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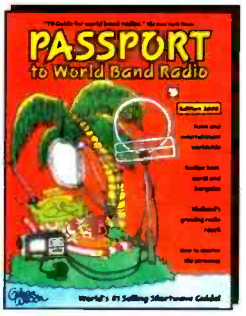

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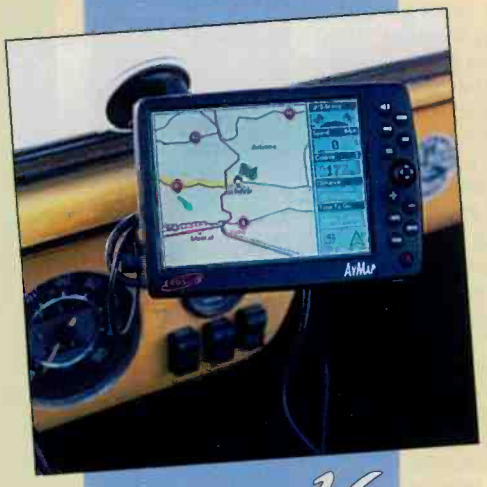

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On The Cover

Pop'Comm writer Alan Dixon, N3HOE, installs the Kenwood IBOC high-definition radio receiver in his SUV. You, too, can be ready when digital broadcast radio comes to your area. Be sure to read his exclusive article on the Kenwood receiver and control head beginning on page 8. (Photo by Larry Mulvehill, WB2ZPI)

Visit us on the Web: **www.popular-communications.com**

by Harold Ort, N2RLL, SSB-596

Coalition Of The Misinformed

Interesting isn't it, how the Big Boy And Girl international shortwave broadcasters (Voice of America, British Broadcasting Corporation, Swiss Radio International) all seem to have lost touch with the reality of the benefits of shortwave and are either cutting back or completely eliminating many broadcasts. Yet in another radio dimension there's small-by-comparison Radio Tirana of Albania that recently acquired a not one, but two 100-kW transmitters. Then there's the fact that many religious broadcasters continue to *expand* on shortwave, reaching countless millions every day!

I've always believed that folks in high places—big bureaucracies, more specifically—frequently lose their grip on common sense shortly after getting their first paycheck. The need to "form a committee" and have experts flown in from all corners of the globe seems to be the way to tackle otherwise relatively simple problems today. Somewhere from the moment the word "cutback" is mentioned at the water cooler to the point when the Head Guru's chair is pulled out at the conference table, someone opened the window and common sense flew away.

But they can't fool Marie Lamb. They never could. They can certainly ignore common sense, and very often, they do.

As we enter a new year, the most recent victim of the budget axe is RVi, Radio Vlaanderen International, Belgium. The shortwave voice has been around since 1934, but as we all know, times change and so does our view of the rest of the world. According to information on its official website, RVi's management is no longer investing in its own shortwave facilities. The station now favors satellite broadcasting that covers North Africa, most of Europe, and the Canary Islands.

"Traveling with the times...we are no longer a radio station, we are now what is called a media organization."

Ten years ago RVi also began on-demand Internet broadcasts. And while they "continue to explore new ways to reach listeners" they are indeed, as they say, "traveling with the times...we are no longer a radio station, we are now what is called a media organization." Therein lies the problem. No one asked Marie what she thought, but now that the window has been open for a while, Belgian Media Minister Geert Bourgeois is putting on the proverbial thinking cap—and asking for our help.

Mr. Bourgeois says it's all "very sad," but I can't help wondering why all the drumbeating now after-the-fact. He wants listeners and viewers to help decide the future of RVi, but it's probably too little, too late. Four years ago their management sealed its own fate by no longer investing in its shortwave facilities, deciding to rely entirely on relay stations in foreign countries, including the former Soviet Union.

This year the Flemish government will enter contract talks with VRT, the public radio and television station of the Flemish community in Belgium, on its future, and Bourgeois will be going to bat organizing a debate in Flemish. Clearly the results will impact RVi's shortwave future.

Putting On The Gloves

I suspect that despite fighting the good fight, VRT's shareholders—six million Flemish people—will enter radio's *Twilight Zone*, following the VOA's lead by example: The Internet and satellites are where it's at and shortwave is a thing of the past. Despite the fact that shortwave is a time-proven medium that doesn't require an Internet hookup, despite the fact that it's free, our mind is made up, thank you.

One of the many RVi listeners posting messages on RVi's website, the aforementioned Marie Lamb, hit the nail on the head. We're using Marie's words below in the hopes that the folks in Belgium will realize there are listeners out there who consider RVi's information invaluable and entertaining. Here's what Marie had to say:

I have always found RVi to be a station that is informative, enjoyable and responsive to listeners. [Taking services off the air] is not a wise move...in such turbulent times when information is so important. So much of the world is still unable to use the Internet and in countries that are more "'wired" service can be disrupted in times of turmoil as residents of New York City learned on 9/11/2001. Calm, objective, friendly voices from around the world are more important than ever now, and it would be a shame to lose yet another one when it is needed the most...the world needs good services like RVi now more than ever!"

We couldn't agree more with Marie's comments. Unfortunately, though, the more international broadcasters that dutifully line up behind the VOA and BBC, looking to them for insight and leadership, the more international broadcasting starts to appear like a Coalition of the Misinformed.

If you feel, as Mr. Bourgeois said, "inspired to help us" please contact him at kabinet.bourgeois@vlaanderen.be and voice your comments about saving RVi. You can also contact him the old-fashioned way by writing to Media Minister Geert Bourgeois, Alhambra Building, Emila Jacqmainlaan 20, 1000 Brussels, Belgium.

Take a stand, or please sit down; but if you're silent, don't complain after the plug is pulled, because then you're a big part of the problem and as misinformed as the Coalition.

Editor's Note: We know you've missed them! Both *Shannon's Broadcast Classics* and *Broadcast Technology* will return in February.

OUR READERS SPEAK OUT

Each month, we select representative reader letters for "Our Readers Speak Out" column. We reserve the right to condense lengthy letters for space reasons and to edit to conform to style. All letters submitted must be signed and show a return mailing address or valid e-mail address. Upon request, we will withhold a sender's name if the letter is used in "Our Readers Speak Out." Address letters to: Harold Ort, N2RLL, SSB-596, Editor, Popular Communications, *25 Newbridge Road, Hicksville, NY 11801-2909, or send e-mail via the Internet to popularcom@aol.com.*

Surge Protection: We're All Learning!

Dear Editor:

Kudos to you and *Popular Communications* for the invaluable information which you provide, both monthly in your publication and online in response to e-mails from readers like myself. While I am a licensed engineer with a background in broadcasting (I started in 1985), I am still a neophyte in ham, marine, and terrestrial radio when it comes to topics like grounding and lightning protection. Unfortunately, like many people that have made radio their hobby, I found out that I didn't know as much as I thought—the hard way.

Last summer my wife and I went away overnight, leaving several electronic appliances plugged in. While I knew that a storm was approaching, I left these plugged into the surge-protected power strips, as I had many times before and without incident. As we had weathered several electrical storms in the past with these same strips, I felt fairly confident that my Grundig Satellite 800, other radios, and other electronic devices would be safe. The surge protector was very similar to the one which my computer was plugged into, which was made by a leading manufacturer that offered a $50,000 guarantee and said that they would replace the items that were damaged.

When we returned from our trip to the Lake Erie Islands, we discovered the digital cable box, the Grundig, a 2-meter handheld, and my marine HT were destroyed. The power strip only protected the television set, which was plugged into the last outlet on the strip. I promptly called my insurance agent (who said that because the strip manufacturer offered a $50,000 guarantee, it was up to them to pay out on the claim and my responsibility to see that they make good. I spoke to several people at the manufacturer who said that I had to have a claim filed with my insurance company and that they needed to see a copy of the claim, at which point they would decide who, if anyone, was liable. Despite having provided photographs of the damaged goods, proof of purchase, a copy of the claim, and even shipping the damaged goods (securely packaged and insured by UPS), I have never received any compensation by my insurance company, the manufacturer, or their insurance company.

There are several lessons to be learned: Just because nothing has happened in the past, doesn't mean that nothing will in the future. Lightning strikes at odd times and weird places; don't take things for granted, ground your equipment, protect it from surges, and disconnect it when not using it. If a manufacturer or dealer's offer sounds too good to be true, it most certainly is. Power strips rely on MOVs (as noted in the article in *Pop'Comm*) and offer very limited protection, if any.

I am now purchasing several surge protectors for my radios, televisions, and computer and regularly disconnect then when going away when bad weather is predicted, albeit after a hard learned lesson.

Michael L. Stranathan
KC8WUC/WPXR576

Read About It In *Pop'Comm*

Dear Editor:

I'm a scanner, ham, shortwave, MURS, FRS, CB, and GMRS enthusiast. I have *Cop Talk*, *Monitor America*, *Passport to Worldband Radio*, *Police Call*, and lots of CRB research publications. All are very informative on frequencies.

I just received my first edition of *CQ* magazine and have already ordered a catalog from the good people at Burqhardt Amateur Center. I always note that I read about them in *CQ* or *Popular Communications*, whichever applies.

As you say in *Pop'Comm*, "Prepared-ness is not optional!" Great advice!

Walter Wallace
Georgia

If It Ain't Broke...

Dear Editor:

It has been said that the last government program that really worked was World War II. To that I would like to suggest we add VOA, which sent out a message of Truth and the American Way. Over the 1945 to 1998 period, VOA slowly eroded the Russian and satellite nations peoples' faith in their failed system of government and brought down the wall. Now VOA, which ain't broke, is scheduled to be fixed to reach a more hip generation who are into TV, even though a little research will prove that there are more radios than TVs in the target area.

Why do we have to keep reinventing the wheel just because round may not be "in" next season?

Bob, KD7KTS
Bandon, Oregon

Dear Bob:

Good question. I wonder if anyone at the VOA or Broadcasting Board of Governors cares to respond.

POPULAR COMMUNICATIONS

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by Harold Ort, N2RLL, Editor, and D. Prabakaran

News, Trends, And Short Takes

Deepening Disarray Over FCC Nextel Deal Seen As Opening For Congress To Tackle Communications Roadblock

Noting that the FCC spectrum give-away to Nextel now is in "serious trouble" and that the company's foot dragging proves that "the so-called 'consensus plan' (pushed by Nextel) was never about helping first responders," the First Response Coalition (http://www.FirstResponseCoalition.org) is urging fire chiefs across the United States to demand action now by Congress on the interoperability communications crisis.

The second major appeal to fire chiefs from FRC came in the form of a joint letter from FRC Coordinator Gene Stilp, who is a volunteer firefighter, EMT, and vice president of the Dauphin-Middle Paxton Fire Company #1, in Dauphin, Pennsylvania, and FRC Co-Founder William Fox, who is a commissioner of the Metropolitan Fire Association of New York City. The Stilp-Fox letter to U.S. fire chiefs stated: "It is clear...that the FCC's plan is in serious trouble. Despite what some have called 'the biggest government give away in history,' Nextel has delayed accepting the plan and is proving that the so-called 'consensus plan' was never about helping first responders—it is about advancing their corporate interests. Nextel has turned its back on first responders as it seeks an additional $700–$800 million dollar windfall for itself in secret meetings behind closed doors. What this means for first responders on the ground is more talk and no action."

The FRC communication continued: "Those of you who are clinging to the Nextel plan, please think of us as your Rapid Intervention Team. We are not causing the delay, Nextel is. The company that has caused the interference is again causing the delay because they want a bigger bailout from the taxpayers and from the FCC. The time for delay is over. Let your Senators and Member of Congress know that it's time to make public safety, first responders and the people we serve their top priority."

The FRC has underscored its call to action with nearly 50 key Capitol Hill meetings, including sessions with members of the U.S. House of Representatives Government Reform Committee, and Select Committee on Homeland Security and the U.S. Senate Governmental Affairs Committee.

The FRC (http://www.FirstResponseCoalition.org) consists of citizens, individual first responders, and advocacy groups who are particularly concerned about first responders having the best possible communications capabilities. The FRC believes interoperability issues must be addressed by the FCC or Congress in any plan that reorganizes spectrum and, as a result, will disrupt public safety communications systems across the country.

Stupak, Experts Urge Leadership, Funding To Resolve National Communications Interoperability Crisis

Rep. Bart Stupak (D-MI), a member of the House Energy and Commerce Committee and co-chair of the U.S. House Law Enforcement Caucus, today joined other experts at a New Millennium Research Council (NMRC) panel presentation in calling on Congress and the Administration to act now on public safety communications interoperability issues.

In his remarks, Stupak said: "Despite the creation of the Department of Homeland Security and grant programs for first responders, funding for modernizing the communications systems has fallen far short of the estimated $18 billion that is needed to make the nation's public safety agencies fully interoperable." He cited as evidence the Bush Administration's federal budget allocations for first responder communications interoperability in the fiscal years 2004 and 2005, which amounts to "zero, nothing."

Rep. Stupak said there must be a guaranteed funding stream for communications grants, and he is pushing legislation to create a communications interoperability trust fund. He called on the Administration and Congress to provide a long-term plan on how to make our nation's public safety agencies all interoperable. "Public safety is not an issue for the Administration and Congress to be dragging its feet," Stupak said. "But here we are three years after 9/11 and we are still at square one."

The NMRC panel event focused attention on the lack of interoperable communications for America's first responders and possible strategies for overcoming this critical public safety issue that was highlighted on 9/11 and has not yet been resolved. "I hope that this debate furthers a better understanding of the key issues and encourages actions that will help first responders better communicate to keep our communities safe," said Allen Hepner, executive director of the NMRC.

David Boyd, director, SAFECOM Program Office, Department of Homeland Security, said there was "incredible costs" associated with achieving communications interoperability. He cited gateways as a possible solution between different systems and estimated that there is currently an installed basae of public safety agency communications equipment at the local and state level of $50 to $70 billion that would be difficult and expensive to move. It's not only a technical issue but one of people and processes, according to William Jenkins, director, Homeland Security and Justice Issues, Government Accountability Office. One issue is defining the role of the federal government and states.

Viktor Mayer-Shoenberger, associate professor of public policy, Harvard University Kennedy School of Government, noted that there was a "pattern of history loops" where interoperability issues come to the surface during disasters but then nothing is done about them until the next disaster. "We need to get out of that loop and recognize that organizational, technical, and historical problems are linked," he said. "If some of these problems are addressed others might fall away," he added.

The NMRC is composed of a network of policy experts who develop workable, real-world solutions to the issues and challenges confronting policymakers. Its work has focused primarily in the fields of telecommunications and technology. For more information, please visit http://www.newmillenniumresearch.org.

New 6-Meter Beacon In Indianapolis

The Legion of Indianapolis DXers recently activated a new 24-hour beacon at 50.069 MHz. Located in grid EM69WT in the heart of Indianapolis, the 12-watt beacon uses a turnstile antenna (horizontally polarized) at 70 feet. The message, which repeats at 10-second intervals, is as follows: "VVV DE W9VW/B W9VW/B EM69WT INDY." Reception reports are welcome and may be sent to The Legion of Indianapolis DXers, P.O. Box 18495, Indianapolis, IN 46218 or e-mailed to Brian at bdsmith@indy.net.

BBC And SLBC Pay Tribute To Broadcaster Vernon Corea

The BBC and the Sri Lanka Broadcasting Corporation led tributes to one of South Asia's outstanding broadcasters, Vernon Corea, on the

second anniversary of his death. Veteran broadcaster Corea died in New Malden in Surrey in the United Kingdom in September 2002 at 75 years of age. Corea was appointed the first Ethnic Minorities Adviser to the BBC in 1978. He also presented the popular "London Sounds Eastern," program on BBC Radio London 206 in the late 1970s. Recently *The Hindu* newspaper of India placed Corea among the greatest broadcasters of the world. He was one of the most popular Ceylonese announcers in India in the 1950s and 1960s, and Indians stayed up to listen to his "golden voice." Corea was invited to present the first Asian radio program in English on BBC Local Radio, in 1977, a first for the BBC.

Gay Broadcast Prompts Fine

Ugandan authorities slapped a $1,000 fine on a private radio station there for broadcasting a show that featured three homosexuals talking about their lives in Uganda. The show contained no explicit sexual content, but the Ugandan Broadcasting Council fined Radio Simba FM for "promoting pornography and corrupting public morals," said Information Minister James Nsaba Buturo. The show featured two gay men and a lesbian talking about discrimination in the East African country and appealing to listeners to respect their rights.

Surround System For HD Radio Demonstrated

Communications innovator Telos/Omnia and international research lab Fraunhofer IIS have carried out the first public demonstration of a new surround system for HD Radio at the NAB Radio Show in San Diego. This system delivers impressive full surround audio without compromising the stereo signal in any way. HD Radio, the new digital radio broadcast standard, works in the traditional FM and AM channels to deliver high-quality digital audio to listeners. About 100 radio stations are already on-air using HD Radio technology, with many more planning to begin HD Radio broadcasts. The key to the system is that all the pieces of audio that go to the surround channels are present in the two stereo channels. Additionally, there is an ancillary data channel used for transmitting spatial information. The surround decoder, if present in the receiver, uses this information to move the pieces of audio to their respective positions, recreating the original multi-channel sound. In the system presented, 80 kB/s are used for the stereo channels and 16 kB/s for the surround information.

UK Radio Amateurs May Be Allowed To Use 7100 To 7200 kHz

UK media regulator Ofcom has issued a notification of a proposed change to the UK amateur radio license, which would extend the current 7-MHz band from 100 kHz to 200 kHz between 7.000 and 7.200 MHz. The portion between 7.1 and 7.2 MHz will be "secondary," however, meaning no interference may be caused to other services. Currently, 7100 to 7200 kHz is used for shortwave broadcasting, though not in the Americas where radio amateurs are already allowed to use 7100 to 7300 kHz. The change is in line with decisions made at international levels. The plan is that eventually 7000 to 7300 kHz will be used worldwide for amateur radio.

SWR To End Shortwave Relays On 6030/7265 kHz

German public broadcaster SWR has announced that it terminated shortwave relays of its programs in October. SWR 3 and SWR cont.ra are broadcast on 6030 and 7265 kHz. The decision to stop shortwave distribution is for cost reasons, and also because SWR has introduced satellite and Internet distribution of its programs. With the closure of these services, more than 50 years of shortwave transmissions from southwest Germany comes to an end.

Radio Six International Increases Its Programming

Following its successful launch last fall as Scotland's first international shortwave broadcaster, Radio Six International has increased its programming from one to two hours a day. The mix of Scottish news, views, music, and culture alongside a unique blend of music from unsigned performers around the world will be available to shortwave radio listeners in the United States, Canada, Mexico, and parts of Western Europe on 5105 kHz every evening from 7 to 9 p.m., eastern standard time (2300 to 0100 UTC).

Zimbabwe Foreign Minister Accuses U.S., UK, Netherlands Of "Poisonous" Broadcasts

Zimbabwean Foreign Minister Stan Mudenge has warned the United States, the United Kingdom, and the Netherlands to stop supporting radio stations that are airing "daily poisonous anti-Zimbabwe propaganda" from their bases in neighboring countries and Europe, reported the Zimbabwean state-owned *The Herald* on its website. He dismissed the broadcasts as "wicked," saying they are meant to destabilize Zimbabwe. Mudenge's ire was directed at programs produced by three stations, Netherlands-backed Voice of the People, VOA-affiliated Studio 7, and London-based ShortWave Radio Africa.

APCO Honors Public Safety Professionals Suffering From Recent Storm Damage

The Association of Public-Safety Communications Officials (APCO) recently recognized the work of the public safety communications professionals in the southeastern United States and the Cayman Islands during the recent storm activity in those areas. "All first responders, including public safety telecommunicators, are relied upon to protect our citizens in times of emergency. The recent tragedies of Charley, Frances, Ivan and Jeanne demonstrate that emergency communications personnel will be there for our communities even when their families and personal property are at risk—a sign of true professionalism and commitment," the statement from APCO International President Greg Ballentine said. "While the storms have diminished, the impact on public safety in the affected areas will continue for weeks."

APCO International recognizes that the work of public safety telecommunicators and emergency responders is most often noticed during tragedies, such as the recent hurricanes. APCO International, however, encourages the public to acknowledge the work of their local first responders not only in this time of recovery, but everyday as they work to help preserve the public's safety. Several APCO International members and public safety communications agencies are supporting the work of the burdened agencies by collecting and distributing money for those affected by the storms' aftermath. In particular, the Montgomery County Department of Police 9-1-1 Emergency Communications Center and the APCO Florida Chapter have made contributions to the agencies. In addition, the APCO International Atlantic Chapter also made a contribution to the Cayman Islands, which was hit by Hurricane Ivan.

APCO is the world's oldest and largest professional organization dedicated to the enhancement of public safety communications. ■

Pop'Comm Exclusive: Kenwood's IBOC Digital High-Definition Telematics Broadcast Radio Receiver And Receiver Control Head

Be Ready For HD Radio When It Comes To Your Area!

By Alan Dixon, N3HOE/WPUC72Ø/KST8678

You learned about it right here in *Pop'Comm*, but are you ready for it? Are you ready for digital? Our writers have discussed various digital audio transmission modes and methods in numerous columns and articles for years. *Pop'Comm* has described digital transmission technologies that may have been, or ultimately will be, used for shortwave broadcast, the Amateur Radio Service, GPS data streams, wireless phones, and, of course, terrestrial radio broadcasting, as well as for telematics applications.

In the world of broadcast radio technology, digital audio is already here, in the form of subscription satellite services. These services have been on the market for about two to three years now. Satellite digital radio offers some awesome features not available in conventional land-based radio broadcasting. But satellite radio *does* require ongoing payment of a monthly subscription. And, if history is any teacher, we can surmise that subscription rates will only increase as time goes on. If that's not enough, then try speculating as to how long so many select commercial-free channels will remain as such.

But if you think that *satellite* radio broadcast receivers are the latest things in cutting-edge digital consumer electronics, you're wrong. Even though satellite radio is still in its infancy—and as excellent as it surely is—it's already by comparison (literally speaking), yesterday's technology. Surprised? What could possibly be newer in digital radio broadcasting?

How would you like to enjoy pure digital music and information just about anywhere in the United States, indoors, at home, and at the office, as well as when driving under overpasses and even in parking garages (places where satellite signals often null)? And how would you like to have local traffic reports and weather? Better yet, how would you like to get this service *for free*, rather than paying a monthly subscription forevermore? Well, now you can!

Digital radio transmitted from traditional land-based radio AM and FM broadcast station facilities is just now becoming available. And you can be among the first to tune in the new digital broadcasts. Remember, *Pop'Comm* first broke the news of AM and FM stations starting the going-digital process over *four years* ago. Late in 1999, the FCC formally proposed adopting the In-Band-On-Channel (IBOC) protocol for AM and FM digital conversion. Not long thereafter the Commission

Take a look at Kenwood's new HD Radio system installation. Here, the Kenwood KDC-MP425 CD/MP3/WMA receiver functions as the control head of the system. Notice that the faceplate is already labeled as both digital IBOC "HD Radio Ready" and digital satellite "Sirius Ready."

The Kenwood KDC-MP425 receiver control head unit comes with an infrared wireless remote control. While at first this may seem like overkill for use in an automobile, it is a necessary accessory. This is because there is no room for a digital numeric keypad on the control head itself, hence the keypad on the remote.

The CD slot on the KDC-MP425 is behind the fold-down faceplate.

approved the model, and it's now the single digital standard for the AM and FM bands in the United States.

Developed by iBiquity Digital Corporation, IBOC is also known simply as HD Radio, which stands for "high-definition radio." Primarily used for marketing purposes, this moniker was chosen to present a familiar term to a somewhat digitally confused consumer public. High definition instantly evokes an image of digital technology, since it's already used to describe ATSC Digital Television (Advanced Television Standards Committee DTV). While almost no one actually has an ATSC high-definition DTV receiver (with the specified short/wide aspect screen), it's still a highly recognizable term.

HD Radio will doubtless prove a highly marketable name for consumer digital radio receivers for the AM and FM bands, much the way the XM satellite radio name seems to have caught fire among high-tech enthusiasts. But to be technically correct we must understand that, regardless of sampling rate and processor bit count, digital audio will never be higher definition than baseband audio. This is because no matter how many iterations any given digital sampling mode may produce, it will always be less than the infinite number of iterations of an analog signal. This is demonstrated by the general theorem of calculus, the mathematical principle required for digitizing a sinusoidal wave. Still, I must concede that baseband audio is one thing; modulated and demodulated, transmitted and received audio, is something else again. Point is, any electronic processing of an analog data stream allows room for error in reality, if not in theory.

Another technical point to remember is that radio stations transmitting digital-only signals in the AM or FM bands cannot correctly be called AM or FM broadcasters, as pointed out by iBiquity in their IBOC technical specification manuals. In the near future, we will have to get into the habit of referring to HD Radio stations operating in the FM band as *VHF stations*. Likewise, we'll have to call HD Radio stations transmitting in the AM band *mediumwave*, or MW. Frankly, the United States is long overdue in thinking of our AM band as the MW band. Much of the rest of the world, especially Europe, has been calling it that all along. Many European-branded high-end broadcast receivers have for decades had their AM band switches and AM band preset selector buttons labeled "MW." Likewise, Europeans often refer to the FM broadcasting band as "VHF." Then again, for now we may still correctly refer to the MW band as the AM band, and the VHF broadcast radio band as the FM band. Why? Because that's what these bands are officially named by the FCC. Confused now? Simple: The bands may be "AM" and "FM," but digital broadcasters therein are "MW" and "VHF," respectively.

HD Radio Digital Receivers Just Coming To The Market

Right now there isn't much to choose from yet. Kenwood was first on the market with a mobile HD Radio receiver system; next to market, to the best of my knowledge, was Panasonic's CQ-CB9900U CD/MP3/WMA dashboard receiver. These are still the only two I've found available as of press time. The Panasonic unit is fundamentally different from the Kenwood in that the entire HD Radio system is contained within the dashboard unit. Kenwood's street price is also hundreds of dollars less than Panasonic's.

I opted for Kenwood's KTC-HR100 hybrid digital/analog tuner for the AM and FM bands. This product was initially introduced to *Pop'Comm* readers in our "Broadcast Technology" column in the March 2004 issue, though at that time only three paragraphs could be devoted to this news, and no photographs were then available.

I liked the Kenwood component system better than Panasonic's self-contained version for two reasons. The first is security. A thief may steal a dashboard unit in the typical, relatively quick heist. While that item would be a loss, the far more expensive digital tuner is hidden away from prying eyes and is far less likely to be discovered by a thief. Trust me, I've had entirely too much firsthand experience. Second, the separate tuner makes future obsolescence a lot less painful financially. Ultimately, the outboard digital tuner could be replaced, or be added to, with whatever the "next latest thing" is. More immediately relevant, though, is the fact that I can upgrade the dashboard receiver head whenever I want to, now or in the future. There will simply be more versatility in equipment choices, it now appears, for less money than if I had to replace an entire expensive system just to upgrade the tuner, receiver controls, or the CD drive.

Pricing was clearly another factor in choosing between the only two available mobile HD Radio systems I found. Crutchfield's price for the Panasonic CQ-CB9900U IBOC HD Radio receiver in the same catalog was a respectable $999.99. You do need to understand that this is not a fair side-by-side comparison, since feature differences between the two, especially those not involving digital radio reception, are considerable. (For a good technical comparison, visit the Crutchfield website.) Now, bearing in mind that I specifically wanted a mobile IBOC receiver with a minimal number of bells-and-whistles, the Kenwood KTC-HR100 HD Radio system was a clear choice.

As you can see from the photos printed here, the KTC-HR100 is not a dashboard unit. Rather, it is a "black box" component tuner chassis for an advanced receiver "control head" that supports digital CD music and text. Most of these control head receivers will have audio file and text (as well as file and folder) read capability in CD, MP3, and Microsoft Windows Media Audio (WMA) formats.

To install a complete HD Radio system then, I had to choose a compatible Kenwood mobile AM/FM CD dashboard receiver. According to Kenwood product information, any Kenwood receiver marked "Sirius Ready" (satellite ready) could also accept the newer KTC-HR100 HD Radio tuner, in place of the optional satellite tuner. Obviously then, so could any Kenwood

I liked the handy storage pocket included in the installation kit I used. I could have mounted a Kenwood 2-meter ham transceiver here!

receiver labeled HD Radio Ready. As it turned out, there are quite a few Kenwood mobile receiver heads that support their KTC-HR100 tuner component, all with different features. There was one item I knew I wanted in the receiver head: Since this IBOC digital audio telematics system would surely be one of the first heard by many people, I insisted on a dashboard receiver head specifically marked "HD Radio Ready."

A Middle-Of-The-Line Unit From Crutchfield

For a wide selection of Kenwood audio products, as well many other brands, I turned to a familiar name in mobile audio, Crutchfield (888-603-2694 or 800-955-9091 or crutchfield.com). Crutchfield has been selling car audio components and systems for over 30 years. Their detailed catalog with equipment feature cross-reference charts takes a lot of confusion out of selecting the right product from among the dozens of mobile audio, stereo, and video products listed. Each component purchased comes with a free wiring harness adapter and free mounting and trim hardware, custom-fit for the specified vehicle into which it will be installed. Free vehicle-specific step-by-step installation instructions, illustrated with simple drawings, are also included.

I could have selected a top-of-the-line unit with many extra features or have gone with a lower-end, less expensive receiver. Since the purpose of this HD Radio project was to explore the new IBOC digital broadcasts in the AM and FM bands, and not to build a 1-kW "Sound Pressure Level" street thumper, I decided on a middle-of-the-line unit. I selected the Kenwood KDC-MP425 compact disc receiver, which supports MP3 and WMA files. This unit permits disc file-and-folder hierarchical file sorting and reads related text data. It allows for future upgrades, such as adding an "outboard" CD changer, Kenwood's 20-GB Music Keg digital media player that holds thousands of tunes, or possibly Kenwood's outboard KTC-WB100 weather band tuner (check for compatibility first), or even a Sirius satellite radio receiver. The KDC-MP425 also has auxiliary RCA-type outputs to accommodate such things as high-power amplifiers and subwoofers, and optional auxiliary inputs are available to conceivably connect a different vendor's XM satellite receiver. Basically, I chose Kenwood's IBOC-compatible receiver head unit because it is reasonably future-proof for the cost.

The KTC-HR100 was listed at $170.99 in the Crutchfield Summer 2004 catalog, though that reflected certain price incentives in effect at the time of order. The outboard KTC-HR100 digital tuner was $359.99 (again, the wiring harness plug/pigtail and dashboard mounting kit, worth $32.98 together, were included free of charge). There was no sales tax except for customers who are residents of Virginia, and most orders over $199 get free three-day shipping. The grand total for everything I needed to replace the original stock dashboard radio with the very latest digital audio telematics receiver was $530.98. (Of course, pricing may have changed by the time you read this, so call Crutchfield for the current numbers.)

The overall cost of purchasing a mobile HD Radio system is a good bit higher than that of buying satellite mobile radio equipment. There is a tradeoff, however. Remember that the chief technical advantage of both IBOC and satellite radio over conventional *broadcast* radio is that the newer services are digital technology (with all that digital services entail). When you invest in *satellite* radio, you will be forever paying a monthly subscription to receive the signals. But with HD Radio, although you may pay a higher up-front cost just to acquire the equipment, that is all you will pay. The IBOC digital broadcasting services are completely free, just as traditional FM and AM broadcast services have always been. For the price-conscious consumer, it just doesn't get any better than this!

The Installation

The Kenwood manual instructions tell you to mount the tuner box in a well-ventilated area. Given the physical layout of our SUV, that posed a challenge. I decided to risk mounting the tuner black box underneath the carpeting of one of the front seats. I deemed the security risk more pressing than any risk of overheating. A forced-air vent duct from the SUV's heating and air conditioning unit is right there. For reasons known better to General Motors than to me, this duct simply terminates into a small, flat vent opening under on front seat, so I cut a slit in the carpet, and some of the forced air from this vent can blow into the space now occupied by the tuner. In regular testing during blistering tropical heat, the tuner chassis never heated up to the touch. Now at press time, months into testing, my KTC-HR100 IBOC tuner is still functioning flawlessly.

Initially this project was to be a fairly simple swap of our SUV's little-used stock Delco/Delphi AM/FM cassette radio with the Kenwood receiver head unit, and the addition of the new outboard Kenwood digital IBOC tuner.

Since part of any proper installation is testing and checking all associated components, I noticed that two of the original speakers seemed to have a rattling sound at certain audio frequencies, so I figured that possibly their mounting screws needed tightening. But upon removing the speaker grilles, I found that the two speakers in question had their cone rim suspensions com-

For security purposes I mounted the Kenwood KTC-HR100 IBOC tuner chassis under the carpeting beneath a seat.

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pletely rotted out. A check of the remaining two "good" speakers revealed that they, too, were rotted completely through! This was an unexpected complication since this stock audio system had very little use in a vehicle with extremely low mileage, and which spends the vast majority of its life—day and night—parked in a garage, out of the elements. The most important rule of troubleshooting is to expect the unexpected! I decided to upgrade the worn-out factory dual cone paper speakers with Pioneer polypropylene cone coaxial speakers. I found replacement speakers, priced competitively, at a local Wal-Mart store. The price turned out to be a couple of bucks more than I would have paid at Crutchfield, but I needed them right away! Cutting into or splicing a vehicle's stock wiring harness raises vehicle warranty issues and makes future electronic upgrades slightly more complicated. Happily though, I was able to fabricate connectors and pigtails to fit the SUV's speaker wiring plugs, using standard slide connectors of correct widths and heat-shrink tubing from my massive miscellaneous parts box. That solved the speaker problem nicely.

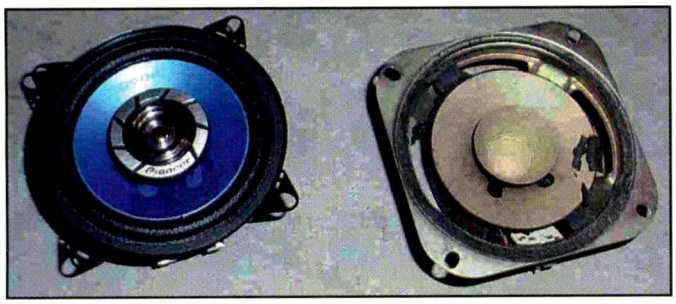
Dashboard installation of the new Kenwood receiver control head would have been extremely simple with the custom-fit installation and mounting kit provided by Crutchfield. My vehicle's factory radio was mounted in a double- size DIN console opening. And, as you may expect, the Kenwood KDC-MP425 head unit fits into a *single* standard-size DIN opening, as found in the vast majority of cars and trucks. The included mounting kit contained a handsome textured black decorative panel to cover the soon-to-be-unused lower DIN opening. I wanted something more versatile, however. Many of these car stereo installation kits come with a storage pocket, instead of a blank panel. These pockets are good for stashing CDs, tapes, notebooks, and other small items. I noticed that the local Wal-Mart carried the well-known Scosche installation kit, and that the kit specified for my SUV was pictured on the package as having the desired storage pocket. So I went with that.

Unfortunately, installation turned a bit more complicated at this point. The Scosche kit was listed as fitting quite a few different vehicles, and included numerous pieces of hardware to accommodate these. As it happened, the mounting face panel for the new receiver head in my particular vehicle did not have a pocket. The very nice storage pocket included was for other vehicle and stereo models. My momentary disappointment quickly turned to obstinate determination as I looked over the various pieces of hardware, including the original equipment factory radio-mounting bracket.

Homebrewing A Mounting Bracket!

After mulling over various possible configurations, I realized that I could re-drill the factory mounting bracket to fit both the new receiver head, and one of the several sets of pocket mounting brackets. When this much was complete, I could see that these pocket mountings did not fit securely into the pocket mounting slots in the somewhat modified mount. I simply added a few drops of Super Glue where needed, and the entire assembly (consisting of the new receiver control head bolted into the original equipment wrap-around metal mounting bracket, and my modified storage pocket assembly) then bolted securely into the original bracket.

This finished assembly proved very simple to handle when connecting cables and was almost effortless to slide into place in its console opening, then to bolt to secure. In this installation, I believe the



Good thing I checked to see if the existing speakers were okay! The cones on the originals had nearly rotted away. I replaced all four of them with Pioneer coaxial speakers.

modified factory metal bracket turned out to be much stronger than the plastic mountings found in both installation kits I had considered. Additionally, the factory bracket has a metal stud on its backside that fits into a socket mounted on a support bar within my vehicle's dashboard assembly. This added extra stability and strength.

What's It Sound Like?

With installation completed, it was time for the long-awaited test to see what IBOC HD Radio actually sounded like—and read like! I had waited for this moment since the FCC made a firm proposal to adopt the IBOC standard, exactly five years ago. I was aware that even before I committed to the IBOC project, there were absolutely *no* stations transmitting an IBOC signal within at least 125 miles from my location!

I had downloaded a list of all IBOC stations on the air in this region in the Southeast United States from the iBiquity website (www.ibiquity.com). What I had discovered was that even the nearest major metropolitan area, some 50 miles west of my test location, didn't have a single HD Radio station operating in either MW or VHF broadcast bands. Another big city, roughly 150 miles north, had no IBOC stations either. Two other large urban centers, both some 125 miles away, did have IBOC stations on the air. The city to the southwest had a single VHF IBOC station. Strangely, the equidistant city to the south had several HD Radio stations listed as active, on both MW and on VHF.

Hitting The Road!

The KTC-HR100 can be set to receive only AM and FM signals, or AM, FM, and IBOC signals, or digital-only IBOC signals—in both bands. The latter is very useful for testing. Reception of *digital* stations did not activate any specific indicator on the receiver display. The Kenwood HD Radio system can also be set to search either band in these various modes.

When I arrived at the edge of the metropolitan test area, I parked the vehicle and started to scan the MW band in digital-only mode. The MW band was of particular interest, because digital audio is going to be what ultimately rescues the AM band, by all indications. Standard monaural, double-sideband amplitude modulation has long been obsolete for broadcast purposes (AM remains quite valid for certain communications applications, however). AM transmission is subject to static and other noise spikes, and its broadcast band 10-kHz channel spacing limits audio fidelity noticeably.

My rewards were not long in coming! Scanning the MW band produced a single HD Radio sports/talk station at 560 kHz, operating dual-mode (IBOC and AM). At the fringes of this station's transmission range the digital audio alternately chopped in and then out to complete silence. Nevertheless, the telematics text transmission received was solid copy, displaying the station's call letters rather consistently. The station's AM transmission proved fairly robust at this location when I switched the receiver over to analog mode, indicating that the analog signal generally had a bit more range than the digital signal.

Sounds Excellent!

Since this was mainly a "talk" radio station, music was sparse. Thankfully, I heard some music, mostly commercial jingles and show introductions. Those musical "sound bites" were excellent! HD Radio audio fidelity on MW sounded to me every bit as good as conventional FM broadcast, with no unwanted noise heard, and no arbitrary fading once I moved further inside the station's coverage area. It sure was good to see the stereo indicator light up in the AM band, too.

Some MW characteristics will never change, though. IBOC in the MW band did indeed fade (blank, actually) under bridges and overpasses. (Satellite receivers often suffer this problem as well, unless signal buffering or terrestrial repeaters fill in, at least for short-duration signal obstructions). In the case of IBOC on MW, this is a function of the wavelengths at these frequencies, and has nothing to do with analog versus digital modes.

I did discover some latency in the IBOC MW audio reception. Underpass fades at about 55 mph occurred after I had cleared the overhead obstruction. Manually switching between AM and IBOC modes on MW made this latency easy to hear, and the audio delay was approximately two seconds. This latency also occurs on VHF, detectable also when switching manually between FM and IBOC modes. However, just as with FM broadcast radio, IBOC on VHF does not fade under bridges and overpasses, of course.

As I continued testing in the area, I set the Kenwood KTC-HR100 tuner to digital-only mode on VHF, and proceeded to search this band. Digital signal scanning in either band is far slower than analog-mode scanning, searching perhaps only two or three channels per second. Before too long, though, I discovered three HD Radio VHF stations. Once digital scanning stops, acquisition of signal (AOS) takes another approximately one to three seconds before audio is heard. But, trust me, this very slight wait is well worth it!

I also received text transmission from all three of these stations, each giving their call letters. At this point none of these stations were transmitting any other text information, such as song title, performer, or telematics information like traffic alerts.

HD Radio audio fidelity in the VHF band was indistinguishable from conventional FM. HD Radio proponents argue that VHF IBOC is somewhat superior in fidelity to FM transmissions, but both sounded absolutely excellent, as did MW IBOC. And. Frankly. my own ears—highly skilled in telephonic speech dynamics and audio spectrum analysis, as well as in music appreciation—could not tell the difference among these three bands/modes. I hasten to point out that, while FM broadcast is highly resistant to unwanted noise, VHF HD Radio is totally immune to noise, due to its digital encoding. (Here, again, resistance to mere ambient RF noise should not to be confused with immunity from any and all forms of RFI, to which all digital transmissions are substantially susceptible.)

When operating in dual-mode on either band, the transition between analog and digital signals—as I drove in to and out of the stations' fringe areas from their core areas—was reasonably

smooth, with no audio muting when passing from digital to analog. I didn't notice any gaps in audio going from analog to digital. As you might imagine, the digital latency *was* noticeable, but I didn't find it annoying at all. Switching from analog to digital drops the audio one or more seconds behind, while switching from digital to analog gives the perception of jumping just that much ahead in time.

I continued testing the HD Radio reception on MW well past dark. The FCC tells us that nighttime IBOC transmission after dark has not yet been authorized. I believe that this is because, although the industry has completed testing of IBOC AM band nighttime skywave operation, the Commission is approaching this matter cautiously since what happens in the "laboratory" does not always match what happens in real-world operation. Nonetheless, the FCC will undoubtedly authorize IBOC MW nighttime operation very soon.

I picked up absolutely no IBOC signals at night anywhere in the MW band, including the "X-band" from 1610 to 1710 kHz. I never saw the RDS (Radio Data Broadcast Service) icon light up on the KDC-MP425 receiver head when receiving in standard FM mode. My first thought was that, very likely, there were no FM stations within range broadcasting RDS telematics text. RDS is an auxiliary text data service for FM, whose narrowband digital signal (~1200 baud) is overlaid on one of the sidebands of a station's FM broadcast signal, at the third harmonic of the 19 kHz pilot tone, at 57 kHz. This European-engineered enhancement never really caught on in the United States, but its functions are "standard equipment" in HD Radio technology, on both bands.

