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POPULAR COMMUNICATIONS

SEPTEMBER 2004



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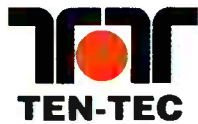
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The Sangean ATS-818ACS is a quality digital world band radio with a built-in cassette recorder. Enjoy complete shortwave coverage plus long wave, AM and FM. A BFO control provides smooth SSB or CW reception. A big backlit LCD shows: frequency, 24 hour time, battery life and signal strength. The receiver features an RF gain, tone, wide-narrow selectivity, keypad entry, manual tuning knob, plus 54 memories (18 for SW). Includes 120 VAC adapter and wave guide. The recorder has a built-in mic and auto-shutoff. Requires four D cells and three AA cells (not supplied). **Order #1069 \$199.95**

ATS-818ACS



PAR ELECTRONICS EF-SWL



The Par EF-SWL is an end-fed short wave antenna optimally designed for 1-30 MHz reception. The radiator is 45 feet of genuine #14 gauge black polyethylene coated Flex-Weave wire (168 strands of #36 gauge woven copper). This material is very strong yet can easily be coiled like a rope for portable work. The UV resistant matchbox houses a wideband 9:1 transformer wound on a binocular core. Unlike other transformers, external stainless studs on the matchbox allow the user to configure the primary and secondary grounds for best noise reduction at their particular location. Output is via a silver/teflon SO239 UHF connector. The radiator also attaches via a stainless stud allowing it to be removed, or replaced with a different length radiator for experimental purposes.

Par EF-SWL Order #2205 \$57.95

BCST-HPF BCST-LPF

The Par BCST-HPF is designed to help shortwave listeners cope with interference from AM stations. This 7 pole elliptic high pass filter passes 1.8 to 200 MHz and notches out 0-1.7 MHz. The housing has SO-239 jacks for input and output and also has a bypass switch.

Par BCST-HPF Order #4426 \$48.95

The Par BCST-LPF is designed to help long wave DXers cope with interference from nearby AM stations above 540 kHz. Stop band is 540 kHz to 300 MHz. The housing has SO-239 jacks for input and output and has a bypass switch. All Par products are made in the U.S.A.

Par BCST-LPF Order #1143 \$48.95



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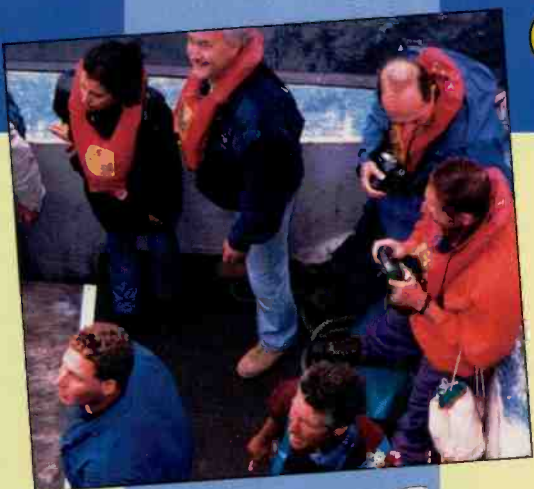
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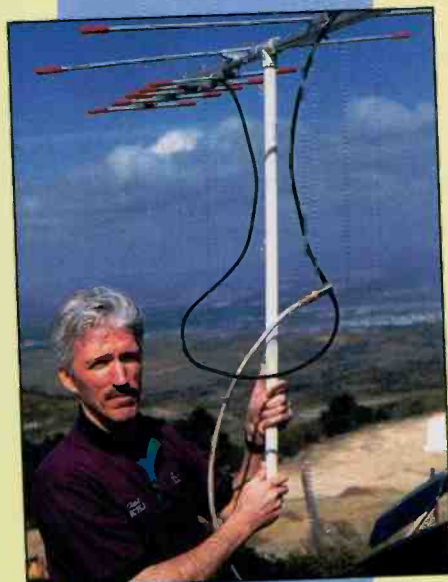
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On The Cover

People have seen UFOs for decades, but now we've finally identified a few. The military's high-flying cigar- and V-shaped airships are reconnaissance and communications platforms—some bigger than a baseball diamond! They can hear battlefield sounds and eavesdrop on military and civilian communications from an altitude of over 100,000 feet, but can you hear them? Be sure to read Steve Douglass' article, "Are UFOs The Ultimate Sky Spies?" beginning on page 12 for the answer. Cover illustration by Steve Douglass.

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

Bill Moroney's Believe It Or Not: United Powerline Council's Moronic Media Campaign

Broadband over Powerline (BPL) is obviously very important to the bigs at the UPLC (United Powerline Council), but just this morning I realized how big and important it is to Bill Moron-ey, President and CEO of UPLC. Anyone who's followed BPL over the past few months—amateur radio enthusiast, educator, doctor (we won't include some lawyers because, well, you understand), student, or homemaker—knows from for-the-record audio and video clips that the interference generated by BPL (a method of getting high-speed Internet access to homes and businesses using overhead powerlines as gigantic antennas to carry RF) wreaks havoc on many portions of the radio spectrum, not just shortwave and amateur frequencies.

But just like some folks in the Administration haven't passed World History 101, or Pronunciation 001, the supposed PR experts at the UPLC apparently haven't had PR For Thinking Folks 101. There they go, talking out of their shorts, again.

It always amazes me how otherwise intelligent, thinking people can sit down at the Big Conference Table with some donuts and coffee and come up with "news" release after "news" release, actually get it approved at the highest levels (that'd be Bill, in this case), and then all smile in unison as they disseminate it to the media and put it on their website. I've seen it up close and personal in the Army and DoD, and time after time my jaw would drop in disbelief at what we were saying to the public. All too often the Big General would say, "What's wrong, Sergeant Ort?" Frankly, plenty when we deceive those whom we serve.

Just try explaining to some big, beefy two-star, or CEO in this case, the ramifications of yet another hair-brained scheme to get the public thinking their way through not-so-clever word-smithing (they can later say, "well, we didn't really say *that*") or outright lies. Time and time again, out goes the "news" release (of course it isn't news at all, but to those generating the baloney it's front-page by-God Gospel). I realize it's tough to tell the CEO, "Gee, Mr. Bill, we're really not coming clean on this BPL thing. Certainly there are honest, good things we do for the country, so maybe we should listen to the public, at least once."

You and I know that conversation will never happen, so what does occur is blatant disinformation and corporate manipulation that's picked up by many news organizations that today are less concerned about the facts than they are the bottom line. They'll likely report what the UPLC says rather than question their "news" release statements. So, for the record, let's look at the UPLC's latest "news" release starting at the top with their title, "UPLC Sets The Record Straight On BPL Interference."

Ahh, yes, UPLC—the great purveyors of The Truth. And Bill Clinton didn't inhale. The "news" release says,

The FCC's proposals are appropriate; NTIA's recommendations and ARRL's naysaying are misguided. The United PowerLine Council forcefully replied to concerns about harmful interference from BPL in reply comments filed today, and urged the FCC to move forward quick-

ly to develop rules that will encourage more development and deployment of BPL services to the public.

There goes the UPLC again with carefully worded statements that would lead anyone not familiar with BPL and the League's findings to think they're right on the mark.

Here's what the UPLC is really saying, *"We're pretty tight with the folks at the Commission, especially Chairman Powell, and despite the fact that if most taxpayers knew the goings on between the BPL industry (that's us) and the FCC they'd ask for his resignation, we're confident that despite the harmful interference that BPL causes in varying degrees across the spectrum, even beyond 80 MHz, the Commission will rewrite Part 15 of their Rules & Regulations to make BPL a shoe-in because there are big bucks at stake here."*

See, wasn't that easy? Let's continue with the UPLC's own words,

UPLC reminded the Commission that BPL is not just another broadband access platform, but one that enables applications in ways that other technologies do not by providing enhanced utility applications, home networking, symmetric speeds, and low latency for a variety of services. Unique applications will improve the efficiency and reliability of electric service to utility customers as well as promote broadband competition for consumers, carriers and ISPs—saving lives, reducing electric generation costs, remedying the digital divide and conquering the DSL-cable duopoly.

Here's what the UPLC is really saying, *"Damn, we're missing the boat on making tons of money off of unsuspecting consumers—much like we do with the outrageous sums we charge them now for simple electric service. We can also offer package deals in their current electric bill, and if we're lucky (and we probably will be), the FCC will change more rules so we can include at least a portion of BPL access in their bill automatically, whether or not they use the service. We thought we'd toss in symmetric speeds and low latency to confuse folks simply because it sure sounds like we're looking out for their technological well being. We're about as interested in saving lives and reducing electric generation costs as George Bush is eager to have lunch with John Kerry. But what really has the hair on Bill Moron-ey's back standing on end is that we've gone too long without having something—anything—to compete with DSL and cable. And we'll bet, if we grease their palms really well and make promises we can't keep, Chairman Mike will come through for us."*

If you're an amateur radio operator or thinking about becoming one, you'd better read the next part of their "news" release sitting down and on a sunny day. The UPLC continued,

UPLC also commented on amateur radio opposition to the technology, urging the Commission to ignore "armchair amateurs that still

(Continued on page 20)

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.

The Other Side Of The BPL Coin

Dear Editor:

I am just as concerned as anybody about the HF interference from BPL, but there's another side to this we can't ignore. BPL has to accept interference from licensed services. One of the ARRL letters told that a 100-watt amateur radio signal would seriously disrupt BPL a half mile away. A little math indicates that if this is true, a 1,500-watt signal would disrupt BPL for a distance of nearly two miles.

So let's crank up our rigs to full power, aim our antennas at the power lines, and transmit on frequencies where BPL interference is the strongest. If we knock a bunch of subscribers off the Web maybe BPL will not make it financially.

I personally have strong doubts that BPL will ever be profitable for the utility companies. There's too much competition, and most users will want more reliable hook-ups. Many electric utilities have recently lost bundles of cash in communications enterprises which did not work out, and this one likely won't do any better.

73,
Jim Allen, N4DEE

How About It, Hal?

Dear Editor:

Please print a frequency list sequence from 3 kc and up—all beacons with Morse ID and start with a skeleton listing and keep adding. I know it's a big list and a big task, but it will make your magazine more sought after. If I desire the list other people do too; start small and keep expanding. Also print data sheets on linear transmitting tubes, glass and ceramic.

Thank you,
Myron Johnson

Dear Myron:

Thanks for the request, which I've passed along to Bill Price; something for him to do on a day off!

New To Pop'Comm

Dear Editor:

Enclosed please find my money order for \$28.95 for a subscription to *Popular Communications*. I have been buying it for the last 10 to 12 years and finally decided to subscribe.

I just took delivery of a new Grundig Satellit 800 Millennium. What a great radio – it's BIG! It outperforms my two RadioShack DX-392 shortwave radios hands down, no contest! I look forward to receiving *Pop'Comm* in the mail. Thanks for putting out such a great magazine. I always enjoy Shannon's Broadcast Classics, "ScanTech" and "Wireless Connection"—and the World Band Tuning Tips.

Sincerely,
Mr. Kim J. Powell, Michigan

Tropo Report From KE6AFE

Note: This e-mailed letter was originally sent to columnist Gordon West who forwarded it to us. Ed.

Dear Editor:

Right after the Monday night net on the K6BJ 2-meter repeater, Mark, W6ZZZ, and Bob, K6XX, had a short QSO. Then Yuri, UT1FG/Maritime Mobile, called Bob, but Bob didn't hear him. I called Yuri and confirmed his call and he told me he was 600 nautical miles SSW of San Diego. When I expressed surprise he confirmed the location again. Looking at the map I see that put him about 935 statute miles almost due south of Santa Cruz. Yuri mentioned the fantastic opening on 2-meter FM and understood when I told him the location of the repeater he was using (Santa Cruz), and my name and call. Phil, KE6UWH, had a short QSO with Yuri after mine, and Yuri got Phil's name and call, too, before they traded 73s as the duct started closing.

Not too bad for our ol' "low-level" repeater, eh?

73,
Cap, KE6AFE

POPULAR COMMUNICATIONS

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Top Secret Developments

Eglin Air Force Base is located in the Florida panhandle not far from Pensacola. Eglin has been an R&D base since Doolittle's Raiders learned to take off from carrier-sized spaces painted on the flight line. Much of the stuff developed for the Space Program, the Viet Nam War, and other Top Secret Projects started at Eglin. The Air Force has so many deniability projects that some in-the-know wags say "if the Air Force is not doing something, they are not doing it at Eglin."

Recently someone on Eglin was doing something top secret with radio waves. The project's cover was blown when people all over the base had trouble with their garage door openers. Some people couldn't get the door to close and others were trapped inside, unable to drive out because the door wouldn't open. We still don't know what the Top Secret Project was all about, and we don't know its name. But we do know what frequencies to monitor.

World Music Radio To Begin SW Tests

A 10-kW shortwave transmitter ordered by World Music Radio (WMR) has finally arrived in Denmark and is currently on the dockside in Copenhagen. Meanwhile, new antennas have been erected near Karup in Central Jutland, Denmark. It's hoped that test transmission on SW will begin in a few months. Two frequencies, 5815 and 15810 kHz, have been registered for WMR. Besides shortwave, WMR will also be available worldwide via the Internet and locally in Denmark on FM.

Prasar Bharati's AIR News Radio Channel Launch Postponed

With less than a month to go before the general elections, the Prasar Bharati Corporation-India has decided to put on hold the start of a 24-hour radio news channel, originally slotted for an April 2 launch. The AIR proposal came on the heels of a controversial launch of the news channel just before north Indian State Assembly elections last year. It raised suspicions in political circles that it was an attempt to create "tools of poll propaganda." At an internal meeting, AIR officials felt that it would be prudent to wait till the polls were completed before embarking on the new venture.

Bible Christian Association (BCA) Begins Shortwave Broadcasts

A new broadcast service, the Bible Christian Association (BCA) has started its Sundays-only transmissions on shortwave. Broadcasts will be weekly in the Polish language from 1530 to 1600 UTC on 6055 kHz.

New Website For Afghan-Targeted Radio Amani

Radio Amani, a radio station broadcasting to Afghanistan via hired facilities in Russia, now has a website at <http://www.radioamani.com>.

It is entirely in English and includes archived audio files of the station's weekly broadcasts. The radio station is operated by the Afghanistan Peace Association (APA), a U.S.-based organization, with its own website at <http://www.afghanistanpeace.com>.

Radio Amani currently schedules its weekly broadcast on Fridays from 1630 to 1730 UTC on shortwave 7350 kHz. Programming is in Dari and Pashto.

Updated File Available From World Radio TV Handbook.Com

A new version of the file www.wrth.com/WRTHA04WEB.pdf has been uploaded to the World Radio TV Handbook website. Over 200 schedules are contained in this file which now includes a "by frequency" listing at the end of the file, which should facilitate station identification.

Cell Phone Jammers

Though using cell phone jamming devices is illegal in many parts of world, a company called Global Gadget, Inc., sells such devices through its website at www.globalgadgetuk.com. One of them resembles a mobile phone and has a blocking range of 10 to 15 meters. The expensive ones can jam cell phones within a 50-meter range. Another set of devices can turn off only the camera feature of the phones. Many universities, colleges, and other schools are using such cell phone jammers to counter cell phones on campuses.

Iceberg systems, UK (www.icebergsystems.co.uk) is developing Safe Haven, a product that combines hardware transmitters with software loaded into a camera phone handset. The imaging systems of the phones nearby get turned off when the handset is taken into a room or a building containing the safe haven software. Though the company is currently focusing on controlling the imaging side of the handset, the technology can be adapted to block loud ring tones, or text messaging in schools.

U.S. Launches New Radio Service To Pakistan

Radio Aap ki Duniyaa, a new Urdu-language service of the Voice of America (VOA) has begun transmitting 12 hours a day, providing Pakistanis and other Urdu-speakers in India with news, information, and entertainment. Aap ki Duniyaa ("Your World" in English) features 10-minute newscasts twice an hour during prime time, and hourly newscasts throughout the night, as well as features and a mix of Pakistani, Indian, and Western music.

According to a press release from the Broadcasting Board of Governors (BBG), Aap ki Duniyaa is staffed by 27 people in Washington and employs a network of more than 15 stringers in Pakistan, India, and North America. Brian Q. Silver is chief of the service. All staffers from the original VOA Urdu Service are now part of the Aap ki Duniyaa team.



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Besides FM, it will also be broadcast for three hours on shortwave. DX Asia reports the shortwave schedule as 1400 to 1500 UT on 9510, 11790, 15170, and 15255 kHz; 1700 to 1800 UT on 11905, 12115, and 15545 kHz; and 0100 to 0200 UT on 7155, 9835, and 11805 kHz.

Coalition Begins Low-Power Shortwave Broadcasts At Sea

The U.S.-led coalition began shortwave broadcasts in mid-April to urge listeners to report terrorist activity conducted at sea. Transmissions originate from vessels operating in the Gulf of Oman and North Arabian Sea. The stations currently use very low transmitter power—only 250 watts.

The morning broadcast is at 0300 to 0800 UTC on 6125 kHz, and the evening broadcast at 1400 to 1900 UTC on 15500 kHz. About 90 percent of the broadcasts are regional music. There are periodic announcements in Arabic, Farsi, Hindi, Pashtu, Urdu, and English that explain how listeners can contact the coalition if they have any information to report on suspected terrorist activity.

Thailand Revamps Its Radio Services

The Mass Communication Organization of Thailand (MCOT) has completely revamped its radio services to focus largely on news. MCOT's Director-General, Mingkwan Sangsuwan, said the initiative would be called Modern Radio. MCOT's seven radio stations in Bangkok would all form part of it, each with its own "different characteristics and uniqueness."

MCOT's 62 radio stations nationwide would all broadcast 24

hours a day, with five-minute news reports at the beginning of each hour. They would also carry music, including modern Thai songs, Thai folk songs, and English-language songs.

