 kHz, and its few significant changes from the end of WWII until that time included studio venue modifications, the move away from long-form radio programming that had dominated the pre-television era, and an "aca-



Just a few minutes into one of his *Nitecap* shows, Herb Jepko smiles for a photographer and applauds the overnight KSL audience. Everyone who knew him would say that the sincere, welcoming look on his face is absolutely genuine. This photo comes courtesy of Dr. Joseph Buchman and his excellent tribute website (www.nitecaps.net), which offers many more images as well as audio paints a memorable portrait of a true broadcast pioneer and his worthwhile humanitarian contribution to millions of listeners to whom he gave voice. Perhaps Jepko's childhood circumstances—given up for adoption at birth, abandoned by his adoptive mother four years later, and raised by a father whose poor health necessitated that Jepko occasionally be placed in foster care—led to his creation of a loving "radio family."



A whimsical KSL QSL card, presumably from the 1960s, identifying the station as The Big K. For decades, any pirate broadcaster worth his or her salt, no matter how distant from Utah, knew that the Salt Lake City station was the only nighttime occupant of 1160 kilocycles, so often trimmed their junior transmitters to set sail on that open ocean of a wavelength.

demic" shift of ownership to the Bonneville International Corporation, itself owned by the Mormon Church. As Jan Lowry says, because the Mormons also controlled the *Deseret News*, KSL could be said to have been reunited with its KZN founders.

KSL brass had discovered announcer Herb Jepko in 1962, after hearing his personality-packed voice on small competitors such as 1000-watt daytimer KANN in Ogden, Utah. Though tapped for what was then called the "housewife" (midday) slot, he was soon promoted to the prestigious a.m. drive-time position.

But that didn't satisfy Jepko, who couldn't get two thoughts off of his mind. The first was the relaxing style of Los Angeles radio personality, Ben Hunter, with whom he had worked in the 1950s when serving as promotion director of LA's KFI. At that giant 640-kHz headquarters Hunter had done an overnight program featuring listener phone calls, a then-novel concept in a period when even many of America's large stations cut their transmitter's high voltage shortly past midnight or maybe at 1 a.m. Second was that Jepko knew that KSL followed such a practice, but couldn't understand why management chose not to keep the huge station in service 24/7.

Jepko's initial suggestions to do otherwise fell on deaf ears until he backed up the idea with an agreement to make the switch from morning-drive to overnights at a reduction in pay. His superiors felt it would only take about a month for Jepko to see that his plan was a bad idea, but they gave him six weeks for good measure. Within half that time, it became evident to all involved that there were plenty of people in KSL's expansive coverage area who were hungry for radio companionship in the wee hours. Not long after Jepko got his overnight concept on the air, in mid-February 1964, it was dubbed *The Herb Jepko Nitecap Show*.

In a 2008 *Radio World* piece about Jepko, Donna Halper reported that the host's family-friendly philosophy drove the program's protocols. "Listeners could call and talk about anything, as long as it wasn't a controversial subject," wrote Halper. "He cared about his listeners; even if they hadn't called for a while, he remembered their names, and seemed genuinely interested in how they were doing." Halper also mentioned Jepko's gentle reminder to callers who were about to exceed their five-minute allotment of airtime (a tape cartridge loaded with the instrumental tune "Never On Sunday" would be started).

There were so many listeners, who were referred to as "Nitecaps," trying to get through—via their own "nickel" in those pre-toll free days—that Jepko had to limit each one's calls to just twice per month. To better serve his audience, Jepko and his devoted wife, Patsy, began a KSL signal-wide Nitecap club (with an annual convention) that soon branched out into smaller Nitecap chapters. Jepko also launched a magazine, *The Wick*, a print version of his down-home, inspirational, recipe-laden, and over-the-fence good news radio show.

Four years after his show's debut, Jepko was approached by other broadcasters who wanted to capitalize on his niche. A 250-watt phoenix station signed him, and then 50-kW WBAL Baltimore and Louisville's hefty WHAS also came aboard for the overnight adventure, in what a *Tucson Daily Citizen* writer dubbed, "happy conversations from wholesome people."

By the mid-1970s, Jepko's domain added up to over two million listeners a couple dozen staff members to handle phone calls, the magazine, and nominal merchandise (Nitecap ball

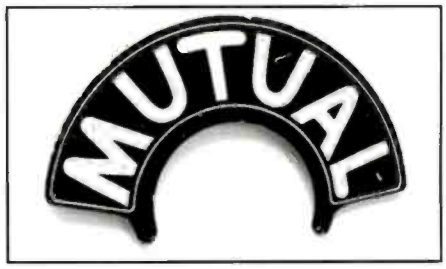
point pens and club membership pins), modestly plugged in print and over the airwaves.