Checking the Kenwood product literature, I read that the KTC-HR100 tuner entirely precludes internal tuner operation in the KDC-MP425 receiver head unit. Furthermore, the KTC-HR100 tuner does not support RDS. It evidently does not support C-QUAM (the AM stereo broadcasting method used in the United States and Canada) stereo either, but apparently neither did the KDC-MP425 receiver head, to begin with. Regardless, the newer—and far superior—HD Radio technology will soon completely obviate analog-based technologies like C-QUAM and RDS, as the digital broadcast revolution continues its inevitable advance.

The Bottom Line

Definitely, and without any hesitation at all, I give the Kenwood KTC-HR100 HD Radio tuner and related system components my thumbs-up! More and more AM and FM radio stations are converting to dual-mode IBOC digital transmission, which is backwards compatible with existing analog receivers for the AM and FM bands. Industry speculation is that eventually these radio stations will want to—and will be permitted by the FCC—to change over to an all-digital IBOC mode. While this will occur many years in the future, if ever, now is the time to look into HD Radio. Be ready.

If you already have an interest in IBOC DXing and are anxiously awaiting its on-air arrival, then now is the time to buy your Kenwood KTC-HR100, along with your favorite compatible Kenwood dashboard receiver head stereo unit. If there are not yet any HD Radio stations on the air in your area, you can still enjoy great FM and AM audio in the interim. In one more year, there will be a great many more IBOC stations going on-air, particularly in metropolitan areas, as competition with satellite digital radio heats up. So, be one of the first to experience IBOC digital broadcast radio and to receive the local telematics highway information that is impossible to get via satellite.

Go online today or call to order your Kenwood HD Radio system. At least take some time to ask any of Crutchfield's no-pressure sales or technical advisors about these products. Don't delay—and tell them you read about it in *Popular Communications*! ■

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by Laura Quarantiello, LauraQ@cox.net

Capitol Hill And FCC Actions Affecting Communications

Iridium Makes A Comeback

Remember that constellation of satellites called Iridium that was supposed to offer worldwide telephone service? Remember how it went bankrupt after two years? Well, it's back from the brink. The 66 satellites were once doomed to be de-orbited before a group of private investors acquired the original assets and turned the company around, renaming it Iridium Satellite, LLC. The Defense Department has signed on to the service with a two-year contract for secure voice communications, and the U.K. Defense Ministry, Colombia's National Police, and the government of Alberta, Canada, have all stepped up to become users. The company is also finding favor with commercial maritime and aviation users, as well as federal, state, and local law enforcement. Back in June, the FCC gave Iridium an additional 3.1 MHz of spectrum to meet the new demand. The service provides a valuable commodity in the post-9/11 world: secure data and voice communications anywhere on the planet, including remote areas like jungle and ocean locations. The 66 satellites in orbit (13 of which are spares) have the potential to last until 2014.

Mr. Pierre And The Radio Transmitter

On March 3, 2003, the FCC's Tampa Field Office received a complaint from the Federal Aviation Administration that an unlicensed radio station operating on 103.3 MHz in Fort Myers, Florida, was causing interference to aircraft communications on 119.000 MHz. Commission records showed no license issued for a station on that frequency in the Fort Myers area. Using direction-finding techniques, the agents determined the source of the signal on 103.3 MHz to be a one-story strip business building on Fowler Street in Fort Myers. The agents also observed a spurious radio emission on the aviation frequency 119.000 MHz emanating from the same location. The agents took field strength measurements of the station's signal and determined that the station's field strength was 2,367 times the permissible level for unlicensed low-power FM operation. Thus, the station required a license to operate.

The agents approached the building and knocked on the door. No one responded to the door and no lights were on inside, but several minutes later an adult male drove up and parked. Agents interviewed the man and he identified himself with a driver's license as Alexandre Pierre and stated that he was the lessee of Suite 2217. The agents told Mr. Pierre about the radio signals and the license requirement and asked to inspect the transmitter. Mr. Pierre declined to allow the inspection, stating that he was not the operator of the station. He stated that he was sub-leasing a back room of the suite to a friend and that only the friend had a key to the door of the back room where the transmitter was located, but that he would turn off the power to the room from his front office. The agents repeated their request to inspect the room containing the transmitter, explaining the Commission's legal authority to inspect radio installations and the need to inspect the station inside Mr. Pierre's suite because the station was operating illegally and causing harmful interference to aviation communications. Mr. Pierre again refused the request. He then entered the building and shortly thereafter the radio signals stopped.

On March 5, 2003, the agents returned and interviewed Mr. Pierre, who stated that the transmitter had been picked up earlier that day by its owner, and showed the agents into the back room where the transmitter had been. The agents noticed that the backroom had no lock, required no key to enter, and was freely accessible from Mr. Pierre's suite, contrary to his statement made the day before. Mr. Pierre claimed that he was the original owner of the transmitter, had sold it to an individual he could identify only as "Jean Louis," but could provide no evidence of the transaction, or a phone number, address, or even the existence of a "Jean Louis." Mr. Pierre stated that he owns two businesses and runs "Radio Independence" on the Internet. In his response to the Notice Of Apparent Liability, Mr. Pierre claimed that he was "not operating an illegal station as stated," that the agents had the opportunity to inspect the premises and were "given the name of the owner of the device in question which did not have anything to do with me." Mr. Pierre further stated that the agent had left a non-working number for the individual to contact him. Mr. Pierre provided no information as to the identity, whereabouts, or telephone number for "Jean Louis" and stated merely that he was refuting the allegations and wanted the matter "put to rest."

The FCC found that Mr. Pierre willfully violated Sections 301 and 303(n) of the Act on May 4, 2003, by operating radio transmitting equipment without authorization from the Commission and refusing to allow an inspection of the operating transmitter. He was fined $17,000 for these violations.

AM Bandwidth Reduction

Crawford Broadcasting is following the lead of Clear Channel by reducing its audio bandwidth on AM stations. Stations will limit audio bandwidth to 5 kHz and 6 kHz, depending on whether a station is music intensive or not. The effort is aimed at reducing interference and noise and improving volume without increasing distortion. Crawford will make the change immediately on AM stations with digital processors. Stations using analog processors can adjust high-frequency equalization control to minimum to remove the pre-emphasis and reduce bandwidth.

North Carolina BPL Field Trial Discontinued

Progress Energy Corporation has shut down its Raleigh, North Carolina, BPL field trial and removed all system hardware. What happened? No one is quite sure, but the utility's action came just as local amateur Tom Brown, N4TAB, filed a Response and Further Complaint about the system with the FCC. Brown continued to protest the system, challenging the FCC's determination that the utility's BPL system complied with Part 15 rules and that ham band notching was "effective." Brown maintained that the FCC's pronouncing a lack of harmful interference based upon a power level 24 dB below Part 15 emission limits "is immaterial." Part 15 is very clear, he said, and that if an unlicensed device operating under that section of FCC rules causes harmful interference, it has to cease operation.

(Continued on page 59)

Updated with the help of some of the world's leading DXers and BCLs, we are proud to present the 2005 edition of the bestselling directory of world broadcasting on LW, MW, SW & FM

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Available December 2004

SOME COMMENTS ON WRTH 2004:

Again this year, I can recommend serious DX-ers to buy this "DX-ers Bible"! I have all Editions of the WRTH since 1961 in my collection and I am pleased to say that the 2004 Edition is the best! *Anker Petersen, Danish SW Club International*

I just got WRTH for 2004. It is so well done, I can't believe it! As I flip thru, picking various stations and countries - it's all there. I thought last year's WRTH was the end of the line, it could not get any better - this 2004 is superb! *H Ragan, USA*

The WRTH 2004 is super! *J Slavik, Czech Republic*

WRTH is excellent as usual *L Reeves, USA*

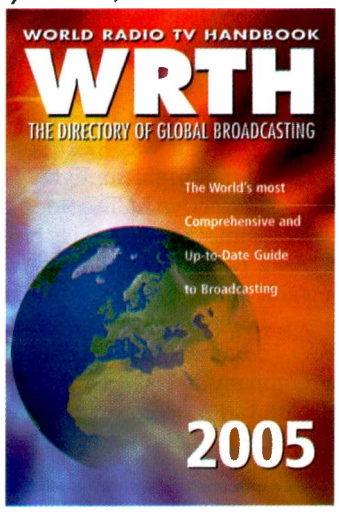
I highly recommend the World Radio TV Handbook as a convenient place to look up addresses - and much else. I often grab my copy and find stuff fast
Glenn Hauser, DX Listening Digest

WRTH 2004 is the first world class radio directory I ever came across *M Nanayakkara, Sri Lanka*

The bible for DXers is very, very good
P Bouças, S.Tomé and Principe

A great reference work for all radio hobbyists – the World Radio and TV Handbook 2004
Adrian Peterson, AWR Wavescan

Excellent publication
J Easterly, USA



A Talkin' Squawkin' GPS System

Whether You're A Ham Or Not, Here's One Hot Navigation System You'll Want Pronto!

By Gordon West, WB6NOA

Ham radio operators are a tough crowd. It's not easy to get them excited about new products and technology. So I was happy to see some wide open eyes staring at those two $10,000-plus rigs from ICOM America and Yaesu at last year's Dayton Hamvention. Exciting, sure, but not every ham may need *all* of this terrific technology packaged in one big base station.

Turned-On Hams!

An increasing number of ham operators are getting "turned on" with a mobile/portable GPS, daylight-viewable color screen that ties in with just two wires to any Kenwood D7 or mobile D700 transceiver, enabling APRS (automatic position reporting system). And if you have the internal TNC board installed in your Alinco single-band DR-135 TMK II or ICOM America IC-2200H, these radios with the optional TNC boards will also work into the APRS service. Or, if you have any Yaesu, ICOM, Kenwood, or RadioShack handheld (plus other brands, too), the Byonics TinyTrak gets you onto APRS in style! Check it out at www.byonics.com or e-mail the company at tinytrak@byonics.com.

But the *big* turn-on is a relatively new mobile/portable GPS, daylight-viewable, car navigation system from a well-respected marine and avionics cartography company called C-Map USA. The ham version is called AvMap, and the device is so transportable *AND* portable that you can even run the magnetic puck antenna/receiver all by itself to input the National Marine Electronics Association (NMEA) datastream to your handheld for 100-percent portability! Nine volts is all it needs.

I first began testing the AvMap portable GPS card navigator at a ham radio and RV rally in Quartzite, Arizona. I tested the equipment on rough dirt roads in my dune buggy, as well as in my communications van. The dune buggy test in the bright Arizona sunlight was most popular! *Everyone* could read the display in the bright sunlight. The key element to this success is a transreflective LCD color panel system that must also meet the tough marine electronics bright flying bridge requirements.

"As a fellow ham, I know what it takes to make a screen viewable in the direct sun when operating portable or mobile during contesting or for emergency communications outdoors," commented Luca Padroni, IZ5AXT, of the C-Map parent company in Italy. He made the new AvMap an ideal tool for ham radio operators who need a portable GPS with ham radio APRS features.

AvMap up on the dash with its daylight viewable screen.

At Look At This Fantastic GPS

The antenna unit features a high-reliability ceramic patch overlaying a 12-parallel-channel GPS receiver. The receiver offers a warm start-up satellite lock, typically in five seconds! This was faster than any Magellan or Garmin GPS I have ever tested. The receiver runs on 9 volts and outputs NMEA 0183, 4800 bps. Best of all, data output may be shared by both the AvMap color display unit as well as simultaneously with the Kenwood, ICOM, Alinco, and the Byonics TinyTrak system. Green wire goes to ground, and the white wire coming from the antenna/receiver is the data line.

On the ham radio version of the AvMap, a pigtail would allow an easy two-wire connection to output the data to your companion APRS-ready handheld or mobile transceiver. But here is where it really gets good for hams and RVers when it comes to this large, color, transreflective, 5.6-inch-diagonal display: The unit is only 1-inch deep and has a simple suction cup that pops it onto a window , or it's light enough for hook-and-loop

the Sweet Sounds of Shortwave

RX-340 "The Ultimate"

The Ultimate HF SWL receiver. 50 kHz–30 MHz. IF stage DSP. Sync AM/selectable sideband, SAM, AM, SSB, ISB, CW, FM. 57 bandwidth filters, programmable AGC, built-in high stability TCVCXO. Completely remote controllable via RS-232 interface. DRM reception capable with no modification needed. 115/230 VAC operation.

$3,950

RX-320D PC Radio

New model RX-3200 adds a 12 kHz I-F output for decoding DRM transmissions to the world famous RX-320 PC Radio. General coverage HF from 100 kHz–30 MHz. "Black box" receiver connects to your PC via one serial port. Your PC provides the operation horsepower. Download the actual operating software from our web site for a pre-purchase test drive.

$329

RX-350

RX-350 is a full-featured HF DSP receiver for today's demanding shortwave listener. 100 kHz–30 MHz. Modern IF-DSP architecture accommodates 34 built-in bandwidth filters, DSP automatic notch, and DSP noise reduction. Flash ROM updateable via Internet file downloads. Large LCD graphics panel for display of all receiver functions. Selectable sideband/Sync AM, SAM, AM, FM, CW, and SSB modes. Momentary SWEEP function shows band activity on LCD screen. 1024 memories. Timer and squelch activation circuitry. 12/24-hour clock. Hi Z and Lo Z antenna inputs. 115/230 VAC or 13.8 VDC operation.

$1,199

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Allows armchair tuning of the RX-350. Function buttons allow operation of various receiver controls. Direct frequency entry via keypad.

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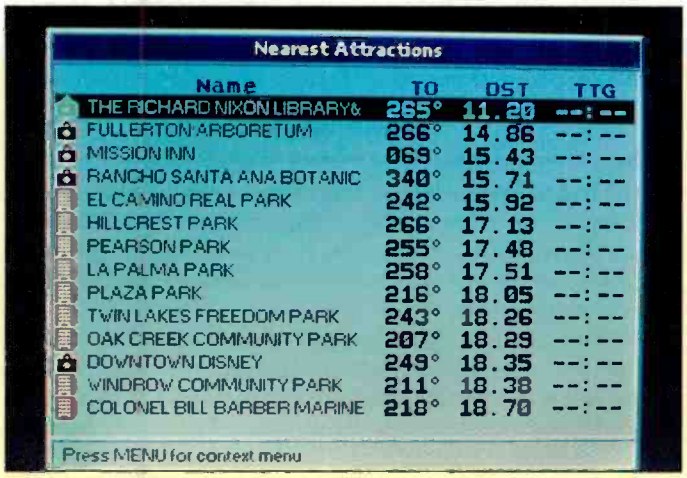
fasteners to hold it about anywhere. You get all of the United States on four CDs, along with a 256-MB proprietary compact flash card for downloading regions, highways, roads, and even some dirt roads from Tele Atlas's geographic database with point of interest information from Info USA's mapping software. You also get turn-by-turn navigation instructions from a friendly little voice that comes out of the 12-volt lighter plug assembly.

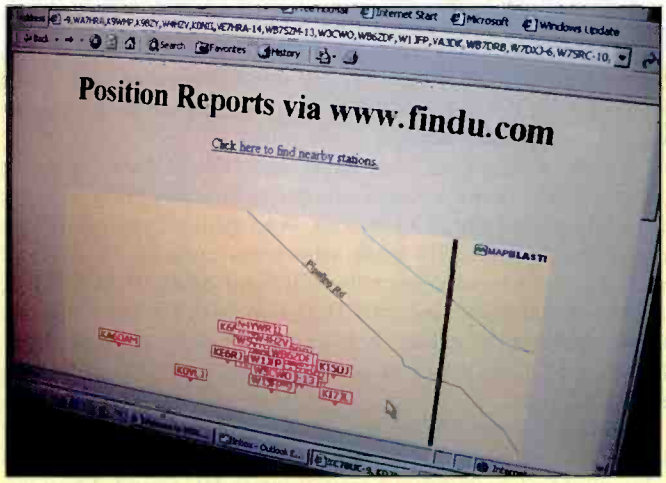
And, best of all, you don't pay anything extra to download any portion of the United States found on the four CDs. The compact flash card will hold up to about eight states, and there are presently 10 coverage regions for the continental United States that you can choose for FREE. Additional regions are also available, including Alaska, Hawaii, Guam, and Puerto Rico. They also have overlapping regions, too, to keep you covered if you drive from Minnesota all the way down to Louisiana. Shortly they'll have an overlapping region for a coast-to-coast jaunt, too.

Best Of All...

What I liked best is the mapping of roads and highways—no tiny scrunchy lines, but rather big, bold, flowing roadways, pleasant-looking square corners, lots of arrows showing one-

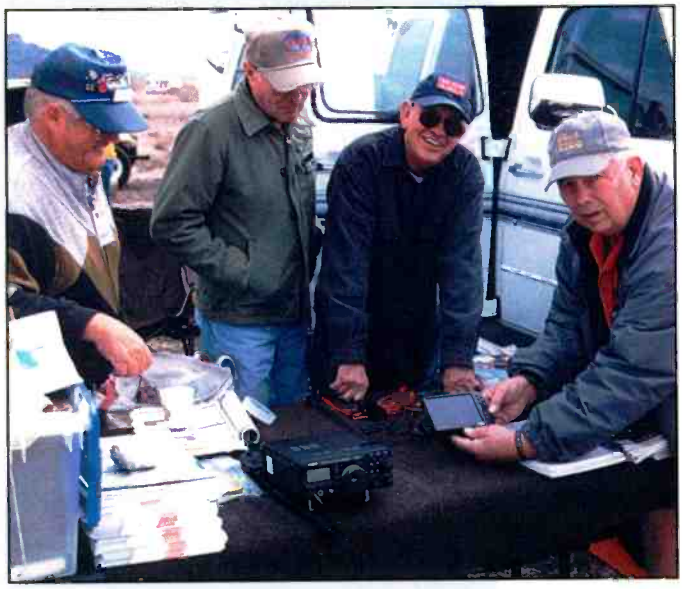


You get plenty of information—and the database is included!



GPS positions viewed online with national APRS capability!

The AvMap tracks driving instructions with the big, wide yellow mark.



Quartzite hams look over the color GPS/mapper display.

The transreflective color LCD display stayed sharp and clear in the desert sun at Quartzite.

way divided highways, and even notations for dirt roads, washes, and other feeder highways that would normally not be found on a paper map. And when you run the cursor up and down, there is no delay for redraw; the microprocessor inside the AvMap is lightning fast, and you can easily plan your upcoming trip on the color screen.

All the while, your ham radio tie-in could even go so far as to put you on everyone's computer at www.findyou.com, which is what I did in Quartzite. And with enhanced topography, I could actually track where our caravan of off-road vehicles were headed over the hills and dales. Best of all, I could read the large, color LCD display in the bright sunlight, while everyone else had their hands cupped over their little tiny dash LCD display that wouldn't even show this well-traveled back road.

Getting hungry? A simple click on "nearest food" spots shows you the Golden Arches just 3.4 miles away. Need to find a hospital fast, say within approximately 10 seconds? You not only get info on the nearest hospital, but also voice driving directions. There is a ton of other things the AvMap can do. Don Arnold, WD4FSY, who brought in the Outbacker antennas, was quick to show off as he demonstrated this unit at a local ham convention.

Don't Wait!

The AvMap car navigation set can be seen in detail with technical specs at www.avmapnavigation.com. The country's largest ham radio dealer network, Ham Radio Outlet, may now stock the equipment near you for an in-store live demo at www.hamradio.com.

With its free four-CD mapping software, including the 12-channel antenna/receiver puck, and including the latest version of the sunlight-readable display system, expect it to sell for *under* $999. Connect two wires to your APRS-ready ham set and get check out this exciting piece of equipment on your dash!

Be sure to tell them you read about it in *Pop'Comm*, and I'll see you on the highway! ■

by R.B. Sturtevant, KD7KTS

Radio Fun And Going Back In Time

Q. Old time Morse telegraph operators had a sounder to allow them to hear the messages. Train stations can be noisy places, yet there was no volume control on a sounder. How did they increase the volume on the sounder?

A. You're right, sounders only had one volume and that wasn't enough sometimes. Old time telegraphers used to lean an empty tobacco can against the sounder. Hitting the empty can would give the sounder a deeper and louder sound. It is also thought that placing the lid of the can in between the sounder gave it a louder tone. This practice, apparently, was looked down on and may be the origin of the name "lid" for a bad operator.

Q. What is an airplane's Emergency Locator Transmitter and how do they work?

A. Every time you hear about a small plane going down somewhere the radio announcer will say "The plane, which was in route from here to there, is believed to have gone down somewhere near Mount Whatever." You know that someone has found the pilot's flight plan of his expected route including the takeoff point and expected destination. You can figure out that the Emergency Locator Transmitter (ELT) has been activated and the authorities have gotten a fix on the wreck from a satellite which picked up the beacon. The ELT beacon will continue to operate for about 72 hours, giving Search and Rescue time to overfly the wreck site to determine how best to handle the situation.

One of the most frequent complaints to the FCC for unauthorized transmission is the accidental activation of ELTs. There are three positions for the activation switch; OFF, ARMED which is used most of the time, and ON, which is used for testing and other maintenance functions. If a plane is bumped, lands too hard or if there is a short through the switch, the ARMED system will begin transmitting and generates an alarm.

Recently, in western Oregon, a county ARES got an alert that an ELT had gone off. The County Search and Rescue (SAR) ELT Tracker was taken out with the expectation of finding that one of the planes at the county airport had started transmitting on its own. The ham operating the ELT tracker was the best around. While checking each airplane and helicopter at the airport, the SAR team checked in with the airport manager. The manager mentioned that there had recently been a rash of break-ins around the airport. All of a sudden the whole thing took on the air of more than a false alarm.

The signal was traced to an apartment complex about three miles from the airport. 911 was called and sheriff's deputies were requested to meet the SAR team to continue the search. The search, following the beacon, narrowed to one of the apartments. The deputies knocked on the door of the suspicious apartment and were invited in. A search of the apartment revealed the ELT and lots of other things believed to be stolen from the airport. The moral of the story is: Never steal an Emergency Locator Transmitter. They are too hard to hide.

Q. Everyone knows the British looked all over England for secret German transmitters in World War II. But since wireless was just getting started in World War I did they find any then?

A. No, but it wasn't for lack of trying. After 1914 Scotland Yard's Special Branch sent out teams to try and locate illegal transmitters. One particular team of two skilled wireless operators was sent out to the eastern counties in a car. They left London at noon. By 3 p.m. they were in police custody in Essex. After an exchange of telegrams had established their identity they were off again. By 7 p.m. they were back in custody at another police station in the same county. When finally freed they refused to complete their assignment without the escort of a uniformed army officer. They departed early the next morning with the officer in tow. Before noon Scotland Yard received the following telegram: "Three German spies arrested with car and complete wireless installation; one in uniform of British officer." If that is what happened to Special Branch you can imagine what would have happened to a real German spy.

Looking Back...

Five years ago in *Pop'Comm*

Interestingly, Osama Bin Laden and Afghanistan was mentioned in Gerry Dexter's article, "Millennium? Don't Celebrate Here – Checking Out the World's Hot Spots From The Comfort Of Home" Gerry had it covered with the now-gone Voice of Shari'ah (Voice of Islamic Law) on 7200 kHz, and stations in such places as Iraq, Libya and Pakistan. FRS was still in its infancy five years ago and even it didn't escape the wrath of some radio operators; they thought of it not necessarily as "real radio." Oops, looks like time proved them wrong as FRS sales continue to grow. You find folks using them everywhere! Bill Price, in his Loose Connection column was right on target with his Y2K prediction of "a happy New Year, decade, century and millennium for *Pop'Comm* readers everywhere."

Ten years ago in *Pop'Comm*

Today it's talkshow hosts and BPL, but back in 1995, "Eerie Natural Radio Phenomena" captured listeners' attention as evidenced by an article by Steve McGreevy on strange VLF (very low frequency) emissions. Still one of the best antennas for transmitting and receiving – the loop antenna – was featured in the late Joe Carr's "Antennas & Things" column. Joe's love of everything radio – especially antennas – was evident in all his writings! Tom Kneitel, K2AES reported that, "The first PCS cellular trials in the New York City metro area have been instituted by NYNEX Mobile Communications. . . a monthly charge of about $25 provides a package consisting of service and 30 minutes of local cellular talk time per month; for about $35 per month there's service and 75 minutes . . ."

Twenty years ago in *Pop'Comm*

Longtime *Pop'Comm* columnist, Gerry Dexter was chasing ET back in 1985 in his, "Listening For The Real ET" lead feature, complete with photos of the Deep Space antenna at Goldstone, California and Arecibo's (Puerto Rico) facility. The search continues. The Regency HX1000 handheld scanner was featured in a full-page Regency ad. It boasted 30 channels and six band coverage – no crystals, of course! And the headline in "On The Line," a popular column at the time read, "Car Phones Under $1,000."

by Tomas Hood, NW7US, pc-prop-man@hfradio.org

Could This Be The Last Year Of Cycle 23?

Solar Cycle prognosticators are beginning to think that the current cycle, Solar Cycle 23, might end earlier than the general consensus predicted. Most models expect the current activity to hit the lowest point, the end of the cycle, sometime between the beginning and middle of 2007. But, since we have begun to see days with no visible sunspots during 2004, the thinking is that this earlier-than-expected timing of low activity portends an early end to the cycle. On January 28, 2004, there were no visible sunspots on the sun. That marked the first time since the start of Solar Cycle 23 that there were no sunspots seen. On October 10 and 11 we again saw a period with no sunspots visible on the Sun. Could it be that the cycle is stalling out early? Is the solar cycle minimum to occur in 2005 or 2006?

Looking back at the ending years of Cycle 22, we see in the daily record of sunspot observations that there were days with zero sunspots in 1994, increasing in number through 1995 until the end of Cycle 22 in 1996. The first days of zero sunspots in 1994 were April 3 and April 4. Cycle 22 started in 1986 and peaked in 1989 at a smoothed sunspot number of 158.5, taking only 2.8 years to reach maximum activity. Then, the decline took 6.8 years, making the total cycle length only 9.7 years.

The Average: 11 Years

Cycles average 11 years in length. However, the range can be shorter or longer from cycle to cycle. Will this cycle be another shortened one?

My reading of current trends, and past cycles, leads me to believe that this cycle will end close to predicted, in 2007. I don't think that seeing zero sunspots this year means an earlier ending. It seems consistent with the last cycle trends. The start of Cycle 23 was in 1996. The first peak was in 2000, with a second peak in 2002, making the rise four years in duration, as compared with Cycle 22's 2.8-year rise. The decline since the second peak in 2002 is only two years old, with another year to three years expected. If we do have an early end in 2005, that would make the cycle's length only 9 years. If we expect the cycle to last at least as long as the last cycle, 9.7 years, then

The Ap Index And Understanding Propagation Terminology

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

Classification of A-indices is as follows:

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

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

Ionosphere: A collection of ionized particles and electrons in the uppermost portion of the Earth's atmosphere, which is formed by the interaction of the solar wind with the very thin air particles that have escaped Earth's gravity. These ions are responsible for the reflection or bending of radio waves occurring between certain critical frequencies, with these critical frequencies varying with the degree of ionization. As a result, radio waves having frequencies higher than the Lowest Usable Frequency (LUF) but lower than the Maximum Usable Frequency (MUF) are propagated over large distances.

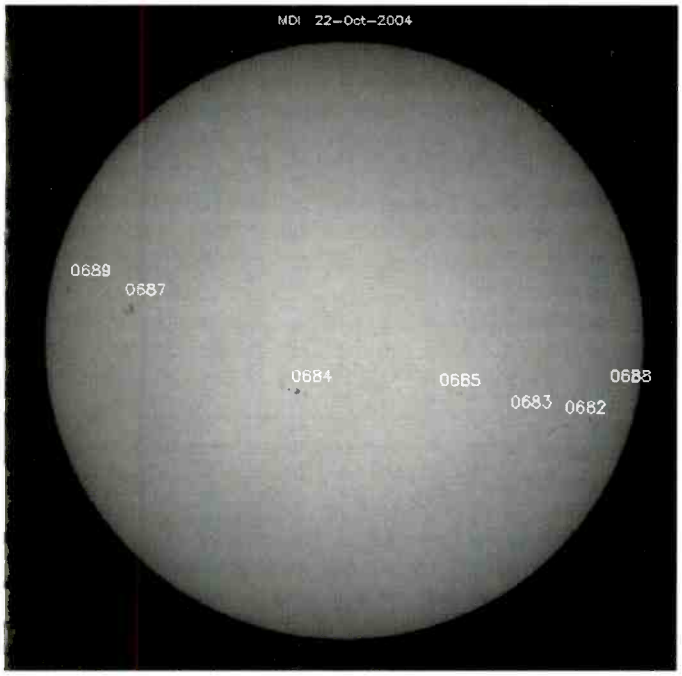
Sunspot Number (SSN): Sunspots are magnetic regions on the Sun with magnetic field strengths thousands of times stronger than the Earth's magnetic field. Sunspots appear as dark spots on the surface of the Sun. Temperatures in the dark centers of sunspots drop to about 3700° K (compared to 5700° K for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

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

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

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

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



Numbered sunspot groups from October 22, 2004, showing the resurgent activity after the two-day period of no visible sunspot activity on October10 and 11. This resurgence in solar activity caused the 10.7-centimeter radio flux to climb over 130, after being in the 80s and 90s. (Courtesy Solar and Heliospheric Observatory, SOHO)

we're looking at an end in 2006. Again, my expectation is to see the end in 2007. Of course, the earlier we see Cycle 23 end, the earlier we might see the next cycle's peak, say in 2009, if it peaks fast, or 2012 if the next rise is slower.

While October was a month with zero sunspots, there was a clear burst of energy, too. We saw a resurgence of activity during late October, with seven different active sunspot regions visible. One of these sunspot regions, group 687, developed an M2.6 class flare on October 20, 2004, at 1043 UTC, and then another M2.1 at 0752 UTC on October 21, 2004 (see October's "The Propagation Corner" for an explanation of flare classes). We'll see periods of activity bringing life to the higher shortwave bands well into 2005, even as we see the continuing decline until the solar cycle minimum.

Current Cycle 23 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for September 2004 is 28, a very large drop from August's 41, and lower than any month during the current Cycle 23. The last time we saw a monthly mean in the twenties was in October 1997, seven years ago, with 22.8. The lowest daily sunspot value during September was recorded on September 1, 2, and 28, with a count of 8. The highest daily sunspot count was 51 on September 9. The 12-month running smoothed sunspot number centered on March 2004 is 47, two points down from February. A smoothed sunspot count of 23 is expected for January 2005, give or take about 13 points.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-centimeter observed monthly mean solar flux of 103 for September 2004, down from 110 for August. The 12-month smoothed 10.7-centimeter solar flux centered on March 2004 is 114.6. The predicted smoothed 10.7-centimeter solar flux for January 2004 is about 84, give or take about 19 points.

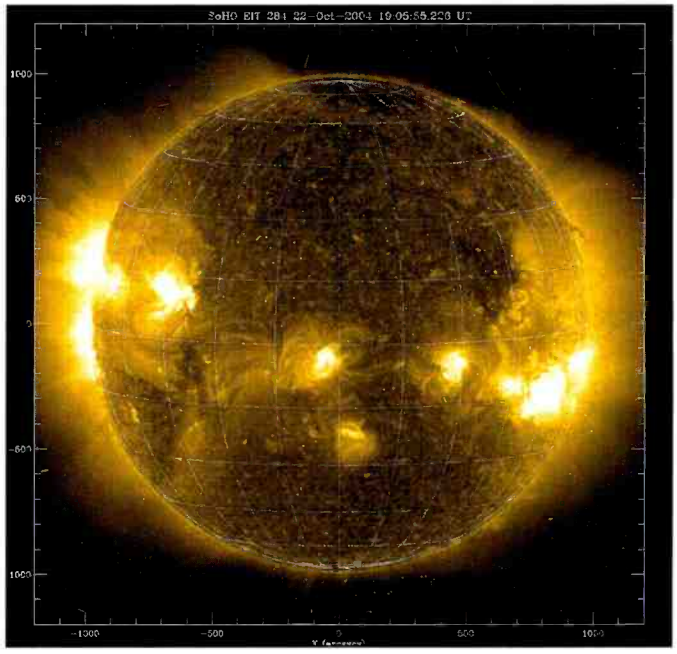
The observed monthly mean planetary A-index (Ap) for September 2004 is 10, down from September's 11 (this was adjusted up from last month's report of 10). The 12-month smoothed Ap index centered on March 2004 is 16.9, about one point down from February. Expect the overall geomagnetic activity to be quiet during most days in January.

HF Propagation

We are in the heart of the winter season, with very short daylight hours. Average daily maximum usable frequencies (MUFs) are at their seasonal low, but so are noise levels. When the sun flares up with occasional bursts of energetic activity, the solar flux will climb to a moderate level, helping the daytime shortwave band DX.

Nineteen meters through 11 meters will have occasional openings, though short lived for the most distant DX. They will close shortly after sunset, to open again just before sunrise. But morning and evening DX openings between some areas in the Northern Hemisphere on these bands are very short, because the band in question closes on one end of the path before it opens on the opposite end.

Paths on 31 through 15 meters remain in their seasonal peak, especially between North America and Europe in the morning, and between North America and Asia during the late afternoon hours. Twenty-two and 19 meters continue to be the best daytime DX bands, with 31 and 25 running closely behind. Plenty of surprises are possible on 31 meters during the morning and evening hours and well into darkness. North/south paths on 25 through 15 meters will be reliable and open for most of the daylight hours, especially where paths terminate in the Southern Hemisphere. Nighttime conditions on these higher frequencies remain short and weak, with mostly north/south path openings since the Southern Hemisphere has longer daylight hours.



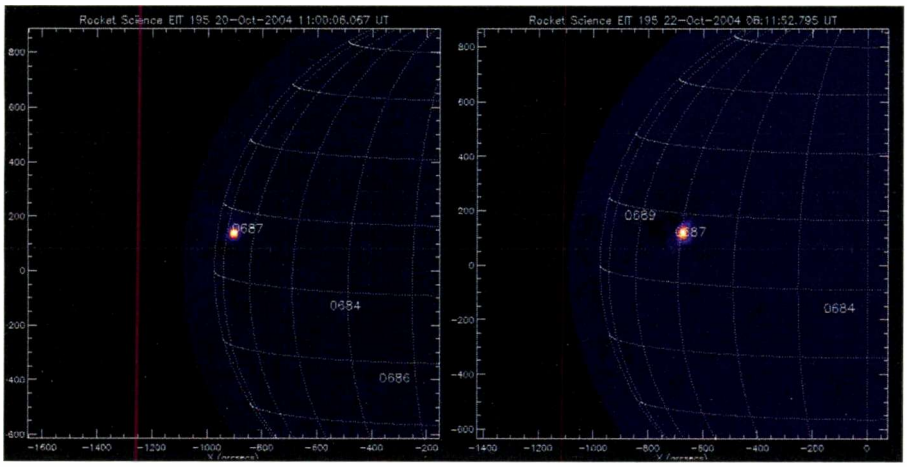
Here's a dramatic view of the solar activity on October 22, 2004. Seven active regions are visible—after seeing no active sunspots on October 10 and 11.

Optimum Working Frequencies (MHz) - For January 2005 - Flux = 84.6, SSN = 23.3- 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	19	16	12	11	11	10	10	10	9	9	9	9	9	9	13	17	19	20	21	21	21	21	21	20
NORTHERN SOUTH AMERICA	26	24	20	15	15	14	13	13	13	12	12	12	12	12	13	22	25	27	28	29	29	29	28	28
CENTRAL SOUTH AMERICA	26	23	19	15	15	14	13	13	13	12	12	12	12	12	16	23	25	27	28	29	29	29	28	27
SOUTHERN SOUTH AMERICA	28	26	23	16	15	15	14	13	13	13	12	12	12	12	12	21	25	26	27	28	29	29	30	29
WESTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	11	13	13	12	11	9	9	9	9
EASTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	11	11	10	9	9	9	9	9
EASTERN NORTH AMERICA	20	18	13	12	12	11	11	11	11	10	10	10	10	10	14	19	21	22	23	23	23	23	23	22
CENTRAL NORTH AMERICA	12	11	9	7	7	6	6	6	6	6	6	6	6	5	5	8	10	12	12	13	13	13	13	12
WESTERN NORTH AMERICA	6	6	6	4	3	3	3	3	3	3	3	3	3	3	2	2	5	6	6	6	7	7	7	7
SOUTHERN NORTH AMERICA	20	19	16	12	11	11	10	10	10	10	9	9	9	9	9	16	18	20	21	22	22	22	22	21
NORTHERN AFRICA	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	12	14	15	16	14	11	10	10	9
CENTRAL AFRICA	11	11	10	9	9	9	9	8	8	8	8	8	8	8	8	11	13	14	15	13	13	12	12	11
SOUTH AFRICA	18	15	12	12	11	11	10	10	10	10	10	10	10	10	14	18	19	20	21	22	22	21	21	20
MIDDLE EAST	9	8	8	8	8	8	9	8	8	8	8	8	8	8	8	8	12	12	10	10	9	9	9	9
JAPAN	17	17	16	16	14	10	10	9	9	9	9	9	8	8	8	8	8	8	8	8	8	11	15	17
CENTRAL ASIA	17	17	16	15	14	10	10	9	9	9	9	9	8	8	8	8	8	8	10	10	10	10	10	17
INDIA	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
THAILAND	17	16	16	15	13	10	10	9	9	9	9	8	8	8	8	8	8	8	11	11	10	10	10	10
AUSTRALIA	25	26	27	25	23	16	15	14	14	13	13	13	12	12	12	12	12	16	15	15	16	19	21	23
CHINA	14	16	15	14	12	10	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	8	10
SOUTH PACIFIC	27	28	27	25	22	16	15	14	14	13	13	13	12	12	12	12	12	16	17	19	21	23	25	26

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	20	16	13	12	12	11	11	11	11	10	10	10	10	16	20	22	24	25	25	25	25	25	24	22
NORTHERN SOUTH AMERICA	23	20	15	14	14	13	12	12	12	11	11	11	11	15	21	24	25	26	27	27	27	27	26	25
CENTRAL SOUTH AMERICA	24	19	16	15	14	14	13	13	13	12	12	12	12	20	24	26	27	28	29	30	30	29	28	27
SOUTHERN SOUTH AMERICA	26	24	18	17	16	15	14	14	13	13	13	12	12	12	22	24	25	26	27	28	29	29	30	28
WESTERN EUROPE	9	8	8	8	8	8	8	8	8	8	8	8	8	10	14	15	15	15	14	13	11	9	9	9
EASTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	8	8	8	12	14	13	12	11	9	9	9	9	8
EASTERN NORTH AMERICA	14	11	9	9	8	8	8	8	8	7	7	7	7	7	13	15	16	17	17	17	17	17	16	15
CENTRAL NORTH AMERICA	7	6	4	4	4	4	3	3	3	3	3	3	3	3	4	6	7	7	8	8	8	8	8	7
WESTERN NORTH AMERICA	12	11	10	7	7	7	6	6	6	6	6	6	6	6	5	8	11	12	12	13	13	13	13	13
SOUTHERN NORTH AMERICA	14	12	9	8	8	8	7	7	7	7	7	6	6	6	10	13	14	15	15	16	16	16	15	15
NORTHERN AFRICA	11	10	10	9	9	9	9	8	8	8	8	8	8	13	15	16	17	18	18	18	13	13	12	12
CENTRAL AFRICA	11	10	10	9	9	9	9	8	8	8	8	8	8	12	15	16	17	18	18	14	13	12	12	11
SOUTH AFRICA	20	15	15	14	13	13	13	12	12	12	12	12	12	21	24	26	27	28	29	29	28	27	25	23
MIDDLE EAST	9	8	8	8	8	8	9	8	8	8	8	8	8	9	14	15	16	14	11	10	10	9	9	9
JAPAN	16	16	14	11	10	9	9	9	9	9	8	8	8	8	8	8	8	8	8	8	8	9	14	16
CENTRAL ASIA	16	15	14	10	10	9	9	9	9	9	8	8	8	8	8	8	11	11	10	10	10	10	10	17
INDIA	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
THAILAND	15	14	12	10	9	9	9	9	9	8	8	8	8	8	8	8	12	11	11	11	10	10	10	10
AUSTRALIA	25	26	24	21	16	15	14	14	13	13	13	12	12	12	12	12	17	16	15	15	17	19	22	23
CHINA	13	14	12	10	9	9	9	9	9	8	8	8	8	8	8	8	9	9	8	8	8	8	8	8
SOUTH PACIFIC	28	27	24	20	16	15	14	14	13	13	13	12	12	12	12	17	16	16	18	20	22	24	26	27

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	15	12	11	10	10	9	9	9	9	8	8	8	10	16	18	19	20	20	21	21	20	20	19	18
NORTHERN SOUTH AMERICA	20	17	16	14	14	13	12	12	11	11	10	10	12	17	20	22	23	24	25	25	25	24	23	22
CENTRAL SOUTH AMERICA	22	19	18	16	15	15	14	13	13	13	12	12	20	22	24	26	27	28	29	30	30	29	28	25
SOUTHERN SOUTH AMERICA	25	21	19	18	17	16	15	14	14	13	13	13	16	21	22	24	25	27	28	28	29	29	29	28
WESTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	8	13	15	16	16	16	16	15	14	12	9	9	9
EASTERN EUROPE	8	8	8	8	8	8	8	8	8	8	8	8	12	13	13	13	12	12	11	9	9	9	8	8
EASTERN NORTH AMERICA	6	4	4	4	4	4	3	3	3	3	3	3	3	6	7	8	8	8	8	8	8	8	8	7
CENTRAL NORTH AMERICA	15	11	10	9	9	9	8	8	8	8	8	8	8	8	14	16	17	18	18	18	18	18	17	16
WESTERN NORTH AMERICA	20	18	13	12	12	11	11	11	11	10	10	10	10	10	14	19	21	22	23	23	24	23	23	22
SOUTHERN NORTH AMERICA	16	13	10	10	10	9	9	9	8	8	8	8	8	11	16	17	19	19	20	20	20	19	19	18
NORTHERN AFRICA	11	11	11	11	10	10	10	10	10	10	10	15	19	21	22	23	24	23	22	19	14	13	12	12
CENTRAL AFRICA	11	11	11	10	10	10	10	10	10	10	10	15	19	21	22	23	24	22	20	15	13	13	12	12
SOUTH AFRICA	16	15	14	14	13	13	13	12	12	12	12	19	24	27	28	29	29	29	29	29	28	27	25	20
MIDDLE EAST	10	10	9	9	9	9	8	8	8	8	8	10	15	16	18	18	19	19	15	13	12	12	11	11
JAPAN	14	10	10	10	9	9	9	9	8	8	8	8	8	8	9	9	8	8	8	8	8	8	13	15
CENTRAL ASIA	13	10	10	9	9	9	9	8	8	8	8	8	8	8	12	11	11	11	10	10	10	10	10	15
INDIA	8	8	8	8	8	8	8	8	8	8	8	8	8	13	13	11	11	10	10	9	9	9	9	8
THAILAND	10	10	9	9	9	9	9	8	8	8	8	8	8	12	13	12	12	11	11	11	11	10	10	10
AUSTRALIA	25	23	16	15	14	14	13	13	13	12	12	12	12	12	19	18	17	16	15	15	17	20	22	24
CHINA	10	10	9	9	9	9	9	8	8	8	8	8	8	10	9	9	9	9	8	8	8	8	8	8
SOUTH PACIFIC	26	23	17	16	15	14	14	13	13	13	12	12	12	12	18	17	16	17	20	22	24	25	27	28



Solar Sunspot Group 687 produced several M-class flares. These images show the location of two of them, on 20 and 22 October.