In the initial stage of the Modern Radio initiative, MCOT would manage and operate 70 percent of its licensed radio stations itself, and continue to allow contractors to operate the remaining 30 percent. Beginning the end of this year it would take over management of all the stations.

Explore The World With Javoradio

Listen2Radio, Ltd., a company in the United Kingdom, provides access to a truly global network of remotely controlled shortwave and VHF/UHF receivers for radio enthusiasts across the world from their own homes via the Internet. Users can hear radio stations from different areas of the world at any time of the day or night, and can continue to listen to DX long after local radios conditions have deteriorated.

This Real-Time javoradio network was formed in 2001 to present a global communications network for casual users and professional shortwave listeners alike. Javoradio consists of a large network infrastructure with a multitude of sites within Europe. Some of sites are core sites, maintained and run by the founders. Other sites are maintained by node operators who choose to share their rigs with other listeners.

A subscription service began two years ago. "Early adopters" are being offered lifetime membership in the network for \$10. A new subscription program is now in place to provide tiered access to the network, providing access to the sites that are appropriate to the user's level of interest. The maximum fee is \$35 per year. For more information visit www.javoradio.com.

The Trip Of A Lifetime: Tristan da Cunha

No Airfield, No Traffic Light—But There's A Small Radio Station

By Manfred Rippich

Touch down at Tristan da Cunha and you may be able to listen to Tristan Radio. That's easily said, but it takes quite some time and expense to actually visit the remotest of all inhabited places on Earth!

The local radio station of this little, round piece of volcanic rock, forgotten by the world and ignored by big papers' headlines, used to transmit its few weekly hours of programs via shortwave. That was until 1991, when Tristan Radio switched over to FM mode, quite a wise decision. There is only one settlement on Tristan, Edinburgh, on the northeastern tip—and it's the only flat piece of soil. Even in the days when Tristan Radio used 3.290 kHz, there was no chance for anybody, not even someone in the relatively "close" Eastern Cape province, to catch the tiny radio station's signal. So, one has to actually go to Tristan to be able to listen to Tristan Radio.

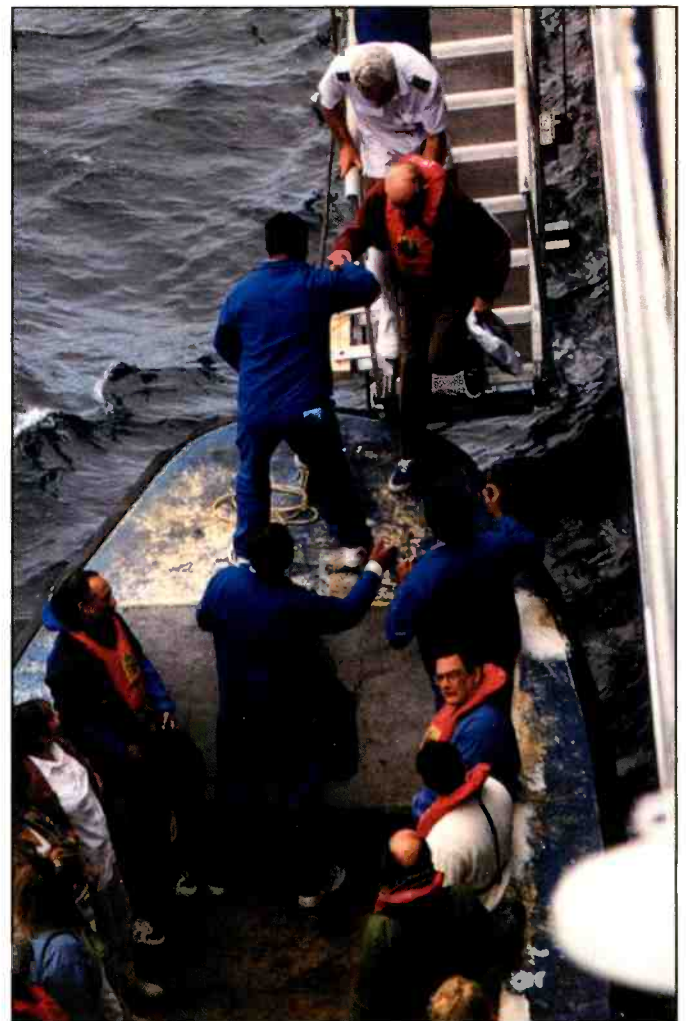
Being very interested in the British South Atlantic islands, I had visited the Falklands twice and St Helena once. I was tempted to visit sunny and somewhat backward, old-fashioned St Helena again. I thought of combining the long trip to the South Atlantic Ocean with a visit to Tristan. I longed to see and touch this place and its people, of whom I had read so much. This trip, too, would enable me to meet my long-time pen pal, Lillie Swain née Green, and listen to Tristan Radio.

I flew to Cape Town, my "base" for island hopping, voyaged to St Helena on board the *St Helena* (a combination cruise ship, freighter, and mail steamer), spent a couple of weeks on St Helena, where I could take part in the celebrations of Radio St Helena's 30th anniversary, then traveled back to the Cape and on to Tristan—a journey of a lifetime.

On St Helena, I was informed by retired station manager Tony Leo that my Swedish friends, Jan Tunér and John Eckwall, were to arrive from Cape Town soon. We enjoyed lovely days



Calshot Harbor with the RMS St Helena in the background and the Medi-Box, in which infirm and elderly people are lifted ashore, in the foreground.



The Governor, officials from St Helena, and returning Islanders are helped aboard an Islander boat by Tristan men and Captain Roberts.



All aboard! Author Manfred Rippich (top center) along with fellow passengers, nationals of Britain, Peru, and France, heading for the island.



The sign says it all. Here's your fearless author on Tristan. The Guinness Book of Records certifies that Tristan is indeed the loneliest island in the world.



This is St Mary's school, which opened in 1975. It houses some 30 students, a computer cabinet, and a library.

on our "dream island" and soon realized that all three of us were booked for the same trip to Tristan as well!

Arriving At Tristan

Cape Town, Duncan Dock, the first Friday of January: Jan Tunér, the taller of the two Swedes, and co-initiator of the world-famous "Radio St Helena Day," was sitting on deck of the RMS *St Helena*. Jan tuned his tiny Sony receiver into the news from Stockholm, while lying on a comfortable deck-chair. It was news time at Radio Sweden, and he learned it is freezing cold in the North and that his home village was cut off from the outside world by loads of snow. Meanwhile, he felt quite relaxed in the comfort of the warm evening, knowing he was about to make an extraordinary journey soon—if we were, lucky he'd soon set foot on the cylindrical volcanic island of Tristan da Cunha. We were all in an extremely happy mood, hoping not only just to see Tristan from the shore, but touch to it for real!

The *St Helena* anchors for just two days off Tristan, usually in January, and sometimes February, which is summer in Tristan and offers the best chance of getting people and freight ashore. Still, almost everybody among the 90-plus passengers knew that if the Roaring Forties (those strong westerly winds that blow over the Southern Hemisphere) were not in our favor, we might have to turn back to the Cape, losing our hard-earned money without actually being able to visit Tristan.

Also on board the ship was the new Administrator of Tristan, Brian Baldwin, and the Governor, David Smallman. The next day Jan was supposed to approach the Governor with a serious question: What about a special radio day on short-wave for Tristan Radio? This would enable tens of thousands of radio enthusiasts around the globe to try to catch a signal—and possibly get it confirmed—from this lonely spot in the South Atlantic. Our friend John Eckwall had initiated exactly the same thing years ago, because the mediumwave band on which the station operates on its day-to-day service puts Radio St Helena out of reach for almost any DXer!

The official launch took the Governor and his wife, the Administrator and his wife, two journalists, as well as some returning Islanders to Calshot Harbor, a small, sheltered manmade port. The first assembled shore party of "normal fare-paying passengers" was already steering

The Islanders depend on the sea and their longboats, which are wooden frames covered with canvas. →

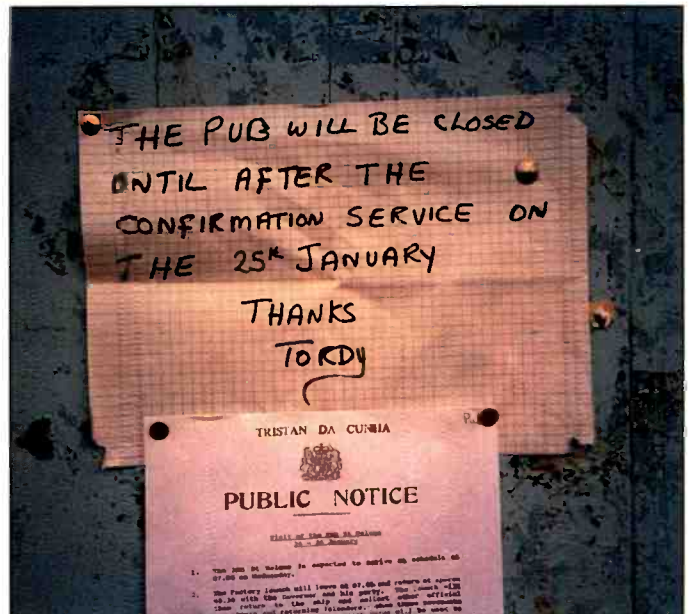


towards land, anxious to touch what had been a dream for years. Then the sea got rough and the tall, bearded Captain Roberts said: "No more!" Responsible for the safety of his crew and passengers, he would not allow anybody ashore under these circumstances. We stripped off our red life jackets and went back to the daily routine on board.

The next day we were having our sumptuous breakfast, just as on the days before. Suddenly, the loudspeaker on board announced: "First shore party, fetch your lifejackets and get ready for disembarkation." Everybody left his orange juice in the glass and his fried hake on the plate along with the buttered toast. You just heard cabin and toilet doors clapping. Within minutes, the complete first party attempting shore were clasp- ing the reel on star-



The day after our arrival Captain Roberts guided every shore-going passenger down the rope ladder. Some elderly passengers were harnessed for the short trip down.



There are plenty of public notices displayed at the Administration Building, as well as at the Pub and the Hall. Radio is, therefore, not really that important.



Laurian Judy Rogers had just had her hair washed before she posed for this photo in her studio at a time when Tristan Radio wasn't working due to technical problems.



Go ahead, count 'em—the few LP records and cassettes at Tristan Radio. At times, Laurian takes some of her own records to the small studio, or she gets some on temporary loan from friends.

board, waiting to be called for boarding the Islander's launch. This time, contrary to yesterday, when passengers used the gangway, we had to climb down on a rope ladder, precisely guided, one by one, by Captain Roberts personally! Though not many people said a single word, you felt that there was an air of silent joy, satisfaction, and enthusiasm in the boat as we were ferried ashore.

Welcome Ashore!

The weather on land was ideal, the place and the people wonderful. I had a great time talking to Islanders and had some drinks with them, enjoying myself at the Saturday eve dance in the Prince Philip Hall. Time ashore was too limited and somehow I missed the opportunity to chat with the most active ham, Andy Repetto.

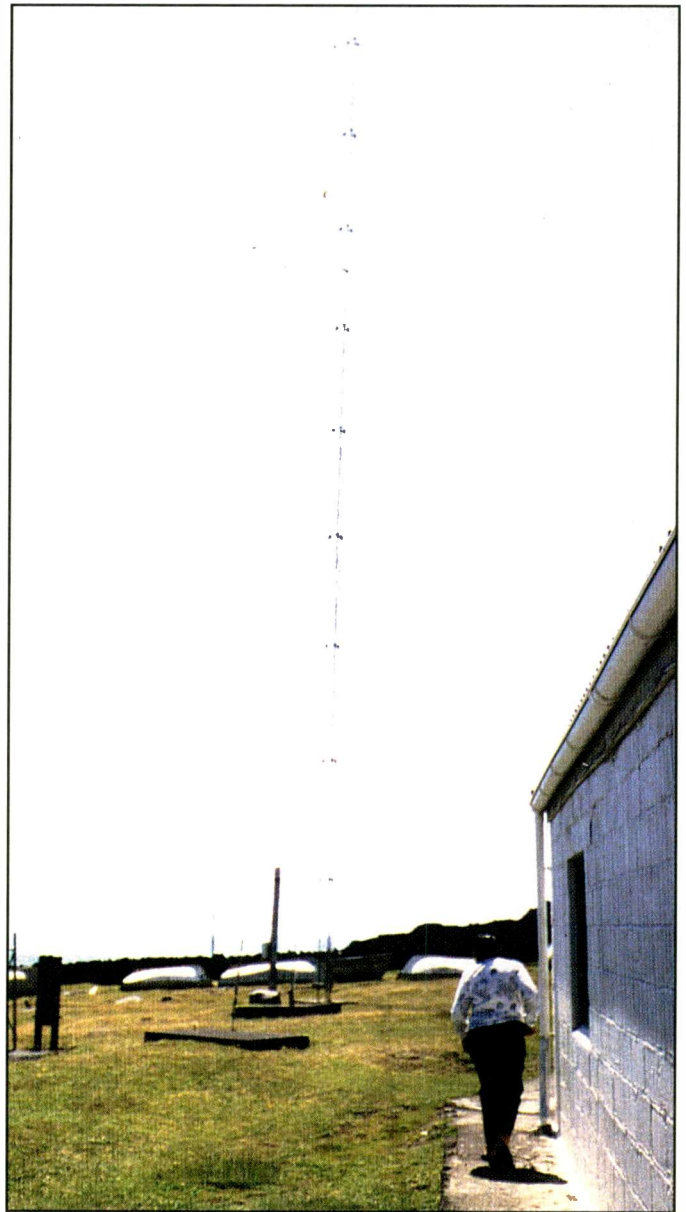
Tristan Radio was not working due to technical problems. While it was a huge disappointment for me, a German radio enthusiast, and my two Swedish friends, it's not a problem for Tristanians. Ian Lavarello, assistant to Chief Radio Officer Alan Swain, explained,

One day in November, the radio station had broken down. I had tried to fix it, but failed in the end. We needed a certain spare part that's not to be fetched personally from around the corner, nor ordered from a dealer—it must be shipped here. No, on Tristan things are different!

Frankly, there is no real need for a radio station on Tristan. Imagine a community of only 300 people, from toddler to senior, working together, meeting each other daily while fishing, at the only pub, at school, while shopping at the only supermarket, at the office or having a Castle beer at the café. News and gossip is easily and quickly exchanged within a settlement of only 100 or so houses.

The Sounds Of Solace

So, what *can* be heard on Tristan Radio? Well, you'll hear Laurian Judy Rogers spinning music taken from outdated records and reading official announcements. There are ships'



Laurian leaves the radio shack to have her Sunday lunch. The tall tower was damaged in a 2001 hurricane.

calls on the radio, revised pub opening hours, news about when the visiting dentist and optometrist can be seen, and even results of Council elections. Even so, it seems that few Islanders switch on their local radio station. Melanie Glass, whom I met on St Helena, told me that she rarely tunes in to 93.5 MHz. Nowadays, people on Tristan have video, CD, and music tapes. Any local news is easily obtained from "around the corner." However, if a local really wanted world news, the BBC news is relayed via Tristan Radio.

So, while you can't hear Tristan Radio on shortwave any longer, you can indeed make the trip to Tristan right here in *Popular Communications* with my photos. Sit back and relax, and dream of a warm breeze on the loneliest island in the world, and imagine you're listening to the hum of local happenings on the world's most isolated radio station. And if you ever get a chance to visit Tristan, don't forget to bring your portable radio and tune into Tristan Radio's 40 watts on 93.5 MHz. ■



Are UFOs The Ultimate Sky Spies?

They've Been Around For Years—Can You Monitor These High-Flying Super-Secret Craft?

By Steve Douglass

Could sightings of mysterious V-shaped UFOs in reality be secret stealth airships? This illustration by the author shows what the Ascender airship might look like at sunset flying over the Southwest desert.

If the winds were kind and the technical problems were ironed out, by the time you read this you may have already heard about the strange “flying V-shaped” UFO that has been seen by citizens over far west Texas and southeastern New Mexico.

Although it hasn't begun flying as of this writing, it is likely that this huge flying object will soon be seen at sunset, soaring so high that it probably will glow brightly for maybe more than an hour after dusk. It will undoubtedly prompt uninformed citizens to call local authorities to report an unidentified flying object in the area. In reality, this “UFO” is a prototype of a new lighter-than-air sky spy, and it just might give utility monitors in the area a rare opportunity to intercept some unique communications.

With tests scheduled for late June and lasting throughout the summer and fall, the V-shaped airship, which is bigger than a baseball diamond, should rise from the west Texas desert to an altitude of 100,000 feet (30.5 kilometers), navigate by remote control, linger above the clouds, and drift back to earth. This is a joint project of the U.S. Air Force and JP Aerospace, a volunteer-based organization dedicated to achieving cheap access to space. The goal is to build a new kind of reconnaissance and

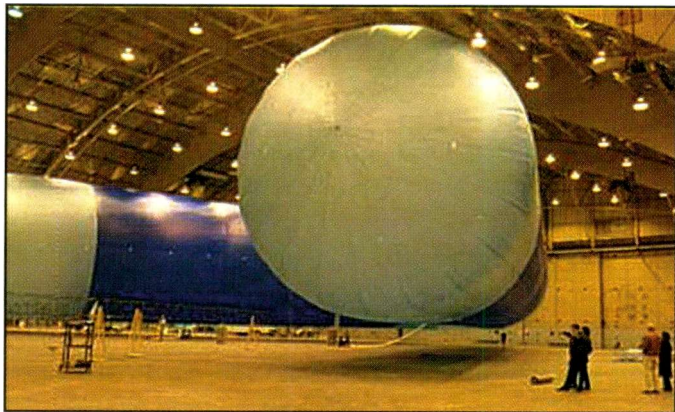
battlefield communications platform that some day might lead to even bigger lighter-than-air, gas-filled floating platforms that gossamer spaceships could use as high-altitude way stations.