A Feeling That Wasn't Too Mutual

The 1970s was also an interesting time for a long also-ran radio network, The Mutual Broadcasting System. It did some notable things while attempting to kick free of that dubious brand-X distinction. For example, Mutual added Hispanic- and African-American-focused programming to its repertoire with the debut of the Mutual Spanish Network and The Mutual Black Network in 1972. Shortly thereafter, it shut down its New York studios and shifted to a Washington, D.C. base.

An aggressive schedule of twice-hourly weekend sports reports was fed to Mutual's enthusiastic affiliates, and in 1975, the network figured it had found an offering for the growing overnight radio audience. During the first week of November, a Mutual announcer intoned, "From Salt Lake City, high in the Mountain West, The Mutual Broadcasting System presents *The Herb Jepko Nitecap Show*."

In retrospect, the analog phone lines often sounded tinny and the typical senior citizen on the line spoke rather slowly about nothing in particular, other than expressing appreciation for having somebody to talk with (or simply have someone listen) in the middle of the night. Among the few surviving hours of Jepko aircheck is a *Nitecap* segment in which an old Houston woman named Dorothy painstakingly read her suggested FCC disclaimer for folks tuning in: "Warning, it has been determined that listening to the *Nitecap Show* has become addictive, and as a result one may suffer withdrawal symptoms when unable to receive the program." Herb thanked her for the sentiment and then moved to another old-timer on the next available circuit of more than 20 blinking lines.



The microphone flag shown here likely hails from a 1940s Western Electric mic and Mutual's New York association with WOR there. It would have been considered an antique by the time the network moved from the Big Apple to the nation's capital and experimented with Herb Jepko's style of overnight radio.

Mutual big shots, however, were not impressed with Jepko's top-heavy audience demographics and what they considered mundane subject matter. He was ordered to make the show more exciting—or else. Jepko had no desire to desert his listeners, so Mutual essentially did it for him, pulling the *Nitecap Show* off its network in May 1977. Eventually, after additional experimentation with controversial hosts like Long John Nebel, the network's overnight timeslot went to Larry King, who fulfilled Mutual's wishes for a program with some contemporary subject content and topical interviews.

As for Jepko, he temporarily re-banded the relationship with several holdout stations that continued carrying his KSL show, but even that arrangement died when KSL dropped the aging program during the summer of 1979. In the early 1980s, some loyal Nitecaps encouraged Jepko to resurrect his show on an El Cajon, California, facility and a couple other modest broadcast outlets. He tried, but by 1982 realized that without wide coverage, available callers are limited to a few old faithfuls.

Halper says Jepko "grew increasingly more depressed" about the changing radio industry, the passing of his son, and personal health issues. He died in late winter 1995 at age 64, younger than many of his listeners were in his show's heyday. Back then, not even Jenna Cooper's Aunt Gretchen would have had a clue that her favorite radio personality might need the brand of genuine encouragement that he so freely offered all night over KSL and throughout North America.

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

Ham General Upgrade Tests Soon To Implement New Question Pool

by Gordon West,
WB6NOA
WB6NOA@arrl.net

If you're a Technician Class amateur radio operator and are thinking of upgrading to General, you may be concerned that the new General Class examination beginning July 1, 2011, will be a lot tougher. This is a common rumor that usually spreads before the yearly cyclic ham exam changes in July.

Yes, the current General Class question pool runs out June 30 of this year. And, yes, your current Element 3 General Class materials will no longer reflect the new General Class upgrade examinations beginning July 1. But no, the new General Class question pool is *no more difficult* than the question pool you have now. Here are the major changes in a nutshell:

198 test questions modified
57 brand new test questions
104 deleted old questions

A new question pool for the General Class Element 3 upgrade exams will be in effect after July 1, 2011, but don't panic—if you've been studying the current material, you may only encounter three unfamiliar questions.

When comparing the current Element 3 sample tests to new General Class Element 3 upgrade exams after July 1, 2011, you might only get three exam questions that you hadn't seen in the old study pool. You could still easily pass using the older material. Although, if you're taking the General Class upgrade exam after July 1, 2011, and haven't yet gotten your study materials, get the new version that will show up around mid-April, in time for the Dayton Hamvention.

New questions for General upgrade exam do *not* focus on any new mathematical equations. You won't need a scientific calculator, and the one and only schematic diagram remains the same.

The new question subjects include:

- What to do before transmitting
- Upper and lower General Class frequency edges
- 10 meters FM
- 80-meter band data frequencies
- Data mode terminology
- Transceiver switches like filters, split, ATT, and PROC
- The importance of ALC
- Analog vs. digital test meters
- SWR analyzers
- Common mode RFI
- Good grounding
- Capacity hat and corona balls
- Software-defined radios
- Solar panels
- DIN connectors
- Phase locked loop
- Common sense questions about touching antennas or running your emergency generator in the living room

The new Element 3 General Class question pool takes about 40 current questions and modifies how they're worded for easier comprehen-

Author Gordon West, WB6NOA, poses with a very happy Pandora Nash-Karner, KE6ZVD, after a successful upgrade exam.

sion. The Question Pool Committee correctly typos and edited for clarity—there'll be no more questions that read "which of the following is NOT...."