Signals are strong on 90 through 41 meters this year, and seasonally they are at their nighttime peak. DX activity tends to increase later in the evening toward midnight. Look for Africa and South Pacific (Australia, Papua New Guinea, and so on) on 90 through 60 meters throughout the night. On 41, 49, and 60 meters, long-path DX is possible along the gray line.

Seventy-five through 120 meters continues to remain stable, with very low noise levels. Some high noise may occur during regional snowstorms, but on average you can expect great nighttime DX conditions with the longer hours of darkness. Look for Europe and Africa around sunset until the middle of the night, and then Asia, the Pacific, and the South Pacific as morning approaches.

Signals below 120 meters are also greatly improved, unless we experience those intense coronal mass ejection (CME) events, when conditions become degraded. Mediumwave DX is really hot during this season.

VHF And Above

Don't forget to monitor low VHF for DX TV signals (remember European TV uses AM for their audio, instead of FM), as there might be sporadic-*E* (*Es*) openings. I'd like to hear from you if you catch one.

Es activity can appear three to four days during January on the low VHF frequencies for stations in the Northern Hemisphere. The average opening may last an hour or two with distances of up to 1,000 kilometers. A particularly good time to monitor for *Es* activity is during the ARRL VHF contest, which begins at 1900 UTC January 24, and ends at 0400 UTC January 26, 2004. A surprise one- or two-hour opening has been known to occur during the contest period in the past, and this has led to increased multiplier counts for contest efforts.

Aurora (Au) openings that are caused by high geomagnetic activity are possible, but not likely, during January. If conditions are favorable we could see some minor and short-lived radio Au propagation. For instance, if we have a large coronal hole that elevates the solar wind speed toward Earth, combined with a CME hurled toward Earth from an unlikely yet possible M-class flare, we might see the planetary K-index (Kp) rise to 6 or higher, triggering Au. If the solar flux should reach high numbers (as they did during October, when they went above 130), then it is possible that solar flares may also occur. This could increase geomagnetic activity that will cause an extension of the Au into the lower latitudes.

The Quantrantids meteor shower is the major meteor shower for January, and it can appear any time during the first week of this month. This can sometimes be quite intense, so it may be a good idea to set up some 2- and 6-meter schedules. Morning meteor openings may be the best bet during this month.

Have You Written?

You can join in with others in discussing space weather, propagation, and shortwave or VHF listening, at http://hfradio.org/forums/. Be sure to check out the latest conditions, as well as the educational resources about propagation, which I have put together for you at http://prop.hfradio.org/. I also provide a WAP/WML resource for wireless devices. If you want the latest propagation information like the solar flux, Ap reading, and so forth, check out http://wap.hfradio.org/, the wireless version of my propagation site.

Please don't hesitate to write and let me know about any interesting propagation you've noticed. Do you have questions about propagation? I look forward to hearing from you. Turn on your favorite radio and enjoy the great DX season on the medium and short waves. Happy hunting!

BBA-100
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The Leader in rugged Performance
Wide bandwidth 1.8-30MHz
VSWR under 2.5-1
no external tuner needed
feed with your coax
stainless steel heavy
gauge wires.
UV resistant fiberglass rods
several models to choose from.
PLW
Portable, 3-30MHz, made with "flexiweave" wire & comes in its own drawstring bag.
Folded Dipole Kit
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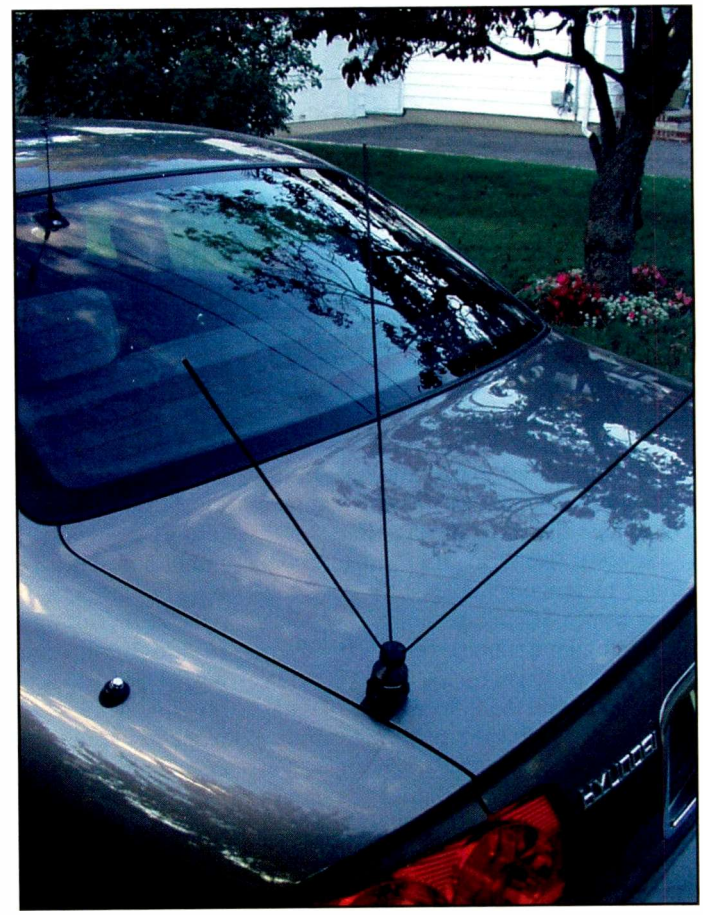
by Harold Ort, N2RLL, Editor

Niljon's Super-M V/U—NMO Model VHF/UHF Antenna

Niljon announced its Super-M mobile antenna just in time for us to do a short "new product" announcement in the December *Pop'Comm*. Since then we've had several e-mails and letters asking about its performance in the real world of everyday use. So I decided to take it for an extended test drive and report our findings here.

The heart of any radio "system" is the antenna and coax cable; even a radio with excellent specs and otherwise rave reviews can appear to perform below par because of an antenna that either isn't suited to the job at hand, or is improperly installed or mounted incorrectly. And anyone who has been around scanners or two-way radios knows that two identical antennas on two identical vehicles will inevitably perform differently under similar circumstances. But, let's suppose for the sake of all the test bench gurus and high-tech antenna analyzer analyses, you could have a good mobile antenna that performed adequately on three amateur bands and received from 25 to 1300 MHz? What would it be worth? $100, $150?

Niljon's new Super-M V/U NMO mobile VHF/UHF antenna carries a suggested retail price of $79.95. Its three black stainless steel radials, each of different length, attach to the provided small aluminum hub which screws onto a standard 5/16-inch x 24 LM-style NMO adapter, which is included for attaching to a standard NMO roof mount. The entire package weighs less than five ounces. (The basic V/U model doesn't include the NMO vehicle mount). It's certainly a different looking antenna. Niljon also has a V/U-Base Station model for fixed home or business installations.



Niljon's new Super-M V/U—NMO VHF/UHF mobile antenna is an excellent performer. Here it's mounted on the vehicle using a trunk-lip mount; be careful as those protruding, short radials can get in the way!

Sure Gets Some Strange Looks!

Nearly every mobile antenna I've used over the years has to pass the "Carolyn test": if it detracts from the vehicle, mars the car in any way, or just looks ridiculous, I've got some serious convincing to do, or antenna searching, in order to use the antenna routinely. (Look, in order to *really* enjoy the radio hobby it makes good sense to have your significant other *smiling* as you play radio—and you really don't want to mess up your vehicle!) Take a look at the photos; the Niljon antenna isn't your father's mobile antenna. As a matter of fact I've never seen anything quite like it.

Niljon says it's a "multi-frequency, multi-polarized...antenna...[with] performance over flat terrain with no man-made obstructions...generally equal to or slightly improved over most existing similarly equipped, high performance NMO-style mobile antennas."

Its unusual appearance—those three vertical outer-space-looking radials—isn't really a problem, but mounting the antenna on a trunk-lip mount makes the antenna somewhat of an eye-poker if you're not careful. Just walking around the vehicle toward the trunk or opening it requires you to be extra-aware of the antenna's radials. They're so short (about 18 inches) and somewhat camouflaged against many vehicles' paint scheme and outdoor surroundings, it can be a hazard if you're not careful! When I use it for an extended period, other than simple testing, I'll be buying some small black rubber tips for the end of each radial. Don't ask where I'll be buying them because those tiny protectors are like those small eyeglass repair kits—when you don't need them you find them everywhere! Better yet, get a good NMO mag-mount and attach it to your vehicle's roof; there it's out of the way and up high for better overall performance, anyway.

Construction And Performance

The antenna's construction is very good; you simply insert the radials in the small hub, screw the hub onto the NMO portion and screw the entire assembly to an appropriate mount.

There's no tuning required; it's as "plug and play" as anyone could possibly want!

The Niljon press release said, "whether you're low in the valley, behind the trees or just driving downtown in and around buildings, the Niljon multi-frequency antenna measurably outperforms its competitors." It continued, "Tests performed in these obstructed locations consistently demonstrated the Niljon antenna's ability to transmit and receive clearly when comparison models had static, frequent dropouts or no signal at all."

Now, let's face it, those are some pretty powerful claims. They've got some more good words including, "...multi-polarized, multi-pattern, multi-path and multi-plane," so I'm naturally thinking it would be fair to compare it to a couple of my other stand-bys: an older Larsen dual-band NMO-mount cellular look-alike antenna, and a RadioShack 2-meter mag-mount I typically use for most of my mobile scanning. I've had both for a few years, and figure if you're like me you probably don't have three or four *new* mobile antennas, and you just *might* be looking for one to replace an older model.

If you are, the new Niljon antenna deserves your attention. The good news is that the antenna is very broadbanded; while I didn't test it on 440, I did use it extensively on 2 meters and found it a very good performer. Using a trunk-lip mount, my SWR at 146 MHz was a hair above 1.5:1; slightly higher as I went up in frequency. The antenna connection at the mount is clean and electrically sound, but the SWR remained at that 1.5:1. For perfectionists trying to achieve the best SWR at all cost (I used to be that way, but with time have become less concerned about meter readings, all else being equal) is there continuity at the PL-259? If using a mag-mount, are there other antennas nearby that could affect SWR? Is the mount wet or vehicle's surface dirty?

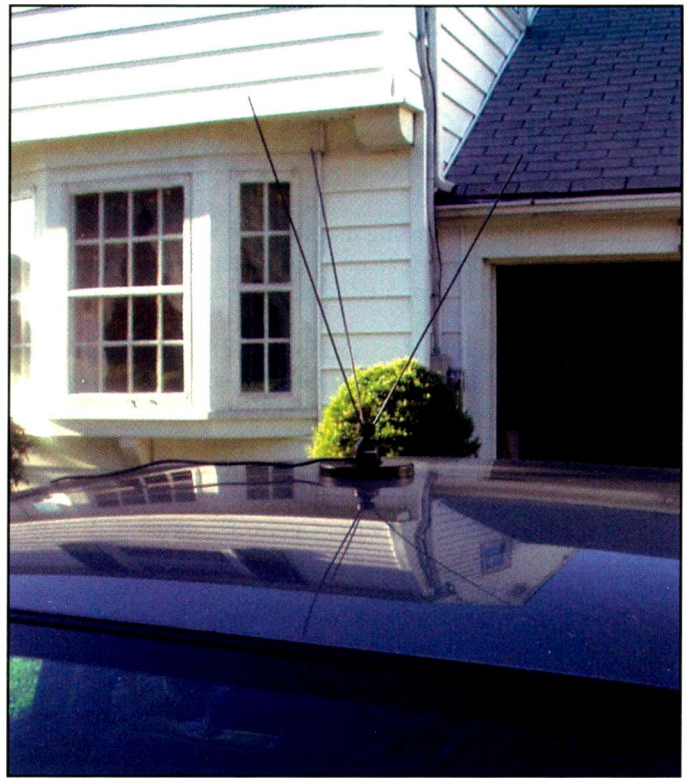
I did remove the antenna from the trunk-lip mount and screw it onto an MFJ mag-mount. SWR was better; nearly 1.3:1, but then again it was mounted in the center of the vehicle's roof—the ideal location, especially for this antenna with those three protruding radials!

I made my usual contacts on simplex. Signal reports were no different than with either of my two other mobile antennas. It was the same for "hitting" the local repeaters; good, solid signals into the machines using either my Alinco DJ-G5T handheld or ICOM 2100 mobile on low power.

Checking each of the NOAA weather channels—always a good radio "barometer" to check radios and antennas—all those I normally receive were clearly audible. The NOAA station in New York City, KWO-35, always has a solid signal, but I drove the vehicle downtown until the signal faded and fluttered considerably using the long RadioShack mag-mount antenna. This happened to be right near the post office; I'm sure the workers there think I'm either crazy or up to something or both, so it didn't matter too much when I got out of the car, disconnected the RadioShack antenna, put it in the trunk, and plugged the Niljon into the 2100. The station's signal didn't change dramatically, but it did improve to the point of readability. I put the Larsen antenna in place and made the connection. The signal wasn't quite strong enough to break the squelch.

Reconnecting the Niljon I drove on, hopping on the Garden State Parkway. I'm not one for paying a lot of attention to a radio's meter when on the GSP; driving gets my attention. I simply let my *ears* tell me how an antenna is performing.

Tuned to one of the Newark, New Jersey, repeaters I placed a call. At about 25 miles from the city using my rig's low power



Here's a better way to mount the Niljon—or most any antenna—on the roof, using a strong magnet mount, like this one provided by MFJ Enterprises, Inc.

I was easily into the repeater. I know for a fact that with the RadioShack antenna the signal would have been good at best, but with the Niljon it was solid—and there was *no* fluttering. My "N2RLL monitoring" call was placed at a low point on the parkway between hills. Frankly, I was impressed!

In my six weeks of testing and using the Niljon antenna almost every day in all kinds of weather and driving conditions, it consistently performed as well as the RadioShack mag-mount. In most situations I'd prefer using the Niljon antenna. The company's fairly lofty claims that it "measurably outperforms" competitors is still open for discussion and debate, of course, but in my personal real-world testing, done much as most users would, I believe it's an excellent performer for transmitting and receiving—at least on 2-meters where I tested the antenna.

Reception of fairly distant (about 35 miles) public safety stations to my south and west was impressive. In some situations there were stations, particularly to my southwest near Philadelphia, that are nearly impossible to hear with other mobile antennas on my DJ-G5T, but I heard them easily heard with the Niljon.

Mount this mobile antenna—as we recommend with other antennas as well—up on the roof of your vehicle and you've got a sure winner. It's short and stealthy enough to sit up there without taking out tree limbs or being quickly noticed (unlike many long mobile antennas), yet engineered to be long on quality. In most cases it gave me a good edge, both transmitting and receiving! I'd give it three radials up!

Niljon Antennas are manufactured and distributed by The Wireless Store in Akron, Ohio (www.wifi-plus.com). Also, for more information contact the company at www.niljon.com. ■

by Gerry L. Dexter

Return Of An Ancient?

There are hints suggesting that we may soon experience the return of an old-time Mexican broadcaster. **Radio Tapachula** in Chiapas state is supposed to begin broadcasting again on its old spot of **6120**.

Another returning Mexican is **XERTA Radio Transcontinental, La Voz Comercial de Mexico**, which has resurfaced on **4810**, initially (and perhaps still) having problems with low modulation and so-so signal levels. There are some English language IDs interspersed with the Spanish language programs. Reception reports for this one should go to Plaza San Juan No. 5, Despacho No. 2, Col. Centro, Centro Historico, C.P. 6050, Mexico, D.F. They have a website at www.xetraradio.com. E-mails go to: charlaxerta@yahoo.com.

Also on the Mexican front, we're seeing increased logs of the recently returned **Radio Universidad, XEXQ** on **6045**, especially at or just after their 1200 opening.

You can continue your hunt for the AFN/AFRTS outlet on Diego Garcia, secure in the knowledge that there is, in fact, something there to be heard. Apparently, as some people suspected, this had been off the air for a while, but it has been reactivated and is in use on **12579 USB**. You can also safely assume that, even when it's on the air, Diego Garcia is the most difficult to hear of the AFN shortwave sites, at least for most of us in North America.

The **Voice of Nigeria** has discontinued use of 15120 and replaced it with **17800**, at least for the time being (the higher frequency is not as well heard.) VON also employs **9690** on an occasional basis, and **7255** also continues in use, running until 2300 sign off and then beginning its day again at 0500. One of the regional outlets, **Radio Nigeria**, Kaduna, is appearing on **6090**, in addition to its long-time spot of **4770**, where it signs on around 0430.

Financial troubles have hit several of the regional Papua New Guinea stations and forcing them off the air, namely **Radio Enga (2410), Radio Simbu (3355)**, and **Radio Western Highlands (3375). Radio Southern Highlands (3275)** may have also taken a hit by now.

Laser Radio, based in the United Kingdom, has resumed broadcasts via the Ulbroka, Latvia, transmitter, although you may hear other broadcasters as well, such as the Dutch-based Radio Seagul or others who have rented time from Laser Radio. The overall schedule runs from 1800 to 2200 on **9290**.

Radio Misiones Internacional (HRMI) in Honduras has escaped the congestion of around 5010 and moved to **3340**.

Last September's meeting in Mexico of the World Trade Organization generated the usual assortment of protest groups—and one radio station! Unlicensed, and thus technically a pirate, it nonetheless captured the interest of the larger SWBC DX community, even those who don't normally bother with pirates. **Radio Free Cascadia International** operated on **15045** for a few days in mid-September and was heard, albeit poorly, throughout much of the Eastern United States, as well as by a few lucky souls farther into the continent. One DXer heard them talking about plans to return at some point, but they didn't give out any details. It isn't known for sure whether these broadcasts actually came from Mexico or from another site in Central America, or even somewhere in the United States. Interestingly, the station, FRCI for short, used the same frequency as RFPI. Both groups are based in Oregon.

Radio Vlaanderen International sent this attractive card to Eric Bryan.

Readers' Logs

Remember, your shortwave broadcast station logs are always welcomed with open arms. But please be sure to double or triple space them, list them by country, and add your last name and state abbreviation after each log. Also welcome are spare QSLs you don't need returned, station schedules, brochures, pennants, photos, and anything else you think would be of interest. And we continue to wonder if there are any brave enough to send in a shack photo—an activity that seems to have all but disappeared in recent years!

Here are this month's logs. All times are in UTC. Double capital letters are language abbreviations (SS = Spanish, R =

Russian, AA = Arabic, etc.). If no language is specified, the broadcast language is assumed to be English (EE).

ALASKA—KNLS, **11765** with religious program in CC at 1230 and ID in EE. (Linonis, PA)

ALBANIA—Radio Tirana, **6115** at 0231 with frequencies, times, news. (Charlton, ON) 6115//**7160** with news at 0233. (Burrow, WA)

ANGUILLA—Caribbean Beacon, **6090** with Dr. Gene Scott at 0030. (Linonis, PA) 0203. (DeGennaro, NY)

ANTARCTICA—Radio Nacional Arcangel, **15476v** (p) at 0100 sign on with choral singing and man with SS talks. Special broadcast marking 83 years of Argentine broadcasting. (D'Angelo, PA) 0115 with woman in SS talks. Long, deep fades and gone by 0148. (Montgomery, PA)

ANTIGUA—BBC Relay, **5975** at 0042. (Charlton, ON)

ARGENTINA—Radio Nacional/RAE, **6060** at 0909 with SS news. (DeGennaro, NY) **9665** in SS at 0324. (Charlton, ON) (*New? No listing for them here.—gld*) RAE, **11710** in EE at 0200. (Burrow, WA) LA-101/Radio Continental, **5400 LSB** relay with U.S. oldies and SS anncr at 0119. (Montgomery, PA)

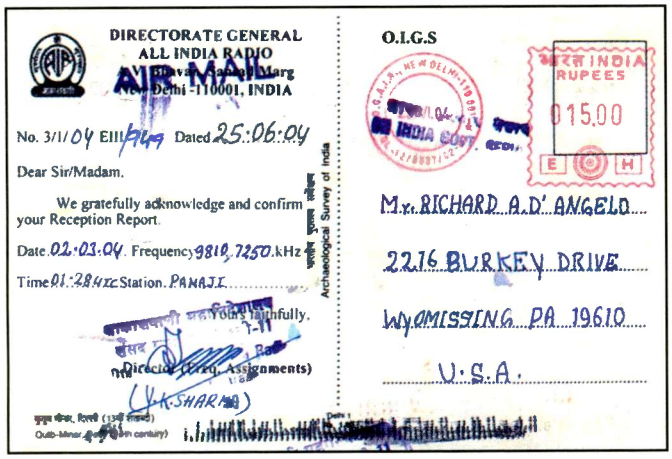
ASCENSION ISLAND—BBC Relay, **7160** at 0520. (Brossell, WI) **12095** at 0001. Also **17830** at 1758 going into news. (Charlton, ON) 12095 at 0224. (Jeffery, NY) **17745** at 2030. (Quinby, PA) Family Radio, via Ascension, **15195** at 2000. (Brossell, WI) (*They're everywhere—gld*)

AUSTRALIA—Radio Australia, **6020** at 1225, **9580** at 1130. (Northrup, MO) 6020 at 1105, 9580 at 1134, **11650** at 1149, **12080** at 1137, **13635** in unid language at 1143 and **13685** at 1149. (DeGennaro, NY) **9475** at 1124. (Jeffery, NY) 9580 co-channel with Gabon at 2129 but off suddenly at 2130. (Montgomery, PA) 9580//11650 at 1235. (Brossell, WI) 11650 at 1255 and **21740** at 2147. (Charlton, ON) **15240** at 0700. (Barton, AZ) **15525** at 0456 and **17715** at 2231. (Miller, WA) 21740 at 2155, //17715, **17795**. (MacKenzie, CA) 21740 at 2230.

Domestic WWRB's QSL comes in the form of a full size certificate, this one for Rich D'Angelo's reception on 5050.

Abbreviations Used In This Month's Column

(p)	—	presumed
(t)	—	tentative
//	—	parallel
AA	—	Arabiv
AFN	—	Armed Forces Network
AFRTS	—	Armed Forces Radio TV Service
AIR	—	All India Radio
anmt(s)	—	announcement(s)
anncr	—	announcer
AWR	—	Adventist World Radio
BSKSA	—	Broadcasting Service of the Kingdom of Saudi Arabia
CC	—	Chinese
co-chan	—	co-channel (same) frequency
comml	—	commercial
CP	—	Bolivia, Bolivian
CRI	—	China Radio International
DD	—	Dutch
DJ	—	disc jockey
DW	—	Deutsche Welle/Voice of Germany
EE	—	English
f/by	—	followed by
FEBA	—	Far East Broadcasting Association
FEBC	—	Far East Broadcasting Company
FF	—	French
GBC	—	Ghana Broadcasting Corp.
GG	—	German
HH	—	Hebrew
HH	—	Hungarian
HOA	—	Horn of Africa
ID	—	identification
II	—	Italian; Indonesian
Int	—	International
IRRS	—	Italian Radio Relay Service
IS	—	interval signal
JJ	—	Japanese
KK	—	Korean
LSB	—	lower sideband
LV	—	La Voz
NBC	—	National Broadcasting Corporation (Papua New Guinea)
ORTB	—	Office deRadiodiffusion et Television du Benin
PBS	—	People's Broadcasting Station (China)
PP	—	Portuguese
PSA	—	public service announcement
QQ	—	Quechua
RCI	—	Radio Canada International
Rdf	—	Radiodifusora, Radiodiffusion
REE	—	Radio Exterior de Espana
RFA	—	Radio Free Asia
RFE/RL	—	Radio Free Europe/Radio Liberty
RNZI	—	Radio New Zealand International
RR	—	Russian
RRI	—	Radio Republik Indonesia
RTBF	—	RTV Belge de la Communaute Francasie
relay	—	site not owned by broadcaster
Relay	—	owned/operated by the broadcaster
s/off	—	sign off
s/on	—	sign on
SIBS	—	Solomon Is. Broadcasting Corp.
sked	—	schedule
SLBC	—	Sri Lanka Broadcasting Corp.
SS	—	Spanish
TC	—	time check
TOH	—	top of the hour
TT	—	Turkish
TWR	—	Trans World Radio
unid	—	unidentified
USB	—	upper sideband
UTE, ute	—	utility station
v	—	variable
vern	—	vernacular (local language)
VOA	—	Voice of America
VOIRI	—	Voice of Islamic Republic of Iran
ZBC	—	Zambian Broadcasting Corp.



DIRECTORATE GENERAL
ALL INDIA RADIO
Akashvani Bhawan, Sansad Marg
New Delhi -110001, INDIA

No. 3/1/04 EIII/[illegible] Dated 25:06:04

Dear Sir/Madam,

We gratefully acknowledge and confirm your Reception Report.

Date 02·03·04. Frequency 9810, 7250 kHz
Time 01:28 HRS Station. PANAJI

Yours faithfully,

(Director (Exty. Assignments))

O.I.G.S

INDIA RUPEES 015.00

Mr. RICHARD A.D' ANGELO
2216 BURKEY DRIVE
WyOMISSING PA 19610
U.S.A.

Smudged but still most welcome was this reply from All India Radio at Panaji in what used to be Portuguese Goa. (Thanks: Rich D'Angelo)

SITE MAP
HOME NEWS REGIONS ACTIVITIES ABOUT INTERNEWS
INTERNEWS

----- Message from "David Trilling" <david.trilling@internews.org> on Wed, 28 Jul 2004 15:51:11 +0430 -----

To: <Rdangelo3@aol.com>
Subject: RE: Reception Report

Dear Richard,

Thank you for identifying our broadcast. We appreciate the feedback and reception details that we have received from shortwave listeners as far apart as Finland and Australia. We are happy to add the United States to the list.

The mixed Dari/Pashto broadcast which you detected is called "Salaam Watandar", originates in Kabul and is heard at 11,795khz from 0130-0300 UTC and at 17,700khz from 1330-1500 UTC. The broadcasts originate from VTMerlin's transmitters in Rampisham, UK and (500kw) and Dhabayya, Russia (250kw), respectively.

The program is also broadcast to Afghanistan by a network of 19 FM and AM affiliates. We expect the number of affiliate stations to reach 40 by the end of the year as new stations and existing state broadcasters join the network. The shortwave broadcasts are expected to continue through September 15, 2004.

Thank you and we will send you a QSL card via Afghan post as soon as possible.

Regards,
David Trilling
Program Associate

From: Rdangelo3@aol.com [mailto:Rdangelo3@aol.com]
Sent: Thursday, July 22, 2004 6:41 AM
To: David.trilling@internews.org
Cc: rdangelo@gpu.com
Subject: Reception Report

INTERNEWS

"Salam Watandar" a program intended for Afghanistan is said by some to be off the air. Rich D'Angelo got this e-mail QSL from them.

(Quinby, PA) ABC Northern Territories Service, Alice Springs, **2310** at 1955 with a discussion. (Foss, Philippines) Also Katherine, **2485** at 1007. (Miller, WA)

AUSTRIA—Radio Austria Int'l, **6155** in GG at 2044. (Foss, Philippines) **9820** at 0109, **9870** at 0149, **13730** in GG at 2316 and **15515** via Canada in GG at 1549. (Charlton, ON) 9870 at 2327 and **13730** in GG at 1554. (DeGennaro, NY) Adventist World Radio via Austria, **9820** at 0109. (Charlton, ON) **15175** in AA at 1920. (Brossell, WI) FEBA via Austria, **9465** with religious talk at 0047. (Charlton, ON)

BELGIUM—Radio Vlaanderen Int., **15565** via Bonaire at 2238 talking of legalized prostitution. (Miller, WA) 0445 in presumed Flemish. (Linonis, PA) 2236 with Algerian love songs. Also **17670** via Russia at 1536 in Flemish. (Charlton, ON) RTBF Int., **9970** in FF at 0515. (Brossell, WI)

BENIN—Radiodifusion du Benin, **7210** (*slightly variable—gld*) 2130 to 2302 close with FF talks and variety of Afro and FF pops, phone talk, ID. (Alexander, PA) 2235 tune to 2253 close. (D'Angelo, PA) 2240 to 2303, with carrier on for several minutes after that. (Montgomery, PA) 0611 with FF talk. (Paszkiewicz, WI)

BOLIVIA—Radio San Miguel, **4902.4** at 1000 with SS ID, time checks and repeated IDs. (Wilkner, FL) RadioTacana, Tumupasa, **4781.3** at 0955 with man in rapid SS talk. (Wilkner, FL) Radio Nacional, Huanuni, **5964.8** weak in SS at 1003. (Wilkner, FL) Perla del Acre, Cobija, **4600** in SS at 0940. (Wilkner, FL)

BOTSWANA—VOA relay, **11835** at 0502. (Brossell, WI)

BRAZIL—Radio Universo/Radio Tupi, Curitiba **11765** at 0128 with impassioned religious talk in PP. Overtaken by RAI by 0130. (DeGennaro, NY) Radio Difusora Acreana, Rio Branco, **4885** at 0925 with religious message in PP (DeGennaro, NY) Radio Clube de Para, Belem, **4885** with religious talks in PP at 0925. (DeGennaro, NY) Radio Missoes da Amazonia, Obidos, **4865** with PP vocals at 0921. (DeGennaro, NY) Radio Brazil Central, Goiania, **4985** with choral songs in PP at 0014. (DeGennaro, NY) PP and music at 0416. (Miller, WA) **11815** in PP at 0021. (Charlton, ON) 0209. (DeGennaro, NY) Radio Bandeirantes, Sao Paulo, **9645** with local news in PP, commercials, ID at 0930. (DeGennaro, NY) Radio Educacao Rural, Tefe, **4925** at 0138 with Brazilian pops, PP talks, jingle IDs. Off at 0200. (D'Angelo, PA) Radio Educacao Rural, Campo Grande, **4755v**, 0116 with PP religious message. (DeGennaro, NY) 0216. (Miller, WA) 0904 with PP songs, ID at 0909. (Montgomery, PA) Radio Senado, Brasilia, **5990** at 0929 with PP vocals, address. (DeGennaro, NY) Radio Marumby, Florinapolis, **9665** at 0936 with talks, Brazilian music. (DeGennaro, NY) Radio Clube Paranaense, Curitiba, **9725** at 0943 with PP talks, commercials, music. (DeGennaro, NY) Radio Nacional Amazonia, **6180** in PP at 2358 and **11780** in PP at 0120. (Charlton, ON) **9665** at 0500 sign on with light instrumentals and IDs, local ballads. (Alexander, PA) **11780** at 1052. (DeGennaro, NY) 1950 with sports event. (Brossell, WI) Radio Nacional, Macapa, **4915** at 2342 with PP talks, PSAs. (DeGennaro, NY) Radio Caiari, Porto Velho, **4785** at 2313 with PP music. (DeGennaro, NY) Radio Anhanguera, Goiania, **4915** at 0132 with PP and U.S. pops. (DeGennaro, NY) Radio Bare, Manaus, **4895** at 0933 with ID, vocals. (DeGennaro, NY)

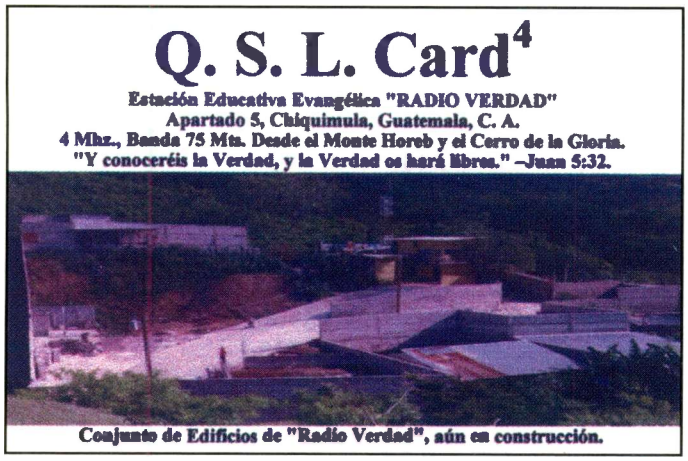
BULGARIA—Radio Bulgaria, **5800** at 2100 sign on with EE ID, sked, news, local folk music. Runs to 2200 and better on //**7500**. (Alexander, PA) **9400** at 2318. (Charlton, ON) **11900** at 2322 with history feature, ID. (Burrow, WA) **13800** in SS at 2114. (DeGennaro, NY)

BURKINA FASO—Radio Burkina, **5030**, 2143 with FF discussion. (DeGennaro, NY) 2334 to 0001 close, FF pop and rap with man annor, ID and sign off anmts at 2356 and orchestral anthem. (D'Angelo, PA)

CANADA—CFRX, **6070** relay CFRB , 6070 at 1415. (Northrup, MO) RCI, **9515** at 1230. Also **11935** via Germany in Ukrainian at 1540. (DeGennaro, NY) **12015** via UAE at 2057. Off at 2059. (Foss, Philippines) **11920** at 2150 in FF; **15170** at 2200; **15245** in FF at 1941 and **17820** at 2002. (Charlton, ON) **13670** with sports program at 2200. (Quinby, PA) **17800** at 1420. (Northrup, MO)

CHILE—La Voz Cristiana, **6070** in SS at 1009 and **11935** in SS at 1124. (DeGennaro, NY) **11745** in SS at 0640. (Barton, AZ) 11935 in SS at 1230. (Brossell, WI) **15375** at 1310 in SS. (Montgomery, PA) **17680** in SS at 1457. (Charlton, ON)

CHINA—Xizang (Tibet) PBS, (p) **4905** in presumed Tibetan at 1143 with upbeat songs in unid language. (Foss, Philippines) 1214. (Strawman, IA), 1336, //**4920**. (Miller, WA) **4820** at 1125 and **4920** at 1120. (Wilkner, FL) Yunan Broadcasting Station, Kunming, **6035** with music at 1330. (Miller, WA) Xinjiang PBS, Urumqi, **9470** at 1057 with vocals, ID in CC at 1059, 1100 and into possible news. (DeGennaro, NY) China Radio Int., **9640** in SS at 2150. (DeGennaro, NY) **9790** via Canada in EE at 0105. (Charlton, ON) Guangxi PBS, Nanning, **5050** in CC at 1202. (Foss, Philippines) CPBS, **9590** in CC at 1128. (DeGennaro, NY) China Music Jammer, **11945** and **13670** at 1950. (Brossell, WI) 15680 at 1557. (Charlton, ON)



J.W. Roberts got this QSL from Radio Verdad in Guatemala (4052.5). They were running 270 watts when he heard them.

In between talking shortwave, Pop'Comm *reporter Bob Brossell (L) and your column editor share a laugh with "Animal," best bartender on the planet.*

COLOMBIA—La Voz de su Concencia, **6010** at 0417 with kids singing, mention of Colombia, ID, religious program. (Paszkiewicz, WI) 0800 with SS talk, ID, SS pops. (Alexander, PA) La Voz de Guaviare, **6035** in SS at 1005 with Colombian style music, SS talk, ID at 1010. (DeGennaro, NY)

COSTA RICA—University Network, **9675** with Gene Scott at 0045. (Charlton, ON)

CROATIA—Voice of Croatia, **9925** via Germany with news at 2337. (DeGennaro, NY) 0039 in Croatian and 0200 in EE. (Charlton, ON) 0513 in Croatian. (Brossell, WI)

CUBA—Radio Havana, **6000** in SS at 1220. (Northrup, MO) **9550** in SS at 2242 and **9820** in SS at 0107. (Charlton, ON) **11760** with Arnie Coro at 2106. (Ziegner, MA) **17705** in SS at 2223. (MacKenzie, CA) Radio Rebelde, **5025** in SS with news at 1004. Also **9600** at 1028. (DeGennaro, NY) **6120** in SS at 0300. (Miller, WA)

CYPRUS—BBC Relay, **12035** at 1348. (Miller, WA)

CZECH REPUBLIC—Radio Prague, **6200//7345** in Czech at 0127. Also **9440** at 0005, **11600//13580** in Czech at 2224 and **17485** in EE at 1715. (Charlton, ON) 7345//**9870** with EE news at 0303. (Burrow, WA) 11600 at 2200 in EE to NA. (Quinby, PA) **11615** in EE at 1053. (DeGennaro, NY)

DENMARK—Radio Denmark, **9985** via Norway in DD at 0052. (Charlton, ON) 9985 in DD at 0108. Also **9945** in DD at 2340 and **11615** in DD at 1041, all via Norway. (DeGennaro, NY)

DOMINICAN REPUBLIC—Radio Cristal, **5010** in SS with Latin music at 2349. (DeGennaro, NY) 1040 with IDs as "Esta es Radio Cristal." (Wilkner, FL) Radio Pueblo, **5009.8** at 2352 with SS ID and again at 2359 and phone-ins starting on the hour. (Montgomery, PA)

ECUADOR—HCJB, **3230** in Quechua at 1007. Also **11950** in SS at 1127. (DeGennaro, NY) **6050** in SS at 1145. (Northrup, MO) **15185** at 2000 **and15205** at 2037. (Charlton, ON) Radio Quito, **4919** in SS with local news at 1007. (DeGennaro, NY) 1104. (Miller, WA) Radio Federacion Sucua, **4960** in Quechua at 0945 with Andean music. (DeGennaro, NY) 1107 with indigenous music. (Miller, WA) La Voz del Napo, Tena, **3280** at 0932 with man/woman anncrs with station promos, music and religious talk. (Montgomery, PA) 1011 with SS religious talk. (DeGennaro, NY) 1028. (Miller, WA) Radio Buen Pastor, Saraguro, **4814** at 1031 in Quechua with music. (DeGennaro NY) La Voz del Upano, Macas, **5040** with SS religious talk at 1027. (DeGennaro, NY)

EGYPT—Radio Cairo, **9990** in EE at 2155 with talk on Shakespeare. (Ziegner, MA) 2231 and **11725** with EE/AA lessons at 0005. (DeGennaro, NY) 11725 in AA at 0200. (Linonis, PA) 2326 with ID, off at 2329 and back on at 2331 but much weaker. (Burrow, WA) **12050** in AA at 1955. (Brossell, WI) **17800** in AA at 1315. (Northrup, MO)

EL SALVADOR—Radio Imperial (p) **17835** at 0005 with SS ballads and talk. Poor in noise, with deep fades. (Alexander, PA) (*Nice to know this one isn't gone after all.—gld*)

ENGLAND—BBC, **5975** via Antigua at 0312, **6195** at 0148, **11920** at 0051, **12095** at 2036, **15190** at 1444, **15400** at 2308 and **17830** at 2149. (Charlton, ON) Sudan Radio Service (U.S. Agency for International Development) via England at 1615 on **17630**; moves to **17660** at 1700 to 1800. Various languages during daily 1600 to 1800 sked. (Brossell, WI)

ETHIOPIA—Radio Fana, **6210** at 0257 with electronic instrument IS to woman with sign on at 0300. (Strawman, IA)

FINLAND—YLE/Radio Finland, **15400** at 1250 in Finnish. (Brossell, WI) 1254. (Charlton, ON)

FRANCE—Radio France Int., **9830** via Japan in SS at 1005 and **11600** via Beijing in FF at 1107. (DeGennaro, NY) **11660** in FF but with EE ID, URL. Also **11955** via Gabon in FF at 2003. (Charlton, ON) **11685** in FF at 0452, also **15300** in FF with live sports. (Brossell, WI) 15300 in FF at 1210. (Jeffery, NY) **15535** VIA Irkutsk, Russia, in FF at 0055. Off at 0100. (Jeffery, NY)

FRENCH GUIANA—RFI, **11665** in SS at 0116 with sports news. (DeGennaro, NY) **17860** in FF at 1330. (Northrup, MO)

GABON—Africa No. One, **9580** in FF with vocals at 2140. (DeGennaro, NY) 2130 with continuous '50s music. ID, time pips and news on the hour. (Montgomery, PA) 2208. (Charlton, ON)

GERMANY—Radio Africa Int. via Germany, **15715** opening at 1829. (Charlton, ON) Bible Voice, **15680** at 1513 tones, ID, "Fire in the Hole" program. (Paszkiewicz, WI) Deutschlandfunk, **6190** at 2339 in GG with talk, easy jazz instrumentals. Buried by Radio Slovakia opening at 0000. (D'Angelo, PA) Evangelische Missions-Gemeinden, **9860** at 2203 with choir, religious talks in GG, IDs and addresses at 2227 and off at 2228. (D'Angelo, PA) Russian Radio Int., **17705** with RR pops and talk from 1428 tune. Off at 1459 after a series of bells. (D'Angelo, PA) Sudwestrundfunk, **7265** with news in GG at 0112. (DeGennaro, NY) Bayerischer Rundfunk, **6085** in GG at 2117. (DeGennaro, NY) Deutsche Welle, **6075** in GG at 0043, **9900** via Russia in GG at 1056 and **11655** in Slavic language at 0957. Into EE at 1000. (DeGennaro, NY) **11690** in GG at 2300. (Quinby, PA) 11690 in GG at 2356, **11865** at 2155, **11960** in GG at 0006, **15205** via Sri Lanka at 2034 and **17810** in EE at 2041. (DeGennaro, NY) **12045** to East Africa via Portugal at 0355. (Miller, WA) 13590 at 1832 in EE but into Hausa at 1845. (Montgomery, PA) **13780** with skeds in GG at 1555. (Barton, AZ) **15360** in Urdu at 1700, into Dari at 1730 and Pashto at 1745. (Ziegner, MA)

GHANA—GBC, **4915** with a discussion in unid language at 2137. (DeGennaro, NY)

GREECE—Voice of Greece, **5865** in Greek at 0035, **15630** in Greek at 1946 and **17705** via Delano in Greek at 2019. (Charlton, ON) 15630 in Greek at 1945. (Brossell, WI)

GUAM—Adventist World Radio/Voice of Hope, **11560** with religious talk at 1043.