“The full-size station in our grand vision is two miles across,” says John Powell, JP Aerospace's founder. “But that's down the road a bit. We take baby steps.” You can learn more about this project by pointing your browser to: <http://www.jp.aerospace.com/>.

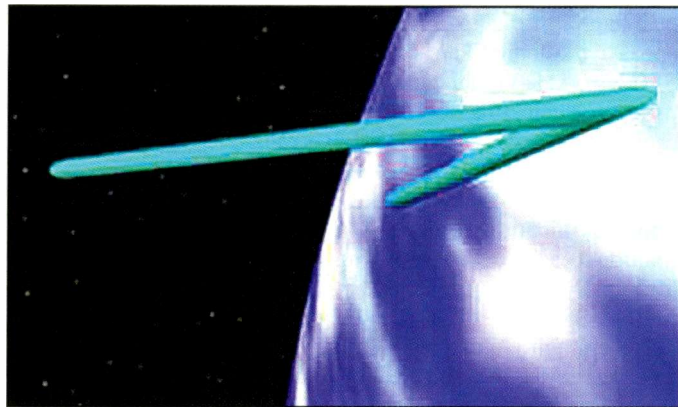
Known as the *Ascender*, the uniquely shaped aerostat is as of presstime slated to be launched from the Pecos County/West Texas Spaceport at Fort Stockton, Texas, but the liftoff is dependent on the weather and already has been delayed several times. According to Powell, “We actually had the first flight window in February, but we sat there and stared at 30-knot west Texas winds for two weeks, so we're going back in June.” If tests are successful, the *Ascender* could lead to a much larger military airship being developed as a separate project.

The Pentagon Falls In Love With Airships

In 2001, the Missile Defense Agency awarded Lockheed Martin a \$40 million contract to work on the High Altitude



The Ascender airship prototype inside its huge hangar located in Ft. Stockton, Texas. (Photo courtesy JP Aerospace)



Someday soon huge reconnaissance airships could be floating on the upper atmosphere and looking down on you. (Photo courtesy JP Aerospace)

Airship, a 500-foot-long (152-meter) blimp, 25 times larger than the Goodyear blimp and much more capable than the *Ascender*. This craft could loiter at altitudes above 65,000 feet for as long as a year.

In our "new world," given the current war on terrorism, the military and three-lettered agencies are more determined than ever to pursue pilotless craft, and airships are the answer. One reason airships are becoming more attractive to the Pentagon is the cost. The roughly \$500,000 price tag of building the 175-foot-long (53-meter) *Ascender* airship is far less than that for any piloted airplane or robotic drone, but the Pentagon's primary motivation is strategic rather than financial. The altitudes best suited for the helium-filled *Ascender* are virgin territory for the military. The craft could take a payload higher than any spy plane, above the weather, and well beyond the reach of virtually any attack from the ground or the air.

Although the *Ascender* is considered a prototype of a future system, there are some who speculate that the National Reconnaissance Office (NRO) has been flying top-secret airships for years, and that these have been responsible for many "slow-moving UFO" sightings.

A UFO Sighting?

A few years ago an Air West 727 was flying in an air corridor just north of the restricted military airspace known as Area 51, when lightning from a nearby thunderstorm illuminated a huge motionless cigar-shaped object hovering silently over the Nevada Desert. The pilot, startled by the sudden appearance of the eerie craft, radioed air traffic controllers to report the encounter as a UFO sighting.

Controllers on the ground responded that it was probably a classified aircraft operating out of the restricted Nellis Range. The pilot described the craft as looking something like an elongated big black blimp, invisible except when illuminated by lightning flashes.

What the commercial pilot saw was most likely one of the best kept "black-world" secrets, the stealth airship, a kind of flying "Big Brother," prowling the upper reaches of the atmosphere and capable of collecting enormous amounts of intelligence for its spy masters on the ground.

These "stealthships" are capable of eavesdropping on military, government, and civilian radio communications, photographing the world below in amazing detail, and even

listening with sensitive electronic ears for the telltale sounds of war.

Possibly equipped with state-of-the-art imaging devices, ground scanning radars, and sonic detection equipment, such unmanned sky spies could go completely unnoticed until something goes wrong. These stealthships are only spotted when, as fate would have it, a kink in the jet stream forces the Goliaths down into civil airspace where they can become a hazard to commercial aircraft traffic and visible to us groundlings below. On many occasions, unidentified airships have been spotted by airline pilots and civilians alike who report them as UFOs.

Could it be that the famous Belgium, Mexico City, and Hudson Valley UFO sightings of a huge, slow moving aircraft, accompanied by large formations of military helicopters, are in reality stealthships accidentally brought down to low altitude by freakish winds?

Vindication For "The Kooks"?

Although eye-witness reports by qualified observers point to the possible existence of stealth airships, new documentation almost goes as far as proving it. Lockheed-Martin (the same company that designed the SR-71 *Blackbird* and F-117 stealth fighter) recently secured patents on advanced airship designs with the U.S. Patent Office. You can view these patents on the Internet at http://www.patents.ibm.com/cgi-bin/viewpat.cmd/USD0418804__ and see other material at http://www.patents.ibm.com/cgi-bin/viewpat.cmd/USD0358799_. Six views of each of the very interesting airships discussed there bear striking resemblance to many sighting reports.

It's Not That New, Really!

The concept of a high-altitude reconnaissance airship is not new and has its roots in the U.S. Navy's HI-SPOT program of the late 1970s. HI-SPOT (High Surveillance Platform for Over-the-Horizon Targeting) addressed the Navy's stated needs for a lighter-than-air reconnaissance platform. Visualized missions for the airship included air and sea surveillance, communications interception, and use as a communications relaying platform. An airship was also seen as the ideal heavy-lift platform for a Navy bi-static (OTH-B) radar receiver.

By its very nature, a low-frequency OTH-B reception system requires a very long antenna to work. A large airship would

be ideal for lifting up to high altitude such as a massive antenna. The Navy foresaw HI-SPOT's OTH-B radar capabilities as very useful for detecting submarine-launched cruise missiles. An OTH-B radar designed to track low-altitude aircraft and stealthy cruise missiles would also have bonus applications in an anti-drug role, making it easier to intercept drug-running aircraft flying low over the open ocean.

In 1981, the NADC (Naval Air Development Center) selected the Lockheed Missiles and Space Company to develop HI-SPOT. According to information Lockheed released to the press that same year, the Lockheed HI-SPOT design would be that of an unmanned blimp-like airship, 500 feet long.

Shortly after the press release the HI-SPOT program was classified as top secret, with no announcements ever coming from the Pentagon that the system was cancelled or fielded. Multiple sightings of slow-moving rigid airships were reported, however, by many observers in Nevada and California beginning in the mid to late 1980s.

In 1990, a major sighting of a slow-moving black airship occurred in California's Antelope Valley, not very far from one of Lockheed's secret radar cross section testing ranges. The airship was described as being 500 to 600 feet long, blotting out the night sky while moving slower than four miles per hour. Artist

Glossary Of Terms

Aerostat: A balloon-borne radar system.

Black-World: Term describing secret technology, including aircraft, weapons programs, etc., that is so classified it's not even a topic of discussion—in other words it doesn't exist!

ELF (Extremely Low Frequencies): Frequencies in 30- to 30000-Hz range.

ELINT (Electronic Intelligence Team) Platform: Apparatus capable of intercepting and analyzing virtually any radio signal, anywhere.

OTH-B (Over-The-Horizon-Backscatter): A U.S. Air Force air defense radar system that uses the ionosphere to "see" far beyond the range of conventional radar systems.

VLf (Very Low Frequencies): Frequencies in 3- to 30-kHz range.

depictions of a huge pumpkin seed-shaped airship were published in *Aviation Week Magazine* (October 1, 1990) and other aviation technology publications.

Next-Generation Stealth

So why try to reinvent the wheel? Why would the Air Force fund a study for a recon system that may already be in use? For one thing, it may not even know about the secret NRO projects—the Air Force may actually be out of the loop when it comes to matters of intelligence (no pun intended). Or the "white-world" *Ascender* project could be a cover for the black-world counterpart project. Let's

theorize that maybe the black airship project is entering a new phase where daylight operations may become the norm. Couldn't any new sightings be explained away as *Ascender*?

Such a huge airship would need to be based in huge hangars. Just such a large hangar has been photographed at the secret Area 51 base in Nevada. Recently I also spotted very large hangars capable of housing airships on the Fort Bliss Range in southern New Mexico. These hangars may account for the 1995 sighting of a large black airship by an airline crew flying near Las Cruces, New Mexico (Las Cruces sits on the west side of the Ft. Bliss Range).

A high-altitude floating reconnaissance platform would have many technical advantages over conventional satellite and aircraft platforms. An unmanned airship can stay over an area of military interest for days or even months at a time. It could relay long-term, real-time photographic data directly or via satellite to a command center, providing an ever-changing and always accurate tactical picture of a battlefield.

Because of a natural atmospheric phenomenon known as *sonic ducting*, the sounds of battle, in particular the loud booms caused by missile launches and nuclear explosions, can be detected by sensitive microphones lifted aloft, by an airship, into the proper sound ducting atmospheric layer. Conventional jets are too loud and their engine noise would overload any audio system, but an airship is virtually silent and would be the ideal listening platform. These airships could also be fitted with radiation sampling systems capable of detecting the telltale signs of nuclear testing or Chernobyl-type nuclear accidents.

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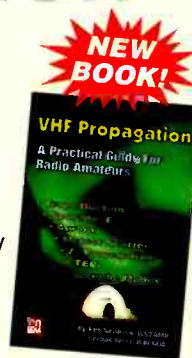
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Airborne electronic eavesdropping gear could intercept civilian, military, commercial, and government radio communications, which can only be done for short periods by ELINT platforms such as the U.S. Air Force's RC-135 Cobra Ball aircraft. Generally, only communications that take place above 30 MHz have a chance of radiating into space without being reflected back down by the electrically charged ionosphere. An ELINT airship has an advantage over reconnaissance satellite systems in that it can intercept low-power, low-frequency radio communications that satellites are blocked by the ionosphere from receiving.

Many important military communications take place on the VLF and ELF frequency bands, including those concerning the command and control of deep diving nuclear submarines. Any unmanned, long-duration reconnaissance airship would have to be self-sufficient in order to monitor submarines on long-duration missions. Electricity for the reconnaissance, maneuvering systems, and communications systems could be continually provided by solar cells (charging batteries by day) mounted outside the airship's gas-filled envelope.

Detection Is Nearly Impossible

Advanced radar absorbing composites and special shaping could make a reconnaissance airship very hard to spot on radar, and at the altitude they hover (above 100,000 feet) these stealthships (camouflaged to match the sky) would be very hard to detect visually. Recon-airships could also be protected from detection by hiding in magnetically charged layers of the ionosphere that naturally deflect probing radar beams.

These ships are not designed to float aimlessly in the high altitudes. While most of the deployment into a target area could be accomplished by taking advantage of high-altitude winds, an airship could stay on station by employing efficient and silent electronic motors spinning propellers at very-low speed. Operated autonomously from the ground, stealthships may be the ultimate spy platform.

It may take days, weeks, or even months to position an airship, but once in place it could loiter for an extended time while collecting very valuable strategic and tactical information. If the winds are unkind, dozens of airships could be placed into a high atmospheric fast lane,

cruising on the trade-winds in an endless chain, relaying a constant stream of gleaned information back to an intelligence agency's command center.

Listening In

As for monitoring *Ascender*, keep a close ear to civilian and military aviation channels. No doubt monitors within a few hundred miles of the launch area will be able to hear air traffic control advisories as well as pilot-to-pilot chatter concerning the aerostat.

Since a major part of the experiment is to see if *Ascender* can serve as a military communications relay station, it might be a good idea to give a listen to narrow and wideband military SATCOM frequencies in the 240- to 370-MHz range. If *Ascender* works as advertised it might be possible for you to hear military ground stations and units from well beyond your listening horizon. Who knows, the military might also experiment with relaying HF communications.

Whatever you intercept, make sure that you pass on your logs to me at *Popular Communications!* In any event, it will be interesting to see what UTE and MILCOM monitors intercept as the project matures. ■

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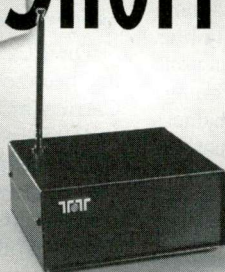
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Capitol Hill And FCC Actions Affecting Communications

Verdict In Scanner Interception Case

It was like the Hatfields and the McCoys: William and Dorothy "Dee" Quigley had long feuded with their Jewish neighbors, Mitchell and Candice Aronson. In 1994, after listening to the Quigley's phone conversations on a RadioShack scanner, the Aronsons contacted the Anti-Defamation League (ADL). They said they heard the Quigleys discuss a campaign to drive them away with Nazi scare tactics. The ADL told the Aronsons to start recording the conversations. Hundreds of hours of recordings later, the tapes were given to Jefferson County, Colorado, prosecutors, who charged the Quigleys with hate crimes, only to later drop the charges and pay the Quigleys \$75,000, after listening to the recordings and concluding that the remarks were made in jest. The Quigleys won a \$10 million verdict against the ADL in federal court in 2000. An appeals court upheld that verdict, and the U.S. Supreme Court refused to review the case. With interest, the \$10 million verdict grew to \$12,169,557.61. Ouch.

FRS Mixed With Business Users: FCC Denies Part 95 Rule Change

Back in August of 2002, the Industrial Telecommunications Association (ITA) filed a petition for rulemaking, requesting that the FCC amend its Part 95 rules to prohibit daily business communications on the Family Radio Service (FRS) frequencies. Unfortunately, the Commission has ruled that the ITA did not prove its case enough to warrant altering the current FRS rules.

ITA is concerned about the unlicensed mix of business and personal users on FRS frequencies and believes that the overutilization of this spectrum by businesses will lead to underutilization of the FRS spectrum by the intended users. It also expressed concern that businesses that use the FRS could be using its system for safety of life communications, general safety applications in a manufacturing plant, or for maintenance purposes on an assembly line. ITA contended that such uses require more reliable and accurate communications with minimal interference and with a longer range of service than FRS offers. Therefore, according to ITA, business users should be barred from FRS and required to be licensed on spectrum designated for traditional business communications.

Commenters on ITA's petition seemed to agree that FRS frequencies are further degraded when businesses use FRS equipment interchangeably with traditional business radios; business users should meet their communications needs with an authorization in the Private Land Mobile Radio (PLMR) Service, which would be more reliable, effective, and efficient; and FRS radios put employees at risk in some work environments. The Commission, however, was not persuaded by these arguments and stated, "We recognize that there are many business uses for which FRS is not appropriate. Entities requiring greater reliability or robustness than the FRS provides should examine other options. We believe that we should afford businesses the flexibility to decide whether FRS is an appropriate means of satisfying any of their daily business communications needs, based on their particular circumstances and requirements."

Wi-Fi Use Between TV Channels

If spectrum exists, they'll find it. The FCC is considering allowing unlicensed high-speed wireless Internet services, such as Wi-

Fi, to operate in unused airwaves between television stations. The frequencies available would include space between Channels 2 and 51 in each market, if existing stations were not disrupted. Broadcasters are worried about interference, but intelligent wireless equipment is available that avoids TV signal interference. Most television signals are strong enough to withstand interference from wireless transmissions. A final ruling from the FCC is expected to be issued later this year.

Nextel Says No To Spectrum Swap

After two years of attempting to solve wireless interference with public safety communications, Nextel Communications said it would not accept a compromise from the FCC. Nextel's proposal includes \$850 million to move public safety users to different spectrum, and in return, the carrier would gain spectrum in the 1.9-GHz range.

The alternative proposal would give Nextel spectrum in the less valuable 2.1-GHz range. Nextel said the 2.1-GHz spectrum does not work with its existing technology and that it would not accept such a deal. The swap has caused controversy over how much Nextel should pay for the spectrum and which range of spectrum it should receive. The total value of the switch is \$4 billion according to Nextel; however, Verizon Wireless said it would pay \$5 billion for the 1.9-GHz spectrum. The Wireless Association, the Cellular Telecommunications & Internet Association (CTIA), and Verizon Wireless, one of CTIA's members, have proposed a compromise plan that gives Nextel the 2.1-GHz range spectrum and includes higher payments to cover the move of public safety users. According to a *Washington Post* article, a majority of commissioners were ready to support a proposal that offers Nextel the 2.1-GHz spectrum.

FCC May Open Educational Spectrum For Commercial Use

The FCC is expected to decide if it will release spectrum that had been set aside for educational institutions for commercial use. Carriers are very interested in the potential spectrum, but schools and universities are up in arms. The plan would take a small part of the spectrum from educational groups to reallocate it for other uses, and would give educational institutions permission to sell the rest of their spectrum to commercial companies. Such deals could be worth billions. A decision on the rule is expected soon.

APCO Endorses DTV Plan

The Association of Public Safety Communications Officials (APCO) is urging Congress to require TV stations that block public safety allocations to relinquish their channels no later than December 31, 2006. APCO also expressed support for the FCC Media Bureau's recommendation that the FCC change its "must-carry" rules to ensure that the 85-percent threshold is met as of January 1, 2009, although they suggested an earlier date for Channels 60 through 69. In a letter to the House Telecommunications Subcommittee, APCO President Vincent Stile said, "The Media Bureau's proposal would be a major step forward, assuming it provides state and local governments with sufficient certainty to begin the planning, funding and construction process upon adoption of the rule change." ■

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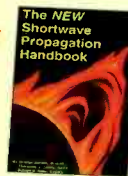


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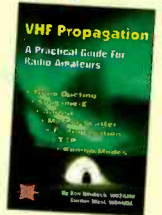
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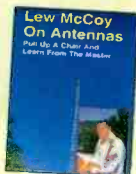
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A Master's Insights On Hearing Distant Signals

Understanding Tropospheric Ducting—It Can Provide Days Of Long-Range Signal Excitement!