The "refreshed" Element 3 General Class question pool was developed by fellow hams, volunteering for the National Conference of Volunteer Coordinators' Question Pool Committee (NCVEC-QPC). Committee members are Jim Wiley, KL7CC, Roland Anders, K3RA, Perry Green, WY1O, and Larry Pollock, NB5X, who accepted valuable additional contributions from Ward Silver, NØAX, and a few of my own suggestions.

The QPC is always looking for more proof readers, so don't feel left out. Every year, announcements in magazines encourage hams to contribute to the update of ham question pools. With almost no input arriving, other than from these question pool committee members, they are open to any and all suggestions, including those pertaining to next year's Extra Class, Element 4 update.

If you are one of the thousands of Technicians Class operators who plan on upgrading this year to General Class, don't panic and don't believe the rumors that any test taken after July 1, 2011, for General upgrade will be much harder. It's just not so! If you've been studying the current pool for Element 3, then get your test out of the way before June 30, and you'll be set to go with no surprises. If you're just making your mind up now to upgrade to General, go for the new refreshed materials for the test after July 1. Expect to see new training materials showing up in April and May.

Just be prepared and you'll avoid surprises for General Class testing.

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Report From The Field

by Bill Price, N3AVY
chrodoc@gmail.com

"If we were going to compare this to surgery, we might say he connected the feet to the wrists, the hands to the earlobes, and the nose to the navel."

Fiber optics: The future of communication. Yeah, right. Never could so many circuits be compromised and disrupted by just one shovel—even a manually operated shovel. But this time it wasn't a shovel; it was an upgrade. In my HPJIE* older, simpler fiber optic cable runs needed to be removed and replaced with newer, more complex systems.

But wait! There's more! As I write this from the site of destruction, I ask you to compassionately consider my current plight.

Somehow the contractor hired to do the job didn't quite get it right. After cutting and removing all the older, simpler cable runs, he didn't quite replace them the way they were. If we were going to compare this to surgery, we might say he connected the feet to the wrists, the hands to the earlobes, and the nose to the navel. Mr. Potato Head would run away covering his eyes.

I know how fiber works. You modulate the light, which gets squirted into one end of the fiber cable, putting information onto it much as you modulate the carrier of a radio signal, then demodulate it at the other end. Loss and interference are minimal. But you don't solder fiber optic cable. Sometimes you just touch the two ends together after cleaning them thoroughly; other times you "weld" them together, using heat. Another option is glue.

These operations would be best carried out in a "clean room," but since a splice in the field (literally) can't be taken into a clean room, the field technician has to create as clean an environment as possible. Two days before I sat down to write this, that meant he was working in a manhole above which 40-mph winds were blowing dust, dirt, trees, and small cars around. The job was put off until the next day.

And that day has come and gone, and despite the contractors putting in many man-hours of billable time, the new cables remain "uninstalled." My HPJIE requires that I observe the receiving end of this system and advise those in charge that the connections have been made properly, and the signal is ending up where it should, and in nice condition (a technical term meaning that the gozoutta is pretty much like the gozinta). I have been waiting.

Waiting, in this case, means driving 35 miles in unpleasant conditions, announcing my arrival, unlocking a bunch of doors, and trying to watch some indicators and screens in hopes that something about them will change. Today is day three. I brought my harmonica along today. I'll practice some of the tougher tunes, like Duke Ellington's *Take the 'A' Train,* with some of its challenging runs.

"This will all be done this morning," our guy who supervises the contractors told me. Then he looked over his glasses at me and told me to knock wood.

FLASH! I've just been told that "they" have found the problem. That is to say that they have located the building in which the problem will likely be found. It makes me want to shout "huzzah!" and run around the room throwing confetti into the air.

But I know better. Once they arrive at the building in question, they must then figure out what is causing the signal to stop moving at that point. For this I got up early and rushed in here. I am also losing faith in "them" to diagnose and repair the problem.

And did I mention that I'm on vacation? Yes, this is the third day of that vacation which has been *scrod* (in Boston, that's a fish, but for me—it's the past perfect tense) up by the technicians charged with making this little modification.

I wanna go home. I wanna sleep in. I wanna have a leisurely breakfast, followed closely by a leisurely lunch, after which I'll retire to my liberry** to ponder something by Benchley, or Thurber, or Dave Barry (a person's gotta have heroes, y'know). I want to go out and feed dog biscuits to the neighbor's Chihuahua and commune with nature.

Those of you contemplating a life in the exciting world of technology and pursuing your own HPJIE would be well served to consider this "report from the field" as a warning. It's not all lollypops and roses up here in the stratosphere, you know. Sometimes it can get pretty ugly, but if you want to carry the screwdriver and tweaking tool proudly in your pocket-protector, you've gotta pay your dues. Stay safe out there.

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