(Charlton, ON) **15615** at 1258 with IS and "From the beautiful island of Guam, this is Adventist World Radio, the Voice of Hope." Website given as www.awr.org. (Brossell, WI) Trans World Radio/KTWR, **15205** with news and talk at 1506. (Charlton, ON) Armed Forces Network, **5765 USB** at 1341. (Miller, WA)

GUATEMALA—Radio Coatan, **4780** at 1100 with frequent IDs over religious music, "estudios de Radio Coatan...las palabras de Dios." (Wilkner, FL) Radio Tezulutlan, Coban, **4835.4** (t) at 1100 but very weak. (Wilkner, FL) Radio Verdad, Chiquimula, **4052.4** with ID and religious programming at 1100. (Wilkner, FL) Radio K'ekchi, Alta Verapaz , **4844** in SS at 1100. Very poor modulation. (Wilkner, FL) Radio Maya, Barillas, **3324.7** at 0907 "transmite onda corta...radio Maya de Barillas.." (Wilkner, FL) Radio Cultural, **3300** in SS at 1039. (Miller, WA) Radio Buenas Nuevas, San Sebastian, **4779.6** in unid language at 1045 with vocals and ID. (DeGennaro, NY)

GUINEA—RTV Guineenne, **7125** at 2205 in vernacular and FF with talk, Afro-pops, sign off anmts with ID and NA at 0000. (Alexander, PA) 2254 with music typically played by this station. ID at 2304. (Montgomery, PA)

GUYANA—Radio Guyana, **2391.1** at 0120 with variety of light instrumental music and woman anncr. (Alexander, PA) 0919 short program anmts and brief music interludes. Man anncr with song titles. 0930 ID "This is the Voice of Guyana." (Montgomery, PA)

HAWAII—KWHR, **9930** with sermon at 1310. Also on **11565** at 1230. (Brossell, WI) **17510** with ID, and Brother Rose. (MacKenzie, CA) 0133 with religious program. (Foss, Philippines) Armed Forces Network, **6350** at 0519 with talk on disease evaluation. (Miller, WA) 0949 with sports interview. (Barton, AZ) WWVH, **10000** with time annt by woman at 1100. (DeGennaro, NY)

HONDURAS—Radio Litoral, La Ceiba, **4832** with music and SS at 0030. (DeGennaro, NY) Radio Misiones Internacionales/HRMI, **3340** with ID at 0115 and religious music. (Wilkner, FL) 0118. (Strawman, IA) 0137 with slow SS ballads, possible ID at 0200. (Montgomery, PA) 0251 with frequent IDs and time checks during music program in SS. (D'Angelo, PA) 0305 with SS religious programming, ID at 0401. (Alexander, PA)

HUNGARY—Radio Budapest, **9570** at 0229 with IS, multi-lingual ID, program preview, and news. (Burrow, WA) 0230 beginning EE to North America with "Hungary Today." (Linonis, PA) **9580** at 0231 and **9590** at 0103. (Charlton, ON)

ICELAND—INBS, **13865 USB** in Icelandic at 2305. (Charlton, ON) Armed Forces Network, **13855** at 1935 on raising children and interview with an author. (Montgomery, PA)

INDIA—AIR-Chennai, **5010** with long talk in Hindi at 1243. (Strawman, IA) AIR, Ranchi, **4960** in unid language at 1123. (Miller, WA) All India Radio, **3365** (Delhi) in Hindi at 1349; **6165** (Delhi) in Hindi at 1339; **10330** in Hindi at 1548; **11620** (Bangalore) with EE news at 1812; **15050** (Delhi) in Hindi to 1500 close. (Miller, WA) **7410** with domestic music at 2023. (Foss, Philippines) **11620** in presumed Hindi at 1245. (Brossell, WI) 2201 with news. (Charlton, ON) 0100 in Hindi. (Quinby, PA) 1110 and **13645** (Bangalore) at 1146 in unid language. (DeGennaro, NY) **13605** (Bangalore) at 1849, weak, with skipping record at 1858, EE ID at 1900 and then news. Also **15050** in listed Sinhala at 1302. And **15110** at 1620 with Indian music, time pips on the hour and then possible news. More music at 1715 to close at 1800. (Montgomery, PA)

INDONESIA—RRI Palangkaraya, **3325** in II at 1543 with beautiful domestic vocals. (Foss, Philippines) RRI Pontianak, **3975** with mentions of Kofi Anan and Pakistan. (Miller, WA) RRI Fak Fak (p) **4790** at 1220 with vocals but low audio. (Strawman, IA) 1339 at 1329. (Miller, WA) RRI Wamena (p) **4870** at 1258 with pops to top of hour anmts. (Strawman, IA) RRI Makassar (t) **4753.3** with woman anncr in talk, then possible AA or maybe Koran reading. The music was at a better level. (Montgomery, PA) RRI Sorong, 4870 at 0951 with music, long talks by woman. (Montgomery, PA)

IRAN—VOIRI, **9590** at 0130 with ID, frequencies. Also **11860** in EE at 2013. (Charlton, ON) **15545** in AA at 1313. (Brossell, WI) **21470** at 1123. (Foss, Philippines)

IRELAND—RT Eireann, **6155** via Canada at 0150 and **13640** via Canada at 1845. (Charlton, ON)

ISRAEL—Kol Israel, **11585** in Hebrew at 1740. (Miller, WA) **11605** in HH at 1945. Also **15785//17535** in HH at 2006 and **15615//15640//17545** at 1953 in HH. (Charlton, ON) 15615 in FF at 1942. (Brossell, WI)

ITALY—RAI, **6060** in II at 0041. **9840** in II at 2310 and **11800** in II at 0155 Also **11765** (*via Ascension—gld*) in II to Central and South America at 0130. (DeGennaro, NY) **9675//**11800 at 0111. (Charlton, ON) 11800 at 0332 to 0337 sign off. (Miller, WA)

JAPAN—Radio Japan/NHK, **5960** via Canada in JJ at 0310; **6145** via Canada in EE at 0005; **11895** in JJ at 2223 and **11710** in EE at 1506. (Charlton, ON) 6145 via Canada at 0051. **17585** in EE at 1055 to 1059 close. (DeGennaro, NY) **7230** via England at 0508. Also **21630** in JJ at 1612. (Paszkiewicz, WI) **9530** via French Guiana at 0900. (Barton, AZ) **11740** via Singapore at 1220 in JJ. (Brossell, WI) **11855** in EE at 2100. (Quinby, PA) **17825** in JJ at 2212. (MacKenzie, CA) 2205 in JJ. (Jeffery, NY) Radio Tampa, **9595** in JJ with domestic service at 1200. (Linonis, PA)

JORDAN—Radio Jordan, **11690** with news at 1605, IDs at 1620 and 1631. Heavy RTTY QRM. (Montgomery, PA)

KUWAIT—Radio Kuwait, **11675** at 1954, **11990** at 2044, **15495** in AA at 1944. (Charlton, ON) 11990 at 1932. (Burrow, WA) **13620** in AA at 1546. (DeGennaro, NY) **15110** in AA at 1435. (Miller, WA) **15495** in AA at 0236. (Jeffery, NY) **15505** in AA at 2010. (Brossell, WI)

LESOTHO—Radio Lesotho, **4800** at 0320 with music to 0330 then a discussion program with man and woman in Sesotho. More music at 0350, ID at 0400 and news. (D'Angelo, PA)

LIBYA—Radio Jamahiriyah, **15205** in PP at 1728 and **15435** in AA at 1740. (Charlton, ON) **15205** with news in heavily accented EE. (Miller, WA) 15205 with EE program about the concepts of the Revolutionary Committee's Movement at 1926, **//15315**. (Alexander, PA) (*15205 is via France—gld*) 15435 in AA at 2126. (DeGennaro, NY)

LITHUANIA—Radio Vilnius, **9875** at 2326 with EE news at 2330. (Miller, WA) 2329 with IS, ID, program preview, news. (Burrow, WA) EE sign on at 2330. (DeGennaro, NY) 0000 with news in EE and 1690 with opera selections at 0059. (Charlton, ON) **11690** with news at 0030. (Quinby, PA)

MALAYSIA—Voice of Malaysia, **15295** in unid language at 1638. (Miller, WA)

MALI—RTV Malienne, **4835** at 2320 with FF anmts, vocals. (DeGennaro, NY) 0001 with FF sign off anmts over flute and children's choir in background. Anthem at 0002, gone at 0004. (Strawman, IA)

MALTA—Voice of the Mediterranean, **9605** via Rome, at 1010 with II talks.

This Month's Book Winner

To show our appreciation for your loggings and support of this column, each month we select one "Global Information Guide" contributor to receive a free book. Readers are invited to send in loggings, photos, copies of QSL cards, and monitoring room photos to me at *Popular Communications*, "Global Information Guide," 25 Newbridge Road, Hicksville, NY 11801, or by e-mail to popularcom@aol.com. The e-mail's subject line should indicate that it's for the "Global Information Guide" column. So come on, send your contribution in today!

Our book winner this month is **Sheryl Paszkiewicz** of Wisconsin who receives a copy of the 2004 edition of *Passport to World Band Radio*, courtesy of the good people at Universal Radio. If you aren't on the mailing list for their catalog, you should be. You can get a copy—free—by calling (614) 866-4267, e-mailing them at dx@universal-radio.com or by dropping a note to Universal Radio, 6830 Americana Parkway, Reynoldsburg OH 43068.

(DeGennaro, NY) **12060** via Russia at 1907 history of Knights of St. John. (Foss, Philippines)

MAURITANIA—Radio Mauritanie, **4845** in AA at 0003. (DeGennaro, NY)

MEXICO—Radio Huayacocotla, **2300** at 1200 sign on but very weak. (Wilkner, FL) XERTA, **4810**, 1000 with over-modulated signal. Very long periods of carrier but no audio. (Wilkner, FL) XEXQ, Radio Universidad, San Luis Potosi, **6045** at 1205 with sign on announcement in SS and into classical music. (Wilkner, FL) Radio Educacion, **6185** in SS at 0137. (Charlton, ON) 1014 with Mexican dance music. (DeGennaro, NY) Radio Mexico Int., **9705** in SS at 0132. (Charlton, ON) 2100 in SS. (Quinby, PA) 9705//**11770** at 0310 in SS. (Burrow, WA) 0328 in SS. (Miller, WA) Radio Mil, **6010** with SS and Mexican music at 0945. (DeGennaro, NY)

MOLDOVA—Voice of Russia via Moldova a, **9665** at 0109. (Charlton, ON)

MONGOLIA—Voice of Mongolia, **12085** in Mongolia at 0904 with local music. Into EE at 1000 with feature on Central Asian relations and mailbag program. (Ziegner, MA)

MOROCCO—Radio Medi un, **9575** at 1007 with AA news, vocal music. (DeGennaro, NY) RTV Marocaine, **7135** at 2335 with non-stop AA music, man in AA at 2358, ID, news briefs and off at 2359. (D'Angelo, PA) **7185** in AA at 0217. (Charlton, ON) 7185 at 0108 and **15340** (*345?—gld*) in AA at 1046. (DeGennaro, NY) **15345** in AA at 1641. (Miller, WA) 1845 in AA/EE. (Ziegner, MA) VOA Relay, **15445** at 2009. (Brossell, WI) **17895** at 1735. (Charlton, ON)

NEW ZEALAND—Radio New Zealand Int., **9580** via Australia at 1630 with pops, talk, IS and ID at top of the hour, news. (Barton, AZ) **9850** with religious talk at 1141. Also **9885** at 1200 with ID and sign on. (DeGennaro, NY) 9885 at 0951 with interview and news. (Jeffery, NY) **11820** with news at 0500. (Brossell, WI) **15160** at 2120 about TV news in New Zealand. (Foss, Philippines) **17675** at 0001. (Charlton, ON) 0316 with mailbag program. Closed at 0327. (Burrow, WA) 2225. (MacKenzie, CA) 2228. (Miller, WA)

NETHERLANDS—Radio Netherlands, **9560** via Canada at 0215 and **15220** (also Canada) at 1455. (Charlton, ON) 12065 via Russia at 1030. (Foss, Philippines)

NETHERLANDS ANTILLES—Radio Netherlands Bonaire relay, **9715** in SS at 1211. (DeGennaro, NY) **15155** in DD at 2145. (Barton, AZ) **17605** at 1958. (Charlton, ON) **21590** at 1940. (Charlton, ON)

NIGERIA—Radio Kuduna, **4770** at 2136 with man/woman anncrs in local language. Poor modulation. One time pip on the hour, ID and into piano music. Went past listed 2205 sign off. (Montgomery, PA) Voice of Nigeria, **7255** at 0526 in EE with African music. Also **15120** with news in EE at 2253. (Miller, WA) 7255 at 0515. (Burrow, WA) 0530 with ID, music, talk in FF. (Brossell, WI) 15120 in EE at 1845 and 2230. (Charlton, ON) **17800** at 2130 with ID, Nigerian pops. Top 5 countdown program at 2153. More news at 2200. (Montgomery, PA) 2250 to 2300 close with ID prior to anthem. (D'Angelo, PA)

NORWAY—Norwegian Radio, **15705** in NN at 1106. (DeGennaro, NY)

NORTH KOREA—Pyongyang Broadcasting Station, **3320** in KK at 1044. (Miller, WA) Korean Central Broadcasting Station, **2850** at 1438 with large mixed chorus and full orchestra. Also **9345** at 2327 with chorus and passionate speech. (Foss, Philippines) **9335** with news and vocal music. (DeGennaro, NY) Voice of Korea, 9335//**11710** at 1100 in FF with long version of national anthem and praise for Kim Jong Il. (Linonis, PA) 11710 with IS and 1300 sign on "This is the Voice of Korea. From Pyongyang in the People's Republic of Korea, this is the Voice of Korea. Now the news." (Brossell, WI) 0845 with military chorus and EE talks. (Barton, AZ)

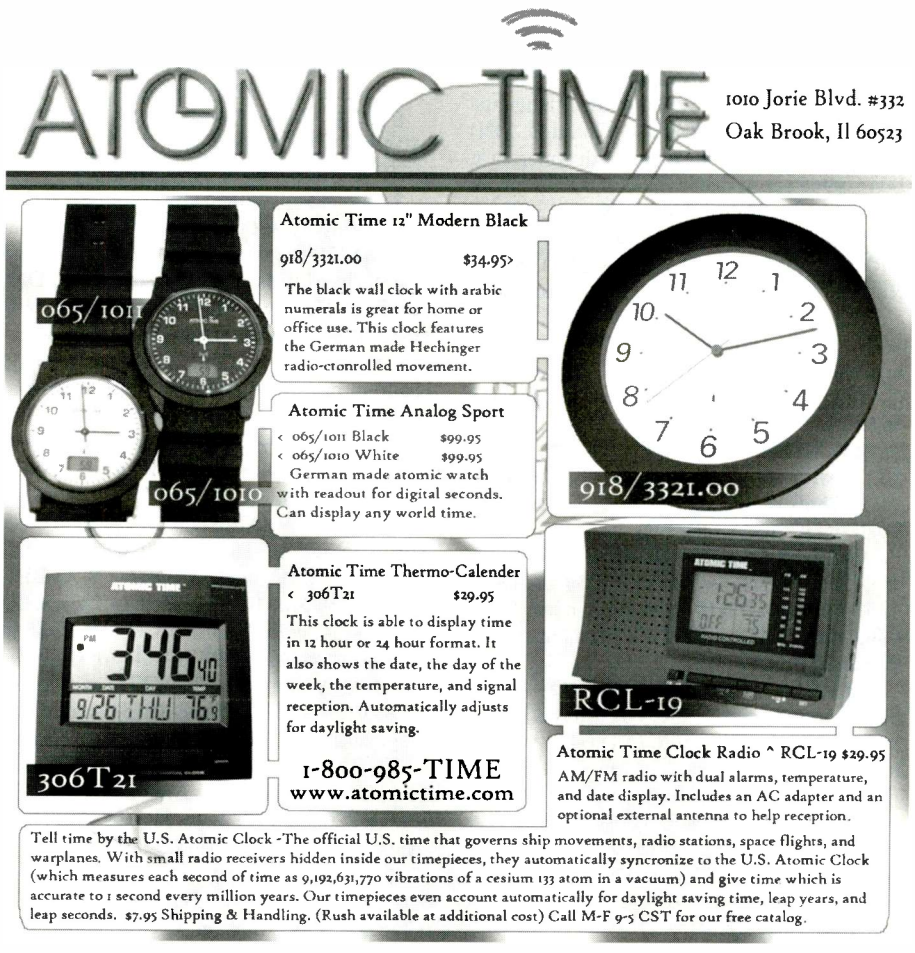
NORTHERN MARIANAS—VOA Relay, Tinian, **9545** at 1244 to 1300 close. (Paszkiewicz, WI) **13760** at 0835. (Barton, AZ) KFBS, Saipan, **11580** in CC at 1211. (Brossell, WI)

PAKISTAN—Radio Pakistan, **11570** at 1502 with man/woman reading news in unid language. (Foss, Philippines) **15065** in unid language to 1530 sign off. (Miller, WA)

PALAU—KHBN, **9985** with religious program in unid language at 0300. (Linonis, PA)

PAPUA NEW GUINEA—NBC, Port Morseby, **4890** with Karai National Service at 0909 with ID at 0916. (Burrow, WA) 1036 with news. (DeGennaro, NY) 1100 with news. (D'Angelo, PA) 1115 with BBC news relay. (Linonis, PA) 1333. (Miller, WA)

PERU—(Note: most Peruvian stations have similar programming, so to save space we won't repeat program things such as SS, PSAs, Andean music, flutes, etc., and stick mostly station name, location, frequency and time) La Voz de la Selva, Iquitos, **4824.4** at 1023. (DeGennaro, NY) Radio Tarma, Tarma, **4775** at 1028. (DeGennaro, NY) Radio Huanta 2000, Huanta, **4748** in SS and QQ at 0949. (DeGennaro, NY) Reina de la Selva, Chachapoyas, **5486.7** at 1007. (Wilkner, FL) Radio La Oroya, La Oroya, **4905** at 0938. (DeGennaro, NY) Radio Libertad, Junin, **5039.3** at 1050 with quick ID. (Wilkner, FL) Radio Los Andes, Huamachuco (t), **5030** with possible ID at 0005. (Montgomery, PA) Radio Ilucan, **5678** at 0150 to 0247 close. (D'Angelo, PA) Radio Horizonte, Chachapoyas, **5019.9** at 0020. (Strawman, IA) Radio San Antonio, San Antonio de Padua,



3375 with quick ID at 0950. (Wilkner, FL) Radio Atlantida, Iquitos, **4790** at 0200 with possible futebol. (Linonis, PA) 0944. (DeGennaro, NY) 1342. (Miller, WA) Radio Imperio, **4386.6** with apparent religious programming at 0851. (Wilkner, FL) Radio Naylamp, Lambayeque, **4335v**, with ID at 1030. (Wilkner, FL) Radio La Hora, Cusco, **4855.6** in SS/QQ at 1025. (DeGennaro, NY)

PHILIPPINES—Radio Veritas Asia, **9520** with religious messages in CC at 1116. (DeGennaro, NY) **9670** in JJ at 1200. (Linonis, PA) VOA relay, **9760** at 1250. (Brossell, WI) 1144. Also **15160** at 1215. (Jeffery, NY) **11805** in SS at 2320. (Barton, AZ) **17820** at 2216, **//17740**. (MacKenzie, CA) 0000, FEBC, **9405** in Mandarin at 1256. (Strawman, IA)

POLAND—Radio Maryja, **7380** via Russia, 2135 with religious program in Polish, IDs and sign off with EE anmts, but plug was pulled in the middle of giving their schedule. This frequency is covered by the Voice of Biafra on Saturdays. (Alexander, PA)

PORTUGAL—RDP Int., **9715** in PP at 0130 and **17680** in PP at 1922. (Charlton, ON) **13770** in PP at 1443. (DeGennaro, NY)

PUERTO RICO—Armed Forces Network, **6458.5 USB** at 0003. (Charlton, ON)

ROMANIA—Radio Romania Int., **11840** at 1700 with IS, ID, schedule, news. (Burrow, WA) **11940** in RR at 0031. (Charlton, ON)

RUSSIA—Voice of Russia (Irkutsk) **5905** in JJ at 1358. (Miller, WA) **7390** (Irkutsk) in RR at 2032. (Foss, Philippines) 1430 to SE Asia. (Barton, AZ) **9485** via Samara with Russian folk music. (Strawman, IA) **9725** at 0220, **11675** at 1802, **12000** in unid. language at 2246 and **15465** at 2021. (Charlton, ON) **9830** from Armavir in SS to South America at 0047, **9965** via Armenia in SS at 0058 sign on. (DeGennaro, NY) 12000 in CC at 1250 and **15455** in FF at 1940. (Brossell, WI) **15510** in Urdu and Hindi at 1430. (Ziegner, MA) Radio Rossii, **13705** in RR at 1439. (DeGennaro, NY) Voice of Tartarstan, via Samara, **11665** at 0355 with open carrier, then IS and ID in Tartar, another IS and woman with ID in RR. (D'Angelo, PA) 0357 with open carrier to IS and ID at 0400. (Strawman, IA)

RWANDA—Deutsche Welle relay, **15275** with classical music at 0145. (Barton, AZ) **17860** in GG at 2010. (Charlton, ON) 2020 in GG. (Brossell, WI)

SAUDI ARABIA—BSKSA, **9555** in AA at 2126. (DeGennaro, NY) **15230** in AA at 2233, **15315//15435** with Koran at 1507. (Charlton, ON) **15275** in AA at 0430. (Linonis, PA)

SERBIA MONTENEGRO—Radio Serbia Montenegro (ex R. Yugolslavia), **9580** in EE at 0002. (Charlton, ON) 0428 with IS to 0430 and into news. (Burrow, WA)

SINGAPORE—Mediacorp, **6150** with Newsradio **9380** at 1430. (Foss, Philippines) Festival preparations at 1349. (Miller, WA) BBC relay, **9740** at 1050. (DeGennaro, NY) **11945** in CC at 1245. (Brossell, WI) **15360** at 0815. (Barton, AZ)

SOLOMON ISLANDS—SIBC, **5020** in EE and Pidgin at 1017 alternating local news items. (DeGennaro, NY) BBC news at 1133. (Miller, WA)

SLOVAKIA—Radio Slovakia, **5930// 9440** in EE at 0104 with ID. (Charlton, ON) **6190** at 0212 with EE talks translated into FF. (DeGennaro, NY)

SOUTH AFRICA—BBC relay, **11765** with live sports coverage and news at 0500. (Brossell, WI) Radio SonderGrense, **3320** at 0034 with various songs. (Montgomery, PA) 0128 with music and talk in Afrikaans. (D'Angelo, PA)

SOUTH KOREA—Radio Korea Int., **9560** via Canada at 0236. (Burrow, WA) **9650** via Canada at 1215. **11715** via Canada in SS at 1012. (DeGennaro, NY)

SPAIN—Radio Exterior de Espana, **6055** in EE at 0156; into SS at 0200. **13720** in SS at 1154. (DeGennaro, NY) **9925** via Germany in CC at 0139, **15110** in SS at 1938, **15385** in EE at 0020, (Charlton, ON) **17755** in SS at 1402. (Foss, Philippines)

SRI LANKA—SLBC, **4870** in Sinhala at 1350. (Miller, WA) **9770** at 0030 with 4 plus 1 time pips, woman with opening ID and news, ID, continuous instrumental music to 0100. (D'Angelo, PA)

SWEDEN—Radio Sweden, 9495 at 0150, 9580 via Canada at 0024 and 17840 at 1341. (Charlton, ON) 17840 with interview at 1340. (Northrup, MO)

SWITZERLAND—Swiss Radio Int., **9885** at 2332. (DeGennaro, NY) **11905** via French Guiana in GG at 2257. **15515//17870** via Germany at 1732. (Charlton, ON)

SYRIA—Radio Damascus, **13610** at 2011. QRM WEWN. (Miller, WA) 2037 with news in EE, AA "rap," ID at 2100. (Burrow, WA)

TAIWAN—Radio Taiwan Int., **5950** (via Florida) in CC at 0039, **6145** via Canada at 0028, **15120** via Florida in CC at 2140 and **15600** via Florida at 2205. (Charlton, ON) **11605//15465** in CC at 1255. (Brossell, WI) **11985** at 1131. (DeGennaro, NY)

TAJIKISTAN—Voice of Russia relay, **11500** in presumed Hindi at 1229. (Brossell, WI) **11620** with news at 0210. (Charlton, ON)

THAILAND—Radio Thailand, **7260** at 1100 in presumed Thai with news, Asian music. (Linonis, PA) **9830** in EE at 1410, off abruptly at 1429. (Miller, WA) **15395** at 0029 with weather for Thailand. (Charlton, ON) 0300 with IS, ID, news. (Burrow, WA) BBC Relay, **11955** at 0020 on Asian issues, ID 0030. (D'Angelo, PA) VOA Relay, **7125** at 1400. (Barton, AZ) **9700** in Malay or Burmese at 1135. (DeGennaro, NY) **13775** with news at 2300. (Foss, Philippines) **15150** in unid language at 0041. (Jeffery, NY)

TURKEY—Voice of Turkey, **9460** with Turkish music at 2234. And **9830** with EE news at 2208. (DeGennaro, NY) **9785** at 1830. (Alexander, PA) 9830//**12000** with ID at 2206. (Charlton, ON) **11655** with news at 0305. (Burrow, WA) **11885** in TT at 2211. (Charlton, ON) 0200 in TT . (Linonis, PA) 0341 in TT. (Miller, WA) **17830** in EE at 1300. (Northrup, MO)

TUNISIA—RTT Tunisienne, **7190** in AA at 0520. (Brossell, WI)

UKRAINE—Radio Ukraine Int., **12040** in EE at 0039. (Charlton, ON) 0310 with "Ukraine Today." (Burrow, WA) 0349 with Ukrainian folk songs. (Miller, WA)

UNITED ARAB EMIRATES—UAE Radio, **11710** in AA at 2203. (Charlton, ON) **13675//15400** at 0331 to 0345 off. (Burrow, WA) 13675 in AA at 1550. (DeGennaro, NY) 1510 in AA and EE. (Ziegner, MA) **15395** in AA at 1935. Brossell, WI) 0318 with news in AA. (Miller, WA)

UZBEKISTAN—Radio Tashkent, **9715** in presumed Uzbek at 1522 with man and woman talks. (Foss, Philippines) 0016 in Uzbek. (Charlton, ON) **11905** at 2030 with EE news, comment, local pops and folk, address, IDs. EE also at 2130 to 2158. (Alexander, PA) 2130 in Uzbek. (Linonis, PA)

VATICAN- Vatican Radio, **7305** in SS at 0119. (DeGennaro, NY) **9605** in SS at 0325. (Charlton, ON) **11625** with IS, ID and sign off at 1658. (Miller, WA)

VENEZUELA—Radio Tachira, **4830** in SS at 1100, mentions of Venezuela. (Wilkner, FL) Radio Amazonas, Puerto Ayachucho, **4939.6** in SS at 1010. (DeGennaro, NY)

VIETNAM—Voice of Vietnam, **5925** in VV at 2241. (Foss, Philippines) 1400 in VV. (Miller, WA) **6175** via Canada at 0100. (Barton, AZ) 0149 in VV. (Charlton, ON) 0208 in EE. (DeGennaro, NY) **13740** at 1600 "This is the Voice of Vietnam coming to you from Hanoi, capital of the Socialist Republic of Vietnam" and into news. (Foss, Philippines)

YEMEN—Republic of Yemen Radio, **9780** in AA at 1305. (Brossell, WI)

ZAMBIA—Christian Vision, **4965** with pop-type music and EE anmts, ID at 0053. (Strawman, IA) 0111 with woman presenting top 10 hits. (Montgomery, PA)

And that does it. If this were a sports program on television we'd "circle" the following for coming through this month: Michael Miller, Issaquah, WA; Robert Wilkner, Pompano Beach, FL; Bob Charlton, Windsor, ON; Jerry Strawman, Des Moines, IA; Robert Montgomery, Levittown, PA; Mark Northrup, Gladstone, MO; Marty Foss, Guinayangan, Philippines; Rick Barton, Phoenix, AZ; Dave Jeffery, Niagara Falls, NY; Brian Alexander, Mechanicsburg, PA; Richard D'Angelo, Wyomissing, PA; Robert Brossell, Pewauakee, WI; Jack Linonis, Hermitage, PA; Bruce R. Burrow, Snoqualmie, WA; Sheryl Paszkiewicz, Manitowoc, WI; Stewart MacKenzie, Huntington Beach, CA; Samuel Quinby, Sharon, PA and Tricia Ziegner, Westford, MA. Thanks to each one of you and until next month—good listening! ■

Scan Our Web Site

by Mike Byer, AF4AY, wcu02mpa@hotmail.com

When Disaster Strikes, Will You Be Ready?

September and October ushered in a hurricane season that brought devastation to the southeastern United States. This damage was so severe in Florida that many are wondering if they will ever fully recover. The cities of Punta Gorda, Pensacola, and Melbourne, where hurricanes Charlie, Francis, and Ivan made landfall, were hit especially hard. Power was out for weeks, supplies like gasoline and food dwindled to bare minimum, and many families were forced to seek emergency housing at local shelters.

As we reflect on the recent events, we all need to ask ourselves, Will we be ready when disaster strikes? Have we prepared our homes, our vehicles, and our communications equipment to handle a crisis?

Is Your Communications Equipment Prepared?

If you're asking what on earth I'm talking about, please read on. Is your scanner, CB, FRS, MURS, and any other equipment ready? I'm going to tell you how to make *sure* your communication equipment is ready for action when the time arises.

Table 1. FRS Frequencies
(in MHz)

Channel	Frequency
1	462.5625
2	462.5875
3	462.6125
4	462.6375
5	462.6625
6	462.6875
7	462.7125
8	467.5625
9	467.5875
10	467.6125
11	467.6375
12	467.6625
13	467.6875
14	467.7125

Many individuals and families have discovered the great benefits of having Family Radio Service (FRS) radios. They offer clear and reliable communications for distances of about one mile, assuming there's relatively flat terrain and the little radios are not being used in a high-rise urban setting. Many frequency and sub-audible tone combinations are available giving the user plenty of radio punch for immediate use. The 14 frequencies and 38 CTCSS tone combination add up to a whopping 538 possible channels! While the radios can be set to have virtually interference-free communication between each radio set up the same way, they can also be heard by other FRS radios and scanners. And only radios that have a scrambling mode are capable of secure communications. While it isn't foolproof, the scrambling does offer a reasonable amount of privacy, just don't pass along information of a private nature. Treat all information being passed through a radio as if it were being monitored by someone else. Take a look at **Table 1** for all 14 FRS frequencies and program them into your scanner, as well.

Since so many frequency combinations are available, set up your FRS radios so that they can be turned on and

Here's highway U.S. 25 in Biltmore Village, Asheville, North Carolina. The high water is the result of the Swannanoa River overflowing its banks during Hurricane Francis. In situations like this, your radios, both two-way and monitoring equipment, can be invaluable. Just be sure they're ready before disaster strikes!

Table 2. GMRS Repeater Outputs
(in MHz)

462.550
462.575
462.600
462.625
462.650
462.675
462.700
462.725

This photo shows a secondary road that was completely flooded during Hurricane Francis. This road runs alongside the French Broad River in Asheville, North Carolina. Rising water can reach dangerous levels quickly and without warning. Keeping your scanner tuned to NOAA weather, SKYWARN ham nets, and other local road information frequencies can give you up-to-the-minute information on disaster situations as they develop.

used right away. Make sure batteries are fresh and the radios are working. Get a feel for what type of distance you'll be able to cover in your area. Have someone stay at the house and have a family member walk around the neighborhood with a radio. This will give everyone a real perspective of how the radios will function. Better to test them now than to wait until an emergency arises!

This is a good activity for any family. I live in a mountainous region and FRS radios will not perform as well as if I lived in a level area. So make sure you know the range limits of your radio. Get each family member familiar with the radios and how they work. When the lights go out and when severe weather has children frightened is not a good time to start practicing. That's the time to put into action what you have already practiced.

Other Radio Services

Since so many FRS radios are actually FRS/GMRS combos, it's a good idea to get a General Mobile Radio Service (GMRS) license so you can use those frequencies as well. The license, which costs $75 and is good for five years, is relatively easy to get and covers all family members who live in the residence. Another benefit to having this license is that it allows you to operate higher-powered UHF radio equipment that can be used on GMRS repeaters in the area. Don't forget that you can also monitor the repeater outputs of GMRS frequencies—no license needed, of course. See **Table 2** for GMRS repeater output frequencies.

Another radio service, the Multi-Use Radio Service (MURS) has not caught on as well as FRS as yet, but I expect it will as soon as more MURS radio equipment is made available to the consumer. Keep a lookout for MURS updates regarding radios, user groups, and other information because this radio service is up and coming FRS.

Your Scanner

Another critical piece of your communications gear is your scanner. Whether it's a handheld, base unit, or mobile, the scanner holds a wealth of information at your fingertips. Unfortunately, most people don't really understand the full capability of a scanner. This depends, of course, on the frequency coverage, trunking capabilities, and other specialty features. Some scanners, such as Uniden's new BCT-8 scanner, offer trunking, CB coverage, and preprogrammed state police and highway patrol frequencies. RadioShack's new PRO-96, although somewhat pricey, allows for monitoring of digital radio systems. Scanner aficionados understand what I'm talking about; for the rest of you out there, I'll clue you in on how to make the most of your scanner and its functions.

Many of us have our local police, sheriff, and fire/rescue frequencies programmed in because that is where most of the action is on a daily basis. Other frequencies, such as for state DOT, phone company, and power and other utilities, usually provide little if any noteworthy action. But consider this, if you are hit with a power outage and you notice a group of utility trucks in your area, it might be a good idea to find out what frequencies that company uses and give them a listen. Many crews relay information back and forth giving listeners some real-time information about what's going on.

Here in North Carolina, Bellsouth and Progress Energy maintain wide radio networks. During the recent flooding here, I was able to gather information that provided me with a good idea of when power might come back on. Although the companies are good about reporting to the local news station, I wanted real-time information and was able to get it. A good source of utility company frequencies is the *Police Call* frequency guide. You can also do a frequency search on the Internet. Again, it's vital to have this information *before* your power goes out.

Another good place to get real-time information is from the state DOT frequency listings. The DOTs are usually responsible for road closures and repairs. They're dispatched for snow plow duty, debris clearing, and many other problems that require someone to maintain the nation's roadway infrastructure. Having your state's DOT frequencies can give you up-to-the-minute reports on where crews are being sent to deal with roadway hazards. Your state police and highway patrol also have some overlap dealing with highway emergencies. If you can tune into your state police radio system, it's a good idea to do so. Several states are using Motorola Astro Digital, MA/COM EDACS, or other radio system that might be difficult to listen in on, so whether you

This photo shows a large oak tree that nearly destroyed a house. Had the tree fallen a few more feet towards the structure, that section would have been taken out. If you don't think it can happen in your neighborhood, think again—and be ready!

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can tune the frequencies will depend on where you are. Other systems to check out include the state wildlife and forestry radio networks. These are a good bet to listen to as they'll be passing along critical information regarding forest fires, mudslides, river and lake conditions, and much more that can affect our daily lives.

Simply collecting all these frequencies can be quite a challenge, and arranging them into your scanner banks can be another, but it doesn't have to be a chore or confusing. I have mine set up with banks that hold similar agencies. One bank is for police, one for state DOT, and another for wildlife and forestry, ham frequencies, FRS/GMRS/MURS, and so on. Having the banks set in place and the frequencies arranged in a logical order will assist in quickly getting to the right agency when needed.

Remember The Hams For Free Information!

The next group of frequencies to have in your scanner is the ham radio repeater frequencies for your area. It's amazing how much information is passed along these repeaters. VHF and UHF repeaters are in use all across the United States. Those of you who are not familiar with ham radio and its value to society in both emergency and non emergency situations are in for a treat. To give you just one example, during a severe weather situation, a designated repeater is in place for a SKYWARN net. SKYWARN is a national network of volunteer weather spotters who are formally trained on how to spot severe weather and relay this information back to the National Weather Service office in a given area. It's important to know which repeater in your area is designated the SKYWARN repeater and to listen there for activation during storms or watches. The information gained there can be invaluable—even lifesaving—during blizzards, tornadoes, and hailstorms. If you live in an area that is prone to flooding and rising rivers that can wash out roadways, then keeping your scanner or CB tuned to local frequencies that provide up-to-the-minute information is critical. I've included the official CB channel/frequency listing in **Table 3.**

If you choose, you, too, can become a vital link in the passage of information to

Table 3. Citizen's Band (CB) Channels
(in MHz)

Ch.	Freq.	Ch.	Freq.	Ch.	Freq.
1	26.965	14	27.125	28	27.285
2	26.975	15	27.135	29	27.295
3	26.985	16	27.155	30	27.305
4	27.005	17	27.165	31	27.315
5	27.015	18	27.175	32	27.325
6	27.025	19	27.185	33	27.345
7	27.035	20	27.205	34	27.345
8	27.055	21	27.215	35	27.355
9	27.065	22	27.225	36	27.365
10	27.075	23	27.255	37	27.375
11	27.085	24	27.235	38	27.385
12	27.105	25	27.245	39	27.395
13	27.115	26	27.265	40	27.405
		27	27.275		

the weather service, your local news department, a SKYWARN station, or an emergency station set up in your area. The faster the information is passed on, the faster it gets out to the general public. Check out your local REACT team, ham radio club, or SKYWARN group to find out how you can get involved.

Back To Basics—Don't Forget NOAA

The NOAA (National Oceanic and Atmospheric Administration) weather frequencies between 162.400 and 162.550 MHz also provide daily weather statements and summaries. One relatively new feature that many weather radios and scanners are offering is the Specific Area Message Encoding (SAME) system. This allows the user of a SAME-enabled receiver to enter a six-digit code for his or her area. When the system is activated, the receiver will turn on and a message will follow. This system can bring lifesaving information to areas that are subject to storms, tornadoes, and other severe weather situations that can develop rapidly and with little or no warning.

Avoid Problems, Don't Become One

The goal of most radio monitors during an emergency is the gathering of information. Radio networks carry information intended for certain listeners, but they also give anyone with a scanner the ability to pull out bits of information that may directly affect them, as well.

Please remember that 9-1-1 centers are teaming with activity during emergencies and do not need to be dealing with frivolous calls for information. The 9-1-1 center personnel need to be handling incoming and outgoing radio traffic, answering phone calls for various emergencies, and keeping current with any critical situations. We should all do what we can to gather the information we need from other sources, particularly our own monitoring activities. Our communication scanners are more than just something to listen to for police and fire department action. During an emergency the radio spectrum comes alive with activity for us to hear. Not only is it our hobby, but it can also be a critical tool in helping us know where problems are, how to avoid them, and what recovery efforts are at hand.

What radio experiences have you had in times or emergency? Were you prepared, or did you have to grab-and-run, wishing you had pre-programmed that radio and bought extra batteries? Drop me a line at wcu02mpa@hotmail.com or by regular mail at *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801. See you again next month! ■

Mike's Tip Of The Month

When using a handheld transceiver with a speaker-microphone attached, make sure you adjust the antenna *away* from your body when you're transmitting. The antenna will not radiate properly due to the close proximity of your body if it is attached to your belt. Holding the radio in the air while talking into the speaker mic increases both transmit range and reception capability. Also, if you've got a scanner on your belt, it will also suffer from signal degradation if the antenna is constantly kept next to your body. Remember to tilt the scanner or transceiver at a 45-degree angle, or remove it from your belt altogether when receiving critical messages.