By Gordon West, WB6NOA

Summer and fall are the top seasons for VHF and UHF range enhancement due to tropospheric ducting, or tropo for short. If you're an avid DX scanner, perhaps you know the excitement of tuning in a municipality base station signal from over 1,000 miles away—and for two days on end!

Tropo "band openings" are most common in the VHF/UHF portions of the radio spectrum (above 50 Mhz), appear in many forms, and are mainly caused by weather. When tropo is prevalent, ham radio operators begin hearing repeaters breaking squelch from three states away. Often a small Texas police department will hear Florida VHF high-band police cars better than their own local units! And you can imagine the surprise of the United States Coast Guard's Los Angeles station when they hear their counterpart in Maui, Hawaii, 2,500 miles away on 156.800 MHz.

"I was at 7,000 feet calling SO-CAL approach control and ended up speaking with air traffic control Mexico City over 1,000 miles away on an aeronautical AM frequency," said William Alber, an aero squadron pilot, of his experience during a routine patrol.

Yes, indeed, we all know that summer and fall bring excitement to the VHF and UHF airwaves, thanks to tropospheric ducting, but a detailed analysis of the composition in our atmosphere will make us more knowledgeable. It's fascinating to learn exactly what takes place when that little low-power radio signal gets caught up in the atmosphere and travels hundreds and thousands of miles further than is possible through typical line of sight.

Radio tropospheric ducting shares some of the same characteristics of light waves. A highway mirage is an excellent example of the mysterious reflection (actually refraction) of the sky above, marked by a shimmering layer that looks like water above the asphalt. We can easily see refraction by looking at a "broken" pencil extending out of a beaker of water. There are also visual cues of enhanced propagation conditions that we can learn to recognize. For instance, city lights glowing on the horizon 300 miles away are a good indication of radio wave scatter. Similarly, the visible smog inversion layer is a visual indication of long-range VHF and UHF radio wave reception.

We associate roadside and desert mirages with hot weather, and the telltale inversion layer leading to long-range VHF/UHF radio reception with hot, windless days in summer and fall. Indeed, long-range VHF and UHF tropo propagation is a function of local weather conditions. High-pressure weather cells trigger those hot, smoggy, windless days where tropospheric



The inversion layer seen as a band of brown air just above land and water.

ducting is well pronounced both visually, with distorted images on the horizon, and aurally via radio, with VHF and UHF signals coming in well beyond the normal radio horizon.

Squeeze Air—It Gets Warm

As a high-pressure system becomes stationary, the heavier compressed air above begins to descend at approximately 1 centimeter per second. This gradual descent is slower than the normal clockwise air movement within the high-pressure cell. The descent of air is called *subsidence*. You can picture it as a slow whirlpool of air which eventually "bottoms out" around 1,000 feet above the Earth. This descending air "pancakes out" in a stratified region of greater air pressure below. The stratified air becomes "squeezed" between the surface air below, and the constant gentle descent of air from above. When you squeeze air, it gets warm.

This suspended stratified layer of warm air creates an anomaly in our atmosphere. Normally, air temperature drops at a rate of 1 degree Fahrenheit for every 300 feet of elevation. If it is 70 degrees at your front lawn, it will be 60 degrees at 3,000 feet, and 40 degrees at 9,000 feet. In the presence of a huge high-pressure system settling in over your state, the temperature within the sharp boundary of the descended warm air will increase about 15 degrees. This is called an *inversion*.

"When I fly into the inversion layer, I can watch my thermometer pop up at least 10 to 15 degrees, and the boundary

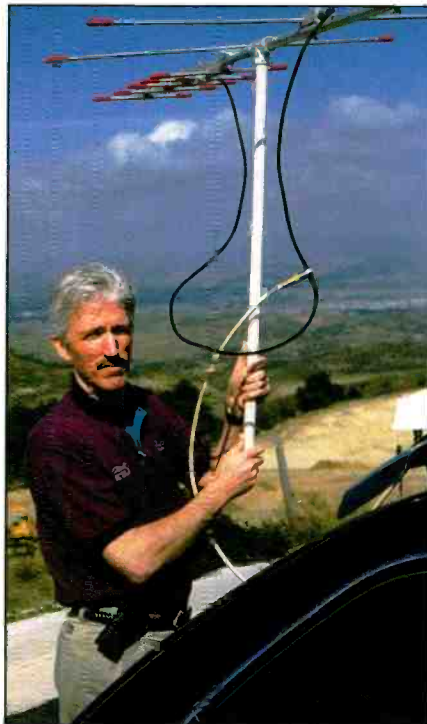
between the lower cool, clear air and the suspended inversion layer is dramatic—temp goes up, humidity rises, and all I see is brown suspended pollutants within the duct,” said Alber, our high-flying, volunteer aero squadron officer. He added, “And just like someone turned on a light switch, my radio NAV receiver and aircraft comms radio instantly pulls in signals coming in from hundreds of miles out.”

A Radio Pipeline

When the temperature inversion within the stratified region of the high-pressure cell reaches 18 degrees Fahrenheit warmer than the air below, the radio horizon becomes nearly flat with minimal atmospheric attenuation to create a “pipeline” that will follow the undisturbed elevated duct for 2,000 miles or more. In this radio pipeline the refractive index of air will support extraordinary long-range VHF and UHF tropospheric ducting rather like light waves sent down a fiber-optic tube.

World record holder Paul Lieb, KH6HME, in Hawaii regularly conducts 2,500-mile VHF and UHF contacts between the side of a volcano on the big island of Hawaii and VHF and UHF ham stations spanning the West Coast from Mexico to Washington state. His world records extend up to the ham band near 5000 MHz. This summer he plans to bridge the gap between Hawaii and the mainland on 10 GHz.

“I can see the stratified duct. I can feel it and smell it when I drive up the side of the volcano and enter the duct. My little FM car radio suddenly fills with mainland



Going horizontal on 2 meters pulls in plenty of SSB signals at 144.200 MHz during tropo events.

FM music stations,” said Lieb. “I know that we will have excellent VHF and UHF contacts when I watch the temperature increase by at least 10 degrees Fahrenheit,” he added, showing off a notebook of temperature readings at different elevations.

But before you grab your thermometer and rig it up to a balloon, there is a website that has already done the work for you at www.iprimus.ca/~hepburnw/tropo.html. The tropospheric ducting

forecast maps generated by William Hepburn clearly show in yellow and orange those areas of North America where excellent tropospheric ducting conditions may take place. His atmospheric data comes from many sources, including temperature, water content, and air pressure readings from balloon soundings. When these readings show a sharp increase, rather than a gradual logarithmic decrease, it might indicate a good VHF and UHF band opening.

Ham radio operators and scanner listeners expert in tropospheric ducting will tell you that optimum altitude may constantly and slowly change during an event. In New England, the duct may open all the way to Florida at sea level, and the next day magically appear to those stations well inland with an average elevation of 400 feet. A few hours later, elevated stations may lose the opening and radio listeners down at the harbor will pull in the distant signals loud and clear.

Antenna Polarization Is Critical

Your antenna polarization is crucial to the reception of a distant signal via tropo ducting. Most VHF and UHF ham radio operators transmit weak-signal CW and single-sideband *horizontally polarized*, which means you would need a horizontal loop or a horizontal beam to receive these distant signals via tropo. The same thing is true for distant VHF and UHF television signals; horizontal polarization would yield best signal reports. But if you’re attempting to hear a distant VHF weather station via tropo, antenna polar-



Here’s a look at the first-ever Amateur TV reception of the Hawaii 426-MHz beacon in California at Gordo’s station. Reception was due to tropo ducting.



A Yagi certainly helps, but even with a standard antenna on your scanner you’ll hear plenty of distant signals during a tropo event.

use vacuum tube transmitters” and listen to the reputable companies and entrepreneurs who are the real experts on BPL and who have overcome enormous technical obstacles to make BPL a reality in the U.S. All the field trials over the years in various parts of the country have shown that the risk of interference from BPL is extraordinarily low, because it produces only minimal radio frequency energy at a few points in the system. Moreover, these systems will incorporate adaptive interference mitigation capabilities that will effectively remedy any interference that might result to fixed and mobile operations in the HF band.

I can't help wondering if Bill ever read any of the amateurs' comments on BPL or if he simply let his attorneys and public relations people fill him in. News flash, Bill: Listening only to lawyers and PR folks will usually get you into trouble if you as CEO don't take it upon yourself to check the facts before opening your mouth.

Fact is, while there are some radio amateurs out of the hundreds of thousands of licensees who use tube-type radios on the air, the great majority of operators are using high-tech gear from manufacturers such as Kenwood, ICOM, Yaesu, Ten-Tec, and Alinco, which is equal to, or far superior in many ways, to what public safety professionals use. Much of our equipment works hand-in-hand with PCs, laptops, and even the Internet to talk to the International Space Station, say, or have live digital keyboard communications with other amateur operators hundreds or thousands of miles away. Much of our handheld equipment (walkie-talkies for your understanding, Bill) can tune a tremendous swath of the radio spectrum at the push of a button and can transmit in simplex and duplex modes.

We also use state-of-the-art equipment and our expertise to *really* save lives. Just ask the folks in any community from Florida to Iran: Who's always there in a heartbeat with portable communications when the phone lines and public safety comms are down? Yes, Bill, it's your friends, the amateur radio operators! Imagine that—all in a couple of fanny packs or an overnight bag!

Another News Flash, Bill: We are professional, reputable, and real experts on BPL. Many hams are police, fire, medical professionals, engineers, electric company workers, and truck drivers, and we come from all walks of life. Hams often draw upon our extensive job experience and even military communications training to be better professional

communicators. Of course, you didn't know that fact, because you didn't do your homework. Shame on you, collecting that big CEO pay and not working for it!

Matter of fact, Bill, it was radio amateurs who did your work for you. The ARRL has been at the forefront of demonstrating beyond any doubt that BPL interference is rampant in areas where BPL is deployed. Question is, Bill: If you've got to notch the interference that you say doesn't exist, wasn't there sufficient interference to notch in the first place? To say otherwise is double-talk and most folks can see through that. If you still don't get it, it's a lot like someone saying to the cops, “Even if I had stolen the money—which I didn't—but, anyway, I'm not telling you under which tree I buried it.”

Any radio amateur or, for that matter, any member of the general public reading your comments should be outraged and saddened, but not for the reason you probably suspect—not for the insulting way you attempt to demean us or our technology. It's because you're uninformed or, perhaps worse, you're misled by your own employees. Anyone who's been on the planet more than a few months has seen radio operators (amateur, CB, and others) in national and local media using anything *BUT* vacuum tube technology for decades. It's truly sad that you'd have to think that resorting to such a low comment would heighten your believability in the world beyond your D.C. offices. But then again, it's like I've always said about many politicians (of which you certainly are one when it comes right down to the nitty-gritty): they can't find their own toes without someone pointing to their feet and giving them a roadmap.

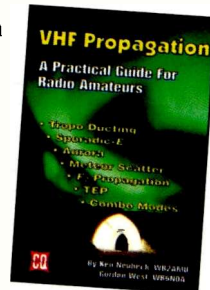
Isn't it ironic that the same fellow, Mr. Bill Moroney, the head honcho and driving force behind BPL, sees amateur radio operators as still using vacuum tube transmitters, when the very carriers themselves of his BPL are antiques in every sense of the word; overhead powerlines are laden with more problems than they should be in the 21st Century. Fact is, regardless of how hip we think we are, just like in the mid-1930s we're still dependent on those overhead powerlines and their failure-prone lightning arrestors, insulators, transformers, junction boxes, and aging hardware.

Common sense and professional courtesy tells me that Mr. Bill Moroney would save everyone a lot more money in the long run if he'd fix his own backyard before leaving do-do in mine. ■

Good Reading And Good Listening

For more in-depth information, check out *VHF Propagation—A Practical Guide for Radio Amateurs* by Ken Neubeck, WB2AMU, and Gordon West,

WB6NOA, which is available through CQ Communications, Inc., at 800-853-9797. Also Gordon West's one-hour audio CD with the sounds of VHF and UHF extended-range propagation modes is available by calling 714-549-5000.



ization should be *vertical*, as it would be for police and fire departments because most VHF and UHF mobile and base stations are vertically polarized. Their signals could be missed completely if your ham antenna is fixed horizontally.

Catch As Catch Can

Signal strengths can be so intense via tropospheric ducting that a small loop antenna, polarized properly, will offer extraordinary reception of the distant station. I once witnessed a loop tropo contact from the seashore on the West Coast over a 2,500-mile path to a modest horizontally polarized station in Hilo, Hawaii. The contact lasted for hours, a characteristic of tropospheric ducting that sets it apart from the short-lived sporadic-E contacts, which may only last for a minute or two. During tropospheric ducting, a slow-moving, high-pressure system may give radio enthusiasts days to try out different long-range techniques.

But the enhanced VHF and UHF tropospheric ducting conditions will change, just like your local weather. Three-day openings are typical, with enhanced conditions at night when the ground loses heat to create an evening inversion layer in addition to subsidence from the overhead high. But when the weather pattern changes, so goes the duct, and you are now back to local comms on your VHF and UHF radio circuits. ■

What You Need To Know Before Buying That First Scanner

In the good old days (that's about four years ago), you could get started in scanning by just buying a scanner —any scanner. While we weren't looking, though, just getting started got quite a bit more complicated. There are lots of choices for scanners, and the options available can be quite confusing if you're unfamiliar with the terminology.

Do You Need A Trunking Model?

This almost has to be the first question on the list these days. If you live in an area that uses a trunked system, the trunk-trackers should be at the top of your list. Many of these radios make excellent regular scanners too, so don't rule them out, even if you don't need the trunking capabilities right away.

Trunking is a way of using a few radio "channels" or, more correctly, frequencies, controlled by a computer system to create virtual "radio channels." The advantage of a trunking system is that it offers the users the ability to get a large number of these "virtual channels" without requesting additional frequencies from the FCC. These days, particularly in major metropolitan areas, there simply aren't any extra frequencies to go around, so anything that can help relieve the congestion is a good thing.

You can listen to a trunking system without a trunking scanner, but it's difficult at best. If the system isn't too busy you will probably be able to scan the actual frequencies the system uses and hear a good deal of the action. On a busy system, however, it's almost impossible. What was on the frequency for the police department a second ago is now a conversation with the dog catcher. By the time that finishes and your scanner catches up to the police again, the conversation you were listening to is long since over. A trunking scanner can follow the computer signals put out by the system so it knows where that police conversation went. And it can be programmed to ignore the dog catcher, street department, and anything else you don't care about. Of course, it can be programmed to ignore the police, too, if you're interested in the dog catcher or street department.

Trunking comes in different types and your scanner has to know which type is in use so it can understand what the computer signals mean. The most common types used for public safety applications are Motorola type I, II, or III or Ericson's EDACS. There are a few others, too, such as Johnson's LTR which is used by many business band users. All these types can be received with the newer generation of trunk tracking scanners. There are still a few which can't, so it's best to find out about your local system before you make the decision on a scanner.

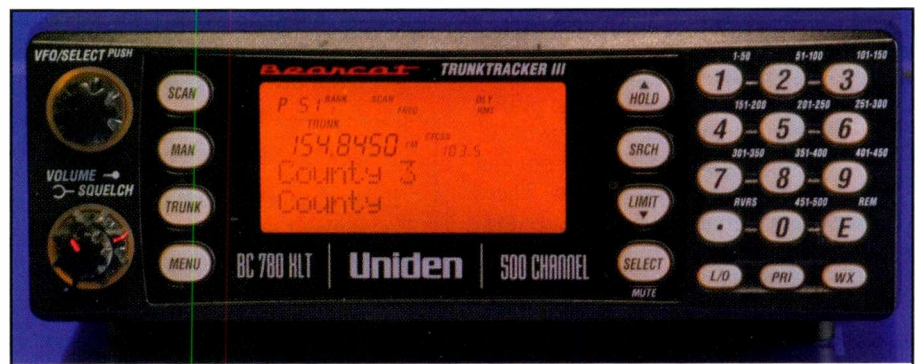
Learning to use a trunking scanner can be a bit challenging, but it's certainly doable. In fact, I think that new users learning about scanning for the first time might have the advantage over experienced scanner listeners in this area. It's easier to learn how a trunking system works from the beginning rather than having to forget all your previous knowledge about other types of scanning systems.

So how do you know if you need one of these? The best way is to ask someone in your city who's already experienced with scanning. Some of the stores that sell scanners employ someone who's interested in the hobby as well. Of course, sometimes they don't, so unless you're convinced the person you're talking to knows what he's talking about, take that information with a grain, or perhaps a shaker, of salt.

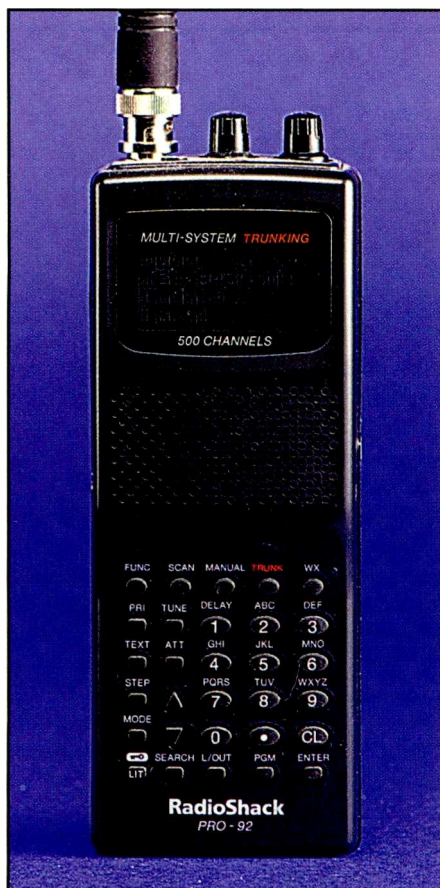
The second way to find out is to get a copy of a good frequency directory like *Police Call*. Look up the city or agency you're interested in and see if the listing says anything about service code "T." If you're in a city of any size, there's a very good chance that at least some agency will be trunked. The larger the city, the more likely it is. If you're still not sure, then go ahead and get a trunking scanner if possible. That way you'll be covered if you later learn that you need one, or if your city switches sometime in the future (an event that is becoming more and more common). The trunking scanners tend to be slightly better receivers, and slightly more expensive, so you won't make a real mistake if you get one and don't need those capabilities right away. Picking a scanner only from the trunking scanners will also help narrow your selection right away. But remember, if you're sure you don't need trunking, you can get away with a cheaper radio.

Digital Signals

Another tricky question for the beginner to answer is whether or not you'll need digital. Someone who already scans is prob-



Base radios offer a bit more "space" on the control panel, so the buttons can be a little larger and the display a bit easier to read. They also plug into the wall, so they have power all the time without feeding batteries on a regular basis.



Handhelds offer portability. Today, the features offered on handhelds make them every bit as good as many of the base stations, so size and power are really the main considerations.

ably your best bet right now for information on this topic.

In the beginning, there was AM radio (amplitude modulation). Then came FM (frequency modulation), and now the new kid on the block is digital. Unfortunately, digital comes in two flavors: APCO 25 (The Association of Public Safety Communications Officers) and “everything else”. APCO 25 is good news—everything else you can probably forget listening to.

APCO 25 is the new standard. A new standard was necessary so that public safety agencies could talk between different types of equipment and not get stuck with a proprietary system. There are, however, still a few proprietary systems in use, and there are some others that are purposely encrypted because the users don’t want you to listen. Digital is more efficient with spectrum and channel space, and it offers many advantages to the agencies which use the radio. Most systems which will be installed over the next several years will probably be digi-

tal, many of them digital and trunked. If you don’t have APCO 25 digital near you right now, you probably will; it’s just a question of when.

Four years ago, if you’d said we would have digital scanners available this soon, I’d have said you were nuts—but they’re here. The optional digital card for the Uniden BC-785 and 250 with is one solution, and RadioShack has its PRO-96 which has everything built in. No doubt there will be other new models by the end of the year.

What Type Of Radio Do You Need?

“Handheld, base, or mobile?” is the next question I ask people who are in the scanner market. Most folks want handhelds, particularly for a first radio, so they can take them along anywhere, but if you do most of your listening in the car (always check your local laws before using a mobile scanner), or at home, then one of the other models makes more sense. In the good old days, portable meant compromise—big compromise. That’s not really the case anymore. Yes, there are some compromises with battery life, and the power available can limit the performance occasionally. But for the most part, handhelds are a valid choice for almost any application if they suit your needs.

Price Level

Probably the next most important consideration after the type of radio is the price level. It’s easy to spend literally thousands of dollars on high-end receivers, but if that’s not what you had in mind, there’s not much sense in throwing those receivers into your selection mix. It’s simply not fair to compare receivers in the thousand-dollar class with high-end scanners in the four or five hundred dollar range. It’s a different class of radio, and

the feature sets are completely different. It’s likewise true, although perhaps not quite to the same extent, that comparing \$100 scanners and \$400 scanners isn’t really fair either. And if it doesn’t make sense to you that someone would spend that much on a receiver like that, don’t.

There are legitimate reasons to have receivers in that price range, but they generally make very poor first receivers, because they can be more complicated and less convenient to operate. If you get bitten by the scanner bug, you’ll come to understand why those receivers can be justified when you’re ready to step up to that level. Unless you can explain to someone else (like your spouse) why you need that much of a receiver, steer clear.

Number Of Channels

The next feature most people are after is a large number of channels. Somewhere around 1,000 seems to be about the right number for folks to ask for, but 500 or so is also a very comfortable level. In reality, even folks with 400-channel radios don’t fill them all up. In fact, I’d guess there are a lot of 200-channel units that aren’t full either. I have a 1,000-channel receiver with all of 11 frequencies programmed into it! The point is don’t get too wrapped up in channel numbers. As long as the radio has enough to cover all the basic things you’ll want to listen to, it’ll be fine. Even entry-level receivers these days have 50 or 100 channels which will be enough to get you started. Two hundred to 500 channels are about all anyone can listen to and keep track of anyway.

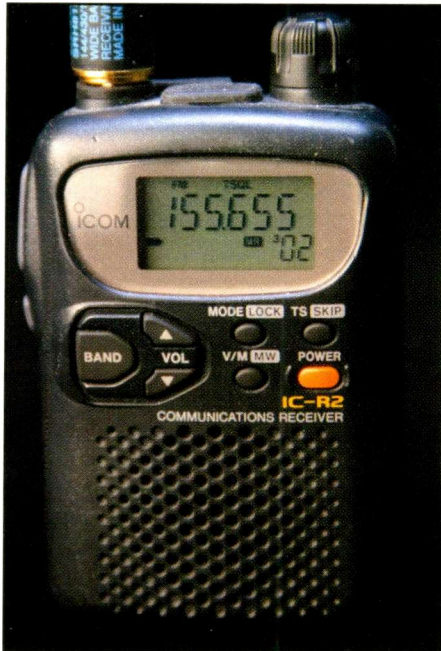
Number Of Banks

This is probably a much more important consideration. The purpose of banks is to help you organize and switch in and out channels that are of interest at a given time. By having large numbers of small

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 *Popular Communications*.

Our frequency this month is **857.7125**. Have a listen and see what you hear. Depending on where you are, you may not hear much of anything no matter how long you listen—but, then again, you might. Let me know what you find and we’ll enter you into the drawing for a free subscription to *Pop’Comm*.



Handhelds come in all shapes, sizes, and feature sets. This very small radio is extremely convenient, but does not offer trunking or other advanced features.

banks, you can divide things up pretty well so that you only have to scan what's of interest to you at the time. The best radios in this regard have at least 10, but 20 banks is nicer. Only a few of the high-end radios that I'm aware of have this many banks. Computer control can afford both the number of banks and channels that you might want, so that's also something to think about (see below).

Frequency Coverage

It used to be that pretty much any scanner would cover the frequency ranges that most of us were interested in. However, in recent years that's changed a bit. One of the biggest areas not addressed is the military air region from 220 to 400 MHz or so. There are simply not a lot of scanners on the market right now that cover this area. If you're interested in this frequency range, you can eliminate a lot of choices from your shopping list quickly.

Another place to watch is the 800-MHz range, particularly on entry-level radios. No, I'm not talking about the cellular portion of the 800 bands, as no current production radio is going to offer that coverage, but rather the entire 800-MHz range itself. A lot of the introductory radios simply don't provide these frequencies, and there is virtually no way to add a band to a radio that doesn't have it built in to the

design in the first place. If you're looking at trunking radios as we discussed earlier, you're all set. They have an 800-MHz band by default, as that's where all the trunking activity started.

Now the good news is that in many places in the country, VHF/UHF is about all that's in use and you can live without the 800 band. You can certainly save a lot of money on the radio that way, and it might be an option for a second radio or other application where you don't have a lot of 800-MHz activity anyway.

Computer Control

Over the past few years, computer control has really become a viable option for scanner enthusiasts. Both software and hardware interfaces have improved considerably and can now make the marriage of the computer and scanner seem almost a necessity. If you have any leaning toward computer control, think carefully about this as a major factor in your buying decision. It's easy to spend lots of money on both the receiver and the computer control portion of the system, so watch your budget. You can have lots of fun with some of the medium range

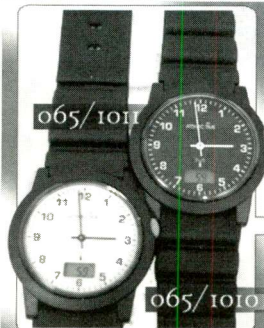
receivers by spending a few extra dollars on better software.

It's virtually impossible to gain full functionality from many receivers that simply don't have a computer interface built in, or at least an add-on system available for them. If you're interested in computer control, make sure that the receiver you buy has that as an option. You can always add it later if they make one, but inventing one from scratch is a bit inconvenient, to say the least. The bottom line is to purchase a system you're happy with, and on a budget you can live with.

Many of the high-end receivers, including those from AOR and ICOM, have computer interfaces built right in. The newer receivers from Uniden and RadioShack do as well. Several software packages have been developed to support these radios and can really overcome some of the inherent limitations of the radio. A perfect example of this is the high-end ICOM receivers, which tend to have either no banking capability or a very inflexible bank structure (the top of the line 8500 and 9000 are the exceptions to this pattern). By using a computer-control system, you can completely overcome this and have as many banks and channels as your hard disk will hold. In

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addition, the computer allows you to store information and groups of frequencies that are not in use until they are needed. Rather than re-program the entire receiver when something happens, you can simply reload the file and scan away.

Many of the handhelds that have a computer interface are only able to reprogram the radio with that particular interface and cannot completely control the radio from the computer. If you think about that for

a minute, that's really what you need in a handheld, but you won't be able to take advantage of many of the software features that a true computer-controlled receiver will offer.

Alpha Tags

If you don't want computer control, the next best thing to have is the ability to assign each channel an alphanumeric

label. Only a handful of high-end radios currently have this feature, but it is very valuable in larger-capacity radios. The BC-780XLT is the main base station receiver that has this feature (leaving out the high-end ICOMs once again). The AOR AR-8200 handheld and a couple of the ICOM handhelds have this feature to one extent or another.

CTCSS

Also known by the Motorola trade name Private Line, CTCSS (Continuous Tone Code Squelch System) is becoming available on more units. If you are in a metropolitan area, this is a worthwhile option. Once again, this function is only available on high-end units, and even then it may be an add-on option. It allows the scanner to avoid a lot of interference that may be problematic in major metropolitan areas where lots of radios are in use. Much like the users of the two-way radio system you're monitoring, you'll be able to include a sub-audible tone that will permit you to hear only the stations you're interested in monitoring—not other, somewhat distant stations on the same frequency.

Other Considerations

There are lots of other features available from model to model. Some folks would not own a scanner without search lockouts, other radio enthusiasts never search. Auto search and store is a handy feature too, if you do any searching. Selectable attenuation, delay function, priority operations, service search, weather scanning or alert functions, selectable modes, and tuning dials are also features that might be important, depending on who you talk to. Look around, then collect some catalogs and dive in. Once you've narrowed the field a bit, start asking around to see if you can find folks who have used the receivers you're interested in. But ultimately, only you will have to live with your final decision. Good luck!

Your Input Needed

I'm always looking for your input. Do you have scanning questions? How about sending along some pictures of your new radio in operation? Send them in! E-mail me at radioken@earthlink.net, or use the USPS and mail me at Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126. Until next month, Good listening! ■

The Adventures of Scanner Dweeb
by M.A. Coletta

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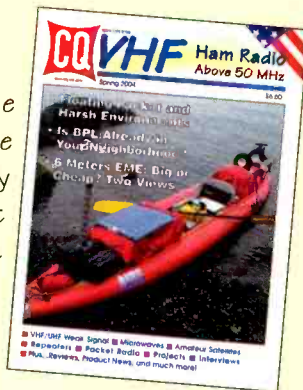
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Network Control Of Your Radio—Part II



Over the past few months I've gone into some detail looking at how a modern digital signal processing (DSP) radio operates, using Ten-Tec's RX-320/D to illustrate the technology used. I did this in part to illustrate how the technology in a modern monitoring radio is both simple and complicated at the same time.

What makes such radios complicated is that they are essentially small computers programmed to create all the circuits, in virtual form, that we associate with a standard radio. What makes them simple is the type of command codes required to operate them (for example, sound volume control, bandwidth settings, and AGC settings). Each of these commands is generally no more than a single alphabetical letter that represents a radio function (such as "M" for mode) plus a numeric value that represents its setting (such as 0, 1, 2, and 3 for AM, USB, LSB, and CW).

I've taken so much time exploring the technology of DSP radios because of the importance of using personal computers to control their tuning and functions. As far as the radio is concerned, it doesn't matter where it gets its control codes from, as long as the information is correct. The command codes generated in your personal computer can be sent to the radio via a serial cable, network cables, a wireless network connection, or even the Internet. As a result, you now have the ability to control your monitoring radio from a few feet away, from another room of your house, from your office or other remote site, or from any place in the world where you can access the Internet.

Monitoring the actual sound coming out of the radio over a distance has also been greatly simplified. Unlike analog sound that requires a great deal of amplification in order to travel great distances and still be intelligible (think of the old-style telephone system), digital signals will retain the original information qual-

ity no matter what distance they travel. That's because before an audio signal can be passed through a computer system or network it must first be "sampled" and transformed into a digital representation of the sound.

The audio signal is turned into strings of 0s and 1s that are virtually unaffected by the distances they must travel. When the digital sample arrives at the distant computer, the 0s and 1s are turned back into analog sound when they are passed through the computer's sound card, which can then be heard by attached speakers or headphones.

Making Network Connections

In this series of columns we'll look at how you can *control* a compatible monitoring radio over a home network via the Internet using specially designed control software. Likewise I will also show you how to "stream" the audio output of that radio over a home computer network or the Internet. I'll also show you how such computer control can be undertaken so that either you have exclusive control over the radio or can share it with people around the world. The software technology involved in this has been used successfully for several years, so your chances for success are very good.

More important, the cost for the software used to set up these network-based control systems is very reasonable; in fact, most of it is free! You will, however, need to ensure that the foundation components for your computer system are appropriate to the task and are working properly.

So, let's take a look at the basic software and hardware requirements for setting up a successful "peer-to-peer" network/Internet-based control system for a compatible monitoring radio. The system will consist of two or more computers connecting to a single computer that's attached to a monitoring radio to control and listen to the radio. The reason it's called "Peer to Peer" is that the person setting up the computers is expecting only those computers to be connected to each other.

Getting Started

In last month's column I introduced you to two approaches to controlling radios over a network (or more specifically the Internet). The first was "DX Tuners" (see www.dxtuners.com). This is a subscription-based service for the amateur radio monitoring community created by Kelly Lindman. It's a huge project that involves multiple monitoring radios owned by private individuals located around the world. These radios are connected via the Internet to a central computer, which subscribers can then connect to in order to control and listen to those individual radios.

To actually hook up a monitoring radio to the main computer in order to share it is relatively complicated, so I'll be looking at that in detail in one of my upcoming columns. However, the steps we're covering in this month's column are going to be an important foundation that will prepare you for that advanced topic.

So for now let's look at a more *individual* effort, also introduced last month, that's suitable for those beginning with home-based local area networks (LANs). That is the one undertaken in Bob Arnold, N2JEU, and is a much smaller affair than Kelly's. Bob's project supports two dedicated radios: an ICOM IC-R75 and a Ten-Tec RX-320. You can tune and listen to these two radios, via his personal webpage (www.ralabs.com/webradio), from the LF bands up to 60 MHz.

Bob has been very generous with sharing information about his project which you can access from his webpage if you want to try setting up your own small network-based controller. Thanks to Bob's cooperation, I'm going to be basing my outline on how to get started with a "peer-to-peer" network on his own design. A special thanks to him for his assistance and cooperation by providing thoughts, ideas, and information so generously. He also welcomes your questions and comments via his e-mail address at arnoldr@radiolabs.com. Don't forget to tell him that I sent you.

As with any project you undertake involving radios and computers, your chance of success is directly related to the amount of planning you put into it. So, as always, my advice is to write out what you are going to be doing and use it as a checklist when you actually do the work.

Incidentally, my inspiration for taking this approach comes from having built a number of Heathkit shortwave and ham radio projects back when that wonderful company was still selling them. If you can get your hands a Heathkit manual, note how it sets out a project and follow that example when planning and undertaking your own. You'll definitely have everything at hand when you do, and you'll know exactly where you are in the steps you're undertaking. Then if anything goes wrong you can trace back your steps and find out what happened, rather than trying to find the proverbial needle in a haystack.

Remember to always put safety first. Read the manuals that came with your monitoring radio and personal computer, as well as those of the peripheral products you use with those devices. Particularly read up on the safety advice provided by the manufacturer.

If you're not certain that you can do the project described here, then don't. All I can do is provide you with a *guide* on what to undertake, not a step-by-step instruction. As in all amateur experimental pro-



Bob Arnold, N2JEU, let's you tune and listen to his ICOM IC-R75 receiver over the Internet via his webpage at <http://www.ralabs.com/webradio/>. He developed the Web-based control software himself. The audio server that sends the radio's audio over the Internet to your computer is available free from Real Audio at www.realnetworks.com. As this column shows you, as long as you take your time and plan things out, it's not that difficult to remotely control your compatible monitoring radio over a home network or the Internet. (Photo courtesy ICOM America)

cedures, there are no guarantees of success. However by using common sense, proper safety rules, and good procedures you can increase the chances of success.

Most important, remember that you are doing this to have fun and enjoy your radio monitoring hobby, not to become a professional computer technician or radio operator. That's a whole different level of practice and understanding.

Basic Equipment Requirements

Following Bob's own checklist for setting up a remote receiver and adding some comments of my own, here are some suggestions as to what you will need to begin putting together a successful Internet/LAN remote radio monitor control project.

The Internet Connection

The basic rule of thumb here is to establish a connection between your computer and the Internet that is as fast and as stable as possible. The primary considerations when making decisions on how to do that are 1) budget and 2) experience.

If you have the money, you can lease a dedicated data line, such as a 112-k ISDN connection from your local telephone company. You would be guaranteed excellent download and upload times, even when multiple computers are connected to your receiver, but there is really no need for this unless you are sincerely

dedicated to providing this type of service to the general user of the Internet (and are rich to boot).

For most situations the connection that is the most cost effective with reasonable data transfer rates is either a cable modem or DSL line. If you are planning on being the sole person to connect to your radio from a remote location (such as from work or a motel room while on the road) then this should work fine. Remember, though, that once you start to add more than one remote computer to your networked radio those listening may begin to notice delays in operation and poor audio reproduction. As will be explained later, this is because your "server" computer is like a dealer at a card table: more players at the table mean that there is a greater chance of "dropping a card" (data) while dealing out the deck.