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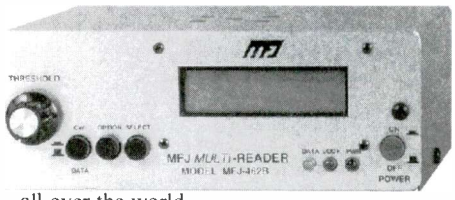

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MFJ-1024 **$139.95**

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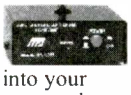

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World News, Commentary, Music, Sports, And Drama At Your Fingertips

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

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

UTC	Freq.	Station/Country	Notes
0000	9580	Int. Radio of Serbia & Montenegro	
0000	9845	Radio Netherlands	
0000	11740	All India Radio, Panaji (Goa)	HH
0000	5815	World Music Radio, Denmark	
0000	9440	Radio Prague, Czech Republic	
0000	9725	University Network/Dr. Gene Scott	
0000	5010	Radio Cristal, Dominican Republic	SS
0030	9605	Vatican Radio	PP
0030	9665	Voice of Russia via Moldova	SS
0030	11905	Sri Lanka Broadcasting Corp.	
0030	11690	Radio Vilnius, Lithuania	LL
0030	11800	RAI Int., Italy	II
0030	11765	BBC relay, Ascension	SS
0030	4650	Radio Santa Ana, Bolivia	SS
0100	15425	Far East Bc. Co., Philippines, via Russia	unid
0100	16160	Radio Exterior de Espana, Spain	SS
0100	5020	Radio Horizonte, Peru	SS
0100	15180	Voice of Korea, North Korea	
0100	11990	Radio Canada Int.	
0100	6030	Radio Marti, USA	SS
0100	3300	Radio Cultural, Guatemala	SS
0100	4915	Radio Difusora Macapa, Brazil	PP
0130	11705	VOA Relay, Sri Lanka	
0130	4810	Radio Transcontinental, XERTA, Mexico	SS
0130	6010	La Voz de tu Conciencia, Colombia	SS
0130	15375	Voz Cristiana, Chile	SS
0130	13625	Radio Sweden	
0200	3220	HCJB, Ecuador	QQ
0200	11675	Radio Kuwait	AA
0200	9575	Radio Medi Un, Morocco	AA
0200	11585	Kol Israel	HH
0200	11610	VOIRI, Iran	SS
0200	9795	Wales Radio Int., via England	
0200	4800	Radio Buenas Nuevas, Guatemala	SS
0200	9420	Voice of Greece	Greek
0200	9925	Voice of Croatia	SS
0200	9905	VOIRI, Iran	SS
0200	5025	Radio Rebelde, Cuba	SS
0200	11665	Radio Free Europe	unid
0200	11710	RAE, Argentina	
0200	11785	Radio Guiaba, Brazil	PP
0200	3210	Radio Exterior de Espana, via Costa Rica	SS
0230	6870	WRMI, Florida	
0230	15545	Voice of Russia	
0230	6010	Radio Sweden	
0230	12005	RT Tunisienne, Tunisia	AA
0230	4750	Radio Peace, Sudan	
0230	9440	Radio Slovakia Int.	SS
0230	15720	Radio New Zealand Int.	
0230	11920	RTV Marocaine, Morocco	AA
0230	11985	All India Radio	HH
0230	6175	Voice of Vietnam, via Canada	
0230	15565	Radio Japan/NHK, via French Guiana	SS
0230	9790	Radio Budapest, Hungary	
0230	9775	Radio Farda, USA (to Iran)	Farsi
0230	7160	Radio Tirana, Albania	Albanian
0230	15075	All India Radio	HH
0230	3270	Namibian Bc Corp., Namibia	
0230	7305	Vatican Radio	
0300	5026	Radio Uganda	
0300	4990v	Radio Apinte, Suriname	DD
0300	6140	Voice of Turkey	
0300	5890	Radio Thailand, via USA	
0300	7545	Radio Ukraine Int.	
0300	9737	Radio Nacional Paraguay	SS
0300	9780	Republic of Yemen Radio	AA
0300	11855	Radio Cairo, Egypt	
0300	6035	La Voz del Guaviare, Colombia	SS
0300	4910	ZNBC/Radio Zambia	
0300	6973	Galei Zahel, Israel	HH
0300	7300	Voice of Turkey	TT
0330	7180	Voice of the Broad Masses of Eritrea	vern
0330	3250	Radio Luz y Vida, Honduras	SS
0330	7110	Radio Ethiopia	Amharic
0330	5054	Faro del Caribe, Costa Rica	SS
0355	5500	Voice of the Tigray Revolution (clandestine)	vern
0400	11635	Radio Vlaanderen Int., via Bonaire	
0400	4985	Radio Brazil Central, Brazil	PP
0400	3975	Radio Budapest, Hungary	HH
0430	7265	Channel Africa, South Africa	
0430	11665	Sudan Radio Service	
0430	5985	Radio Congo	FF
0500	4960	VOA Relay, Sao Tome	
0500	6070	CFRX relay CFRB, Canada	
0530	6185	Radio Educacion, Mexico	SS

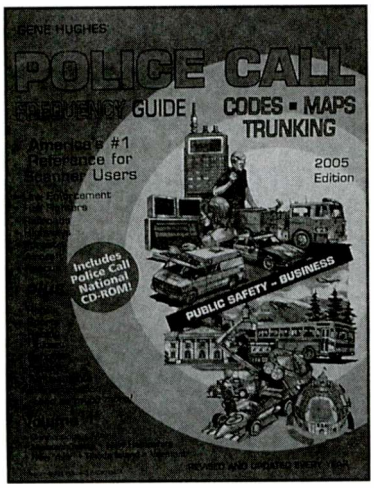
UTC	Freq.	Station/Country	Notes
0600	6020	Radio Victoria, Peru	SS
0600	11640	Trans World Radio, via South Africa	
0600	9615	Radio New Zealand Int.	
0600	4915	GBC - Radio Ghana	EE/vern
0800	13840	IRRS, Italy	
0800	3292	Voice of Guyana	
0800	4885	Radio Clube do Para, Brazil	PP
0930	4750	Radio Huanta 2000, Peru	SS
0930	11845	Radio France int.	FF
0930	6010	HCJB, Ecuador	GG
0930	4919	Radio Quito, Ecuador	SS
0930	4814	Radio Buen Pastor, Ecuador	SS
0930	4875	Radio Difusora Roraima, Brazil	PP
0930	6060	Radio Nacional, Argentina	SS
0930	6025	Radio Amanacer, Dominican Republic	SS
0945	4940	Radio Amazonas, Venezuela	SS
1000	9660	Radio Exterior de Espana, Spain	SS
1000	4955	Radio cultural Amauta, Peru	SS
1000	4965	Radio Santa Monica, Peru	SS
1000	6135	Radio Santa Cruz, Bolivia	SS
1000	4717	Radio Yura, Bolivia	SS
1000	11715	Radio Korea Int., So. Korea, via Canada.	
1030	4975	Radio del Pacifico, Peru	SS
1030	7140	CPBS, Geermu, China	CC
1030	5954	Radio Casino, Costa Rica	SS
1030	4960	Radio Federacion, Ecuador	SS
1100	4890	NBC, Papua New Guinea	
1130	7105	Radio Taiwan Int.	
1130	5020	SIBC, Solomon Islands	BBC pgms
1130	9875	Radio Netherlands	DD
1130	2310	ABC No. Territory Service, Alice Springs, Australia	
1130	4790	Radio Republic Indonesia, Fak Fak	II
1130	11750	China Radio Int.	
1130	15700	Radio Bulgaria	
1200	3385	Radio East New Britain, PNG	
1200	4895	Radio Malaysia,, Sarawak	Malay
1200	6130	Lao National Radio, Laos	LL
1200	17860	Radio France Int. Relay, French Guiana	SS
1200	13635	Voice International, Australia	
1200	4785	Nei Menggu PBS, Inner Mongolia	Mongolian
1200	5040	Radio Myanmar (Burma)	vern
1200	4605	Radio Republik Indonesia, Serui	II
1200	12085	Voice of Mongolia	
1230	11825	VOA Relay, Philippines	CC
1230	15285	BBC Relay, Singapore	CC
1230	9965	KHBN, Palau	CC
1230	13685	Voice International, Australia	
1230	9930	KWHR, Hawaii	
1230	11875	CBS, Taiwan	CC
1230	11580	KFBS, Northern Marianas	CC
1300	6185	China Huayi Broadcasting Co.	CC
1300	9540	BBC Relay, Singapore	
1300	15400	YLE/Radio Finland	Finnish
1330	9865	BBC via Tashkent, Uzbekistan	Bengali
1330	9550	Radio Havana, Cuba	SS
1400	11530	Voice of Mesopotamia (clandestine)	Kurdish
1400	15375	Radio Sultanate of Oman	AA
1400	13710	BSKSA, Saudi Arabia	EE
1500	15390	HCJB-Australia	
1500	12105	Voice of Greece	Greek
1530	21630	Radio Japan via Ascension	JJ
1600	11570	Radio Pakistan	
1600	11710	Voice of Korea, North Korea	FF
1600	12025	Radio Free Asia, via No. Marinas	CC
1600	17705	Voice of Greece, via USA	Greek
1600	13855	Minivan Radio (clandestine to Maldives Is.)	vern
1600	11765	KNLS, Alaska	
1600	15670	Voice of Ethiopian Salvation, via Germany	Amharic
1600	11690	Radio Jordan	
1630	15395	Emirates Radio, Dubai	AA
1630	15205	BSKSA, Saudi Arabia	AA
1730	17765	Deutsche Welle Relay, Rwanda	FF
1730	15190	Radio Pilipinas	Tagalog
1730	9580	Africa Number One, Gabon	FF
1800	17785	VOA Relay, Morocco	PP
1800	15345	RTV Marocaine, Morocco	AA
1800	21470	BBC, England	
1800	11520	China Music Jammer	
1830	17575	RDP Int., Portugal	PP
1830	15360	Radio Korea International, S. Korea	RR
1830	15385	Adventist World Radio, via Austria	AA
1900	9990	Radio Cairo, Egypt	GG
1900	17535	Kol Israel	
1930	15120	Voice of Nigeria	
1930	11635	Radio Jamahiriya, Libya, via France	FF
1930	15555	RDP Int., Portugal	pp
1930	13740	Radio Nacional de Venezuela, via Cuba	SS
1930	17895	VOA Relay, Botswana	
1930	15380	Radio Romania Int.	
2000	13610	Radio Damascus, Syria	various
2030	11975	VOA Relay, Sao Tome	
2030	11905	Radio Tashkent, Uzbekistan	
2045	15476	Radio Nacional Arcangel, Antarctica	SS
2100	17800	Voice of Nigeria	
2100	17825	Radio Japan/NHK	
2100	11635	Radio Jamahiriya, Libya, via France	AA/EE
2100	13675	Emirates Radio, Dubai	AA
2200	9830	Voice of Turkey	
2200	9720	Deutsche Welle, Germany	
2200	12133	AFN/AFRTS, Florida	USB
2230	6250	Radio Nacional Malabo, Eq. Guinea	SS
2230	7460	La Voz de la RASD (Clandestine)	AA
2300	11935	VOA Relay, Kuwait	
2300	21740	Radio Australia	
2300	13775	Radio Free Asia, USA, via Palau	CC
2330	9645	Radio Romania Int.	
2330	4845	Radio Mauritanie, Mauritania	AA
2330	6190	Radio Nacional Amazonia, brazil	PP
2330	9875	Radio Vilnius, Lithuania	
2330	9840	RAI Int., Italy	II
2330	9870	Radio Austria Int.	GG
2330	6005	Deutschland Radio, Germany	GG
2330	9700	Radio Bulgaria	
2330	5030	RTV Burkina, Burkina Faso	FF

by Harold Ort, N2RLL

New, Interesting, And Useful Communications Products

Police Call 2005 Frequency Guide Includes CD-ROM

The latest *Police Call* 2005 includes a nationwide *Police Call* CD-ROM (Version 6.0) at no extra cost. *Police Call*, informally known as the "scanner user's bible" and now in its 42nd year of publication, includes radio frequencies for emergency agencies and 18 other categories of two-way radio users, including the federal government, aircraft, public utilities, transportation, sports, education, and entertainment. Additionally, there are sections detailing trunked systems and their talkgroup codes, an exclusive Consolidated Frequency Usage List (on the CD) a 10-page Listener's Guide, Radio Codes and Signals, maps, and a Glossary of Radio Slang and Terminology. Editor Rich Barnett says it's, "everything one needs to get the most as a hobbyist listener or professional two-way radio user." *Police Call* books and the *Police Call* CD-ROM are updated annually to reflect the thousands of changes that are made during the year. The CD-ROM includes the data from all seven volumes, and frequencies may be downloaded directly into certain models of RadioShack scanners.



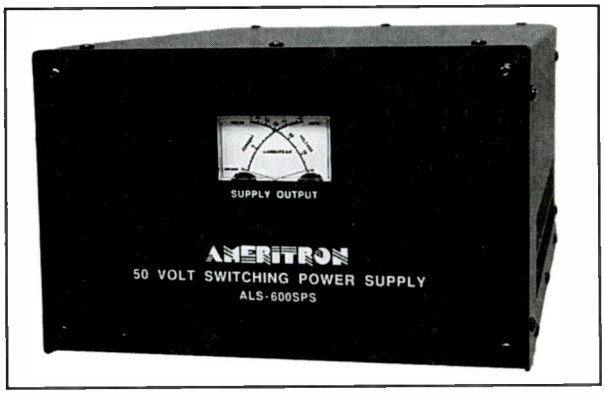
Police Call *is now in its 42nd year with its 2005 edition and includes a free CD-ROM with the book.*

Police Call is sold by selected retail electronics dealers and mail order firms (many of which can be found on the Internet) as well as RadioShack stores. The suggested retail price of each regional volume is $19.99, including the CD-ROM.

Ameritron's Switching Power Supply For ALS-600 Amplifier

The ALS-600-SPS, $629 (suggested retail) is a lightweight switching power supply to use with the ALS-600 solid-state amplifier. The switching power supply weighs three times less than the choke-type power supply originally packaged with the amplifier. The specially designed switching and filter circuit makes this power supply RF hash free!

The ALS-600SPS has a terminal strip where the AC voltage can be 120 or 240, 50/60 Hz. The power supply will safely operate from 90 to 130 VAC in the 120-VAC position and 185 TO 260 in the 240-VAC position. Output is 50 VAC, 25 Amps (± 14 VAC, 1 Amp). It has cross-needle metering for volts and amperage. The output connector is a Beau multi-connector with a 6-foot cord to mate the ALS-600 amplifier. The AC line is a NEMA 5-15P connector. This new Ameritron switching power supply weighs only 10 pounds and measures a super compact 6 x 9 x 14 1/2 inches (HWD). The ALS-600S costs $1,428.



The Ameritron ALS 600SPS is a 50-volt switching power supply that costs $629 and is designed for use with the ALS 600 solid-state amplifier.

Also available is the ALS-600 amplifier and ALS-600SPS power supply *combination*. Constructed like the ALS-600 solid-state amplifier, it has gray scratch-proof lexan decal on the front panel. The products are covered by Ameritron's one-year limited warranty. To order, get a free catalog, or for your nearest dealer, call 800-713-3550, or write to Ameritron, 116 Willow Road, Starkville, MS 39759; or go online to http://www.ameritron.com; or fax 662-323-9810. Technical support is available by calling 662-323-8211.

Military Frequency Directory

The second edition of the *Military Frequency Directory*, published by Grove Enterprises, is now available. The CD is an update to their popular *Military Frequency Directory*, with many updated services as well as thousands of pages of government documents. The Adobe Reader program allows users to access information in the book much faster than they could with a traditional print book.

It includes a search function and complete listings for all 50 states! Among its main components are NORAD, including regions, CAP/tanker, discrete or primary, and frequency designators; Aerial refueling tracks and anchors; National Guard/Air National Guard tactical and contingency frequencies by state; FAA Air Route Traffic Control Centers (ARTCC) by state and remote station locations; Nationwide air-to-ground; VHF/UHF military trunk system frequencies, talk-groups, and scanner programming hints; Navy Fleet Area Control and Surveillance Facilities (FACSFAC); Military UHF frequencies used by civil-

ian airports; and military training ranges, warning areas, and operating areas.

For more information on the *Military Frequency Direction* which costs $39.95, contact Grove Enterprises at 828-837-9200 or e-mail them at mt@groveent.com.

MFJ's Small, High-Efficiency Loop Tuner

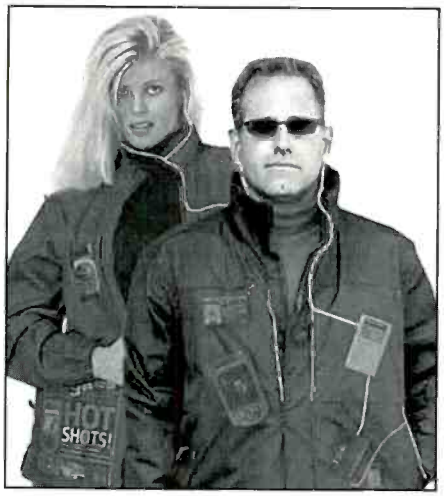
Drape a wire around a bookcase and attach both ends to this new MFJ Small Loop Tuner. It instantly turns into a small, high-efficiency multi-band transmitting loop antenna! You can operate 7 to 30 MHz with a full 150 watts. No ground radials or counterpoises needed. A 10-foot wire formed into a loop operates 20 to 15 meters (5-foot for 17 to 10 meters; 24-foot for 30 to 40 meters). You can tune any shape loop (circle, square, rectangle, or odd shape); a quarter wavelength wire shaped as a circle is the most efficient. Exact frequency coverage depends on wire length, loop shape, and environment. You'll radiate a low-angle DX signal that rivals full-size dipoles for working DX. MFJ says, "It's a very quiet receiving antenna—you'll hardly notice static crashes. Its high-Q rejects out-of-band interference, reduces overloading, and harmonics."

The MFJ-936 is $249.95, for home stations. It has a more efficient air-wound inductor, heavier components, and a larger meter. The MFJ-935, at $199.95 is for portable/home stations. It's smaller and lighter. There's also the MFJ-57, $29.95. They're all covered by MFJ's No Matter What one-year limited warranty.

For more information or your nearest dealer call 800-647-1800 or contact MFJ online at www.mfjenterprises.com.

Solar SCOTTeVEST (SeV) Perfect For Radio Enthusiasts

The Solar SCOTTeVEST (SeV) combines the benefits of the company's signature jacket, Version Three.0 Finetex and removable solar panels. The solar panels enable you to recharge your USB compatible devices on the go, either while wearing the jacket or with the panels removed. When attached, the solar panels compliment the jacket's design. The solar panels charge a small battery - about the size of a deck of cards. The battery



The Solar SCOTTeVEST includes solar panels that charge a small battery.

powers your device almost immediately after the solar panels are exposed to sunlight. Once the battery is fully charged, the panels can be removed and your portable electronic device can tap into the stored power.

Typical charge times in direct sunlight ranges from 2-3 hours, but direct sunlight is not required. The battery pack can charge any device compatible with Universal Serial Bus (USB) chargers, including cell phones, PDAs, Game Boys, MP3 players, and other mobile devices. (NOTE: USB cables are not included, but are readily available from numerous sources, including www.ziplinq.com, www.belkin.com, and RadioShack).

For more information on this SCOTTeVEST or their other products contact the company directly on the Web at www.scottevest.com or call them at 866-909-8378 or write to SCOTTeVEST, INC., 500 Bell Drive, Suite 17, P.O. Box 2626, Ketchum, Idaho 83340-2626. ■

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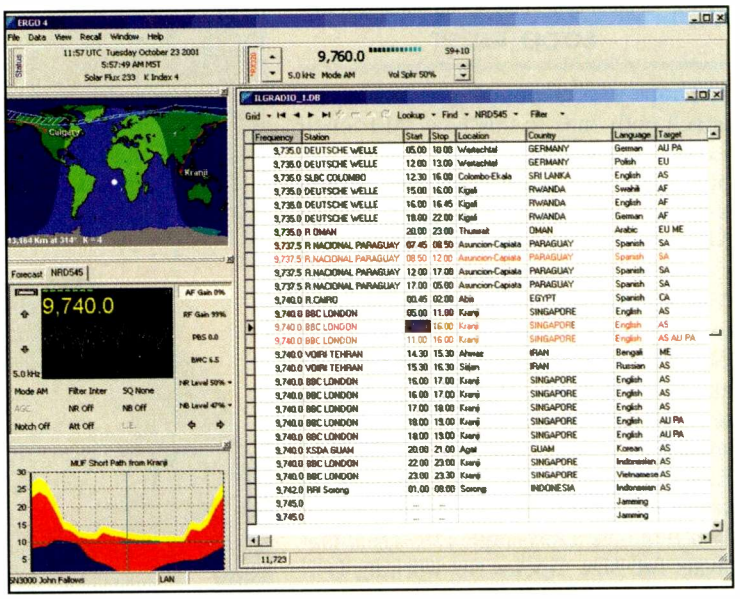
by Rich Arland, K7SZ, richard.arland@verizon.net

Getting Involved—Computer Security Is YOUR Business, And Ergo Computer Control of Your Radios!



Here is a quick look at the new ERGO. Most control windows can float, be docked, or placed in the toolbar. Two receivers can be operated at once.

"Homeland Security is everyone's business." That's what the poster read that I saw recently at the Luzerne County EOC (Emergency Operations Center). The idea that we, as Americans, are *all* involved *and responsible* for Homeland Security is an outstanding concept. However, many Americans don't take up that banner. Instead they are too interested in which way the NYSE numbers are going, how their "portfolio" is doing, or they are so involved in their own personal, isolated little lives that they don't see "the big picture."

When it comes to those of us who are involved in the radio hobby, we stand in the unique position to be able to directly contribute to the overall Homeland Security efforts nationwide. Through prudent use of our communications equipment, whether it's a ham radio set, scanner, GMRS/FRS transceiver or HF receiver, we can become directly involved in the security of our nation by simply paying attention to what we hear and say.

Shortly after the terrorist attacks of 9/11, the FCC approached radio amateurs and the scanner community to enlist their combined talents to listen for and report any "unusual" conversations or transmissions that they might run across while playing radio. Not a bad idea, actually. Realistically, however, a bit idealistic, given the enemy that we are encountering. I have said it in the past and I'll say it again: the Muslim extremists that are perpetrating these acts of terrorism are not stupid tent-dwelling camel jockeys. On the contrary, they are extremely well educated, exceptionally well financed, and they learn very quickly by watching our responses to their probes and counter-probes. We are engaged in a shadow war with a particularly elusive enemy. In situations like these we measure success by what has not happened rather than by the things that have happened.

From the kids playing on the front lawn, right up to the President in the White House, Homeland Security affects us all. You: That's right, *YOU* are the number one, the *numero uno,* player when it comes to Homeland Security. The more you can do to achieve an increased level of awareness, self-sufficiency, and self-reliance, the less impact any type of disaster (manmade or natural) will have upon you and your loved ones. So, dear reader, get involved. Find your niche, get some training, volunteer your time, and get involved. For more information about how you can receive training, contact the ARRL at arrl.org or drop me a line and I'll get you started in the right direction. The time is now!

Computers: The Bane Of The Hobby

Like it or not computers have become an integral part of the radio hobby. Regardless of whether they are used for simply logging contacts/stations heard or awards achieved *or* are used to control your entire station, computers are here to stay. If you're seriously involved with the radio hobby you're going to have to live with that fact: deal with it.

Contrary to popular belief, I am *NOT* a gifted computer guru. Everything I've learned regarding computers has been self-taught, mostly through my own mistakes. On more than one occasion I have been tempted to introduce my computer(s) to my 12-gauge Mossberg Model 500, the one with the 18-inch barrel, tactical flashlight, and fiber optic front site. Suffice it to say that I've had a rather checkered past when it comes to computers, their failures and fixes. That's okay, we learn by doing. We also learn by reading—lots and lots of reading—along with watching some computer training videos and asking tons upon tons of questions of people who actually *are* computer gurus.

It was only about a year and a half ago that I finally acquiesced and started to do some in-depth research into computer control of my various radios. I quickly realized that, when properly configured with some user-friendly software, a computer can take the drudgery out of a number of mundane tasks when it comes to radios. Now, when I'm shopping for a new radio, I won't even seriously consider a new rig unless it has a DB-9 or DB-25 port on the back so I can interface my computer. That brings us to the main topic of this month's column: computer security.

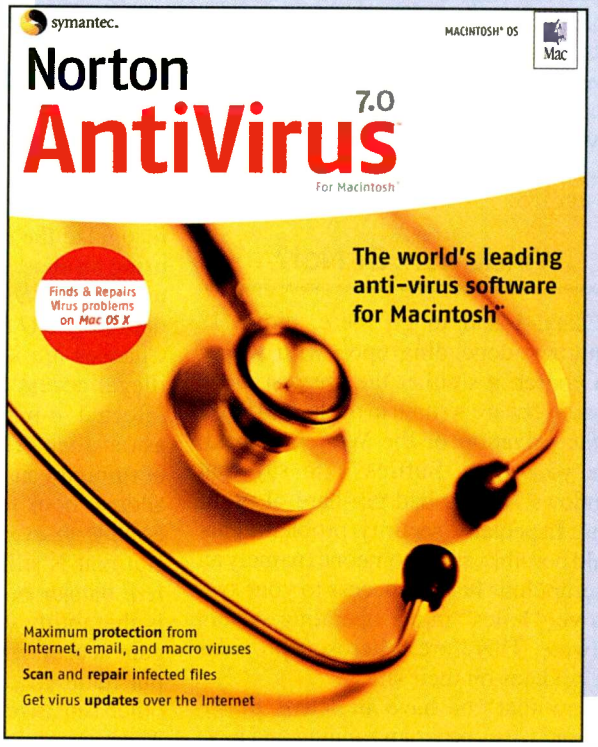
Old Business

It's been a while since we've discussed computer security, so I thought it might be a prudent idea to cover this topic again.

Remember, not everyone who engages in the radio hobby is computer literate. If you are wondering why I have taken so much column space to explain the obvious to anyone with a degree of computer sense, it's because there are a whole bunch of computer illiterate folks out there (many of whom are radio enthusiasts) who are totally in the dark when it comes to keeping their machines running free from virus infections and Trojan horse and worm programs. Left unaddressed, these unprotected machines can be breached by hackers (possibly terrorist hackers, 'cause they ain't as dumb as we'd like to think they are) and used to simultaneously attack other larger computer networks, like the DoD, State Department, Social Security Administration, and college research computer networks.

A couple of years ago there appeared one of the most interesting and informative television shows dealing with computers and computer security: "The Screen Savers" on Tech TV. I was a faithful watcher for many months, gaining much useful knowledge from this program. Unfortunately, Tech TV was recently merged with an outfit called "G4" to become G4 TechTV, and that's when (in my humble opinion) things started falling apart. Programming emphasis changed dramatically to encompass the "gaming" community. You know, those folks of all ages who squander their lives sitting in front of their $3,000 gaming computers, playing childish fantasy games over the Internet. Having briefly watched "The Screen Savers" over the last several months and seeing that the overall emphasis of this program has also shifted from sound computer techie advice to pandering to the "gamers," I have given up in disgust. Sorry, gang, but as far as I am concerned, as of right now there is no really first-rate outlet to obtain solid computer information short of doing a lot of reading on your own.

Having now vented my spleen I feel much better, so let's see how we can approach this computer security issue without wasting hours trying to glean a few nuggets of knowledge from among the road apples found on TV.



ALWAYS *have a good anti-virus program running fulltime on your machine—and don't forget to frequently download the automatic updates at the company's website!*

Back To Basics

First and foremost, do not fire up your computer without having a good anti-virus program running 100 percent of the time. Even if you're not a regular user of the Internet, always, always have your anti-virus program running whenever the computer is turned "on." Computers can be adversely affected by viruses, Trojans, and worms via software you get from other computer users, not just over the Internet. These well meaning folks may not even know that they have passed a piece of software on to you that was "infected." On the other hand, they may do this as a joke. Some people are just plain weird.

An anti-virus program is totally ineffective *UNLESS* you have installed it, activated it, and have the latest virus definitions uploaded on a regular basis. This means that after installing the anti-virus software (which, by the way, is anywhere from three to 12 months old by the time you buy it at Circuit City or Best Buy) you must visit the home website and update the virus definitions. This can take anywhere from two minutes to two hours, depending upon the speed of your Internet connection and how much information needs to be downloaded from the site to your computer. After downloading the latest updates, most anti-virus programs automatically install the new data on your machine. Basically this operation is transparent to the user—that's you.

Okay, now you have your computer anti-virus program running, complete with the latest virus definitions. Next you need to come off-line and run a virus scan on your computer. Don't wait; do it immediately upon completion of the upgrade. This will take a while, depending upon the size of your hard drive, the number of files on the drive, the processor speed, and amount of available memory in your "box." Plan on at least several hours if not overnight to accomplish the scan. Most anti-virus software is smart and will, depending upon how you have set up the scan, either notify you of infected files or sectors on the drive and ask you what you want to do, *OR* it will quarantine the affected files/areas and then attempt to clean and "disinfect" them. In any event, once you're assured that your system is "clean" you can relax a little and get on with life on the Information Super Highway.

A "clean" system won't stay "clean" very long unless you religiously return to the anti-virus software homepage, download and install the latest updates and run virus scans on a regular basis. Depending upon whom you ask, there are between 25 and 100 new viruses produced by hackers that are released weekly! I hope you're starting to get the picture. The Internet is a very dangerous place to play unless you know the rules and adopt some Draconian practices regarding your computer integrity.

Once you have the virus situation sorted out, the next thing you really need in order to play safely on the Internet is a program known as a "firewall." In the real world a firewall keeps fire from spreading from one area to another within a building or structure. In the computer world, a firewall is a program or hardware device that acts as a filter for the information that comes over the Internet into your computer or network. In short, a firewall creates a barrier to keep hackers or other offensive folks out of your system by using some very selective filtering algorithms. A good firewall also shuffles your port addresses

within the computer so hackers can't take control of your box by attacking the input ports. The nice thing about some of the newer operating systems, like Microsoft Windows XP, is that they have a built-in firewall program. There's nothing else to buy, just turn it on in the options portion of your OS.

Windows...Or Not?

Okay, I had to go there, didn't I? Windows: depending upon with whom you confer, it's either the greatest piece of bad software written in the last 20 years or the salvation of the Western World, take your pick. Suffice it to say that Windows XP has had its share of problems. Especially security problems that could possibly allow someone (namely an unscrupulous hacker) access to your system via "holes" in the operating system software. Therefore, Microsoft provides free updates on their site.

Now that you have an active, up-to-date anti-virus program running and have your firewall activated, it's time to hit the "Windows Update" box on your OS (providing you're running Microsoft Windows) and make what will definitely become a frequent pilgrimage to the Microsoft site to get the latest security patches, service packs, and associated tweaks to make Windows XP (or 95, 98, Millennium, or 2000) work the way it was meant to. Sorry, folks, but this is part of learning to safely live in the Information Age. Once you have updated your OS, you can begin to relax and start enjoying the Internet and its vast resources.

E-Mail— The Most Dangerous Game

More people get in trouble by using their e-mail program than with any other piece of software on their computer. Why? Very simply, e-mail is the medium whereby most hackers and other ne'er-do-wells infect unsuspecting, unprotected computer systems. Viruses, Trojans, and worms are historically attached to "interesting" e-mails sent out at random and in bulk (i.e., several thousand mailings at a time, usually from a computer that the hacker has commandeered from some unsuspecting user via a Trojan horse program) to everyone on the address list of the host computer. Can you imagine the sheer amount of infected e-mail traffic that could be generated by some industrious hacker using 100 or so commandeered machines and their associated e-mail address books?

The "Delete" Button To The Rescue

So what can you do? Delete all unfamiliar e-mails. That's the key. If you don't recognize the sender or the originator is using an alias, and there is an attachment to the e-mail *DO NOT* open the e-mail and definitely *DO NOT* open the attachment. Chances are someone is trying to gain illegal access to your computer via an infected e-mail. The damage can be astonishing. There is always the chance of ruining your hard drive and using your address book to further transmit infected e-mails to everyone who appears there. But that is still small potatoes. The one *real* danger of some of theses programs is the ability of the intruding hacker to gain access to your credit card numbers, pin numbers, account information, and other sensitive data on your hard drive. There is nothing like a good case of identity theft to get your attention. With this information they can, and do, open new credit accounts under your name, raid bank accounts and stock portfolios, and make life very miserable for the naive computer user. Scared yet? You should be!

Therefore, let the "delete" button be your guide. Dump any suspicious e-mail (especially those with attachments) into the "bit bucket" (also known as the "Recycle Bin"). As a precaution, whenever I have to send an attachment to my friends or to someone that I don't regularly correspond with, I send a preparatory message stating that I'll be sending them an e-mail with an attachment and that I have virus scanned the attachment before transmitting it. That eases everyone's fears.

Wireless Connections

One of the beautiful things about computers is that they adapt well to being connected via a wireless medium, allowing the user unprecedented freedom. Wireless (called "Wi-Fi" for wireless fidelity) is nothing more than a microwave comm link between the computer and the network hub or router. The router furnishes connection to the ISP (Internet Service Provider) via DSL (Digital Subscriber Line), ISDN (Integrated Services Digital Network), or cable modem. Everything is "routed" through the router (catchy, huh?). All the other computers in the network are connected via a wireless comm port operating on 2.4- or 5-GHz frequencies. One word of caution: If your Wi-Fi system uses 2.4 GHz, and you happen to have a 2.4-GHz cordless phone in your home, there is always the possibility of interference. This is something to watch for in case you're unable to establish or maintain a connection while using your cordless phone!

Follow the instructions that came with your Wi-Fi router, *including the portions regarding security and encryption*. Hackers regularly engage in "War Driving," meaning they drive around residential communities with laptops, Wi-Fi receivers, and external antennas, looking for "open" (un-encrypted) systems into which they can hack. If you have an open system, not only are you allowing unrestricted access to your ISP, the hacker can usually capture one or more of your computers on the wireless network and download sensitive information—all without your knowledge. Be safe and use encryption to secure your Wi-Fi network.

I hope this information is of use to those of you who are just getting into the radio/computer hobby. By keeping your systems clean, uninfected, and secure, you can enjoy the Internet and help with Homeland Security.

Computer Programs For Radio Control

Earlier I touched on computer programs for controlling scanners and HF radios. There are scores of programs available to the radio user. Some are good, some not so good, and a very are few utterly fantastic. All require an interface cable between the radio and the computer. Normally this is done via a serial port, USB, Fire Wire, or comm port connection. Some interface cables are quite complicated, featuring transistors used for switching and control of information flow between the radio and computer. Others are nothing more than a simplified RS-232 comm port connection, normally requiring only three or four wires to accomplish signal routing and equipment handshaking.

I've had good results using Black Bag Software programs for my Uniden BC-895XLT scanner. I also have a laptop using Signal Intelligence's Scan Star that provides excellent control and logging of frequencies on the BC-895. There are other excellent scanner programs, such as

Scan Our Web Site

Scan Cat Gold, which will certainly do the job. Basically, it comes down to whatever you are comfortable with using and what your requirements are when controlling your scanner or HF radio.

ERGO-IV

John Fallows of Creative Express Corporation (www.swldx.com) offers an excellent software package that will control many major brands of HF receivers and several transceivers. I have used their ERGO-IV with my ICOM R-75 receiver on my old, totally unreliable Dell Inspirion 3000 laptop with outstanding results. Additionally, the ERGO-IV software will control the Ten-Tec RX-320D receiver I have at work. ERGO-IV is a user-friendly piece of radio control software that, while requiring a learning curve, is fairly simple to use once the basics of the program are understood. The on-disk (CD ROM, actually) help files and instructions are quite good, and I had virtually no problems setting up either my laptop or my old 300 MHz Celeron at work to run the ICOM R-75 and Ten-Tec RX-320D respectively. In addition to these two fine receivers, the ERGO-IV software will work with the following radio gear (among others): AOR AR7030, Collins HF-2050, Drake R8, R8A, R8B, ICOM 8500 (SW only), R9000, NRD 345, 525, 535, 535D, and 545, Kenwood R5000, and McKay Dymek 333. Very impressive!

ERGO-IV requires Windows 95, 98, ME, NT 4.0, 2000, or XP, a serial port (for direct connection to your receiver), and a screen resolution of 1024 x 768. In other words, it will work on the older laptops, as well as the newest wiz-bang 3-GHz romper-stomper costing several kilobucks. Not only is the software package very flexible it can also be updated via the Internet with a quick visit to the Creative Express Corporation's website. Now that's what I call a program! Nice job, John.

The ERGO-IV software is designed for HF receivers, so it was only natural that John included a way to view the latest HF propagation forecasts. By maintaining an Internet connection while controlling your favorite receiver, you will receive the latest HF prop forecasts automatically, *AND* update your PC clock in passing, accomplished by running ERGO4NET continuously from the system tray. Manual prop forecasts (and PC clock updates) are available on demand by simply requesting it from the program. Obviously you can manually enter the HF prop information on the "PROPERTIES-Propagation Page." Here you enter the Solar Flux, K Index, Receiver antenna gain, Location Noise Type, and Default Transmitter Gain/Power and the program will do the rest.

Receiver audio can be fed into the PC sound card and you can have the program give you an audio spectrum analyzer display, including the "waterfall"-type display showing the spectrum over time. Digital Signal Processing (DSP) is accomplished via the sound card. The DSP offers three filtering options: Off, Noise Reduction, and AutoNotch. The user can also control the bandpass edges via the Bandpass Filter controls. Digital recording is also provided via Direct-to-Disc Recording of the incoming audio for playback at a later time.

Not only does the program offer the ability to log a station's frequency and record its transmissions, it also allows you to track your progress toward awards by logging things like mode, country, location, signal strength, QSL Sent/Received, antenna used, along with the propagation information during that reception report or listening session. Nice, very nice! The software also allows for scanning a collection of HF channels that have been previously created in SCANLIST. This is absolutely great for us MILCOM listeners who have a collection of HF freqs that see intermittent use, like MYSTIC STAR, GHFS, and Coast Guard SAR frequencies.

If you are interested in one of the better radio control programs on the market, why not drop by the Creative Express Corporation's website and check out the program for yourself. John offers both full-blown and 60-day demo version for those who wish to try it out before purchasing. This is a full function program that just stops working after 60 days. If you like what you see, John will e-mail you a key to unlock the program once you've purchased it. He wants his customers to be happy!

See You Next Month

My thanks to John Fallows of Creative Express Corporation for allowing me to provide a mini-review of his company's software for *Pop'Comm* readers.

That's a wrap for this month. Until next time, always remember: Preparedness is *not* optional! ■

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by Ken Reiss, radioken@earthlink.net

Emergency Scanning

It only takes a heartbeat to turn an ordinary sleepy day into an emergency situation. The season for severe storms is just around the corner in many parts of the country. A train accident nearby or a factory mishap can also strike any time, any place, without warning. Will you be ready? Can you be? If it happens in your back yard, probably not. Scanning will be the least of your concerns at that point anyway, so our discussion should focus on close, but not too close, emergencies.

A lot of what's interesting in an emergency situation is just plain boring the other 364 days of the year. Here's where a scanner with lots of banks, or even multiple scanners, is really useful. A computer-controlled or computer-programmable radio would also be convenient so you can have those seldom used but highly interesting frequencies ready at a moment's notice. The trick is to be ready *BEFORE* something happens. Once the event occurs, you won't have time to look up and research frequencies that might be in use. A little advanced planning goes a long way. Perhaps a notebook or a word processor file on your computer dedicated to several types of emergencies might come in handy. When something happens, pull out the list and start programming. Of course, a computer program that was preloaded with banks would be faster—so prepare ahead of time.

A Little "What If" Planning

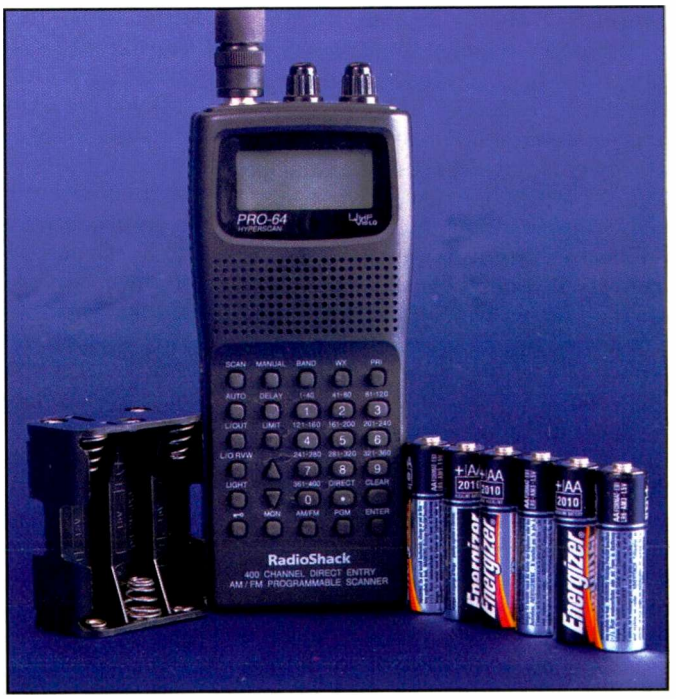
The first step is to take a look around your neighborhood and find out what's there. What's *really* there? There are two sets of railroad tracks within one mile of my house, and yet I didn't really notice either of them. One set is covered by a bridge, so you don't see them when you drive on a certain road, and the other set actually runs behind the subdivision in back of us, so once again I didn't pay much attention to them until I started looking. Get a map and draw one-mile, two-mile, and five-mile circles around your house. Draw one more circle to represent the area that you really scan—the departments and agencies that you *regularly* listen to. It may not be a perfect circle, but be realistic about what you can really hear. You'll be surprised at how far a mile circle really goes. It may take a while to drive a mile when you follow the roads, but by air it's quite a short distance. A vapor cloud from a railroad spill or factory accident could easily be toxic a mile or two away.

Have a good look at that map. What type of businesses do you know of within one mile? Drive around, or walk (hey it's only a mile), and look in some detail. If you're driving, take a friend along to make notes, so one of you can concentrate on driving! Once you get this information, go back home and think a bit about the kinds of activities that go on in those places. An industrial park might have any number of businesses that deal with some form of hazardous materials. What would happen if some chemical spilled? Or an explosion? A major fire? This makes a great rainy day or cold weather project.

If—and we all hope it never does—one of those events occurred, what agencies would be likely to respond immediately? Does your fire department have a hazardous materials unit that operates separately from the main companies? Or does

These wind-up flashlights are becoming very common. In an emergency they're great to have around as they can generate their own power (plus keeping it charged is a great project for the kids to keep them busy!).

that unit have frequencies of its own? What frequencies would be used by the first responders? Would they switch to another set once they were on the scene? What frequencies are used for on-the-scene coordination of big events? How about interagency frequencies that might be involved? Would medical services be involved? What frequencies do the on-scene units use? How about dispatch or coordination with the hospital on the



Got batteries? It's common sense to have a few extra cells on hand, but you would be surprised how many folks forget the batteries.

Headphones come in all shapes and sizes (and price ranges). Finding one that's comfortable is the key. Note that these are all stereo headphones. Your scanner's audio will come in only one ear, leaving the other one free to hear what's happening in your immediate area. It's also a good idea to use headphones to conserve battery power if you're in an emergency area.

way back in? If you're in a large metropolitan area, would multiple hospitals get involved? Which hospitals in your area handle trauma patients? How about hazardous materials incidents? How about a large traffic accident? Listening to your medical services now when only routine traffic is happening will answer a lot of those questions. If you only have one local hospital, could they transfer non-critical patients somewhere else? How about very critical patients? Is there a medevac service in your area? What frequencies do they use?

Make a list for each type of event that you can foresee. Don't forget that if the event is large, there might be some things you don't normally listen to suddenly involved. Utility companies come to my mind. I don't listen to them at all under normal circumstances, but both the gas and electric companies are likely to be called to shut off services to an affected area. Do you have their frequencies on your list? Sometimes you can get more background information from these so-called "back channel" communications than you will from the fire department or hazmat team that's on the scene. The fire department is right there, so they're probably yelling things to each other, rather than talking on the radio. The utility guys need to know exactly what they're getting into before they get there, so there may be some explanation given on the radio.