The key point here to remember is that you cannot successfully undertake this project if you have a 56-k (or less) dial-up connection. A telephone modem connection of that type is simply too slow and prone to noise and disconnects to be used effectively, so don't even try.

The Computer

Bob has been testing out his system since the late 1990s and has been using the "current" technology of the time to run his network. So at different times he has used computers with Pentium 166, a Celeron 400 CPU, and an Intel P2-333 system.



One of the most important things to understand about computer-assisted radio monitoring is that it does not require the most up-to-date computer or operating system to be successful. My own station uses a Pentium I CPU and Windows 98, which is more than enough to run the control, DSP, and demodulation software I use. The computer has 128 k RAM, 20-GB storage space, and a basic Soundblaster sound card. This computer is networked to other computers in my home network that I use to remotely control my Yaesu FRG-100 and Ten-Tec RX-320/D. Everything that I write about in my column I have tested on this computer.

The bottom line is that, because the amount of information that must be transferred between the radio and the computer is very small, you don't need a powerful computer, such as the Pentium 3 or 4. This even holds true when it comes to streaming the radio's audio output over the Internet.

A basic configuration you'll need to remotely control and listen to a monitoring radio is a computer that runs the Windows operating system and has a 166-MHz or faster processor and 64 MB of RAM. Data storage should be a 2-GB hard drive at minimum. You'll also need a medium performance video card. Don't forget you'll need at least one serial port to control the radio; you'll need two (total) if you want to add a second radio. A Sound Blaster or compatible sound card is required in order to sample the audio output of your radio so it can be streamed to the remote computer.

The Software

To connect your receiver to the Internet you'll need Microsoft Windows 98 or higher. Please note that, in most cases, Microsoft's Personal Web Server software that comes supplied with most versions of Windows will not work. The

exception is the Internet Information Server (ISS) that is supplied with the NT4 workstation.

You'll also need Web server software that supports standard computer-graphic interface applications. Bob has been using a Web server software package from a company called Xitami (<http://www.xitami.com/>). He has found it satisfactory, but what makes it particularly attractive for amateur use is that it's free!

Please note that Microsoft's Personal Web Server software that comes supplied with most versions of Windows *WILL NOT WORK*, except in the case of Internet Information Server (IIS) when using the NT4 workstation.

You will need special audio streaming software to provide the radio's sound output to the remote computer. That software is available from www.reálnetworks.com. Look for their Real Server BASIC software and Real Producer Basic encoding software. The only problem I found with using Real Server BASIC is that the remote computer needs to have the (free) Real Player software installed in order to hear the audio. That would be fine, except that that particular audio player "takes over" your computer's audio delivery, preventing you from using other audio

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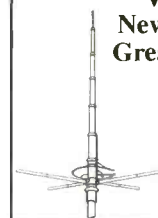
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players, such as the one provided by Microsoft. Real Player also nags you on a regular basis to buy an upgrade.

You may, therefore, want to check out some other audio server/player packages on the Internet. One very good—and free—streaming audio server package, called “Shoutcast,” can be found at <http://www.shoutcast.com/>. It’s notable for being simple to operate, and the website provides excellent documentation.

You will also need the radio control software, which I will describe in more detail in an upcoming column.

The Radio

If you can control a monitoring radio using software located in a separate computer, and you can hook up that radio’s audio output to a sound card on that computer, then you have what you need to undertake this project. However, the software you use to control your radio via a serial cable will not be suitable for network or Internet control. That must be done with a special software program that can send the control codes over a network to a specific computer, then to a specific radio. Bob’s radio control software will do that. (It was first developed for the Ten-Tec RX-320 receiver; he then developed a second version for the ICOM IC-R75 receiver, using the knowledge he gained while working on the RX-320 project. While there are no immediate plans for developing further versions, it would be very easy to do once the manufacturers provide the receiver’s specifications).

In addition to Bob’s own software, in my upcoming columns I’ll also be reviewing other programs that are available through purchase or downloading.

The Most Important Component: Experience

This is probably the most important part of the checklist for you go over. You’ll need to know about Internet connections and full-time operation, running a Web server, DNS (domain name server) issues, creating HTML code, and much more.

If you are an Internet novice, you should understand that this project is going to require some skill and knowledge development. While the material provided in this column and on Bob’s webpage will help you get started, neither of us are in a position to answer specific questions or provide assistance with problems you may encounter in setting up the Internet connection or running Web server software.

As I’ve mentioned before, this is an experimental hobby in which both success and failure are common. The reward, however, for undertaking challenges is knowing you’re part of an exciting pioneering period in computer-assisted radio monitoring.

Next Month

Now that you have a checklist of what software and hardware components you

need to set up a basic network system, next month I’ll show you how to take your system to the next level, where you can set up your own connection to the Internet with a discrete server. I’ll explain how “Client/Server” connections are made between two computers, first showing you how to do that between two computers connected in a home-based LAN. Once you have mastered that, it’s not that difficult to connect just about any computer with a sound card and access to the Internet to a similar computer connected to a compatible monitoring radio.

And A Few Reminders

As always, if you break down the task into simple steps, write out a checklist of tasks to perform, and keep track of where you are by keeping a record, you should be able to set up a usable system. Again, results do vary, and remember that we are still in a pioneering stage of developing this technology, where experimentation and possible failure still happen.

If you wish, e-mail me with any questions to carm_popcomm@hotmail.com. As I mentioned before, I cannot answer general questions on computers, but will be more than happy to help you with any issues raised in the columns. You can also write to me at “Computer-Assisted Radio Monitoring,” PMB 121-1623 Military Rd., Niagara Falls, NY 14304-1745.

I have also placed a list of these columns published over the past two years, along with a summary of the content, on my personal webpage at www.provcomm.net/pages/joe. I’ve also included instructions on how to purchase back issues of *Popular Communications*. Remember that I cannot release previously published material because *Pop’Comm* owns the copyrights.

I’m still interested in receiving pictures of your own computer-assisted monitoring station or stories about how you have built and run it. Don’t worry about your writing, as I’m more than happy to help you by editing it.

Finally, please take time to write a letter to one of our service people in Iraq offering them your thanks and support. Remember that you can send letters of general thanks and support by simply marking the envelope “Any service person—Iraq.” It may take several months to get to someone, but I’m certain it would make the day of whoever receives it. See you again next month! ■

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The Uniden Bearcat BCT-8 Information Scanner

Well, I went and did it! I spent my precious, hard-earned dollars on a new scanner for the truck. My old faithful RadioShack PRO-2026 was getting flaky, and I had needed a replacement for about the last eight months. I had been looking at the BCT-8 ever since I saw an advertisement for it around Christmas time. In the meantime I started using the Yaesu FT-1500M 2-meter transceiver as a VHF Public Service monitor—not the best solution, but a workable one for a limited time.

Some readers of this column will recall that I did a review of the BCT-7 earlier last year. While this was a great scanner for the novice, I indicated in the review that it would be nice to have a numeric keypad for direct programming of frequencies, a serial (DB-9) I/O port on the back for computer control/programming, at least 200 or more user-programmable memories, along with a few other items on my “wish list.” Now, I am not naive enough to think that Uniden actually listened to me, but I was pleasantly surprised when I read the specs on the new BCT-8 and found that it had virtually everything I had wanted added to the BCT-7 to make a nice mobile package for the advanced scannist. Only one thing was lacking from my wish list for the BCT-8, and we’ll cover this in a moment. Obviously, when my review appeared in *Popular Communications* the BCT-7 was already in queue for retirement from the active product line at Uniden, and the BCT-8 was its replacement. At any rate, nice job, Uniden!



Uniden's BCT-8 scanner is a state-of-the-art receiver that also receives analog trunktracking communications.

A Bit Larger And Heavier

Although the BCT-8 is about twice the physical size and a lot heavier than its predecessor, the added bulk and weight are not objectionable. While I cannot tuck the BCT-8 into a small crevice in the console, it does fit nicely on the outside of the glove box, where I can see the display and quickly get to the controls. So far no one has objected to the box on the passenger side of the truck, even though it hangs down about three inches below the level of the dashboard. There is still plenty of room for a passenger's legs and feet.

I am a bit disappointed in the pre-packaged software from Uniden for the BCT-8. For one thing, it won't load and run properly on my totally unreliable Pentium II, 233-MHz Dell

Inspiration 3000. I e-mailed the folks at Black Bag Software (www.blackbagsoftware.com) to see if they intended to write some code for the BCT-8. As of this writing, they have no plans to offer any software beyond what they currently provide to support various Uniden, RadioShack, and AOR scanners. Pity, I really like the Black Bag Software for my BCT-895 XLT. It provides basic scanner control, service search functions, logging options, spectrum display, frequency logger, and, of course, the ability to load and store thousands of discrete frequencies that can be up- and down-loaded to the scanner. Alas, maybe they will be prompted to write some code in the future. Until then, I'll get by with ScanStar and the Uniden software.

Missing The Military Air Band!

While I really like the BCT-8, there is one thing that is sorely lacking in this scanner and that is the military air band: 225 to 400 MHz. I have heard rumors that there might be a software toggle that can be accessed to enable this band of frequencies, but so far I have been unable to confirm this. Man, if the BCT-8 would receive MILAIR that would be the ultimate for under \$200 in a mobile scanner.

I purchased my BCT-8 from Fred Osterman at Universal Radio in Reynoldsburg, Ohio (<http://www.universal-radio.com>). A couple of months ago, I reviewed the ICOM R-75 receiver, which I also purchased from Universal. I'll reiterate what I said then: I have known Fred for over 20 years and he has never let me down on a radio deal. Universal Radio employs an outstanding bunch of people fully trained to answer your technical questions and give you a good deal on a radio or listening accessory.

In addition to the BCT-8, I picked up a Niljon (MaxRad) tri-band scanning antenna for the truck. It looks weird, but performance is excellent. It's a bit pricey, but when performance counts, I'd rather spend the money and get a quality product with a proven track record.

The BCT-8's Performance

As far as performance, the BCT-8 works very well. As a matter of fact, it is far less susceptible to the local paging transmitter intermod than either the BC-87/95XLT or BCT-7 Uniden scanners that I also have. Sensitivity is excellent and, with a scan speed of near 100 channels per second, this little beastie can do a lot of scanning in a short amount of time. The ergonomics of the front panel controls are excellent. The bottom-mounted speaker leaves a little bit to be desired, but since my mounting scheme has the BCT-8 sitting on a 45-degree slant on the front of the glove box, the speaker placement is not all that objectionable. I plan on adding an external speaker to this scanner as soon as I can find a place to mount one!

The 250 user-programmable channels (private bank) are accessed in five banks of 50 channels via the front panel keypad. You can enter the frequencies via the front panel keypad

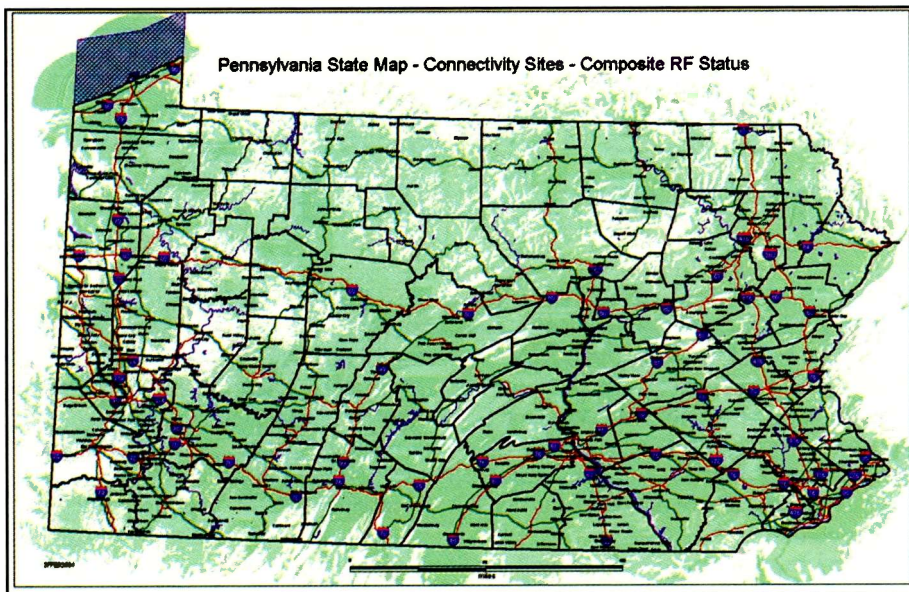
or by using the bundled software from Uniden. By making judicious use of bank switching for the various services in your area, 250 channels offers a lot of flexibility in a mobile scanner. The BCT-8, like its older brother, the BCT-7, has thousands of discrete frequencies preprogrammed into firmware and can offer highway patrol, fire, or police scanning at the touch of a button. Select the state via the programming buttons and all the frequencies used by your state police or highway patrol are available for scanning without your doing any programming. The BCT-8 also features the "mobile extender" sensing, commonly used in traffic/speed enforcement by law enforcement agencies. This alerting feature gives you a "heads up" warning when you're within about three miles of a trooper using a mobile extender (in-car repeater), which allows the trooper to use his handheld radio to talk directly to his controlling agency.

Includes Analog Trunktracking!

Unlike the earlier BCT-7, the BCT-8 also offers analog trunk tracking! Yes, Virginia, there are a lot of analog trunked systems in operation. While the new wave is digital trunking, the older analog systems are still prevalent and the BCT-8 will scan many of them, including Motorola Type I, II, & II Hybrid, EDACS, and LTR. The scanner also offers "service search" features to scan local police, county sheriffs, fire and EMS, news media, NOAA weather radio, CB, VHF aircraft, railroads, marine band, and DoT (transportation) frequencies.

The manual is well written and easy to follow. The detailed description of how to set up the BCT-8 for various search and scanning modes is very clear cut and concise. The section on trunking is especially simple to follow, so you can set up your trunk tracking operations quite easily. The BCT-8 offers simultaneous tracking of multiple trunked systems and/or conventional two-way radio systems! Nice! As I mentioned earlier, about my only complaint is the pre-packaged software from Uniden. I can't get it to work on my Pentium II laptop and that is a bit annoying.

So how do I like my BCT-8? I love it! If someone knows how to open up the military air-band (225 to 400 MHz) please e-mail me (richard.arland@verizon.net) and enlighten me. If it works, I'll be sure to include it into this column. I'd also like



Here's an image taken directly from the Governor's Office of Administration, Commonwealth of Pennsylvania, website. It shows a graphical view of statewide radio system composite coverage.

to hear your scanning experiences with the BCT-8, so send your letters and photos, which we'll include in the "Homeland Security" column!

Pennsylvania's 800-MHz Statewide Trunked System Under Scrutiny

Let me preface this portion of the column by saying that, from my perspective as a journalist, I am not out to cast disparaging remarks at the Deputy Secretary for Information Technology, Arthur Stephens, or at those on his staff who are working the OpenSky radio system project (see below). With something of the magnitude of this statewide digital trunked system, some issues are bound to slip through the cracks; after all, we're only human.

However, with the developments outlined in the letters I've read from two members of the Pennsylvania State Legislature and the Auditor General's office, I have come to realize that the proposed statewide 800-MHz digital trunked radio system known as OpenSky is in trouble, and the taxpayers of the state are being placed right in the middle of what I consider a debacle. This project needs a dose of sunlight in order to bring to light the problems associated with this system and the huge amounts of money involved in trying to get the system to work as originally planned.

I strongly believe in employing advanced technology to upgrade and improve the current aging radio systems

now in use by the Pennsylvania State Police and other state agencies. Having said that, I also believe that, after researching the information presented in this column, the state must do more homework prior to awarding contracts for a huge, extremely complex digital 800-MHz radio system.

In essence, the State of Pennsylvania is a guinea pig for the OpenSky system. To date there is not one single operational statewide public safety service system currently using OpenSky technology in the United States. To be sure, there are several countywide OpenSky systems in operation, but nothing of the magnitude and complexity of what is being proposed to cover the entire State of Pennsylvania.

Were The Right Questions Asked?

While the following information might be seen by some as extremely inflammatory, it is all factual, gleaned from publicly available information files and websites, and is presented to highlight the pitfalls in dealing with advanced technology issues, where the "right questions" were either not asked or not addressed by the IT folks in their conversations with the vendor.

I have talked to RF engineers who have intimate knowledge of the OpenSky technology. They all agree that, when properly configured, OpenSky works great. There are limitations when the system is employed over diverse topography, such

as encountered in Pennsylvania. On top of all this, there are the well-documented interference issues from other 800-MHz users. Additionally, there are the proprietary issues regarding the equipment used in OpenSky. The costs associated with this proprietary equipment will be a major financial stumbling block for smaller townships and boroughs throughout the state when they try to procure OpenSky radios and interfacing equipment to make their current VHF/UHF radio systems work with the new statewide digital trunked system. Finally, there are the lack-of-compatibility problems (non-APCO Plan 25 compliant architecture) with OpenSky technology when trying to make the system play with existing trunked radio systems during large-scale emergencies.

OpenSky—One Journalist's Perspective

Last month I closed the column with news that Robert P. Casey, Jr., the Pennsylvania State Auditor General, was asked to carry out a performance audit on the M/A Com OpenSky trunked radio system because of huge cost overruns and a three-year delay in implementation. Following are some of the details.

A letter sent on April 12, 2004, by two Pennsylvania State Legislators, members of the Pennsylvania House Finance Committee and House Judiciary Committee, Rep. Pat Browne and Rep. Kelly Lewis, to Casey requested that a performance audit be conducted on the new 800-MHz statewide trunked radio system. It seems that there have been enormous cost over runs, to the tune of \$220 million on this system. Additionally, the OpenSky system is bogged down in a technical morass and is still not on line three years after the project manager said it would be operational.

In 1996, under the Ridge administration, the Commonwealth budgeted \$179 million to fund the statewide radio system project. In the spring of 1999, the contracts for this system were awarded and the 800-MHz trunked radio system was scheduled to be installed, tested, and operational by April 2001. Cost overruns and delays continue to plague the project and both State Legislators feel that an audit and review is reasonable and warranted. Recent testimony at the House Appropriations committee indicated that the total project costs now exceed \$400 million dollars. That is a lot of money!

Both legislators have read and heard from several public safety leaders that the

proposed statewide 800-MHz trunked radio system won't work as planned and will continue to experience cost overruns, delays, and coverage shortfalls. Additionally, Rep. Lewis said that several experts questioned the use of 800-MHz technology because of growing interference problems or "blackouts."

There is some speculation that the system will never work as originally envisioned, irrespective of the amount of taxpayer dollars poured into the program. I have personally talked to Pennsylvania State Troopers and other APCO professionals who are expressing grave concern about the reliability of this system. Additionally, the primary supplier of the OpenSky repeater towers, Rohn Industries Inc., filed for Chapter 11 bankruptcy in September of 2003.

The first letter from Reps. Lewis and Browne was followed by another letter to Auditor General Casey on May 4, 2004, urging him to take action on a performance audit and review of the OpenSky system. In a letter dated May 23, 2004, the Casey replied to the two representatives, saying that he is holding a performance audit in abeyance until receipt of the results of a technical review, conducted by iXP Corporation, an independent consulting firm, to see what problems exist. This is not to say that a performance audit will not be conducted after this independent review of the system is completed. Additionally, Casey sent a three-page letter to Deputy Secretary for Information Technology, Arthur Stephens, in Harrisburg requesting some answers to questions regarding the status of Rohn Industries and the impact that its bankruptcy will have on the project, along with other technical questions intended to clarify the current status of the project.

New York Wants It, Too

As mentioned last month, the state of New York has contracted with M/A Com to install an OpenSky system for all of New York State, to the tune of about one *BILLION* dollars! If the State of Pennsylvania is having such extreme difficulties getting OpenSky to work, why would New York want to enter into contractual agreements with M/A Com to provide a similar system for their state?

OpenSky: What Is It, Really?

On the surface, OpenSky seems like a miracle trunked radio system that does everything for everybody. Apparently the

sales staff at M/A Com presented the OpenSky system to the State of Pennsylvania as the do-all, end-all, beyond-the-state-of-the-art, digital trunked radio system of the 21st Century. As with conventional trunked systems, OpenSky does away with individual frequency allocations for each department/user and replaces them with fleet mapping and talk groups. There are only a handful of discrete 800-MHz RF channels. Everything else is handled in software, including fleet mapping, talk groups, and the individual user radio assignments. Basically, OpenSky is very similar to most of the other digital trunked radio systems currently on-line, it's just bigger—a lot bigger—and utilizes IP-based technology and Voice Over Internet Protocol (VOIP) packet switching.

One major downside to OpenSky is that it is NOT APCO Project-25-compatible. After 9/11, the handwriting is on the wall: you need communications systems that can talk between emergency response units. This is called "interoperability." That's where the APCO Plan-25 comes in. P-25 is a universal set of protocols and system architectures that provides this interoperability between emergency responders and disaster relief

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agencies throughout the country. One P-25-compliant system in New York, in theory, can be utilized in San Francisco and everybody can communicate just fine.

While the sales folks at M/A Com say that OpenSky will work with P-25-compliant systems at the flip of a switch, this is **ONLY** true if the two systems share common RF channelization, **OR** if special proprietary interface units are purchased from M/A Com. Additionally, M/A Com advertises that the OpenSky system can become compatible with conventional FM radio systems using CTCSS tone encoding/decoding. True, but once again, **ONLY** if RF commonal-

ity exists between the two systems, or if proprietary equipment is purchased to perform this interfacing.

Then there is the topography issue; 800-MHz works very well in flat areas, but not in mountainous areas like those found in Eastern Pennsylvania and New York State. Topography plays an important part in total system cost and how much coverage can be expected from the various repeater sites on the system. The more areas that are in "shadow" (not in direct line of sight of the repeater/cell site), the more infrastructure (repeaters/cell towers) you have to include in order to make the system perform to specifica-

tion. This directly impacts the "bottom line," also known as taxpayer dollars.

The specifications for OpenSky in Pennsylvania called for 95-percent mobile radio coverage, per county, across the entire state, or some 45,000 miles. This coverage is supposed to be realized by erecting a couple hundred cellular tower look-alike sites and approximately 700 pole-mounted repeater sites. It is unclear to me whether the coverage map I have seen on the website (www.radio.state.pa.us/radioproject/cwp/browse.asp?A=589) is an actual representation of measured coverage using empirical data taken in the field, or if the map is a computer-generated model based upon theoretical coverage, sans any hard data from the field. The pole-mounted VOIP repeaters are tied into the system network using TELCO T-1 telephone lines. The obvious question is: With a major portion of the coverage area dependent upon these pole-mounted repeaters, what happens when the phone lines go out?

All the radio and interfacing equipment is proprietary and can only be purchased from M/A Com. In essence, this is a monopoly. What happens 10 years down the road when the costs of mobile and portable radios double or triple in price? The taxpayers of Pennsylvania get to foot the bill—again.

What will eventually happen to Pennsylvania's OpenSky system? Oh, believe me, it will be made to work, of that I am certain. The taxpayers of Pennsylvania will see to that. My only hope is that the interoperability, interference, and coverage issues don't leave our State Troopers and Emergency Service responders without a reliable communications system. If you want to take a look at the system online, go to <http://www.radio.state.pa.us/radioproject/site/default.asp>.

Get SET This Fall

Stay tuned for more developments as the facts become available. Your thoughts on this issue and radio communications concerns in your state or province are always appreciated. Send them to me at richard.arland@verizon.net.

That's it for this month, gang. Don't forget, there will be an annual Simulated Emergency Test (SET) this fall, so please take this opportunity to get out with a local ARES/RACES/REACT or other emergency communications group and get some training. Remember: Preparedness is **NOT** optional! ■

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Pop'Comm Survey Results

By Harold Ort, N2RLL, Editor

It's been a while since we reported results of our survey questions to you, but please know that we sincerely appreciate you taking the time to complete the cards, and send them in each month. While we sometimes fall a little behind reporting back to you, we're still working to make *Pop'Comm* better and fine-tuning it to your needs based on what you're telling us!

The winner of this month's free subscription is Forest Petrus, WOFDP of Ames, Iowa. Forest will receive a free one-year gift subscription to *Pop'Comm* for being our randomly-drawn winner. Have you sent in your survey card?

Here's what we asked you, and here are your responses. Again, thank you!

Over the past five years most of the Product Spotlights in Pop'Comm have been:

Informative and useful	55%
Interesting reading, but not very helpful	5%
Very useful and informative, and helped me make a buying decision	35%
Balanced and honest	15%

The three main reasons I read Pop'Comm are to:

Be entertained with oldtime radio information	10%
Get frequencies	14%

Learn about utility radio stations	9%
Be informed and entertained	25%
Learn about new communications tools and trends.	30%
Learn how to restore antique/classic radios.	6%
Learn how to make the most of my computer and radio hookup	6%

I feel I'm more "radio ready" in the event of an emergency:

Yes	57%
No	4%
Not sure	12%

I have an emergency "Jump Kit" ready to go in the event of an emergency:

Yes	45%
No	9%
I have a few batteries and radios that are more or less charged and ready, but nothing packed in a box	35%
Having an emergency "Jump Kit" doesn't interest me	8%

I'm a licensed radio amateur and I read Pop'Comm:

Yes	60%
No	0%
Sometimes, when I see an article that interests me	30%

September Survey Questions

My mobile antenna is a:

Full-length, bumper-mount CB whip	1
Full-length, fender-mount CB whip	2
Roof-mounted (hole drilled) mount for scanning	3
Roof-mounted magnetic-mount for scanning and ham use	4
Glass-mounted for scanning and ham use	5
Trunk or hatch-mount	6
"Screwdriver" ham-only antenna	7
Other ham-only antenna	8
Glass-mounted - ham use only	9
Luggage rack or mirror mounted	10

I use a mobile scanner:

Yes	11
No	12
Local laws don't allow me to use a mobile scanner	13
I would, but mounting it in my vehicle is a problem	14
I would, but powering it in my vehicle is a problem	15

I can't - there's no room for a scanner because my CB or ham transceiver is already mounted in the vehicle	16
----------------------------------------------------------------------------------------------------------------------	----

The most important part of my monitoring hobby is:

Shortwave listening	17
AM/FM	18
Scanning	19
TV DXing	20
Shortwave DXing	21
I don't do much monitoring, I mostly use CB	22
I'm more active as a ham and don't do much monitoring	23

There's a local radio club near me:

Yes	24
No	25
Not sure	26
It doesn't interest me	27
I would like to start a club	28

Can “Commercial-Grade” Radios Be Used For GMRS? Plus CB Radio Activity Deep In The Heart Of Texas!

There has been quite a bit of confusion in the General Mobile Radio Service (GMRS) community concerning equipment authorized for this service. In the “virtual” world of the Internet and in the very real world as well, certain movers and shakers of the Personal Radio Services have quite naturally surfaced over the years. Their collective voices have rightly garnered much respect and trust among GMRS devotees. If you haven’t done so already, simply do a search for “GMRS” in any Internet chat group website, or search in user groups and for e-mail reflectors and bulletin boards. Join in the discussions and you will soon discover who these folks are.

A number of these people represent, or are associated with, trusted radio communications organizations that are national in scope. It follows that these respected individuals have become highly valued for their various areas of expertise, particularly in technical and regulatory matters. Their advice proves invaluable to quite a few GMRS users, especially those new to this service. Still, one question persists, even among a few of these experts: Can any or all commercial-grade two-way transceivers be used in GMRS?

First, we should be well aware that Amateur Radio Service equipment cannot legally be modified for regular GMRS use. There is no dispute over this point. The reason for this is primarily that amateur radio transceivers need no FCC certification, so no such certification exists. Even if ham transceivers *were* required to be certificated, that certification would apply only for amateur radio use under Part 97 FCC rules. GMRS radios are required to be certificated under FCC GMRS rules, Part 95, Subpart A.

Additionally, ham radio transceivers are, by and large, not eligible for Part 95 certification. This is mainly due to the operational frequency agility found in most amateur transceivers, as well as certain other accessible operator controls. GMRS radio



In this second photo, the panel is set back into the dashboard. By all appearances, this dash section seems to have never been disturbed. Furthermore, to the unknowing it looks as if anyone disturbing this panel could be popped in the face by an airbag! (Photo courtesy of KD5PCK)

equipment and land-mobile radios under FCC rules Part 90 (police, fire, EMS, as well as livery and delivery dispatch radio) both require having frequency control limited to only the channel or channels authorized by the station license in question.

Now, a number of prominent people in the GMRS community have been advising newer GMRS operators that *any* “commercial-grade” land mobile transceiver (as certificated for Part 90 operation) is okay to operate for GMRS, provided that any such radio meets the technical specifications in the GMRS rules. Not so, however. As an RF engineer and an experienced FCC regulatory researcher, I am well aware of the significance of FCC equipment certification. And I likewise understand that the Commission leaves no “wiggle room” in its certification rules and processes. Simply, a transmitter being put into service in the GMRS *must* be certificated for Part 95 use, or more specifically, Part 95 Subpart A (often represented as “Part 95A”).

We Asked The FCC

As a regulatory researcher I may thoroughly know my way in and around certain FCC rules parts, but since I am not a lawyer I must seek competent opinion in elaborating on the rules for publication purposes. So, I went directly to Bill Cross, W3TN, of the FCC Wireless Telecommunications Bureau. Among other matters, Cross is tasked with rules interpretation for radio services within the purview of the Public Safety and Private Wireless Division. I asked him this very basic question: Do radio transmitters for use in the GMRS need to be certificated specifically for service in the GMRS?

I had always maintained that the answer to this is found in the first sentence of FCC rules §95.129. That rules states, “Every station in a GMRS system must use transmitters the FCC has certificated for use in the GMRS...” (63 FR 68975, Dec. 14,



Scott, KD5PCK, shows us his mobile transceiver installation, located behind a dummy airbag panel. (Photo courtesy of KD5PCK)

1998). The answer to our certification question is perfectly obvious to me!

Regarding this rule citation, Cross succinctly replied, "The rule... seems pretty clear to me: Every station in a GMRS system must use transmitters the FCC has certificated for use in the GMRS." In his detailed observation, Cross added,

To get to the conclusion that any transmitter certificated for Part 90, which otherwise meets all the technical specifications for GMRS, may be used in the GMRS, would require that §95.129 allows use of equipment that is not certificated for use in GMRS, which is *contrary to the plain wording of the rule*, or that there is some other superseding rule that allows a user to determine if certain technical standards are met by a particular piece of equipment—kind of a self-evaluation rule. This "rule" doesn't exist as far as I know. Such a rule may have existed in the past when GMRS radios were converted land mobile radios, but the rule doesn't exist now. What someone may be thinking of is Section 95.133(b) in old... (circa 1988) rules—it allowed modification by a certified technician of radios type-accepted in one service to another service in accordance with the manufacturer's instruction.

In noting that things have been this way for roughly 15 years, Cross says, "Things were a bit different prior to that time." He prefaced with another observation: "Other than repeater station equipment, I doubt there is much in the way of GMRS equipment that dates from before this rule and that is still in use."

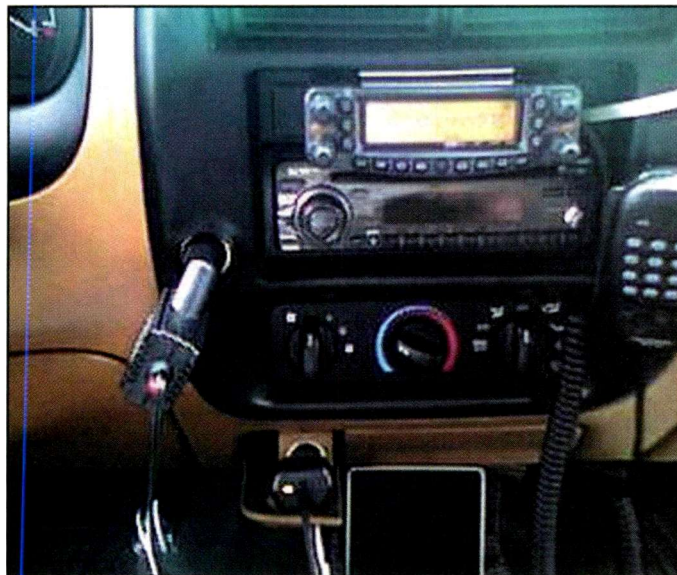
And there we have it, the official word. Make certain that any new radio equipment that you plan to use in your GMRS system is FCC certificated for *Part 95 GMRS operation*. You should know that many UHF land mobile transceivers that are certificated for Part 90 operation are *also* certificated for Part 95. But never presume that just because a piece of two-way radio communications equipment is "commercial-grade" that it is okay for GMRS, just because it may be certificated for Part 90 land-mobile use; for GMRS, it must be certificated for Part 95 use.

Where To Buy GMRS Mobile Radios?

As we noted last year in this column, finding suitable *mobile* radios for GMRS is often a time-consuming and frustrating task. For an excellent GMRS mobile at a price that won't require a capital expenditure, all you really need is simple: a *GOOD* radio retailer. Here at "On-The-Go Radio" we have encountered exactly that time and again over the last year or two, in dealing with R.K. Leef Company of Mission Viejo, California.

Proprietor Bob Leef, KB6DON, understands the unique needs of GMRS licensees. He is both a licensed radio amateur and a licensed GMRS operator. Bob does business nationwide through his website at www.rkleef.com, or by e-mail at kb6don@earthlink.net. Leef keeps products in stock and ready for immediate or next business day shipment. Most importantly, I have seen that Bob is an honest businessman who delivers what he promises. Pricing is good and terms are clearly communicated. Orders are acknowledged and processed promptly. It pays to shop at a business you can trust, and you can trust R.K. Leef.

Go to the Leef website and be sure to check out Bob's latest mobile radio offering for GMRS, the Legacy ML-3245 by Maxon. Briefly, this radio boasts 32 channels at either 2 or 45 watts; all seven NOAA weather channels with "All Hazards" alerting (1050-Hz tone); eight-character back-lighted alphanumeric display; scan modes with priority scan; CTCSS and DCS signaling; squelch control; public address function; and "roger" (courtesy) beep, among many other features. This transceiver measures approximately 1 3/4 x 6 5/16 x 6 inches (HWD).



Scott's third photo shows the remote head mounted above the AM/FM stereo. The wire coming from the right side of the remote head is the separation cable for that unit and leads to the hidden transceiver box through a small vent hole in the dash. (Photo courtesy of KD5PCK)

R.K. Leef's advertised price for the ML-3245 at press time is \$289, plus shipping. Add tax for California residents only. Leef pre-programs all 15 GMRS channels into these units. You can have additional channel configurations programmed into channel slots 16 through 32 for \$1 per channel. So, go to the R.K. Leef website and order your Maxon Legacy ML-3245 GMRS mobile transceiver today!

Remember, wherever your travels may take you, even if you're just wandering around town, take along your Personal Radio Service gear to stay in touch. And don't hesitate to show the world what *real* push-to-talk two-way radio is all about!

CB Radio Report From Texas

This month we have a great CB radio activity report! This report has been provided by Bow, 2TX24Ø, of Houston.

Hello from Houston, Texas. My name is Bow and I really enjoy your "On-The-Go Radio" column every month in *Pop'Comm*. I saw your request for reports on 11-meter activity in our area, so I thought I'd give you a rundown for Houston. Eleven meters around here is pretty decent. Of course we have a large amount of [comms] on Channel 19, due to the large amount of truck traffic, but even better is our local activity. There are also local operations on Channels 21 and 17 in the AM mode.