Don't count out monitoring nearby commercial and residential areas either. What would happen if a large fire, or electrical problem occurred? A lightning strike? Tornado or hurricane? Earthquake? Just because you don't have industry or railroads nearby doesn't mean you can't do a little planning.

But remember, if some emergency happens very close to you, your first priority might be to get enough information about what's going on to make some decision about leaving for a while on your own. Often it takes some time for evacuation procedures to go into effect and for notifications to be made. Better safe and out of the way than sorry later.

Weather Emergencies

Severe weather is something that will affect most of us at one time or another, and when it happens, it *is* in your back yard! At a minimum, you should have a written list of what's normally in your scanner (that's a good idea anyway, just in case) and a frequency plan for severe weather emergencies. Note that it may take more than one frequency plan if the area you're in is subject to different kinds of weather emergencies.

Your first task is to think about what kinds of weather conditions are likely to occur in your area and who would be likely to respond in a given situation. If you're in a state where severe snowstorms are likely, you'll need one set of agencies programmed. If you're only likely to get tornadoes or hurricanes, then another set of agencies is likely to respond. Severe snowfall is one of the few disasters that we're likely to get advance notice about and street and highway departments make an effort to get salt or sand (or some chemical that's main purpose seems to be to erode the finish of my car) in place beforehand. With tornadoes and hurricanes, there is likely to be an intense effort to find the storms and track their severity, but little preparation is done by the public safety agencies involved until the damage is occurs. Besides, with those other types of storms, you should probably be boarding up your own house, or moving your scanners to the safest part of the house.

Snow And Blizzards

A good example of the not-terribly-interesting, day-to-day scanning variety is the highway department. Not that I don't appreciate the job those fine folks are doing all year—if it wasn't for them, I'm not sure who would do the work of harvesting those orange barrels that seem to pop up incessantly every summer. I'm quite happy that they clear those things out of the way in the fall, but I don't really want to listen to that operation either. However, when the clear-to-partly cloudy forecast turns out to require shoveling, I'm very interested in what they might have to say.

One added benefit of listening to the highway department in the St. Louis area, and probably in other areas too, is that they have their own weather forecast information and announce it over the air a couple of times a day, and even more frequently if severe weather is on the horizon. Of course, when they're clearing snow the drivers are busy chatting about road conditions and what they have and have not gotten to. Sometimes it's amusing just to listen to the drivers complain about things that aren't working on their trucks or snowplows.

Snowstorms are also one of the only severe weather events that it can be fun to listen to while in progress. A tornado or hurricane doesn't stick around long enough and is probably far too destructive for you to do anything useful but get out of the way if you can. Snowstorms, though, usually don't do a lot of real damage, and listening from a safe and warm radio shack is one of the best places to ride one out. Of course, if you're on the road or in severe climates where survival can be an issue, you need to make sure you've taken adequate precautions. A well-programmed radio might not hurt, but warm clothes, emergency food, and heat would be much more useful if you have vehicle problems en route.

Your local police/sheriff and fire services might also be of interest in a severe weather emergency, depending on the

weather. In typical winter storms, police are usually about the last folks left on the road and are frequently discussing the conditions. Their discussions can take place either on the dispatch channel to update the station and command officers, or on the car-to-car channel to comment on how crazy it is to be out there in the first place. Also, of course, there will be numerous accidents and possibly road closures before everyone gets smart enough to stay home and listen to their scanners. Fire services will be responding to those accidents as well as to downed wires and other dangerous conditions resulting from extreme snow or ice storms. Depending on the severity of the storm, the fire department's calls might be your best source of information for how widespread the damage is and where it's located.

Finally, you might be interested in utility company traffic. After the event has passed through, it's likely to be the utility companies that have the biggest job to do. Wires down and power outages affect a lot of people over large areas. Sometimes you can at least get an idea of where they're working and how many people are affected so you'll know if your power is going to be restored anytime soon. You did charge those batteries for the scanner didn't you? Actually, this is one of the strongest arguments I know of for a scanner that operates off of standard AA batteries. It's very easy to replace them if the need arises. With today's rechargeable AA's available in high-capacity models, it just makes sense to run the rechargeable variety for normal radio operations, but then be able to switch to standard, replaceable batteries when needed. You can't buy an extra NiCd pack for your BC-235 at the local convenience mart!

If you're close to the action, a near field receiver like the Scout or Xplorer from Optoelectronics might be a handy device. Further away, you'll need some frequencies programmed into your scanner in a hurry.

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 the lucky winner a free one-year gift subscription, or extension, to *Pop'Comm.*

This month, our frequency is **460.225**. We haven't been up around UHF in a while, so I thought it was time to visit that band. Let me know what you hear, either by e-mail at radioken@earthlink.net, or via traditional methods at Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Be sure to put the actual frequency on the envelope or e-mail subject line so it gets entered correctly for our one-year subscription quarterly drawing!

Other Severe Storms

We've just come through quite a hurricane season, particularly those of you in south Florida, so you may still have your radio programmed. Most severe storms, hurricanes, and tornadoes occur in the early spring through late fall, but they *can* occur at any time. So just about the time you put the snow blower away, you could be in for more activity. It's not nearly as much fun to listen to this stuff if it's coming your way, but being well prepared is your best defense.

One of the first things you should do, if you haven't already, is join your local SKYWARN program and get training for the types of emergencies that are likely to strike your area. During training you'll learn how to keep yourself safe. Some of the rules have changed since the days of duck-under-your-desk or follow the teacher out into the hallway. If you're in an area that is prone to tornadoes, in particular, there's a great need for volunteer spotters. Radar has come a long way in identifying likely areas for tornadoes, but only a trained spotter can tell for sure if there's an actual funnel, and if it's in the air putting on a fascinating—but mostly harmless—display, or if it's in contact with the ground destroying almost everything in its path. Ham radio is the primary communications method for a lot of SKYWARN activities, although not in all areas. Find out what's in use in your area and what frequencies are employed. Put those in your scanner and lock them out until you need them, or at least put them on your weather emergency list to be programmed in when something happens. Unless you're interested in ham radio, you'll find that the constant day-to-day activity of repeaters ties up your scanner and you miss the good stuff.

In the St. Louis area, and a couple of other locations where I've lived and am familiar with, once a severe storm watch or warning is issued, the SKYWARN program kicks into action. Policies on how and when the network is activated and what activities go with what level of watch or warning varies, but you can bet that someone will be monitoring the situation. As conditions worsen, these volunteer networks spring into action. They're often the best source of accurate and up-to-date weather and storm information. You'll also want to listen to police and fire channels as well. The police are likely to be primary weather observers and are positioned all over town. Anything out of the ordinary will be reported quickly.

Once the storm has struck, police and fire services will be immediately pressed into action. Medical emergencies will be their first priority, followed closely by fire control and rescue operations. There may also be a need to set up trauma centers or patrol areas to keep visitors or looters from a severely damaged area. In severe storms, outside assistance may be brought in; however, if the damage is widespread, other communities may not be able to assist. It can take some time to mobilize federal disaster teams and National Guard units to get them to the afflicted areas. Activity of *local* agencies attempting to cope with the situation and assess the need for outside assistance can be nothing short of pandemonium. By joining your local SKYWARN or emergency services volunteers, you'll also be more likely to know where

You never know what's passing through the area. Major highways and railroads can be the source of many hazmat operations. It helps to know what's in your scanning range.

you can volunteer to help in a meaningful way if you're lucky enough to be unaffected by the disaster.

The utility companies will also be busy in these areas. Once again, wires down and power problems will be their priority, depending on how well they can travel to the affected areas. You may need those batteries you didn't use for the snowstorm if one of these big disasters hits near you. Frankly, I'll take dull and boring traffic stops any day compared to the destruction that one of these type storms can ravage in such a short time. Being prepared is your best plan in case something strikes near you.

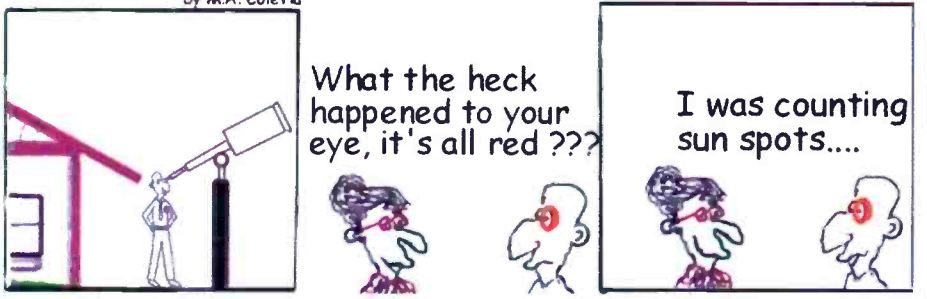
Once you've got all these lists put together, you may find that there are some holes in your knowledge. That's really the point here; it gives you some things to listen to in order to fill in the gaps. Remember you need to have the information *before* an event occurs. Perhaps you can discover something from one of our "Frequencies of the Month," but don't hesitate to plug in frequencies that you don't see in use in your area. You may be pleasantly surprised with what shows up. The key is to make it a part of your scanning activity.

Hopefully you'll never need any of these lists. But if you do, it's fun to see how they work out. I can guarantee that your list will be partially wrong, or that you'll have a list for *every* type of disaster *EXCEPT* the one that actually happens. That's okay—it's just a hobby. Nobody's life is likely to hang in the balance of how accurate your lists are—except possibly yours in severe weather. So make some lists and have fun. Find out what you don't know!

Your Input Needed!

While you're sending in your notes for this month's frequency, let me know what you're interested in seeing in future issues of "ScanTech," or in *Popular Communications* in general for that matter! Or send along your questions! You can use either of the addresses listed in the "Frequency Of The Month" box. Until next month, Good Listening! ■

The Adventures of Scanner Dweeb
by M.A. Coletta



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by Steve Douglass, webbfeat@1s.net

The Ultimate Intercept—Part III, Plus Back To Basics And A Couple of Mysteries

In "The Ultimate Intercept—Parts I and II" we examined the formula SETI scientists use to calculate the odds of intelligent life existing elsewhere in the universe. We also learned how the odds are staggeringly stacked against detecting relatively weak stray radio transmissions from a technologically advanced civilization against the constant background of radio noise emitted by stellar objects in the universe.

We also learned that the inevitable technological advancement from analog- to digital-based communications by a technologically evolving species (such as our own) makes the window of receiving extraterrestrial radio communications very narrow indeed. Not to mention that any extraterrestrial society would have to be long-lived and have survived the constant threat of extinction due to natural or self-made disasters, such as planet-killing comet collisions and nuclear war, before we had any hope of hearing them. Our own species is struggling with these very problems and only time will tell if we will survive our own technologically dangerous adolescence.

Despite the grim odds, SETI scientists are hopeful that someday soon we will intercept the signal that proves we are not alone. Why? Because in a universe filed with billions of yellow suns like our own, scientists calculate that a 100 million are capable of having life-sustaining planets (such as Earth), and of those planets there could be as many as 10 million harboring technology-wielding beings such as ourselves.

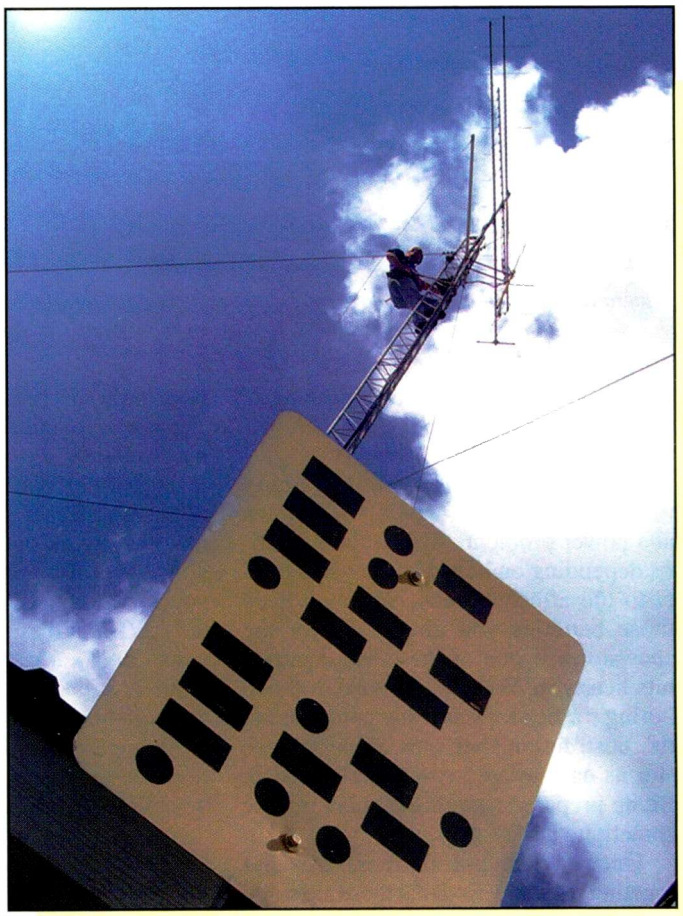
Has E.T. Phoned Home Yet?

SETI scientists have been listening to the radio universe for only about 40 years. In that time there have been a few tantalizing signals intercepted that have raised a few eyebrows and made SETI scientists' heart rates momentarily race. But there's nothing they can definitively point to as the transmissions of an alien civilization.

The most interesting—and publicized—intercept was what scientists have dubbed the "Wow" source that was plucked out of the sky by Ohio State's Big Ear radio telescope in August 1977. On that occasion a very strong signal of unknown origin was detected. Lasting only 72 seconds but rated at an amazing 60 Janskys (a measurement of flux density) in a 10-kHz channel, the Wow signal passed all the tests for a SETI signal except one: it never repeated.

SEIT volunteer Dr. Jerry R. Ehman wrote the following about the Wow signal on a website commemorating the 20th anniversary of the event:

A few days after the August 15, 1977 detection, I began my routine review of the computer printout from the multi-day run that began on August 15th.



Ken Hansen, WB5QLI, works atop his tall antenna tower located in Amarillo, Texas. Can you read the sign Ken created? Its meaning has stumped his neighbors, but if you know code it's a breeze—and a pun in itself. (Photo By Steve Douglass)

Several pages into the computer printout I was astonished to see the string of numbers and characters "6EQUJ5" in channel 2 of the printout. I immediately recognized this as the pattern we would expect to see from a narrowband radio source of small angular diameter in the sky. In the red pen I was using I immediately circled those six characters and wrote the notation "Wow!" in the left margin of the computer printout opposite them. After I completed the review of the rest of the printout, I contacted Bob Dixon [member of SETI's Advisory Board] and Dr. John D. Kraus, the Director of the Big Ear Radio Observatory. They were astonished too. Then we began an analysis of what has been called for 20 years the "Wow! Source."

You can read the entire story of the Wow signal at http://www.bigear.org/wow20th.htm#intro.

Since then, nothing like that has been encountered, and SETI scientists are still debating its significance. However, there have

been other intercepts, one long before any dedicated SETI program began, and that was very interesting, too.

Did An Alien Space Probe Retransmit A Dutch Shortwave Transmission?

Although it may sound far-fetched to most of us, in 1928 a radio engineer named Jorgen Hals from Oslo, Norway, wrote a letter to noted physicist Carl Stormer to put forth the possibility that an extraterrestrial space probe had passed nearby Earth and repeated radio transmissions from a Dutch shortwave transmitting station located in Eindhoven.

The letter, which was published in the weekly scientific journal *Nature,* read,

> At the end of the summer of 1927 I repeatedly heard signals from the Dutch station (PCJJ) at Eindhoven. At the same time as I heard these I also heard echoes. I heard the usual echo (which goes around the Earth with an interval of about 1/7th of a second) as well as a weaker echo about three seconds after the principal echo was gone. When the principal signal was especially strong, I suppose that the amplitude for the last echo three seconds later lay between 1/10 and 1/20 of the principal signal in strength. From where this echo comes I cannot say for the present, I can only confirm that I really heard it.

In the article it was Stormer's contention that the Dutch station's transmission may have been intercepted and repeated by an extraterrestrial space probe passing through our solar system. But before publishing what might seem like outlandish and unconfirmable claims, Stormer and Hals decided to put this theory to the test and try to confirm what Hals had monitored.

Using the best receivers and test equipment of the day, Stormer and Hals began monitoring PCJJ, which emitted a very strong signal on 31.4 meters. On October 11, 1928 (more than a month after Hals made his first intercept), both men monitored very distinct echoes several times, with some echoes coming back a whopping eight seconds after the initial Dutch station transmission. They contacted another physicist, Balthus van der Pol, who confirmed the pair's findings by doing his own monitoring of the Dutch station signal and echoes. He wrote in a telegram to Stormer, "Last night I heard echoes here varying between 3 and 15 seconds! 50% of the echoes were heard after 8 seconds!"

Six years later, ham operators and professional radio technicians monitored similar echoes, but their source was never ascertained.

Although the idea of an alien space probe intercepting shortwave radio transmissions may seem on the surface very unlikely, in the early '70s, Stanton University Professor R.N. Bracewell theorized that it seems logical that a technologically advanced civilization would send out deep space probes that would reveal themselves to intelligent beings on other planets by intercepting terrestrial communications, boosting the signal, and retransmitting it (highly amplified) back to the planet it had originated from, thus causing the type of delayed echo monitored by Hals and Stormer.

Scientists of the day argued that the echoes may have been caused by natural phenomenon (such as an intense aurora), but the feeling today is that the claims have never been adequately examined or explained.

Homebrew SETI

So let's say that despite the astronomical chances (pardon the pun) that we'll ever intercept the signals of extraterrestrials in our lifetimes, you are still motivated enough to build your own SETI station and try your hand at netting the ultimate intercept. What do you need?

First, forget about trying to intercept the unintentional communications leakage (similar to our FM and television broadcasts bleeding into the heavens ever since Marconi) from a planet thousands of light years away. Instead concentrate on trying to receive messages intentionally beamed into space from an alien civilization eager to broadcast their presence. Most scientists agree that an intentional signal aimed at Earth by an extraterrestrial society would most likely be very powerful and could quite possibly be received by hobbyists using off-the-shelf, homebrew equipment.

Indeed there are several groups of amateur scientists and ham radio operators who have built their own SETI stations. These dedicated people have adapted existing receivers and surplus ham and TVRO (TeleVision Receive Only) antennas to serve their SETI purposes. At Project BAMBi, for instance, you'll find plans and helpful tips for building your own SETI setup, including software for your PC. For more information on this group, point your Web browser to http://www.bambi.net/). You can also correspond and trade information with other SETI amateurs through e-mail links. For a comprehensive look at amateur SETI and amateur radio astronomy, one place to try is http://www.nitehawk.com.

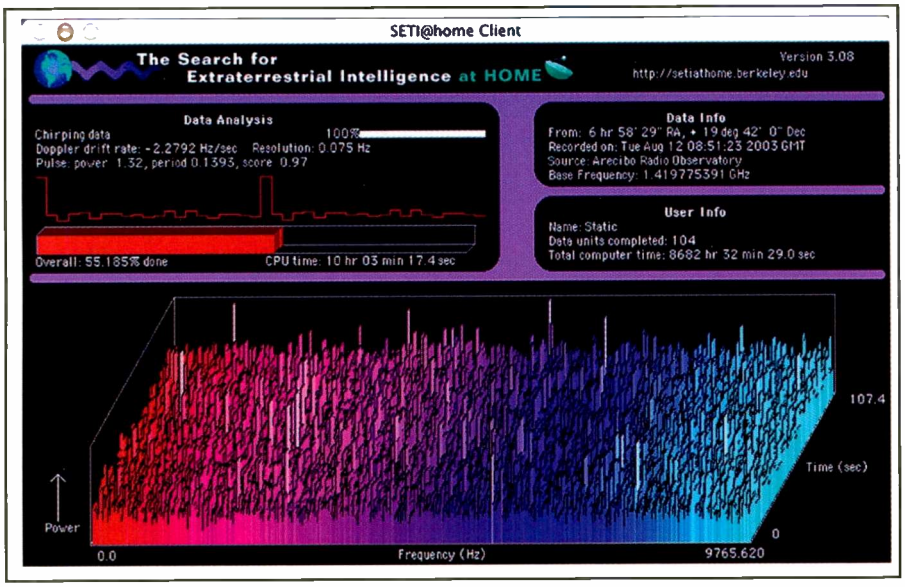
As for antennas, it would be very easy to design a homebrew beam antenna for 1.4 GHz. Just make sure you use an antenna with plenty of directionality and gain. You'll want an antenna that can be pointed at one small section of the sky and that is capable of excluding most terrestrial signals that might come at it from the sides. Ham radio journals and websites publish excellent design plans for building very directional (and high-gain) antennas, such as Helicals and Yagis, that if adapted could serve SETI purposes well. A good place to start your research is the ARRL's website at www.arrl.org. You'll also have to research designs for mounting and aiming your antenna, including towers and rotators like those used for AMSAT work. Visit www.amsat.org for more information.

There are also free computers programs available that hams use to aim their antennas, but they'll need some adapting to make them track stars instead of satellites. An idea I had was to use a program used for aiming optical telescopes, such as the new computer-controlled ones available from Tasco and Celestron. Once the programs are told where north is it only takes them a few seconds to find and aim any telescope at thousands of visible—and some not visible—stars in the heavens. It would be a simple task to replace the optical telescope with your directional antenna and aim it at the star system you wish to monitor.

So let's imagine you've built your SETI system and it's up and working and, by chance, you actually do receive something. What do you do? How can you tell if it is really E.T. or a terrestrial manmade source, such as a satellite or deep space probe like *Voyager*?

First of all, make sure to record what you're receiving on tape or in some digital form. If it disappears you'll have evidence of the intercept to analyze later. Then you need to take steps to identify and verify what you've intercepted.

For our purposes, let's say your antenna is pointed at the constellation Leo and you receive a strong signal. The first thing you should do is to turn your directional antenna away from the source of the transmission and see if it weakens or strengthens. In SETI lingo, this is called swinging the antenna *off-axis*. If it



The SETI@home screen saver/signal analyzer at work. This nifty program turns your PC into a number-crunching tool for SETI scientists. (Image courtesy SETI@home.berekely.edu)

is indeed coming from the sky, the signal should weaken when the antenna is pointed away from Leo. Okay, now, say you've verified that it's coming from the sky, there are still other tests you need to do before calling CNN. As the Earth turns, the source of the transmission should stay in the same relative portion of the heavens. In other words, as you track the source across the sky, if it moves any faster or slower than the constellation it is coming from then it's probably of human origin.

A low-earth-orbiting satellite or high-altitude aircraft would move much faster across the sky (since it is closer) than would a deep space radio source, or (as in the case of geo-stationary satellites) at all, staying in the same position relative to your station.

If the radio source rises and sets within Leo, you may indeed have found something worth investigating, but the next (and most important step) is to seek verification from other SETI stations. If they can verify the same transmission coming from Leo it could be the real thing. Ideally the other SETI stations you contact for verification should not be close to your location, because if it is indeed a satellite it will appear to each station to be coming from a different piece of sky, which will also identify it as local in origin.

In 1997, SETI scientists became excited when they found a transmission from the heavens that seemed to fit all the parameters listed above. They swung their antennas off axis and the signal disappeared. It also seemed to be moving across the sky at the same rate as the Earth revolves. Usually the scientists had the option of calling their sister station located across the country to verify what they were receiving, but on that day the sister station was down for repairs. For a short while, the scientists were quite hopeful, until they were able to identify the source of the transmission: a deep space research probe launched by NASA.

SETI At Home

Not dedicated enough to build your own SETI station but still want to participate in the catching the ultimate intercept? Then "SETI At Home," an experiment using Internet-connected personal computers to help with the research, may be just the thing for you.

SETI scientists are constantly collecting huge amounts of data from the big ears they keep pointed up at the stars, so could take hundreds of years to analyze the data, even with modern supercomputers. Since supercomputer time is very expensive, SETI scientists have figured out a clever solution for crunching all that data—and that's to let *your* computer do the work for them. By encouraging others to download a totally cool program (for PCs or Macs) and letting the thousands of home computers do the analysis (searching for potential SETI signals, that is), the process of scrutinizing millions of frequencies for the Ultimate Intercept becomes much more manageable.

The program works like a screen saver, and only when you want it to (when your PC is idle), and automatically connects to the Internet, through your connection, and retransmits analyzed data back to SETI At Home. Watching the program work is fascinating and a real conversation starter when others wonder just what the heck your computer is working on! Most of the data comes from the huge Arecibo Observatory in Puerto Rico. In any event, if and when the Ultimate Intercept is made, your computer could be the one to do it and you'll be given the credit for finally answering the ultimate question: Are we alone?

Back To Basics

There is a growing, and very much mistaken, notion that since the advent of digital communications and satellites shortwave is dead. Nothing could be further from the truth. More than ever, the HF bands are teeming with activity. In Part II of *Back to Basics* we'll examine the varied modes used on HF. Please note, though, that this is just a quick overview on what's happening on the HF utility bands. For more in-depth information on any of the modes outlined here, you should consult the real experts on the WUN (World Utility News) mailing list or visit www.wunclub.com on the Internet. Next month in *Back to Basics* we'll take a look at HF receivers and what's available on the market, from classic vintage shortwave receivers to new whiz-bang high-end wonder radios.

AM Analog Voice

Once the most common (and easiest to receive) mode, AM voice is used mostly by shortwave broadcasters and some radio amateurs. No special receiving equipment required, you just turn on your rig and listen in.

If you've ever tuned across HF and checked out the ham frequencies, no doubt you've come across what sounds like garbled speech, kind of like Donald Duck talking underwater. The beginner may mistakenly think it's a form of voice scrambling. It's not. This is single sideband (SSB) radio and is nothing more than a way to transmit a signal further with less power. Best put, in SSB the carrier and one sideband are removed before the signal is amplified. This enables all the transmitted power to be put into either the upper sideband (USB) or lower sideband (LSB). As an example, a legal-limit (4-watt) CB SSB transmitter has the effective power of 12 watts of transmitter output.

Utility stations, such as the U.S. military, aviation, marine, and ham radio operators, most often use AM and SSB as transmitting modes. To receive these transmissions, your radio will have to be equipped with a BFO (beat frequency oscillator), usually a tunable knob that converts the sideband transmission into recognizable human speech. On some receivers, there will be no BFO knob but instead a switch marked USB/LSB. If the SSB transmission you're tuned to still sounds garbled, you can clarify the voice transmission by slowly turning the tuning knob until you're on the exact frequency of the transmission. Sometimes you'll encounter older radios with a switch marked "CW," which will also work to clarify sideband transmissions.

CW (Continuous Wave Morse Code)

One of HF's oldest and still widely used non-voice modes is CW, also known as Morse code. It has the unique ability to cut through and be heard above the manmade and natural static on the shortwave bands. Until recently, knowing Morse code was a major requirement in obtaining a ham radio license. Although no special equipment is required to decode Morse (just a knowledge of the code itself and a good ear), you can buy stand-alone or computer interfaces that will decode Morse without the operator needing to know a single dot or dash. Morse is still popular on HF and can transmit much further than voice on less power. It's also a very reliable form of communicating information in cases of emergency.

Frequency Shift Keying (FSK) And Radioteletype (RTTY)

FSK is a way of sending large strings of text over the radio airwaves, much like regular teletype is over sent over closed phone lines. Radioteletype (RTTY) is used for transmitting weather reports, consular traffic, and other information more quickly than CW. Although RTTY is similar to CW (based like CW on the Baudot code system), one cannot decode RTTY by ear. However special stand-alone or computer interfaces can be purchased that will let you decode RTTY. Among the most common FSK modes are amateur teleprinting over radio (AMTOR) and Forward Error Correction (FEC).

Other Digital Modes

Since the invention of digital technology, there has been a plethora of digital transmission modes used on shortwave. Some of these you can decode (via a computer interface) and some you can't.

One of the most popular digital modes that UTE monitors can decode is ALE (Automatic Link Establishment, MIL-STD-188-141-A) used by U.S. military ships, aircraft, ground stations, and mobile units of all services and even by some non-military users. You can find a great primer on ALE at http://www.wunclub.com/files/aleinfo.html. Another good place to find information and ALE experimentation ideas is at Charles, G4GUO's homepage at http://www.chbrain.dircon.co.uk/. A great place to hear sound samples of many of these digital modes is at http://www.wunclub.com/sounds/. So if you've ever wondered about those strange chirping sounds you came across while tuning through the HF bands, the .wav files posted here will help identify them.

Microwave Oven Mystery

Friend and fellow Amarillo, Texas-amateur radio operator Ken Hansen, WB5QLI, sent in this letter about our monitoring adventure in Crawford, Texas, and a story about how he and other hams solved a radio mystery of their own. Ken writes,

I sure enjoyed reading about our trip to Ben Hur in the pages of *Pop'Comm*. Even though I was there it's fun to see it through someone else's eyes. We sure have had some great monitoring adventures together haven't we? Probably enough to fill a book (hint, hint)! One of these days you'll have to tell them the one about our trip to Roving Sands and the Humvee and 50-caliber machine gun that was pointed at us? That's a story for another time.

When I read your recent story "Monitoring Mystery Solved" it made me think of an incident a few decades ago when we Amarillo amateurs were plagued with a mysterious interference that kept assaulting our 2-meter repeaters.

In the late 1980s I helped a ham radio friend of mine, Chip Andrews, N5LTZ, put up a 20-foot Rohn 25 tower just south of Amarillo. Chip wanted to help out the local ham radio club technical committee put up their own repeater, but when they procrastinated, he just decided to put up his own repeater. Boy, were they surprised when the 146.920-MHz N5LTZ repeater went on the air! That was the last time the club ever failed to take Chop seriously. With the flat terrain around Amarillo, Chip's modest antenna height produced excellent coverage in town and out to about 50 miles.

Soon after the repeater went on the air, we started hearing a strange interference, and not only on Chip's new repeater. Other repeaters were affected as well as a few public safety repeaters such as the Texas Department of Public Safety and the Randall County Sheriff Office.

The noise can be best described as a raspy hum, almost sounding like some kind of electrical arc that would gradually increase in frequency and key up every open repeater in the area, even those with tone squelch! The annoying interference made using our new repeater next to impossible. So armed with Chip's new IFR spectrum analyzer, we set out to track down the source of this radio irritant.

Needless to say, attached to direction-finding antennas, it didn't take long for the scope to sniff out the culprit. Chip tracked down the noise to the nearby Owens Corning Fiberglass Plant. A local ham that worked in the plant confirmed our deductions, telling us the plant had recently installed a room-sized microwave oven used to cure fiberglass as it passed through it. It made sense. That explained why the resonant frequency of the interference would roll up the band and key up each repeater (for about 30 seconds) as it moved through the bandpass filters! Armed with this knowledge, Chip went knocking on Owens Corning's door.

The response from Owens Corning was underwhelming. "You're a bunch of... what...radio-hobbyists? Were not going to spend a bunch of money because of your repeater problems!" was their reply.

Our break came when we found out a new manager at the plant just happened to be a ham radio operator. We told him about the interference and what it was doing to our repeater system. This (and sudden complaints from local and state law enforcement agencies) convinced them to address the problem.

It took some time but Owens solved the problem with a simple solution. They surrounded the oven with a copper-mesh faraday cage that eliminated the noise entirely. Thanks to a radio sleuth we were able to track down the source of the noise and, with a little pressure (and the help of an insider and law-enforcement), convince the company to be civic-minded and do something about the noise that was raising such havoc on the radio bands. Thanks Owens Corning! We appreciate your efforts!

Concerning Phone Taps

Speaking of Ken, many of you might remember it was Ken who shared my presidential communications monitoring adventure in Crawford, Texas. I received many e-mails regarding this story. The portion that drew the most comments was my purely *tongue-in-cheek* comment that my phone sounded crackly, indicating that it may have been tapped by federal authorities. On one forum it was posted completely out of context and drew some

fire from FEDCOM subscribers who thought the assertion was ludicrous.

After talking to Ken about this (he's a telecommunications professional who works for SBC Communications), he said if my phone was indeed tapped by the Feds, I would never know it. Long gone are the days of climbing up the poll outside a residence and placing a hard-wired telephone tap. It's all done through computers with no loss of signal quality or the target ever being the wiser.

That said, I was still having trouble with my phone lines. The strange crackling and sometimes pulsing noises on my phone continued and grew so bad that they sometimes made it very hard to hear the other side of the conversation and could make my computer (I'm still on a slow-as-molasses dial-up connection) drop its carrier, causing considerable frustration staying online. Since (as I stated in the article) I realized the phone wiring in my apartment complex was older than dirt, I figured the noise was due to old equipment that should have been replaced decades ago. When talking to my neighbor about the problem, however, she said she had actually seen one of the apartment maintenance men at the phone box with a phone wired into the box and obviously listening in on someone's conversation!

The phone box to my apartment is located just outside the laundry room. I walked over to check it out and found nothing, except I did notice the box door was bent as if it had been pried open. I pulled on the door and it came open, unlocked to anyone. I placed a non-specific trouble order with SBC, which said they would come over and check my line. Two days later an SBC technician knocked on my door and said he had fixed my problem. It seems that someone had broken into the phone box and left it open, allowing rain to pour in degrade the connections to the main lines. He spent two days re-wiring the box and even replaced the door and said if I had more trouble to notify SBC.

I told him what my neighbor had seen and asked if there was any evidence of a tap. He said he didn't see any sign of one, but he did say with the door unlocked anybody with a little knowledge of the phone system could easily wire in a phone and listen in on anybody in my building. In fact, he had heard reports of unscrupulous maintenance people and apartment managers doing just that, listening in on the private phone calls of their tenants.

So was my phone tapped? Maybe. But probably not by professionals working for federal agencies. In fact, one reader commented I was getting "a swelled-head" imagining that my dinky column raised any security concerns in Washington. He's probably right. I'm sure they have much bigger fish to fry during these trying times, and I'm convinced my story on Crawford went largely unnoticed except by monitoring hobbyists.

As for the possible tapping of the phones in my complex by a maintenance man? I can't prove the tap ever existed, but chances are if it was tapped most likely he was listening in on the phone conversations of the cute blonde next door and not this paunchy balding grandfather of two.

Readers' Logs

I want to remind you that you can send in your MILCOM loggings above 30 MHz, including UHF military aero band catches. Just do so in the format below. I'm really beginning to worry about the lack of loggings being sent in, folks. I hope UTE monitors aren't falling into a state of apathy. Let's show the naysayers that HF UTE monitoring is alive and kicking!

As always thanks to our ever-faithful UTE monitors who submit their logs every month. As for the rest of you lazybones, get on the stick and send those logs in!

0000: (Frequency MHz): STATION, Anytown, USA, summary of traffic heard, MODE at 0000 Z. (monitor/ location)

4372.0: SIERRA, CHARLIE, and GIANTKILLER in Link coord net. GIANTKILLER passes Link parameters at 2348. (MC)

5211.0: WGY912 (FEMA, Mount Weather, VA) taking check-in from KITTY HAWK 44 (CAP) at 2215. (MC)

5211.0: NMN CAMSLANT radio check with WGY912 at 2152. (MC)

5211.0: WGY912 (FEMA, Mount Weather, VA) opening net for Hurricane Jeanne check-ins at 2353. (MC)

5320.0: CAMSLANT calling Cutter *DECISIVE* at 2035. (MC)

5690.0: CG 1706 (HC-130, CGAS Clearwater) p/p via CAMSLANT to Clearwater Air. Passes WX and ETA to Opa-Locka at 2027. (MC)

5696.0: CAMSLANT wkg CG 2102 (HU-25, CGAS Miami) to relay from GANTSEC that lights at Borinquen are inoperative. GANTSEC requests they land in St. Thomas at 2321. (MC)

5708.0: DARKSTAR QUEBEC (E-3 AWACS) ALE initiated call to OAKIE SAM (NORAD SE ROCC) at 2355. (MC)

5711.0: KING 16 (HC-130) wkg KING 22 (HC-130) followed by ANDVT at 0120. (MC)

5717.0: HALIFAX MILITARY wkg RESCUE 328 with vessel position and visibility update 0243. (MC)

5732.0: PANTHER wkg 18C. PANTHER instructs them to open their search region to include area south of W4 and east and northeast of W6 at 0141. (MC)

6694.0: Halifax Military: 0030 USB w/Rescue 311 (CC-130H # 130311, 413th transport /Rescue Sqdn, CFB Greenwood) in pp w/Halifax RCC. Halifax sets primary freq as 6694.0 and secondary as 05717.0. (RP)

6694.0: CANFORCE 1359 wkg HALIFAX MILITARY for WX at various European fields at 2347. (MC)

6721.0: CG 1502 (HC-130, CGAS Elizabeth City) ALE initiated call to Elizabeth City Air at 2344. (MC)

7527.0: HAMMER wkg unid station. States OMAHA 472 reports smooth flying at FL 210 at 2205. (MC)

7632.0: AAR4LL (Army MARS, TN), AAT3AM (Army MARS, WV), and NNN0KAG in SHARES SE RCS Net at 2356. (MC)

7635.0: HEADCAP 45 in National Chaplains' Net with HILLCAP 49 and RED FOX 105 at 2106. (MC)

7805.0: CL1AR (Clarendon, New Hampshire EOC): 1503 USB/ALE sounding. (RP)

7805.0: HI1LL (Hillsborough, New Hampshire EOC): 1506 USB/ALE sounding. (RP)

7849.0: CUFAN1 (unidentified sub-element of Venezuelan Unified Command of National Armed Forces): 2350 USB/ALE TO RESERVA9 (9th Inf Bn- Reserves). (RP)

8171.5: T7Z101 (7/101st Avn, Ft Campbell KY): 1654 USB/ALE sounding. (RP)

8026.0: ANTHOLOGY and Andrews HF-GCS conducting Autodin check. Andrews transmits multiple data transmissions at 0132. (MC)

8912.0: CG 1504 p/p via SERVICE CENTER District 1 Ops. State they received their opnote about the ELT while they were on deck dropping off the District 1 admiral. Currently passing over USCGC *Seneca* and request to know if they still want them to divert to the ELT at 1402. (MC)

8918.0: New York (MWARA CAR-A): 0039 USB w/Iberia 6122 w/position report. (RP)

8933.0: ARINC-New York: 2350 w/Lauda Italy 126 w/WX for New York, Boston, Gander, St Johns, and Halifax. Also N40LJ in radio checks. (RP)

8971.0: PELICAN 71N reporting offsta and RTB to FIDDLE at 1701. (MC)

8971.0: FIGHTING TIGER 23 (P-3C, VP-8) with SPARE GROUP 3A report to 8QT. They request extended SPARE GROUP 7 time for first half of their event. 8QT requests they contact them on Iridium SATCOM at 2210. (MC)

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8980.0: CG 1705 p/p via CAMSLANT to Clearwater Air at 1957. (MC)

8983.0: RESCUE 2114 airborne from Miami with 5 POV en route to ELT search off Fort Pierce, FL, during hurricane Frances at 1407. (MC)

8983.0: CAMSLANT diverts CG 2131 per District 7 to contact USCGC BEAR and assist with intercept of a Go-fast at 2119. (MC)

9007.0: CANFORCE 3218 p/p via TRENTON MILITARY to WING OPS at 2050. (MC)

9007.0: BANDSAW KILO (E-3 AWACS) radio check with TRENTON MILITARY at 1917. (MC)

9023.0: STARGATE (E-8 JSTARS) wkg DARKSTAR (E-3 AWACS) at 1817. (MC)

9023.0: HUNTRESS (NORAD NEADS) radio check with BLUE CRAB at 2055. (MC)

9025.0: CG 1501 ALE initiated call to Elizabeth City Air regarding turnover arrangements with CG 1504 at 1616. (MC)

9025.0: BLUE 61 (KC-10A) p/p via Andrews HF-GCS to HILDA Meteo for WX at Bangor and Otis ANGB at 1424. (MC)

9025.0: 221110 (C-17 #02-1110): 1657 USB/ALE sounding. Also noted sounding on 04721.0 and 13215.0. (RP)

9047.0: 022NHQCAP (Civil Air Patrol Nat'l Ops Center, Maxwell AFB AL): 1559 USB/ALE sounding. (RP)

9295.0: SYRNY (Nat'l Guard Bureau, Syracuse NY): 1628 USB/ALE sounding. (RP)

9295.0: BNGNY (Nat'l Guard Bureau, Binghamton NY): 1653 USB/ALE sounding. (RP)

10115.0: CLC51 (Local Communications Center, 51st Jungle Inf Bde, Venezuelan Army): 0054 USB/ALE TO SCLC512 (Subordinate Local Communications Center, 512th Jungle Inf Bn). Also noted on 14569.0. (RP)

11175.0: EXECUTIVE 1 FOXTROT p/p via Puerto Rico HF-GCS to Andrews Meteo for Columbus IAP, OH at 1914. (MC)

11175.0: TEAL 60 (WC-130 Hurricane Hunter) p/p via Puerto Rico HF-GCS to National Hurricane Center. Checking in after a period of lost comms. Ground party states they were worried they lost the aircraft. TEAL 50 is RTB Biloxi, MS at 1116. (MC)

11175.0: 8th COMMUNICATIONS BATTALION (USMC, Camp Lejune) p/p via Puerto Rico HF-GCS at 1930. (MC)

11175.0: SHARK 67 p/p to SMASHER. Reports departure from Puerto Rico and ETA to Kingston, Jamaica at 1110. (MC)

11175.0: FUELER 41 p/p via Lajes HF-GCS to Incirlik AB AMCC at 0026. (MC)

11205.0: REACH A612 (C-17A) check-in with SMASHER to report departure from Soto Cano AB, Honduras en route Charleston at 2032. (MC)

11205.0: SMASHER wkg TEAL 34 (WC-130 Hurricane Hunter) at 1208. (MC)

11217.0: STARGATE wkg DARKSTAR PAPA followed by ANDVT at 1818. (MC)

11226.0: 591499 (KC-135 # 59-1499): 1853 USB/ALE sounding. (RP)

11494.0: 61A on deck at C6 secures guard with PANTHER at 2258. (MC)

11630.0: KRUQNG (North Carolina ARNG, Rowan County Airport, Salisbury, NC): 1746 USB/ALE sounding. (RP)

13257.0: Canforce 4113: 1919 USB w/unheard station. (RP)

13200.0: Puerto Rico HF-GCS wkg REACH 7173 at 1258. (MC)

13200.0: SHADO 42 wkg Croughton HF-GCS then Ascension HF-GCS for message relay to Robins AFB Maint. Control at 2056. (MC)

13215.0: REACH 5034 (KC-10A) p/p request via Puerto Rico HF-GCS to Anderson AFB Meteo for WX at 2136. (MC)

13257.0: CANFORCE 4112 wkg TRENTON MILITARY with request they pass departure message to Wing Ops at Winnipeg at 1331. (MC)

13264.0: Shannon: 1952 USB w/Volmet. (RP)

13294.0: Kinshasa (MWARA AFI-4): 1948 USB w/Air France flight w/position report in FF. (RP)

13306.0: Egypt Air MSR 85: 1525 USB w/New York (MWARA NAT-A) w/position report. (RP)

13354.0: New York (MWARA NAT-E): 1415 USB w/Air France 488 w/position report. (RP)

13883.0: Unid: 1818 FAX w/poor quality pressure gradient chart. Not able to determine geographic location of map. (RP)

13927.0: PRIMO 71 (KC-10A) p/p via AFA1RE Maine to RAYMOND 19 at Robins AFB regarding their damaged drogue basket attached by a single wire trailing 20 feet behind them at 2320. (MC)

14420.0 NYALA2 (UN, Sudan): 2234 USB/ALE sounding. (RP)

15016.0: TEAL 53 (WC-130) p/p via Puerto Rico HF-GCS to Keesler AFB at 1747. (MC)

15025.0: SHARK 80 p/p via SKYWATCH (USARSO Flight Following, Soto Cano AB, Honduras) regarding problem with starter and arranging to have one flown to their destination of Belize. SHARK 80 will call back later on the Iridium SATCOM. Heard at 0008. (MC)

15867.0: CG 1720 with position report to CAMSLANT at 2330. (MC)

16345.0: R1 (garbled identifier, Brazilian Army): 2217 USB/ALE TO BR1 (Hqs, Brazilian Army, Brasilia). (RP)

16986.5: CTP (Portuguese Navy): 1718 RTTY 75/850 w/NAWS tape. (RP)

17937.0: Flight Support, Lima Peru: 1355 USB w/UPS 6128 w/WX and SELCAL check (FS-KP). (RP)

17950.0: O/M (SS): 1911 USB w/Y/L (SS) in non-air/LDOC-related conversation. (RP)

17982.0: Manaus (Brazilian Air Force, O/M Portuguese): 1227 USB w/aircraft 707 (O/M Portuguese) w/radio checks. (RP)

17976.0: CROSPR (Croughton SIPR-net node): 1255 USB/ALE sounding. Lajes SIPR-net node also noted on this freq. (RP)

18012.0: Circus Vert (HQs CFAP, Villacoublay): 1526 USB w/COTAM 2306 (French Air Force) in radio checks. (RP)

18012.0: Circus Orange (FR Air Force, Dakar Senegal): 1547 USB w/COTAM 5111 (FR Air Force) w/position report. (RP)

18018.0: Architect (RAF Flight Watch): 1700 USB w/airfield WX report. At 1730 w/airfield color states. (RP)

19103.5: SKYWAT (Skywatch, US Army Flight Watch, Soto Cano AB Honduras): 1658 USB/ALE sounding. (RP)

19200.0: BNG (Venezuelan Navy Base "Guitierrez"): 2043 USB/ALE TO BNF (Venezuelan Navy Base "Falcon"). (RP)

19200.0: CGA (Venezuelan Navy HQs): 2031 USB/ALE TO BNA (Venezuelan Navy Base "Amarillo"). (RP)

19814.0: 037RMRCAP (Civil Air Patrol, Rocky Mountain Region): 1856 USB/ALE sounding. (RP)

This month's contributors were Ron Perron (RP) and Mark Cleary (MC).

Logs In, Please

Until next time, remember to send in your utility loggings, photos of your radio "shack," and any questions or suggestions for *your* utility column. See you again next month! ■

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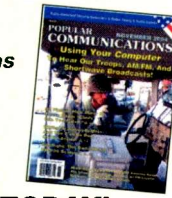

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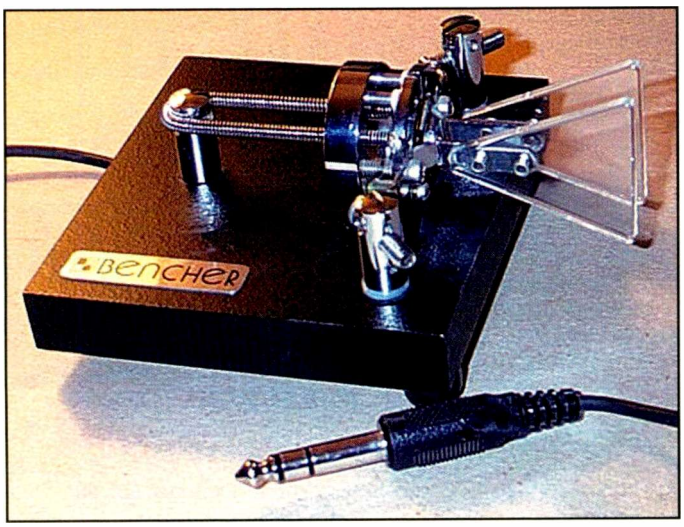
by Kirk Kleinschmidt, NTØZ

Morse Code: Roots Radio

Now that the Navy and almost every maritime vessel on the water today have essentially abandoned Morse code—and the FCC has slashed or dashed Morse code license requirement speeds—why bother with dits and dahs? There are plenty of reasons, of course, and I'll get to some of them in this month's column, which is devoted to the primitive drumbeat that is the code. Actually, this is a topic that I've barely touched on over the years. Because I'm such a code fanatic, I've probably overcompensated by virtually ignoring ol' Samuel Morse's contribution to the radio arts (to avoid being labeled as such).

Enjoying and understanding Morse code is a perennial theme, despite its slightly tarnished reputation of late. Morse code, seasoned by time though it may be, still has a lot to offer, even in the age of Internet chatting, speech compressors, and DSP. Continuous wave (CW) transmissions are *real radio*. They're basic. They're primitive. And when you get tired of QSOs that are broadcast quality and digitally enhanced, don't forget about ham radio's founding mode, the one that started it all: Morse code!

Need encouragement to learn the code? Morse code *blows away* SSB when conditions are poor, you're running low power or a home-brew rig, if you have a crappy antenna or are operating portable in the field, if you just *have to* work a DX station, and so on. And, because good code relies most on that little-used DSP processor between your ears, it really *involves you* in the process. You're the most important part of a Morse code QSO; no other mode requires so much participation.



There are dozens of keyer paddle manufacturers around the world making hundreds of different models, but when it comes to the "gold standard" or the "Ford pickup" of the bunch, the venerable Bencher model BY-1 has to be in the running. Tens of thousands are in use worldwide, and chances are good that you or someone you know (a ham, of course!) has one. If you're new to Morse code, by all means try one out. But because they don't exactly give them away nowadays ($100 and up versus the $49 I paid for mine some years ago), try models by other manufacturers, too. I snagged this photo from W1VET's website because my BY-1 is packed away in storage for the time being.

And don't worry about the code disappearing just because the FCC has mostly done away with it as a licensing requirement. When the code barrier falls completely, the CW subbands will be populated by true believers for decades to come. You'll always have plenty of fellow dit slingers to chat with.

Now, I know that Morse code isn't for everyone, but I've also noticed that most ops' frustration with the mode comes from not really knowing how to use it effectively. Maybe they didn't give it enough time, or maybe they didn't become proficient enough to "get into the groove." Practice makes perfect, of course, but practicing correct techniques right from the start can reduce the time it takes you to perfect your Morse code skills and the time it takes to actually *enjoy* the experience

On The Air

First, forget about calling CQ for a "good long while." Until your confidence and proficiency are sufficient, you should look for big, fat CQ calls *from someone else*—someone with a good fist who is sending at a speed that's comfortable for you to copy.

Once you've replied to the other guy's CQ, you're almost home. If there are no other hams around, you'll be the only game in town! But what happens if others respond, too? Your biggest challenge is to be the caller the CQer responds to. And don't think that having a big signal is all it takes. In fact, timing and knowing exactly where, when, and how to transmit makes all the difference.

Transmit On The Right Frequency

The place to transmit from is almost always *exactly on the same frequency as the station calling CQ*. This is called *zero beating*, as the audio tone produced in each receiver is at the same pitch. Most stations tune only 1 to 2 kHz when listening for replies to their CQs, so if you're too far away, the CQer won't hear you. If you're right on frequency from the start, the CQer will hear you right in the center of his receiver's passband. And chances are good that he'll hear you instead of some other caller who is slightly off frequency. (DX stations, however, sometimes prefer off-frequency replies to manage the sheer volume of callers.)

Timing Is Everything

Now that we know *where* to call, it's time to talk about *when* to call. This is pretty simple. As soon as the CQing station finishes calling and signs K, immediately start your reply. If you hesitate, another station might jump in. If you transmit first, the other station may wait, not wanting the competition. As long as you're on frequency, the CQer will start copying the first reply he hears, which is hopefully yours.

Here's an old-timer's trick that still works today. Many ops use full break-in keying (QSK) while they're calling CQ. That is, they can hear their receiver audio between the dits and dahs they're sending. If you send something to get their attention—a string of dits, perhaps, or a long dah—the QSK CQer usually stops to hear what's going on. Quickly, just after the CQer pauses, give the op a quick call (his callsign DE your callsign) and

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you've snagged him! There might have been a half-dozen ops waiting to reply to the same CQ! Don't abuse this tactic, though, and be discreet. If the CQer isn't QSK, you'll simply interfere with his call, and that's not a display of good manners.

Transmitting Tips

How to send is more complex than where and when to send. Let's break it down into simpler parts:

• Send at the same speed the CQing op is using. Assume that he's sending at a speed that's comfortable for him, and that he'll want your reply to be in the same ballpark.

• Learn to adjust the length of your reply. If the CQing op sounds savvy (good fist, strong signal), a short reply will usually do the trick (his callsign once and your callsign once or twice). If conditions are poor, or if the sending op sounds less sure of himself, send both callsigns two or three times. Experience will help you to get the feel for this.

• Your Morse code should be crisp and accurate. Nobody wants to answer calls from sloppy senders. In fact, many sloppy calls *are* ignored! And these callers thought the bands were dead or that their signals were weak! Practice sending code off the air until yours sounds good. Have a friend who is a good CW op listen to your code. Work toward excellence! This makes all the difference when conditions are less than ideal.

• Make sure your signal is clean. Don't overdrive your rig or do anything foolish. And don't run out and buy a linear amplifier. Keep your rig tuned and adjusted properly and put up the best antenna system you can manage.

• Learn from your on-air experiences. Carefully see what works and what doesn't, and always adhere to good behavior practices.

• Try to get comfortable sending with a solid paddle and a decent electronic keyer. I know that's anathema to some purists, but sending good code with a straight key (for any length of time) may indeed be a lost art. And forget about using bugs (semi-automatic keys). Sending with these relics *should*, for the most part, be a forgotten art! Historical and sentimental considerations aside, *don't* try to make your sending distinctive by having your own "swing." I'm sorry folks, but nonstandard code is *bad* code, no matter what the reason.

• Learn to copy code in your head without having to write it down. This makes Morse code more fun and less work.

• Don't just copy what the other op is sending. Learn to anticipate—within reason—what he's thinking and try to understand what he's hearing on his end of the radio path. That kind of approach will help you become a successful CW op who enjoys successful contacts.

See You On The Bands!

If you're serious about becoming a good CW operator, check out the appropriate sections in *Ham Radio for Dummies*, a Wiley and Sons book written by Ward Silver, NØAX, and *The ARRL Operating Manual*, which will get you straightened out about Morse code and just about every operating mode you can think of! Both are available from your favorite amateur radio products dealer or from www.arrl.org.

I hope to hear you on the CW subbands sometime soon. Don't forget to send your QSL cards, questions, and letters me at Popular Communications, "Ham Discoveries," 25 Newbridge Rd., Hicksville, NY 11801. Until next month, enjoy the radio hobby and 73! ■

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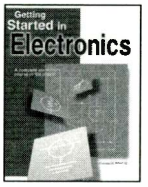

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Washington Beat *(from page 14)*

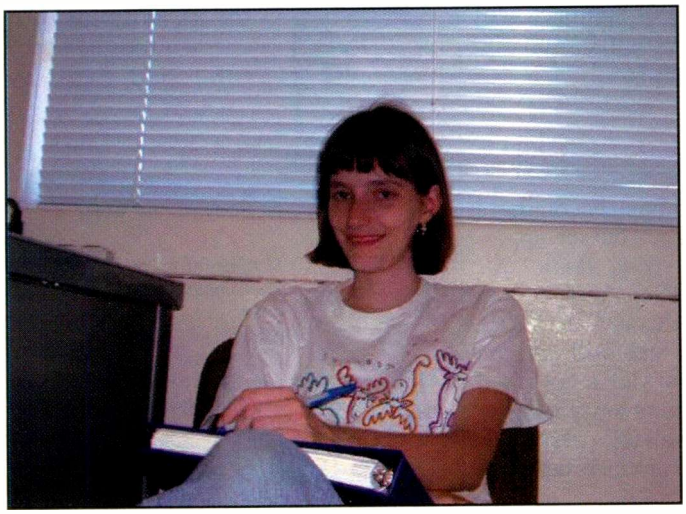
Wireless Services Get 20 MHz Of Spectrum

The 3G revolution continues. The FCC has provided an additional 20 MHz of spectrum that can be used to offer a variety of broadband and Advanced Wireless Services (AWS), potentially including "third generation" (3G) wireless services. The Commission allocated and paired 5-MHz blocks of spectrum at 1915 to 1920 MHz with 1995 to 2000 MHz, and 2020 to 2025 MHz with 2175 to 2180 MHz for AWS use. The Commission redesignated the 1915- to 1920-MHz band for AWS from Unlicensed Personal Communications Services (UPCS) and pairs this 5-MHz block of spectrum with the 5-MHz block at 1995 to 2000 MHz, which was previously allocated for the Mobile Satellite Service (MSS). An additional 10 MHz of spectrum at 2020 to 2025 MHz and 2175 to 2180 MHz, previously allocated for MSS, is to be made available as paired 5-MHz spectrum blocks. The Commission concluded that pairing the bands in this manner promotes a more efficient use of the spectrum and complements adjacent band operations.

The Commission also denied petitions for reconsideration related to the reallocation to AWS of 90 MHz of spectrum from Federal Government and non-Federal Government operations in the 1710- to 1755-MHz and 2110- to 2155-MHz bands, and of 30 MHz of spectrum from the MSS in the 1990- to 2000-MHz, 2020- to 2025-MHz, and 2165- to 2180-MHz bands. The Commission also clarified the rules governing the relocation of fixed station licensees in the 2110- to 2150-MHz and 2180- to 2200-MHz bands.

In a companion action, the Commission asked for public comment on licensing, technical, and operational rules to govern the use of the 1915- to 1920-MHz, 1995- to 2000-MHz, 2020- to 2025-MHz, and 2175- to 2180-MHz bands designated for AWS. The Commission announced its desire to provide licensees of this spectrum with flexibility to provide any fixed or mobile service consistent with the technical parameters of the allocation, and proposed to license the spectrum under Part 27 of the Commission's rules, which provides a flexible, market-oriented regulatory framework. ■

Congratulations To Yvette Cendes, KB3HTS



Here's Yvette Cendes, KB3HTS, at her Cleveland, Ohio, radio shack.

Popular Communications invites you to submit, in about 300 words, how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo should be included.

Each month, we'll select one entry and publish it here. All submissions become the property of *Popular Communications*, and none will be acknowledged or returned. Entries will be selected taking into consideration the story they relate, and if it is especially interesting, unusual or even humorous. We reserve the right to edit all submitted material for length, grammar, and style.

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Our January Winner: Yvette Cendes, KB3HTS, Of Cleveland, Ohio

Pop'Comm reader Yvette Cendes tells us,

I first got hit by the radio bug when I was 15 years old. During the summer my family and I were vacationing in rural New Hampshire and I bought a little crystal radio kit to pass the time. With that little radio I could hear stations speaking in French from Canada and a station as far away as New York City. I was amazed!

Later that school year in my hometown of Pittsburgh, Pennsylvania, my father gave me his ancient shortwave radio—a contraption with a long leaning antenna that was larger than a modern-day boom box. Along with a RadioShack DX-396 I painfully saved up for with allowance money, I could hear stations from as far away as Australia and Madagascar. The distances I could travel without leaving my room utterly fascinated me.

When a girl gets the radio bug she soon wants her ham radio license. I studied a few months on my own via the Internet and, a few months after my 16th birthday, I was ready. The night before the exam I asked my father to drive me to the testing center. "Alright," he answered. "Hey, you know what? As long as I have to take you I figure I'll take the exam myself!"

Luckily my father is an electrical engineer, so on the drive to the test center I filled him in on the rules and regulations he wouldn't have known otherwise. We both passed with the exact same percentage, which means I was an Elmer before I even had my own ticket!

This year I started off my freshman year in college at Case Western Reserve University in Cleveland, Ohio. When not studying, I am an active member of the Case Western Amateur Radio Club, W8EDU. My adventure in radio has been incredible so far and I can't wait to see where it takes me next!

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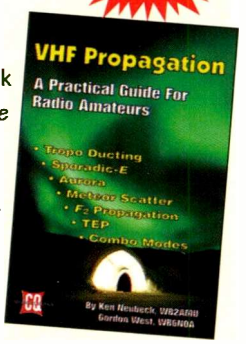

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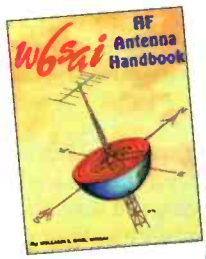

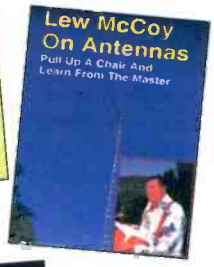

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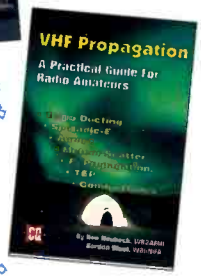

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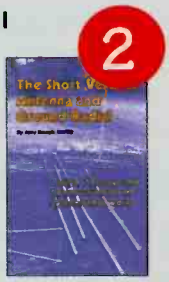

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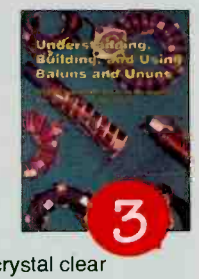

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by Bill Hoefer, flacap388@hotmail.com

Violating Airspace—Monitoring On The Edge!

I hope you had a great holiday season! This January column is being written, of course, in late-October, following the brief, but intense, spate of hurricanes here in Florida (remember the new state flag of Florida is the blue tarp!). Also, the presidential campaigns are in their final couple of weeks. Florida, which is being courted by both major candidates (does everyone remember hanging chads?), is witnessing VIPs flying all over the state soliciting votes for their favorite son. So, needless to say, aviation frequencies are all abuzz.

Immediately following Hurricane Charlie, arguably the most destructive hurricane in recorded Florida history, many airports were closed and numerous airplanes were reported severely damaged or destroyed. Before Frances and Jeanne blew through, many airport managers told their customers to get their airplanes out of harm's way to avoid a repeat of Charlie damage. Even as I write this, many airports in Florida still have unreliable runway lights and little or no aviation fuel. Hangars have yet to be repaired. Airport rotating beacons, ASOS/AWOS, are in need of repair/replacement. Melbourne, Florida, is operating in a temporary control tower. And blanket NOTAMs (Notices to Airmen) exist throughout the state, like this one from Orlando Executive (ORL):

!ORL 09/033 ORL TOWERS CAUTION NMRS TWR LGTS OTS IN AREA ASSC HURRICANE JEANNE.

In the midst of repairs we have the Presidential election, with Florida being a key swing-vote state. So Bush, Cheney, Kerry, and Edwards come here quickly and often in order to obtain our votes. Resultantly, to coin a word, numerous temporary flight restrictions (TFRs) are popping up to keep unwanted aircraft away from the candidates. Most have a three-to five-nautical-mile radius (nmr) buffer zone around the candidates, with the exception of the President, who has a 10-nmr in the air and a 30-nmr zone around him at all times while on the ground. The 10-nmr is a no-fly zone, period, with very tight exemption, such as air carrier operations. From 10 to 30 miles the requirements are:

- Limited to arriving or departing local airfields
- Must be on an active VFR or IFR flight plan
- Must be squawking a discrete transponder code obtained from ATC
- Must have established two-way communication with ATC, and no loitering
- Certain operations are not authorized in the 10 to 30 mile buffer zone: flight training; practice instrument approaches; aerobatic flight; glider operations; parachute operations; ultralight; hang gliding; balloon; agriculture/crop dusting; animal population control flight operations; banner towing operations

These are in addition to those established after 9/11, prohibiting or severely restricting flights over certain sports venues, dams, and nuclear power plants. Today, in a one-hour period, I heard an AWACS (Airborne Warning and Control System) controller transmitting *five* times to unidentified (non-controlled) aircraft near the Presidential TFR over Lakeland, Florida, on VHF guard frequency 121.5 MHz. The first four times the controller transmitted something along the lines of: "Low-flying aircraft 29 miles north of Lakeland at nine-hundred feet flying south-bound towards Lakeland airport. You are entering a restricted area. Turn left immediately heading zero-six-zero and depart the area immediately or you may be shot down." A later transmission stated that the aircraft was ten 10 north of Lakeland

A Delta plane is readied for takeoff at Melbourne International Airport, Florida. (Phot courtesy Melbourne International Airport)

Here's a look at the Melbourne, Florida, tower that sustained hurricane damage last fall. On the left is the temporary tower being used until repairs are complete. (Photos courtesy Melbourne International Airport)

and the aircraft "would be" shot down if he/she didn't turn left heading zero-nine-zero. I haven't heard anything yet to the effect someone was shot down, but...

So continue to monitor guard frequencies of 121.5 and 243.0 MHz.

Answering Your Letters

I just got two e-mails recently about the column. The first is from Ladimer Nagurney, WA3EEC, Associate Professor of Electrical and Computer Engineering at the University of Hartford, Connecticut. He corrected me about 2-meter ops in Germany, saying: "The reason that you did not hear any 2 M activity is that you reversed the band segment. Throughout Europe 2M is 144–146. There are numerous repeaters."

Thanks, Ladimer. I'm thankful that the Bundeswehr (German military) didn't pick me up for transmitting on their frequencies. I'll remember that on my next trip the "der fatherland." Lad also noted that most of the traffic in the German and Austrian airspace was spoken in German, but if other traffic was in the area they reverted back to English. In Sweden about the only non-English heard was "hejdor," which is Swedish for good-bye, just before switching frequencies. Thank you again. I hope to hear more from you.

The second letter was from Mike from www.ohioscan.com. He asked where I "dug up" the ARTCC frequency changes. I'm giving a terse response to this in this issue but will have a full and complete explanation in my next column. My information is gleaned from the *National Flight Data Digest*. The definition is as follows: "A daily (except weekends and Federal holidays) publication of flight information appropriate to aeronautical charts, aeronautical publications, Notices to Airmen, or other media serving the purpose of providing operational flight data essential to safe and efficient aircraft operations." These are received daily and are anywhere from about six to eight pages to as many as 30 or 40 pages long. The majority deals with items not needed by aviation scanning enthusiasts and the items that are of interest are only about three or so percent of the information published. The list of frequencies in this issue was taken from approximately 250 pages of NFDD info. Needless to say it would take up five or six issues of *Pop'Comm* to cover it completely. I'll go into depth on the subject in the next issue of *Pop'Comm*.

That's it for the first issue of 2005. Keep monitoring, and keep me informed with what you hear on the aircraft frequencies!

NEW/CHANGED/DELETED FREQUENCIES

NEW

ALABAMA
Headland Municipal (0J6)
Cairns Apch 125.4
Talladega Municipal (ASN)
ASOS 118.425

ALASKA
Allakaket Airport (6A8)
Anchorage ARTCC Apch Ctrl 132.75/282.35
Dillingham FSS 122.3
Levelock Airport (9Z8)
Unicom 122.95
Wales Airport (IWK)
Anchorage ARTCC Apch Ctrl 133.3/290.4
Nome FSS (Tin City RCO) 122.6

ARIZONA
Holbrook Municipal (P14)
AWOS-3 118.675

CALIFORNIA
Edwards AF Aux North (9L2)
Joshua Apch 133.65/348.7
NASA 135.825/373.15
Lompoc, Vandenberg AFB (VBG)
ATIS 133.125/257.975
Pauma Valley Air Park Airport (CL33)
Unicom 122.725

DISTRICT OF COLUMBIA
Potomac TRACON (PCT)
Apch 124.7/338.2

FLORIDA
Jacksonville Craig Municipal (CRG)
CD 118.35

GEORGIA
Bainbridge, Decatur County Industrial Airpark (BGE)
Localizer Rwy 09 (I-BGE) 111.35
Blakely, Early County (11J)
AWOS-3 118.475

ILLINOIS
Metropolis Municipal (M30)
AWOS-3 124.175
Mount Carmel Municipal (AJG)
AWOS-3 134.9
Savanna, Tri-Township (SFY)
AWOS-3 118.65

INDIANA
Indianapolis Executive Airport (TYQ)
AWOS-3 1120.725

IOWA
Cherokee Municipal (CKP)
AWOS-3 119.225

Muscatine Municipal Airport (MUT)
ILS/DME Rwy 24 (I-LUC) 102.15
Oskaloosa Municipal (OOA)
AWOS-3 118.625

KANSAS

Paola, Miami County (K81)
Kansas City Apch 118.9/294.7
Wichita, Mid-Continent Airport (ICT)
ILS/DME Rwy 19L (I-MVP) 111.55

MARYLAND

Clinton, Washington Executive/Hyde Field (W32)
Potomac TRACON (PCT) Apch 124.7/338.2
Salisbury, Tim's Airport (11MD)
Unicom 122.7

MASSACHUSETTES

Barnstable, New York ARTCC (NZY) High RCAG 284.75

MICHIGAN

Baraga Airport (2P4)
CTAF 122.9
Frankfort Dow Memorial Field (FKS)
AWOS-3 118.325
Moorestown Airpark (6Y0)
Unicom 122.8
St. Johns, Archer Memorial field (2S3)
CTAF 122.9

MINNESOTA

Albert Lea Municipal (AEL)
Owatonna Degner Regional (OWA)
Rochester Apch 119.8/251.125
Hibbing, Chisolm-Hibbing Airport (HIB)
ILS Rwy 13 (I-JAB) 110.5
St Cloud Regional Airport (Contract Tower) (STC)
GC 121.6
LC 118.25

MISSISSIPPI

Columbus/West Point/Starkville, Golden Triangle Regional (GTR)
ATIS 126.375
CD/GC 135.375/322.475
CD (when tower closed) 126.25
LC 120.025/298.875
Philadelphia Municipal (MPE)
ASOS 118.725
Tylertown, Paul Pittman Memorial Airport (T36)
Unicom 122.8

MISSOURI

Hannibal Municipal (HAE)
AWOS-3 120.775
Maryville, Northwest Missouri Regional (EVU)
AWOS-3 118.225
Nevada Municipal (NVD)
AWOS-3 119.175
St. Louis, Lambert International Airport (STL)
ILS Rwy 12R Outer COMLO Marker (LM) 338 kHz

MONTANNA

Kalispell, Glacier Park International (FCA)
ASOS 135.275

NEBRASKA

Thedford, Thomas County (TIF)
AWOS-3 120.825

NEW JERSEY

Atlantic City International Airport (ACY)
ILS/DME Rwy 31 (I-ACY) 109.1
Millville (MIV)
New York ARTCC (ZNY) 323.3

NEW MEXICO

Clines Corner
Albuquerque ARTCC RCAG Low 118.65/269.475
Clovis, Cannon AFB (CVS)
PTD 139.6/372.2

NEW YORK

Buffalo Niagara International Airport (BUF)
ILS/DME Rwy 32 (I-BNQ) 109.95

NORTH CAROLINA

Cherry Point MCAS/Cunningham Field (NKT)
Hatteras, Billy Mitchell Airport (HSE)
Ocracoke Island Airport (W95)
Cherry Point Apch 119.75/341.0
Currituck County (ONX)
ASOS 119.775
Franklin, Macon County (1A5)
ASOS 118.225
Rockingham-Hamlet (45J)
ASOS 118.775
Shelby Municipal (EHO)
ASOS 118.225

NORTH DAKOTA

Northwood Municipal-Vince Field (4V4)
Grand Forks Apch 118.1/318.1

OHIO

Akron, Canton Regional (CAK)
GC 348.6
Bellefontaine Regional (EDJ)
NDB 242 kHz
Columbus International (CMH)
Grens NDB (CHC) 272 kHz
Springfield (SGB)
ATIS 134.975/257.875

OKLAHOMA

Stillwater Regional (SWO)
LC 254.25

OREGON

Hood River, Ken Jernstedt Airfield (4S2)
AWOS-3 134.375
Lexington Airport (9S9)
AWOS-3 134.475

PENNSYLVANIA

Philadelphia International (PHL)
Dept ATIS 135.925

SOUTH CAROLINA

Charleston Executive Airport (JZI)
AWOS-3 123.775
ILS/DME Rwy 09 (I-ETI) 110.7
Greenville, Donaldson Center (GYH)
GC 121.4
LC 133.325
Hilton Head Island (Contract Tower) (HXD)
ATIS 121.4
GC 121.1
LC 118.975

SOUTH DAKOTA

McLaughlin Municipal (5P2)
Unicom 122.8

TENNESSEE

Tullahoma Regional (THA)
VOR (UXM) 109.65

TEXAS

Berryville, Aero Estates Heliport (T25)
CTAF 122.9

Cleburne Municipal (CPT)
AWOS-3 119.525
Comanche County Airport (MKN)
AWOS-3 118.575
Del Rio, Laughlin AFB (DLF)
PTD 149.85
Denton Municipal (Contract Tower) (DYO)
Gnd Cntrl 123.95
Lcl Cntrl 119.95
Gatesville Airport (GOP)
AWOS-3 119.725
Gilmer, Fox Stephens Field (JXI)
AWOS-3 118.2
Hebbronville, Jim Hogg County Airport (HBV)
AWOS-3 118.075
Houston, George Bush Intercontinental Airport (IAH)
GC 119.95
LC 118.175/288.25
MIXIN NDB (BVP) 326 kHz
Port Aransas, Mustang Beach (RAS)
AWOS-3 118.425
Porter, Williams Airport (9X1)
Unicom 122.8
Sonora Municipal (SOA)
AWOS-3 118.075

UTAH

Halls Crossing, Cal Black Memorial (U96)
AWOS-3 134.375
Tooele, Bolinder Field-Tooele Valley (TVY)
AWOS-3 119.725

VIRGINIA

Lawrenceville, Brunswick Municipal (LVL)
Potomac Apch 132.85/323.125
Norfolk (ORF)
Norfolk RCO 273.475

WASHINGTON

Eastsound, Orcas Island (ORS)
AWOS-3 135.425
Hamilton, Ravalli County (6S5)
Spokane Apch 124.9/298.95
Stampede Pass (SMP)
ASOS 132.275

WISCONSIN

Menomonie Municipal, Score Field (LUM)
ASOS 118.025
Mosinee, Central Wisconsin Airport (CWA)
ILS/DME Rwy 25 Outer Marker (PH) 351 kHz
Waukesha (UES)
ATIS 118.875

WEST VIRGINIA

Bluefield, Mercer County Airport (BLV)
Unicom 122.8
Pineville, Kee Field (I16)
AWOS-3 120.625

CHANGED

ALASKA

Kivalina (KVL)
Kotzebue FSS RCO was 122.25, now 122.55

ARIZONA

Gila Bend AF AUX (GBN)
Range Control was 272.1, now 264.125

CALIFORNIA

Palo Alto Airport of Santa Clara County (PAO)
ATIS was 120.6, now 135.275

FLORIDA

West Palm Beach, Wellington Aero Club Airport (FD38)
Unicom was 123.0, now CTAF 122.85

HAWAII

Kaneohe Bay MCAF (NGF)
CD was 300.4, now 294.7

INDIANA

Bloomington, Monroe County (BMG)
CTAF was 125.05, now 120.775

KENTUCKY

Falmouth, Gene Snyder Airport (K62)
Cincinnati Apch was 254.25/363.15, now 380.0
Fort Campbell/Hopkinsville/Campbell AAF (HOP)
Eagle Ctrl was 139.3/242.4, now 65.2 MHz
PTD was 122.95, now 130.65
Fort Campbell/Hopkinsville/Campbell AAF (HOP)
Hopkins, Christian County (HVC)
Campbell Apch Ctrl was 255.6, now 269.525

MICHIGAN

Charlotte, Fitch Beach (FPK)
Easton Rapids, Skyway Estates (60G)
Grand Ledge, Abrams Municipal (4D0)
Ionia County Airport (Y70)
Lansing, Capital City (LAN)
Mason Jewett Field (TEW)
Lansing Apch was 125.9, now 126.65
New Hudson, Oakland Southwest (Y47)
Detroit Apch was 124.9, now 127.5

MINNESOTA

Duluth (DLH)
Minneapolis ARTCC RCAG (ZMP) was 284.6, now 281.45

MISSOURI

St Louis, Lambert International Airport (STL)
ATIS was 119.925/120.45, now 125.025/379.925

NEVADA

Fallon NAS/Van Voorhis (NFL)
ATIS was 284.3 now 370.925
CD was 271.5, now 353.55
Desert Control was 263.6, now 263.0/322.35
GC was 382.8, now 251.15
PMSV was 324.8, now 327.4

NEW JERSEY

Colts Neck (COL)
New York ARTCC RCAG Low (ZNY) was 381.6, now 307.8

NORTH CAROLINA

Jacksonville, New River MCAS (NCA)
ATIS was 265.2, now 285.325
CD was 383.55, now 239.025
LC was 340.2, now 323.25
PMSV was 250.6, now 244.775

OHIO

Belmont LOW RCAG
Cleveland ARTCC (ZOB) was 379.1, now 257.975/307.075
Chillicothe, Ross County (RZT)
Columbus, Ohio State University (OSU)
Columbus, Port Columbus International (CMH)
Delaware Municipal (DLZ)
Marysville, Union County (MRT)
Mount Vernon, Knox County (4I3)
Newark-Heath (VTA)
Columbus Apch was 267.9/388.8/392.1, now 317.775/338.225/371.975
Cincinnati, Blue Ash Field (ISZ)
Cincinnati Municipal-Lunken Field (LUK)
Hamilton, Butler County Regional (HAO)

Harrison, Cincinnati West Airport (I67)
Oxford, Miami University Airport (OXD)
Cincinnati Apch was 254.25/363.15, now 380.0
Findlay HIGH RCAG
Cleveland ARTCC (ZOB) was 288.3, now 281.475
Mansfield HIGH RCAG
Cleveland ARTCC (ZOB) was 350.2, now 290.275
Van Wert County Airport (VNW)
AWOS-3 was 121.175, now 125.175
Waterville LOW RCAG
Cleveland ARTCC (ZOB) was 123.9, now 128.625

OKLAHOMA
Broken Bow (90F)
Unicom 122.8, now CTAF 122.9
Oklahoma City, Tinker AFB (TIK)
LC was 289.6, now 251.05
Oklahoma City, Will Rogers World (OKC)
ANG Opns/Cmd Post was 319.4, now 225.6

PENNSYLVANIA
Flint Hill
New York ARTCC Low RCAG (ZNY) was 135.75, now 124.625
North Mountain
New York ARTCC Low RCAG (ZNY) was 118.45, now 123.625

TEXAS
Del Rio, Laughlin AFB (DLF)
GC was 125.2, now 138.75
PTD was 149.85, now 140.975
El Paso/Fort Bliss, Biggs AAF (BIF)
LC was 305.2, now 342.25
Kountze/Silsbee, Hawthorne Field (45R)
Beaumont Apch was 124.85, now 121.3
Midland Airpark (MDD)
Midland International (MAF)
Odessa, Schlemeyer Field (ODO)
Midland Apch was 381.5, now 256.875
Midland International (MAF)
ATIS was 387.15, now 269.025

VIRGINIA
Madison, Blackhawk Airfield Airport (87Y)
Madison Apch was 124.0, now 120.1
Norfolk NAS-Chambers Field (NGU)
LC was 257.95, now 257.975

WASHINGTON
Oak Harbor, Whidbey Island NAS/Ault Field NUW
CD was 380.8, now 379.9
PTD was 350.0, now 350.1

DELETED/DECOMMISSIONED

ARIZONA
Globe (GAZ)
NDB 255 kHz

ARKANSAS
Searcy (SRC)
NDB 323 kHz

CALIFORNIA
Lemoore NAS (Reeves Field) (NLC)
North Apch 322.45

GEORGIA
Thomson-McDuffie (HQU)
NDB 333 kHz

IDAHO
Athol, Silverwood Airport
CTAF 122.7

KANSAS
Eskridge, Converse Farm Airport
CTAF 241.0

LOUISIANA
De Ridder (DRI)
Eugene Isle RCO 122.25

MISSOURI
Brookfield, General John J. Pershing Memorial Airport (93MU)
CTAF 122.7
Fenton, Fabick Heliport (MU28)
CTAF 123.025
St Louis, Lambert Field (STL)
ATIS 277.2

MONTANA
Polson (PLS)
NDB 275 kHz

NEBRASKA
Weeping Water, Browns Airport (NE69)
CTAF 122.9

NEVADA
Fallon NAS/Van Voorhis (NFL)
Apch 263.6
Westport Airport (12NK)
CTAF 122.8

OHIO
Belmont HIGH RCAG
Cleveland ARTCC (ZOB) 281.5
Cleveland, Hopkins International (CLE)
Apch 123.85

VIRGINIA
Chase City (CXE)
NDB 342 kHz

WASHINGTON
Port Angeles CGAS, Whidbey Island NAS (NOW)
ATIS 134.15/281.5

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Finding Nice Old Radios: A Primer For Beginners

Harold's suggested a column on the "dos" and "don'ts" of vintage radio collecting, keeping the average reader in mind—the average Joe Sixpack who doesn't realize a leaky capacitor really isn't incontinent, or a that a radio with a gassy tube really won't benefit from a dose of Maloxx! I'll be including a resource list at the end of this column, along with a glossary of terms you might encounter, so if you're wondering what a tombstone or Catalin radio is all about, I'll do my best to explain the differences.

I've been told that it's easy to miss the forest when looking at the trees, so in preparation I've asked some fellow collectors advice before offering my opinions. Thinking along the lines of a Top 10 list, here's what fellow enthusiast Peter Weick offers:

1. No radio (or darn few) is unique. Some 300,000,000 consumer-grade radios were manufactured between 1921 and 1963, so don't feel pressured to purchase any radio you might see, unless it really appeals to you!

That's good advice. We can't vouch for the 300-million figure Peter quoted, but Alan Douglas, a respected author and collector, has calculated that between one in 100 to one in 50 radios from that era still exist. If correct, that leaves at least 3 million sets in the hands of collectors, or waiting to be discovered in a neglected attic, shed, or cellar. There appears to be no shortage of collectable radios out there—eBay auction searches typically yield some 3,000 auctions, at any given time, just for collectable tube radios.

Radio was an expensive luxury during the Depression, and folks who remember those days will tell you nothing was thrown away or wasted. Even a bent nail was straightened and reused. And when it was time to retire the family radio, most folks were more inclined to keep it stored away, just in case. Our throw-away society is a relatively new concept.

Old Doesn't Mean Rare

The biggest mistake most beginners make is rushing out and buying every old radio they stumble across! I've been there, done that. Everyone has. Old doesn't mean rare, and rare doesn't mean it's necessarily valuable or desirable! Rare is perhaps the most overused and incorrect adjective for describing old radios. There were a lot of radios made in the early '30s that are quite unattractive. Ditto for many of the large lowboy cabinet styles, which are usually dark and gloomy, and unless you're redecorating a Victorian-era mansion, you might expect some icy stares from your better half when you drag your newly acquired treasure across the threshold! So, before you start, make sure you and your family are on the same wavelength! My advice differs for those looking for one nice radio for a home or office, versus someone who would like to start amassing a small collection. I'll expand upon this theme as we progress. Peter also touches on this topic with his second suggestion for our Top 10 list:

2. Determine what it is you want from your first old radio in advance. Do you want a ready-for-immediate-use specimen in operating condition? Do you want something that will test your electrical and woodworking skills? Will the radio be purely decorative, purely functional?

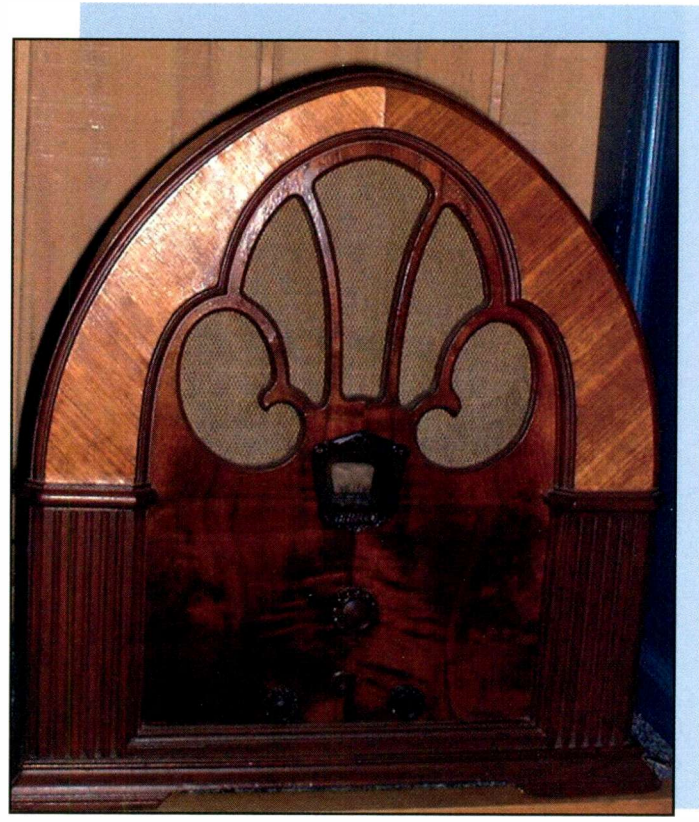


Photo A. The Philco 90, circa 1931, is a classic antique radio and is sought after by collectors, interior decorators, and the general public. Philco produced these in large numbers, so everyone has a good chance to own one. Prices range from $400 to $800.

Now we're getting down to the nitty-gritty! What are you looking for, and what should you be looking for? My tastes gravitate to pre-World War II wood radios, with most of my collection centering around large tombstone and cathedral radios dating from 1931 to about 1942. Other folks like Bakelite radios, or rare and expensive (albeit colorful and decorative) Calatin sets. Some folks might be into the retro look and find that a 1950s or early 1960s-era plastic kitchen radio fits their needs nicely.

3. Do some basic research!

Peter suggests using the RadioAttic's archives, a collection of photos contributed by visitors to the RadioAttic's website at www.radioattic.com. There are many collecting and price guides available that feature photos and approximate values. Our advertisers Antique Radio Classified[1] and Antique Radio Supply[2] offer collector guides. Contact information is given in the "Resources" list.

4. Determine the style you prefer. Second choice? Third?

I believe you should go for what you want! Be patient, don't

Photo B. This gorgeous Atwater Kent cathedral, circa 1931, is also very popular, but somewhat scarcer, than the Philco models. The price ranges have been creeping up over the past few years, with AK80s selling in the $1,000 range.

rush and buy radios just to have them. If you want a nice cathedral, then you should concentrate on finding one. Philco's models 90 (**Photo A**) and 70 cathedrals, as well as the better Atwater Kent cathedrals, are generally considered the most esthetically appealing sets, thus they are popular with collectors, the general public, and interior decorators. You might think that makes them very valuable and rare, but not so. Philco was a prolific manufacturer and produced many cathedrals. A surprising number of them still exist, and you'll find them relatively common and moderately priced. Atwater Kent cathedrals are scarcer, but certainly not rare. You'll find the prices on the model 80 (**Photo B**) soaring above $800, while examples of the model 84 (**Photo C**) seem hover in the $400 range. Old timers regale others with tales of finding these sets for 75 cents at church bazaars in the '60s and '70s. Sigh. if we only knew!

5. Understand the basic issues and risks of old electronics.

Old radios use antiquated technologies and materials dating back as far as the early 1900s. An old radio, in as-found condition, will need to be properly restored before you can safely plug it in and enjoy listening to it. Capacitors are a big issue; most of the early filter- and wax-type capacitors will need to be replaced with more reliable modern components. Tubes rarely go bad sitting in an unused radio, but resistors can drift to out-of-range values as they age. Wiring is another concern. Exposed cloth wire can dry rot and crack, risking exposure to high voltages. During the 1940s manufacturers used rubber-insulated wire; I've yet to find a set with rubber wiring that doesn't have dried, flaking insulation. The set will probably need a new line cord, and the chassis should be fused.

This isn't rocket science, but unless you're willing to commit time, money, and resources to learn how to do your own restoration work, and to invest in the needed materials and tools, you might consider buying a radio that's ready to plug in and play directly from a reputable restorer.

Unfortunately, there are a lot of folks who do one or two radios on their own and becoming enamored with their success, and offer their "expert" services or "restored" radios for sale. If you find a "restored" radio that you like, ask the seller some serious questions! Who did the restoration and what were their qualifications or experience, exactly what was done, and is the set fused?

If you don't know what end of a soldering iron to hold, perhaps your talents are more attuned to fine cabinet refinishing. Talented cabinet refinishers are always in demand; bartering chassis restoration for cabinet work, or vice versa, is one way collectors can help each other out.

6. Understand the venues available for purchasing a radio.

Finding old radios is an easy for those with Internet access. Websites like eBay's online auction service (www.ebay.com) and private sites like RadioAttic (www.radioattic.com) are good places to start your quest. I've used RadioAttic to sell a couple of the radios featured in past column restorations. In both instances the radios went to homes of non-collectors. I won't delve into the Internet in detail because chances are if you have Internet access you're savvy enough to use Google's search engine to find vintage or antique radios.

Face-To-Face Buying— The Best Way!

The best way to buy a radio is face-to-face with the seller. You can see the radio, ask questions, and hopefully avoid unpleasant surprises. Here's what to look for: First, make sure

Photo C. The AK-84, circa 1931, cathedral appears quite often, and I suspect that helps keep the price down. I purchased this one for $280; typical price range is $300 to $600 for a nice example.

Scan Our Web Site

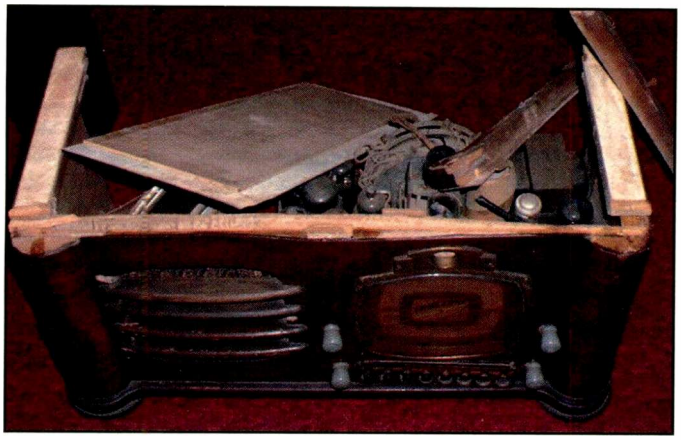


Photo D. This large Detrola model 175-E table radio, circa 1937, features 10 tubes and push-pull audio, motor-driven station presets, a tuning eye, and a gorgeous tuning dial and front panel presentation. What should have been a $100 to $300 radio was transformed into a $25 junker (parts set) by years of careless storage. Poor shipping concluded the damage.

all the knobs are there. Ask if they're the originals or replicas if they don't look right. Plan to spend at least $10 each for replacements for common knobs, and for those etched wooden Zenith "Z" knobs, upwards of $100 for a set, *if* you can find them! Most replicas of the early wood knobs are being made in plastic; they look okay, but the value of the set suffers.

For wood sets, check the cabinet for damage. Are all of the trim pieces in place? The veneers should be tight, and there should be no sign of delaminated wood substrates when looking at the rear edges of the cabinet. The finish should be presentable. Check the speaker cone. Are there rips or other signs of damage? Tears are easily patched, but if more than half of the cone is missing you're probably going to spend $50 to send the speaker out to be professionally re-coned. Whether you want to display the radio with normal wear (patina), or buy one that's been refinished to its original showroom condition is a personal choice.

The cost for electronic restoration and cabinet refinishing can easily exceed the value of most sets. Remember what I said about bartering your talents! Here's another plan: I've cultivated friends at local antique stores who needed my talents to get their radios working so they could be displayed and sold. Besides generating leads to new radios, many of these folks were able to do cabinet refinishing for me at good rates or on a barter basis.

Bakelite Or Plastic Radios, And Transistor Radios

Regarding Bakelite or plastic radios, carefully check the radio for any hidden cracks or poorly done repairs! Is the back cover in place? Be aware that these are generally AC/DC sets with a "hot" chassis (we discussed the related safety issues last month).

Here's what to look for with transistor radios from the '50s and '60s. Carefully examine the plastic case for any cracks, damage, or wear. The battery compartment covers are often lost or damaged; or, worse, you might discover severe damage inside the battery compartment from the corrosive residue of a leaky battery. Many collectors display these in old watch display cases, such as you see in department stores. Having the original box, instructions, earphone (if offered), slip-on carrying case, battery, etc. are all big plusses. In general, any portable shirt-pocket transistor radio made before the old Conelrad CD (Civil Defense) markings disappeared is considered a collectable. The larger leather-cased portables don't have much value, even though they're often good playing sets. To generalize, the earlier and more colorful radios, especially those with reverse painted cases, command the most money. Refer to a transistor radio price guide if in doubt.

I've been asked about testing radios in the field, alas the earliest transistor sets used batteries that are no longer available, so that isn't very practical in most instances. The three main concerns are condition, condition, and condition! It's likely that many of these earliest examples will need new electrolytic capacitors—after all many are 40 or 50 years old—but most folks use them for decorative value anyway.

Where To Find Old Radios?

Unfortunately, where you live will play a large part in what you'll find, and in what quantities and price ranges. Folks living in the greater Ohio and Pennsylvania areas seem to stumble across more deals than anywhere else in the country.

One word of advice: Network. Let friends, neighbors, and co-workers know you like old radios. You'll often generate the best leads that way. I've been given leads to several radios that folks saw at tag sales. Bill Turner[3] offers a bumper sticker for two dollars that announces to the world you collect old radios! Take advantage of free classifieds in your local flyers, papers on radio stations.

Attend church auctions, yard sales, and radio shows. If you don't see any old radios, ask! You'll be surprised what folks have stashed away and forgotten, until you jog their memories. Write for a free copy of the *Antique Radio Classified* (*ARC*) magazine. ARC lists a calendar of club-sponsored radio shows and radio auctions. These are great places to see radios and meet with other collectors. Collectors are constantly churning sets in their collections, and many prefer to see the overflows go to fellow collectors for a fair price. If you don't attend the shows, you'll miss the bargains. Vintage radio clubs often publish newsletters where members can buy and sell their goods. ARC has good articles on restoration and collecting, and their classified sections are a good way to find old radios.

Antique shops? Well, in rural areas they can be a gold mine, especially the friendly mom and pop small operators who are interested in building a loyal clientele. For example, if they know your interests, they may provide leads to stockpiles of old tubes or radio parts, items they wouldn't ordinarily be interested in. Again, barter services! On the other hand, shops on the Route 1 tourist corridor in Maine were picked over decades ago, and there weren't many radios there to begin with! Many of those shops import radios from other states!

7. Ignore price guides, except for the information they provide for determining date and manufacturer. For this, Grinder's is best, even though it has almost no pictures.

Price and collector guides are just that, guides. They'll help you identify a radio and offer some guidance as to rarity and value. Collectors generally use the lowest published value to determine a fair price when purchasing a radio. What someone will pay, on any given day, determines what the radio is worth. There are many price and collector guides out there. Some spe-

cialize by brand or style, while others are more general in nature. Again, RadioDaze[4], Antique Radio Classified, and Antique Electronic Supply have bookstores that will cater to your vintage radio needs.

8. Avoid eBay for that "first" purchase! Get out and kick some tires!

eBay has generated controversy among collectors. On the plus side, it has given lots of folks the chance to bid on and own radios they probably would never have seen elsewhere in a lifetime. On the other hand, bidding wars often drive prices well beyond what you'd reasonably expect to pay for even common radios. Unfortunately, many sellers have no clue about what they are selling, how to accurately describe it, or even how to properly pack it for safe mailing.

At least two of my eBay acquisitions arrived looking like kindling, in part from poor packing and hidden cabinet damage! *Caveat emptor*. **Photo D** shows what's left of a Detorola table radio I purchased from eBay last October. Oh well, I guess it will make a good restoration column! The set had far more damage than the seller indicated, and all of the wood substrates, including the front panel, were fully delaminated. The photos hid many of the defects. The seller packed the radio using two inches of crumbled newspaper for cushioning, instead of double-boxing using Styrofoam sheets and bubble wrap for protection. The moral of this tale is simple: Before you bid, ask the seller questions! Does he know how to double-box a vintage radio? Is there hidden damage? Ask for more or better pictures if needed. What is the seller's return policy? Better yet, deal with someone you know and trust, preferably in person.

9. Spend as much time as you wish examining the radio before purchase.

Carry a small flashlight for that purpose. Look at everything you can—inside outside, underneath, above, back, front…

10. Be prepared for the radio to need more than the seller tells you it does or even that you yourself initially think it requires.

Good advice, but also be aware that very little of what might be required is rocket science.

A Final Rule

In conclusion let me add one more rule: If you stumble across a truly rare and valuable radio, treat the seller fairly. I don't have much sympathy for antique dealers who are clueless, but I've heard of too many elderly folks being cheated by unscrupulous collectors. Offer a fair and reasonable price; treat others as you would want to be treated.

That concludes our Top 10 rules for new collectors. If our advice helps you to land a new treasure for your collection, please send along a photo or two and we'll be glad to share your story! Until then, keep those soldering irons warm and radios playing—and good luck! ■

References

1. Antique Radio Classified, P.O. Box 2, Carlisle, MA 01741; Web: www.antiqueradio.com; E-mail: ARC@antiqueradio.com; Phone: 866-371-0512 (toll free). ARC's extensive bookstore is good resource for books on collecting and restoration and it also offers price guides. ARC also has listings for auctions, radio club meets, and for buy/sell/wanted classifieds. Free sample issue on request.

2. Antique Electronic Supply, 6221 S. Maple Ave., Tempe, AZ 85283; Web: www.tubesandmore.com; E-mail: info@tubesandmore.com; Phone: 480-820-5411, or toll free U.S. and Canada, 800-706-6789. AES has an extensive bookstore, and also offers restoration supplies and tubes. Catalog is available online or via request.

3. Bill Turner, 1117 Pike Street, St. Charles, MO 63301; Web: www.dialcover.com; E-mail: Dialcover@webtv.net; Phone: 636-949-2210. Bill offers the "I Collect Antique Radios" bumper sticker (there's a place to insert your phone number) for $2 ppd. Bill also sells restoration supplies and can supply you with a pocket resource guide for a large SASE. The guide lists restorers by state, and also general and specialty vintage radio parts suppliers.

4. RadioDaze, 7620 Omnitech Place, Victor, New York 14564; Web: www.radiodaze.com; E-mail: info@radiodaze.com; Phone: 585-742-2020. Besides the bookstore, RadioDaze offers tubes, components, and restoration materials and supplies. Online catalog or printed version offered upon request.

Glossary

Bakelite: Radios with injection-molded theremoset set plastic cabinets. These are brown with glossy finishes. The finish is only surface deep and, once worn, restoring the original gloss is very difficult because of the coarse material used as fillers.

Catalin: Radios with cast thermosetting plastic cabinets favored by collectors because of their deep, rich colors, often with colorful swirl patterns. The cabinets are heavy and somewhat translucent, with the colors running through the thickness of the material.

Cathedral Radio: Table radio with an arch-shaped top that resembles a church's arch when silhouetted. Mention antique radios and the cathedral radio is first image that'll pop into most people's minds.

Chairside Radio: Radio designed to serve as an end table; the radio dial and controls are generally mounted on the top of the set for easy use.

Console Radio: Large floor standing radio.

Highboy: Console with tall legs.

Gassy Tube: A vacuum tube that has out-gassed ionizing gas molecules from the internal metal elements, making the tube unusable.

Grinder: Generic reference to a respected and widely used radio price guide, somewhat dated. Order as *The Radio Collector's Directory and Price Guide*, 2nd Edition, by Robert E. Grinder, Sonoran Publishing, 1995, ISBN 1-886606-06-4.

Leaky Capacitor: Older wax capacitor with paper insulation that has developed unacceptable internal leakage resistances due to the acid in the paper dielectric, and also due to moisture absorption.

Lowboy: Console with short legs.

Repair: Changing only the minimal number of bad parts and tubes to make the radio functional.

Restoration: Returning a radio to its original factory operating condition, while preserving its outward appearances with minimal changes to the finish, grille cloth, etc.

Reverse Painted: Clear plastic transistor radio case that was painted on the inside.

Tombstone Radio: Large rectangular shaped table radio that resembles a tombstone when silhouetted. These are generally taller than wider.

by Joe Cooper, carm_popcomm@hotmail.com

Network Control of Your Radio—Part V

This is the fifth and final part of a five-part series that has been examining how you control and listening to a compatible monitoring radio over a computer network. It has certainly been quite a journey, but hopefully the trip has taken you through some very interesting topics connected to both radio and computers. If there is one thing you should have learned from this series, as well as earlier from ones I've done on setting up a local area network (LAN), it's that computer networking today is neither complicated nor expensive. With inexpensive plug-and-play hardware (network cards, hubs, or routers), and user-friendly operating systems, even the most inexperienced computer user can set up a home-based LAN in very short order. It's also extremely easy to control your computer-compatible monitoring radio from a remote computer within that network using the free software (such as NetMeeting) that's supplied with your Microsoft Windows operating system.

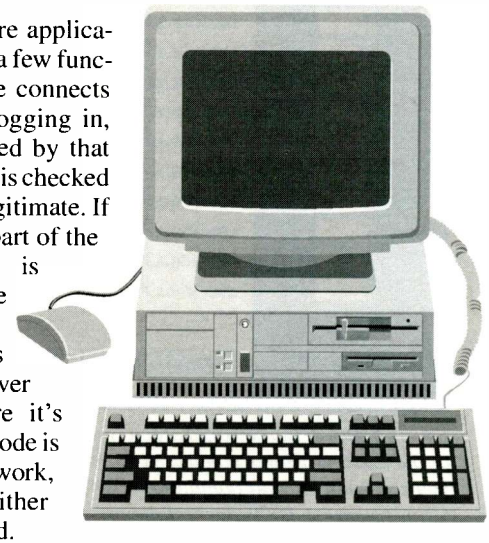
Frankly, if you wanted to use a wireless LAN (a topic that I'm going to be looking at in the future), you could move to any location in your home, even the backyard, and still be able to tune and listen to the radio in your monitoring shack. All you need to do this is an inexpensive laptop (there are lots of used ones now available for well under $500) and an equally inexpensive wireless network card. And, as I've shown you, you can also tune and listen to your computer-compatible monitoring radio from locations outside your home via the Internet. Even this has become extremely easy and inexpensive thanks to the wide range of remote-control software products now available.

At this point there should really be no excuse for not sitting down and setting up a radio monitoring shack with full remote control over a network. The past four columns have provided you with 90 percent of the tools you need. This month's column will give you another 9 percent; the other 1 percent has to come from your own ability and motivation to do the required tasks properly. So let's get on with it and finish the job.

Network Nodes And Ports

In this month's column I want to finish up the series by taking a closer look at some of the important technical aspects of communicating information over a network, particularly the Internet. There are two key components that I want to introduce to you. The first is the "node," which is any remote network device connected to a network over the Internet. The second is the "network port," which is used to communicate with a computer program over a network.

As mentioned, a node can be any device—a router, a workstation, or even a modem—that connects to a network. A device acts as a node when it connects to and logs on to the network. When that happens the device provides specific information to a network server about what it is and what it's doing on that network. A network server is a specialized computer that controls different services, such as network security (who can log on), sharing peripherals (such as printers), connecting to the Internet, and sharing software applications, to name only a few functions. When a node connects to that server by logging in, information provided by that node to the network is checked to ensure that it's legitimate. If the node is in fact part of the network that it is attached to, then the information being sent to the server is passed on to whatever service or software it's intended for. If the node is not part of the network, its access is either blocked or restricted.



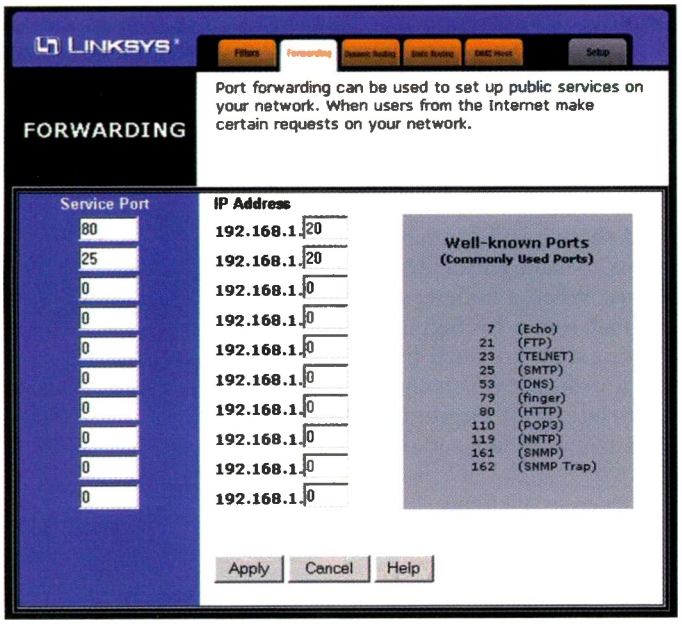
The important point to understand is that it doesn't matter if the node is located on the Internet, rather than being directly connected to the network. As long as the node is properly configured and "registered" with the network, it can connect up to a remote server and be recognized as part of the network, no matter where it's located.

Connecting A Node To A Network

It's actually relatively easy to connect a node to a network as each node has its own unique address on the network. These addresses are set up using Internet protocol (IP), which assigns each device with four sets of three numbers, each no larger than 256 (for example, 192.23.34.1). As it stands right now, if you have a computer that's hooked up to a network and then the Internet, it will have a unique IP address composed of a number sequence like the one in the example. So, assuming that you want to connect your computer to a server located in another country, how does that server know that your computer, out of the millions of others out there in the world, is already part of its unique network?

As an analogy, imagine that you wanted to link up a series of random homes in a town or city into a "virtual" neighborhood covering a large area. Everyone in that virtual neighborhood would receive special delivery mail, packages, or telephone calls, all using the same zip and area codes. Now let's say that you wanted to have series of letters delivered to this virtual neighborhood. Remember that the homes are spread randomly through the city and the postal carrier only has their addresses on the envelope from which to work. Obviously the postal person is going to have to use maps to get from one address to another. It's going to be time consuming; when he gets to a house he's going to have to ensure it's the right person he's giving the letter to in order to guaranty the security of its contents.

Now how could the letter carrier speed up the delivery of those letters and also be certain that the recipient is part of the



This is a shot of the control screen you'll use to set up the network ports in the Linksys router connected to your computer. Once that's done, you can connect your computer to DXTuner's server over the Internet. (Don't worry, a DXTuner technician will walk you through the process over the phone). Once you've finished setting up your router, you'll install a DXTuner software package onto your computer so its server can remotely control the radio connected to it. That software package also protects your computer against unauthorized access by hackers.

virtual neighborhood? Well, the quickest way would be to have a verified list of the people who are part of that neighborhood and to work from that when making deliveries. This is just what happens in the computer world. It's called domain name service (DNS) and it maps all the different nodes found in a network. The network server knows who the nodes are and tracks them when they try to communicate with the server, or when the server tries to communicate with the nodes.

This is all very fine and good—the postal carrier has delivered his letter properly to the address on the envelope. But let's say that there are multiple people in the home, so who does it go to? To get it to the correct person the obvious solution would be to put that person's name on the envelope.

Using Ports On A Computer

Proper delivery over a network is accomplished through the use of a computer port. Anyone who's used a computer has used a port. There are several different types. The most common are I/O (input/output) ports, such as those used for keyboards, mice, printers, or serial devices (modems). You can see a physical I/O port on the back of your computer; they're the plugs you connect. I've written about ports since the beginning of this column (see "Serial Ports Part 1 and 2," in March and April 2002) because they're fundamental to moving information in and out of your computer, particularly if you're connecting the computer to your compatible monitoring radio.

A port provides the computer with a known device through which to pass digital information. Going back to our analogy once again, it's best thought of as the door to the house to which the letter is addressed. As with any door, there's a certain amount of security built into its design (locks, latches, the need for someone to open it, etc.). It's exactly the same with your computer—just as you shouldn't leave the door to your house wide open, you shouldn't leave a port open on your computer (an important point I'll come back to later).

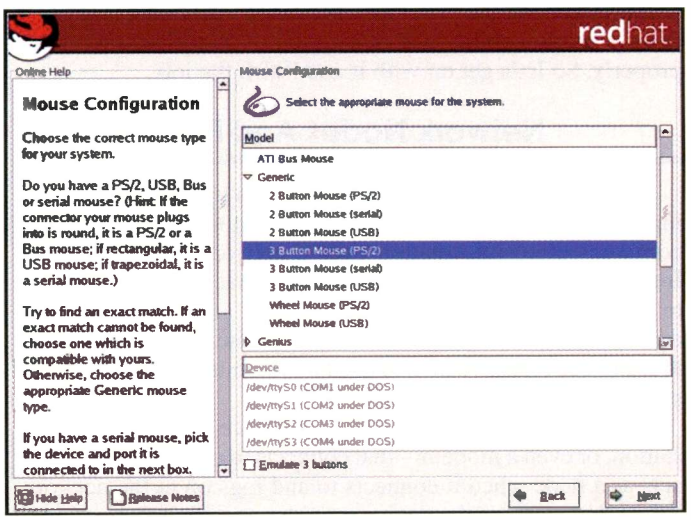
When you begin to look at network ports, the first thing you must understand is that they are really no different than any other type of I/O port, except that they don't have a physical plug. Instead they allow data to be transferred from one computer to another over a LAN. The truth is that your computer has 65,535 ports, each of which can be accessed over a LAN or the Internet. With so many possible ways of getting access to your computer, the real issue then is not finding one to use, but keeping them from being used by unauthorized people. So your primary responsibility in setting up a computer as a node on an Internet-based network is to properly define which ports are going to be used and then ensure that the remaining ports are not available to hackers.

Protecting Your Computer

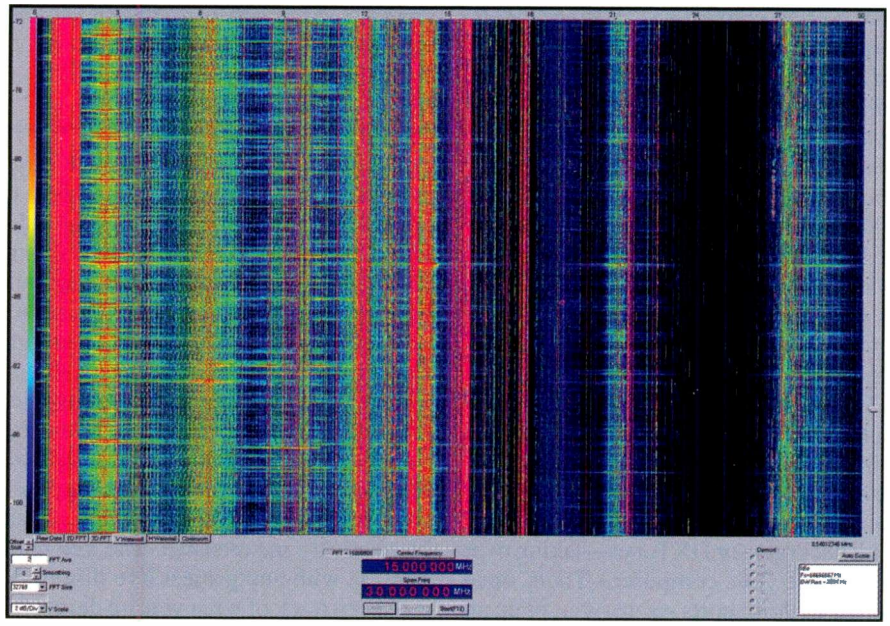
Everyday there are newspaper stories about computer virus attacks, hackers stealing information out of computers, and other computer mischief and mayhem. But just how is a computer vulnerable? Well, if you connect your computer to a network or the Internet, any one of that computer's ports can be used to access your computer from a remote location by an unauthorized person. The results can range from the annoying to the disastrous.

So how do you prevent such things from happening? The simplest way is to erect a computer firewall, which can be made up of software, hardware, or both. In the simplest terms, a firewall limits the access an unauthorized person can have to your computer system. It does this by either examining the information coming or going from your computer to ensure that it's authorized, or it prevents outside commands and information from having access to your computer ports.

Given the importance of firewalls I'm going to save a more detailed discussion of how they work for a later column. Suffice



Here's one of the configuration screens you'll see if you install Red Hat's Linux operating system onto a computer. Some people may be intimidated by moving from Windows to something new, but frankly many feel that you can find a more stable and better-supported computing environment.



This is what you see when using the spectrum analysis software used with RFSpace's SDR-14 software-defined receiver. You're looking at 30 MHz of spectrum at a time. The big red band to the far left is the broadcast band. You can also see a lot of red around 7, 12, 14, and 15 MHz, showing that there are steady signals from broadcasters and high-power amateur stations. Note that there's a lot of activity on the CB band around 27 MHz. You can also adjust the bandwidth down to a smaller range of frequencies, such as a ham, UTE, or shortwave. (Courtesy Universal Radio, Inc.)

to say, if you are planning on making any kind of connection to the Internet, either to connect up a computer with a monitoring radio attached in order to control it remotely, or to simply surf the Web, you really should invest in some type of firewall protection.

Having said all that, how do you set up a network port, particularly if you want to connect your monitoring radio to a remote control service, such as the one offered by DXTuner?

Background On DXTuner

You may remember that I introduced DXTuner (http://www.dxtuner.com)an earlier column in this series. Back in the late 1990s Kelly Lindman, SM7NHC/KB7CTX, developed a subscription-based Web service that allows you to tune radio monitors from around the world. There are currently over 25,000 people using the site with 60 radios available for monitoring, with 18 of those located in the continental United States. The other radios are spread out over the world, with locations including Canada, Australia, Europe, the United Kingdom, Japan, Nepal, the Middle East, and Venezuela.

Because of the costs involved in running this service, there is a fee required for full access to all the receivers. However, you can still check out the service by logging on as a guest and using one of three demo receivers available for free.

In Part I of this series I covered how the service works over the Internet and how to navigate the user interface you see when you select a radio on the DXTuner website. In this column, I'll be looking at how a remote monitoring radio is connected to the DXTuner server in Sweden. Now before you get frustrated because you think what follows will require some advanced knowledge of computers, stop. Plain and simply, if you've been following my column from the beginning you'll have more than enough background information to follow along. It's a good idea to go back to the series I did a few months ago on how to control the same radio using a serial cable. As I showed you at that time, it requires only a small amount of data to initiate a function within the radio (e.g., change volume, bandwidth, frequency, etc.). This is exactly the same, except instead of using a serial cable you're using a computer network to send your information back and forth.

The bottom line for setting up remote tuning using the DXTuner server is that you must have the list of software codes used by your control software to operate your computer-compatible monitoring radio. Once you have that list (most often available in the manual that came with the radio) you can then pass it on to DXTuner's technical staff. They will use the list of software control codes to set up your personal account on their server computer. The software program used to run the DXTuner services uses that account information to allow subscribers to remotely control your radio.

What's tricky, though, is making sure the computer to which the radio is connected has ports that are accessible to the network. So DXTuner's main requirement is that anyone wishing to connect their computer to DXTuner's server must be using the Linus Operating System (OS). The reason for this choice is twofold. First, Linux was designed as a LAN-based OS from the beginning and so is the OS of choice for many people who want a stable and dependable working environment for computing. Second, the server software DXTuner installs onto your computer will only run under Linux.

Once the DXTuner software is installed you can log into the main server back in Sweden as a node. Once you're logged in to the main server, it will be able to receive your audio data from your monitoring radio and forward command codes to your receiver in order to change functions. This is all fairly straightforward, and even the computer requirements are not very complicated. You only need a 500-MHz PIII with 128 MB of RAM and 5 GB of hard drive space. You'll also need a network card installed in your computer so you can connect to the Internet via a DSL line. Alternately, you can connect the computer's network card to a router connected to a DSL line. You'll also need a serial cable and audio cable connected to the monitoring radio, assuming that you have a functioning serial port and sound card in that computer.

Frankly many people who've connected a radio to DXTuner simply went out and bought an inexpensive used computer and dedicated it to that task, rather than tying up their primary computers, which may be running some version of Microsoft Windows. There is absolutely nothing wrong with taking this approach. Don't forget that you can still use the computer for other tasks while it's operating the radio connected to the DXTuner server.

At this point you might be asking about using an even earlier Pentium, or

even a 486-based computer to save more money. The problem here lies in not being able to boot your computer off a CD drive in order to install the Linux software. The BIOS chip found in those earlier computers would not support that.

Installing Linux

DXTuner also asks that you download and install "Fedora" on the computer you're going to be using to connect to your monitoring radio. Fedora is a free version of Linux that's sponsored by a commercial IT developer called "Red Hat." Red Hat is a well-known and respected company that has created a commercial version of the Linux software for use in large "Enterprise" networks. They still support the open source software, which is why they also offer the free version to the public. You can find the software at its Internet site (http://fedora.redhat.com/download/), or you can purchase the same OS on CDs for a reasonable price at most major computer stores. Fedora is an open source product and so is supported by a combination of software engineers within the Red Hat organization, as well as by volunteers from the Linux community. Updates are available on a regular basis, but much of the support for the product comes from discussion groups and community effort.

It's not that difficult to install and configure Linux on a computer. At its simplest, you simply put the first CD into your computer's CD player and then reboot the computer. If everything goes properly, the installation program appears and you simply follow the instructions on the screen. Before doing that, though, you should do some reading on Linux so you can fully appreciate the working environment it provides. A very good starting point is *Red Hat Linux Fedora for Dummies* (ISBN 0-7645-4232-X), which comes with a DVD with Fedora ready to install. This book also covers Linux installation in detail, how to connect to the Internet using DSL or cable, how to set up a firewall, plus lots of good information on networking. There are several versions, some of which cover earlier releases of Red Hat's Linux, so get the most current.

Setting Up DXTuner Software

Now that you've got your Linux installed and connected to the Internet, how do you connect to DXTuner? Well, fortunately the technical support people (of which there are several) for DXTuner will help you out with practical instructions. There are two key steps in getting everything working properly. To begin, you will need to ensure that ports in the 8000-9000 series are available for control of the audio stream and that port 22 is available for SSH. (SSH, for Secure Shell, or sometimes Secure Socket Shell, lets a remote user control the computer, allowing the technical support people at DXTuner to go in and fix problems directly, rather than having to walk you through a fix. Don't worry; this service is highly protected with passwords and encryption, so you don't have to concern yourself with hackers—or DXTuner—taking over control of your computer.) Then, once you have those ports set up, you set up an account that allows the technical support people at DXTuner to log into your computer using SSH and install the DXTuner software, giving your computer access to the main server in Sweden.

Once the software is installed, the technical support person sets up the sound card and Linux configuration files needed for the software to log into the server in Sweden. When that is done the software is turned on and tested, generally by seeing if the receiver can be accessed and controlled via the DXTuner webpage. If all goes well, the technical support person then puts the radio and computer into "burn mode." This simply means that it's put through a special exercise procedure that checks for any bugs that may still be in the system. If all goes well at this point, the radio is put into "public" mode, meaning that anyone who has properly logged onto the DXTuner website can access and control the radio attached to your computer. When that happens you'll begin to notice the radio's setting changing from time to time, particularly the frequency it's tuned to.

Don't forget that you still have control over the computer and the radio. If you want to do some monitoring on your own, you can turn off the connection to the DXTuner server. All that will happen is that your radio, which is listed at the DXTuner website, will be shown as not being available.

If you wish to re-connect to the server, all you have to do is turn on the DXTuner software (as well as the radio) and let it log back into the server in Sweden. Frankly I can't think of a better way to get acquainted with Linux, networking, server software, and the Internet than through this type of project.

Wrapping Up

At this point you should have more than enough background information to begin controlling your monitoring radio over a network or the Internet. You should be able to do so using your existing software and hardware, provided you have a relatively new computer and operating system. As I have pointed out, most of what you need is either already installed in your Microsoft Windows operating system, or is available for free off the Internet. Even if you have to buy new computer hardware or software it should be relatively inexpensive. The key point here, as with any project I've discussed, is to keep track of what you are doing. Set up check lists, write down settings, and make back-ups of important files. Whatever you do, don't just begin to make changes to your computer system without a plan—that's a sure way to end up with a malfunctioning computer that will eat up your time and energy trying to get it to work again.

Also remember that when you undertake a project like this you're working on the leading edge of personal computer technology. While every effort is made by computer software and hardware manufacturers to ensure that their products work, malfunctions do happen. So keep in mind if you undertake such a project, there's always the possibility of failure. To minimize that possibility keep notes of each steps, fully read the instructions that come with each computer software or hardware product, and always follow the basic safety rules associated with those products. The reward in store for you is a better understanding of computer technology and a better appreciation for your computer-assisted radio. What I have provided in this series is far from comprehensive. Take the time to continue to build on your knowledge by reading more about computer operating systems, networks, computer security measures (particularly firewalls), and the radio that you are using with your computer.

As I've said before, this is the new school of radio monitoring and it's yours to explore and develop through your own efforts. I hope you'll share those efforts with us. So who says that the age of hands-on radio experimentation is dead? Frankly it's as lively as ever, if not more so. The only thing that has changed is that

Scan Our Web Site

people are turning in their soldering irons for computer keyboards.

Next Month

I'm going to be taking a break from writing multi-part epics for a while and changing my focus to some of the daily tasks you can perform on your computer to help with your radio monitoring. I also want do some product reviews that I think you'll be finding interesting. For example, I want to introduce you to RFSpace' SDR-14, a new "black box" that uses virtual components and has some unique and special features.

Remember, if you want to e-mail me with any questions, please use carm_popcomm@hotmail.com. You can also write to me at "Computer-Assisted Radio Monitoring," PMB 121 - 1623 Military Rd., Niagara Falls, NY 14304-1745. While I can't answer general questions on computers, I'll be more than happy to help you with any issues raised in the columns.

I've also placed a list of the columns I've published over the past two years, along with a summary of the content, on the Web. Please note that my personal webpage has moved to a new URL at www3.sympatico.ca/joe_in_ey. On that website I've also included instruction there on how to purchase back issues of *Popular Communications*.

I'm still interested in any pictures you may have of your own computer-assisted monitoring station or stories about how you built it and continue to run it. Don't worry about your writing, as I'm more than happy to help you by editing it.

Please take time to write a letter to one of our service people in Iraq offering them your thanks and support. There is a new service to help you do this that I would like to bring to your attention. It's called "Operation Dear Abby.Net." This is a special webpage sponsored by corporations including Hallmark Cards, Larry King Live, Wal-Mart. Simply go to http://anyservicemember.navy.mil and follow the instructions. You can send a general message of support to any service branch over the Internet.

Those service people who do not have direct access will still be receiving these messages via their company commanders, who have been asked to print and distribute them. In upcoming columns, I'll introduce you to other means of forwarding messages to the troops, and how to send them books or magazines. ■

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by Bill Price, N3AVY

So This Is What Radio Silence Means!

The year was about 1965, give or take one. The town was rural, with no sidewalks, RFD mailboxes, two-lane blacktop roads, and lots of small farms. It would not be wise of me to identify the town, and I hope that those of you who look back at earlier articles don't find that I spilled the beans back then.

Present at a recent impromptu reunion were Skip (and his lovely wife Sally, who was clearly not involved as this event required falling face down in, er, fertilizer), Nick (and his lovely significant other Crystal, also not involved because he hadn't yet met her, and she too wouldn't be caught dead laying face down in, er, fertilizer), and me. Missing were Paul (the older, more mature "wheel-man," and, of course, Sonny. Every group of people has a "Sonny."

The time was just a few days before Halloween. As soon as it became dark, we met, dressed in dangerously dark clothes, except for Sonny, who had on a pair of very light gray pants. You will soon see why I remember this detail.

"Oh - did I mention that our constable had recently installed a CB radio which used (are you ready for this?) channel 14?"

Our town had a constable. His choice of police cars was interesting; it was a 1948 Mercury with an Oldsmobile V8 and a surplus state police "bubble gum machine" on top. Oh, did I mention that our constable had recently installed a CB radio which used (are you ready for this?) channel 14?

Now, a black 1948 Mercury sedan might not look much like Paul's 1940 Chevy in broad daylight, but our escapades did not occur during broad daylight. First we pilfered some cider, which we immediately drank and were quite sure had a high alcohol content, so we began to act silly. We now know that fresh pressed cider does not contain any alcohol, but back then, it did.

Paul picked us up with our booty of cider, probably about four gallon jugs, which the four of us drank pretty much all at once, and we moved on to pumpkins. We had planned to use the walkie-talkies (oh, and did I mention that they too used channel 14?), but didn't want to talk because we had to crawl on our bellies onto people's porches to capture the cider, and were afraid that any noise would alert our victims.

We drove around, stealing and smashing pumpkins from wherever we could find them. In our travels, we kept passing one very well-lit jack-o-lantern, which was not carved, but decorated with what turned out to be lipstick. It was in a less populous part of town, with plenty of woods and fields to hide between houses. Sonny had missed out on the earlier mission to get cider, so he was anxious to have his turn.

"Here. Take a walkie talkie, tell us where you are hiding, we'll come back and pick you up," we told him."

"I want that pumpkin," he said.

"But Sonny, that pumpkin looks like it weighs about 75 pounds. It's not hollow. And it's got a big floodlight shining on it. The people will see you!" we warned him.

"Lemme out, Paul," he said. Paul stopped.

"Here. Take a walkie-talkie, tell us where you are hiding, we'll come back and pick you up," we told him.

I don't know which part to tell you first. Probably the funniest part is that after unscrewing the light bulb and burning his fingers (and yelling "OUCH!" (or something that sounded like "ouch") very loudly, he grabbed the pumpkin, carried it against the front of his (light Grey, remember?) pants and ran like crazy into the woods because at that time, another car was coming down the road. We drove off as nonchalantly as we could, intending to communicate with Sonny and return to pick him up.

We saw our constable pass us going in the other direction, toward Sonny. No problem, we figured. He'd hide and call us on the walkie-talkie.

He hid. He called. "Hey! Izzat you? I got it. Stop already, you're going past me!"

From a distance, with our lights out, we watched our constable stop. Sonny opened the back door, which did not turn on an interior light, tossed in the pumpkin and started to get in when he saw a uniformed driver and realized his mistake. We were close enough to hear him yell a religious expletive before he ran into the woods. Our constable shined his searchlight into the woods, but did not consider the desperation of a young teenager trying to avoid a confrontation with either the law or his parents. Sonny was gone. Our constable finally gave up, and we drove to where Sonny had been last seen. "Sonny," we called into the walkie-talkie.

"So, it's Sonny I'm looking for," came our constable's voice over the radio. At that age, I didn't know what "radio silence" meant, but we began to observe it immediately until I thought to throw the heat off Sonny's trail.

"Sonny! Don't use the radio! The cop's near your house and he'll know it's you!" I said. This, of course, was a lie, but it gave our constable something to think about till we finally met up with Sonny, who had about a square foot of red lipstick on his pants. His school pants, which he had to account for.

We were all dropped off, and the following morning, we sort-of tiptoed up to Sonny's house to see if he'd gotten away with the lipstick stains. We found him in the garage, with a tiny portable electric washer, with one hand holding the plug into a receptacle in the ceiling and the other in the wash water, trying desperately to get the red out of his pants.

He kept cursing the shocks that he was getting, and as I think back it's surprising that he survived the day. I guess he just lived a charmed life, now that I think of it. I think if I ever run into him again, I'm gonna introduce him to Norm. ■

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