Channel 39 (27.395 MHz) LSB has an outstanding group of locals on it almost every night. There are check-ins to our local "ragchew" from all over the area. It is a great group of individuals that make SSB operations on 11 meters fun. On some good nights, we have gotten check-ins from as far as 75 to 100 miles away!

Your mention of "freebanding" was outstanding. The real free-banders are a very professional type of DXers who really do follow a protocol not unlike Amateur Radio. Unfortunately, as with other parts of the 11-meter band, there are a number of jammers and troublemakers who seem to enjoy just causing problems. I guess that is the only problem with 11 meters; anyone can get the radios.

I am also the Vice "Pubah" and co-founder of the Texas DX Association (www.txdx.org), which is an 11-meter Club that started in March of 2002 and is currently 150 worldwide members strong and growing. We promote radio professionalism good clean DXing fun. I



You may remember photos by Paul, K6PAW/KHL3186, in this past June's "On-The-Go Radio" column showing how RadioShack 19-1210 MURS radios are put to use on ATVs. Paul found that mounting these radios on the front fenders works really well. This shot shows club members' ATVs lined up at their last big ride event. Although difficult to see, every one of this fleet of ATVs is equipped with a 19-1210 MURS mobile transceiver! (Photo courtesy of K6PAW)

am also an active member at www.cbtricks.com, which is an outstanding source of information for 11-meter op's and other services like FRS. I would say it is about time that the FCC gets off its backside and removes the 155-mile ban on 11-meter CB communications! As we say, "DX happens."

Thanks for this report, Bow! And for those of you who may happen to be traveling through the greater Houston, Texas, area any time in the near future, be sure to fire up that mobile CB rig and check out the local activity on Channels 21 and 17 in AM mode, and Channel 39 in LSB mode. It looks like 11-meter CB radio is being put to good use in Bow's part of the country, for sure.

One Man's Extra-Stealthy Mobile Radio Installation

Everyone loves reading tips on various types of radio installations, particularly mobile installs. And everybody loves to see the actual result of a first-rate installation project. This month, we have an illustrated report by Scott, KD5PCK, on his hidden-transceiver mobile configuration. This project started out as a creative way to fit an amateur transceiver into the space-limited cab of a small truck. What Scott wound up with was not only a space-saving installation, but one in which the transceiver box is well hidden from prying eyes:

I have some pictures of my unique mobile installation that I would like to share. The installation is in a 1996 Ford Ranger. The stick shift takes up valuable space that would normally be used to mount radios. So, what did I do when it came to mounting my Yaesu FT-

8800R? I tore open the dashboard. It's not as bad as it sounds.

My truck does not have a passenger-side airbag. Good news for me but not for my passengers! Using this extra space behind the dash, I was able to mount the FT-7800R.

You can see what the space looks like with the panel removed and the radio mounted inside the dash. The second picture shows what the same area looks like with the panel replaced. This not only makes for a neat installation but also hides the radio from any would-be thieves.

The third picture shows the remote head mounted above the AM/FM stereo. It just so happens that it fit perfectly. The wire coming from the right side of the remote head is a homebrew separation cable for the unit that leads to the main unit by going through a small vent hole in the dash. You can also see the extension speaker near the bottom of the picture, which is loud enough to overcome any road noise.

Mounting the radio was not as hard as mounting the dual-band antenna to the roof of the truck cab. Although it's a 1996 model, my Ford Ranger is still in excellent appearance. It took a lot to finally commit to drilling a hole in the roof for the antenna. I'm told by others that this is what makes you a real ham.

Indeed, Scott, drilling an antenna hole in your car roof does make you a "real" mobile ham! That's something about which I have never been shy. You've just got to size up the job, then grab hold and go for it. You simply need to make each move slowly and deliberately.

It looks as if Scott will have room in that nonfunctional airbag cavity to mount at least one more radio, in case he ever wants to do so. In any event, Scott has really done his homework, and he has a good-looking and reasonably secure installation to show for it.

Thanks for submitting your report to the "On-The-Go" column, Scott!

Your Correspondence Is Appreciated!

I wish to apologize to the many of you who have written to me over the past year or so. As I have previously stated in this column, I had reached a point where I simply could not respond to all of the letters and e-mails that came. Although I was only able to respond to a fraction of my correspondence, I want to again state that I do personally read each and every one of these communications. I thank you all for your kindness and consideration.

And Finally...

This is my last "On-The-Go Radio" column. I will be relinquishing reporting on the Personal Radio Services and another talented writer will fill the void here. I had become a "regular" in *Pop'Comm* over five years ago when I started reporting on legislative and regulatory news in the newly formatted "Washington Beat" column. I later moved on to producing feature articles in *Pop'Comm*, until I picked up this column, formerly "CB Scene." Shortly thereafter, I created our "Homeland Security" column. Meanwhile, I had taken an early retirement from my full-time RF engineering career due to health considerations. Now I have decided to complete my retirement by changing my position with *Pop'Comm* from "writer" to "reader."

I thank all of my dedicated readers for their enthusiastic support of my columns and articles here in *Pop'Comm*. I'm only leaving my journalism behind—not *Pop'Comm* itself, and certainly not the radio hobby. Fact is, I hope to be even more active on the air. And who knows, I may at some point in the future produce an occasional article for *Pop'Comm*.

In any case, listen for me on 20 meters, usually around 14.265 MHz USB, 73, and I'll catch you on the air! ■

Editor's Note: There's no question that all of our writers are great assets to Pop'Comm and our readers, but Alan's value to our magazine and radio hobby go well beyond what you see on these pages every month. Besides his broad knowledge of virtually everything radio and willingness to take on new projects and assignments, Alan has always been there to help me and other members of our staff, both professionally and personally. Our sincere best wishes to Alan and his wife, Sylvia!

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

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

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

Eavesdrop on the World

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

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

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

Monitor Morse code from hams, military, commercial, aeronautical, diplomatic, maritime

Super Active Antenna

"World Radio TV Handbook" says MFJ-1024 is a "first-rate easy-to-operate active antenna . . . quiet . . . excellent dynamic range . . . good gain . . . low noise . . . broad frequency coverage."

Mount it outdoors away from electrical noise for maximum signal, minimum noise. Covers 50 KHz-30 MHz.

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

Switch two receivers and auxiliary or active antenna. MFJ-1024 6x3x5 inches. Remote has 54 inch whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, \$14.95.

Indoor Active Antenna

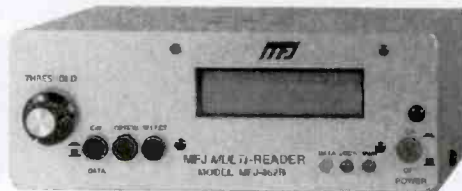
Rival outside long wires with this *tuned* indoor active antenna. "World Radio TV Handbook" says MFJ-1020B is a "fine value . . . fair price . . . best offering to date . . . performs very well indeed."

Tuned circuitry minimizes intermod, improves selectivity, reduces noise outside tuned band. Use as a preselector with external antenna. Covers 0.3-30 MHz. Tune, Band, Gain, On/Off/Bypass Controls. Detachable telescoping whip. 5x2x6 in. Use 9 volt battery, 9-18 VDC or 110 VAC with MFJ-1312, \$14.95.

Compact Active Antenna

Plug this compact MFJ all band active antenna into your receiver and you'll hear strong, clear signals from all over the world, 300 KHz-200 MHz including low, medium, shortwave and VHF bands.

Detachable 20 inch telescoping antenna. 9 volt battery or 110 VAC MFJ-1312B, \$14.95. 3/4x1/4x4 in.



-- all over the world --
Australia, Russia, Japan, etc. MFJ-462B
Printer Monitors
24 Hours a Day
\$179⁹⁵

MFJ's exclusive TelePrinterPort™ lets you monitor any station 24 hours a day by printing transmissions on an Epson compatible printer. Printer cable, MFJ-5412, \$9.95.

MFJ MessageSaver™
You can save several pages of text in an 8K of memory for re-reading or later review.

High Performance Modem

MFJ's high performance PhaseLockLoop™ modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference --

Eliminate power line noise!



MFJ-1026
\$179⁹⁵

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

MFJ Antenna Matcher



MFJ-959B
\$99⁹⁵
Matches your antenna to your receiver so you get maximum signal and minimum loss.

Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Select 2 antennas and 2 receivers. 1.6-30 MHz. 9x2x6 in. Use 9-18 VDC or 110 VAC with MFJ-1312, \$14.95.

Dual Tunable Audio Filter



MFJ-752C
\$99⁹⁵
Two separately tunable filters let you peak desired signals and notch out interference at the same time. You can peak, notch, low or high pass signals to eliminate heterodynes and interference. Plugs between radio and speaker or phones. 10x2x6 in.

High-Gain Preselector



MFJ-1045C
\$99⁹⁵
High-gain, high-Q receiver preselector covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Push buttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18 VDC or 110 VAC with MFJ-1312, \$14.95.

CW, RTTY, ASCII Interface



MFJ-1214PC
\$149⁹⁵

Use your computer and radio to receive and display brilliant full color FAX news photos and incredible WeFAX weather maps. Also RTTY, ASCII and Morse code. Frequency manager lists over 900 FAX stations. Auto picture saver.

Includes interface, easy-to-use menu driven software, cables, power supply, manual and JumpStart™ guide. Requires 286 or better computer with VGA monitor.

High-Q Passive Preselector



MFJ-956
\$49⁹⁵
High-Q passive LC preselector boosts your favorite stations while rejecting images, intermod and phantom signals. 1.5-30 MHz. Preselector bypass and receiver grounded positions. Tiny 2x3x4 inches.

Super Passive Preselector



MFJ-1046
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New! Improves any receiver! Suppresses strong out-of-band signals that cause intermod, blocking, cross modulation and phantom signals. Unique Hi-Q series tuned circuit adds super sharp front-end selectivity with excellent stopband attenuation and very low passband loss. Air variable capacitor with vernier. 1.6-33 MHz.

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How to build and put up inexpensive, fully tested wire antennas using readily available parts that'll bring signals in like you've never heard before. Antennas from 100 KHz to 1000 MHz.

greatly improves copy on CW and other modes.

Easy to use, tune and read

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

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

It's easy to read -- the 2 line 16 character LCD display with contrast adjustment is mounted on a brushed aluminum front panel for easy reading.

Copies most standard shifts and speeds. Has MFJ AutoTrak™ Morse code speed tracking.

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, \$14.95. 5/4Wx2/2Hx5/4D inches.

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MFJ Antenna Switches



MFJ-1704
\$64⁹⁵

MFJ-1702C
\$24⁹⁵

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

World Band Radio Kit

Build this regenerative shortwave receiver kit and listen to signals from all over the world with just a 10 foot wire antenna. Has RF stage, vernier reduction drive, smooth regeneration, five bands.

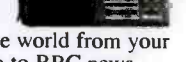


MFJ-8100K
\$69⁹⁵ kit

MFJ-8100W
\$89⁹⁵ wired

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Your Monthly International Radio Map

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.

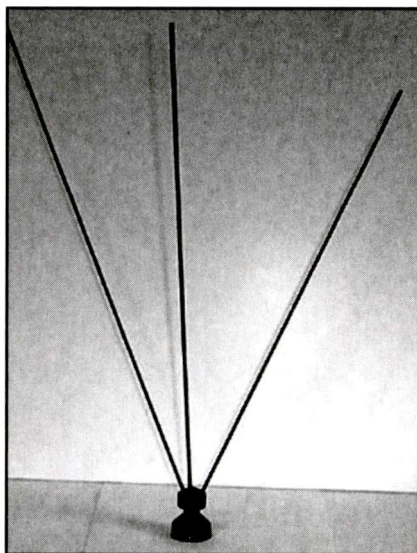
UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
0000	6190	Deutschlandfunk, Germany	GG	0300	7250	Trans World Radio, Swaziland	unid
0000	11655	RDP Int., Portugal	PP	0330	9460	Voice of Turkey	TT
0000	4960	Radio Federacion, Ecuador	SS	0330	6030	CFVP, Calgary, Canada	
0000	9575	Radio Medi-Un, Morocco	FF/AA	0330	4985	Radio Brazil Central, Brazil	PP
0030	11690	Radio Vilnius, Lithuania		0330	5500	Voice of Peace & Democracy in Eritrea	(cland) vern
0030	9665	Voice of Russia, via Moldova	SS	0400	7265	Sudwestrundfunk, Germany	GG
0030	9605	Vatican Radio	PP	0400	9775	VOA Relay, Botswana	
0030	9700	Radio Bulgaria	FF	0400	9875	Adventist World Radio via Austria	AA
0030	2390	Radio Huayacocotla, Mexico	SS	0400	9965	Voice of Armenia	SS
0030	5010	Radio Cristal Int., Dominican Republic	SS	0400	3240	HRMI, Honduras	SS
0030		SLBC, Sri Lanka		0400	4991	Radio Apinte, Surinam	EE/DD
0100	11655	Radio France Int., via Canada	SS	0430	9580	Int. Radio of Serbia & Montenegro	
0100	9830	Voice of Russia	SS	0500	6065	Radio Sweden	Swedish
0100	6536	Radio La Poderosa, Peru	SS	0500	6185	Radio Educacion, Mexico	SS
0100	15455	RFE/RL, via Thailand	unid	0500	6085	Bayerischer Rundfunk, Germany	GG
0100	9675	RAI Int., Italy		0500	4950	Radio Nacional, Angola	PP
0100	17795	Radio Australia		0500	4770	Radio Nigeria	
0100	4810	XERTA, Mexico	SS	0500	4890	Radio France Int., via Gabon	FF
0100	5905	VOA Ukraine Int.		0600	4915	Ghana Broadcasting Corp.	
0100	7115	VOA Relay, Sri Lanka		0600	4760	ELWA, Liberia	
0130	4915	Radio Anhanguera, Brazil	PP	0600	4835	RTV Malienne, Mali	FF
0130	6115	Radio Tirana, Albania		0600	7125	RT Guineenee, Guinea	FF
0200	9560	Radio Korea Int., S. Korea, via Canada		0645	9870	Trans World Radio, via Monaco	
0200	9835	Radio Budapest, Hungary		0800	3291	Voice of Guyana	
0200	4052.5	Radio Verdad, Guatemala	SS	0830	6350	AFN/AFRTS, Hawaii	USB
0200	5025	Radio Rebelde, Cuba	SS	0830	3310	Radio Mosoj Chaski, Bolivia	SS/QQ
0200	9580	China Radio International		0900	4919	Radio Quito, Ecuador	SS
0200	9755	Radio Canada Int.		0900	4965	Radio Santa Monica, Peru	SS
0200	11710	RAE, Argentina		0900	6035	La Voz del Guaviare, Colombia	SS
0200	6010	Radio Sweden, via Canada	Swedish	0900	6010	La Voz de su Conciencia, Colombia	SS
0230	4996	Radio Andina, Peru	SS	0900	3220	HCJB, Ecuador	QQ
0230	9895	Radio Netherlands Relay, Madagascar	SS	0900	6040	Radio Clube Pranaense, Brazil	PP
0230	9925	Voice of Croatia, via Germany	SS	0930	4747	Radio Huanta 2000, Peru	QQ
0230	4939	Radio Amazonas, Venezuela		0930	17630	Africa Number One, Gabon	FF
0230	4895	Radio Bare, Brazil	PP	0930	6070	Voz Cristiana, Chile	SS
0230	7260	Radio Tirana, Albania		0930	4753	Radio Educacao Rural, Brazil	PP
0300	7365	Radio Marti, USA	SS	0930	6135	Radio Santa Cruz, Bolivia	SS
0300	11665	Sudan Radio Service, England		0930	6060	Radio Nacional, Argentina	SS
0300	5010	RTV Malagasy, Madagascar	vern	0930	9665	Radio Marumby, Brazil	PP
0300	4976	Radio Uganda		1000	13720	Radio Exterior de Espana	SS
0300	4910	Radio Zambia		1000	9885	Radio New Zealand Int.	
0300	4965	Christian Voice, Zambia		1000	3280	La Voz del Napo, Ecuador	SS
0300	6940	Radio Fana, Ethiopia	Amharic	1000	9737	Radio Nacional, Paraguay	SS
0300	7110	Radio Ethiopia	Amharic				

UTC	Freq.	Station/Country	Notes	UTC	Freq.	Station/Country	Notes
1000	4870	La Voz del Upano, Ecuador	SS	1730	15190	Radio Pilipinas, Philippines	Tagalog
1000	13675	UAE Radio, Dubai, UAE	AA	1730	15215	Deutsche Welle Relay, Rwanda	GG
1000	13730	Radio Austria Int.	GG	1800	15420	BBC via South Africa	
1000	13685	Voice International, Australia		1800	17575	RDP Int., Portugal	PP
1000	4387	Radio Peace, Sudan	vern	1800	15410	VOA Relay, Morocco	
1000	5925	Voice of Vietnam		1800	15400	BBC Relay, Ascension Is.	
1030	7507	AFN/AFRTS, Puerto Rico	USB	1830	15380	Radio Romania Int.	
1030	11920	RAI Int., Italy, via Singapore	II	1900	12095	BBC Relay, Ascension Is.	
1030	5637	Radio Peru	SS	1900	13645	Swiss Radio International, via Germany	AA
1100	11580	Far East Broadcasting Co/KFBS, N. Marianas	CC	1900	13605	All India Radio	
1100	11750	China Radio International		1900	12105	Voice of Greece	Greek
1100	3385	Radio East New Britain, Papua New Guinea		1900	13580	Radio Prague, Czech Republic	SS
1100	5020	Solomon Is. Broadcasting Corp.		1900	9780	Republic of Yemen Radio	AA
1100	6348	Echo of Hope (cland)	Korean	1915	17540	Kol Israel	
1130	11755	YLE/Radio Finland	Finnish	1930	12070	Voice of Russia	
1130	3205	Radio Sandaun, Papua New Guinea		1930	17895	VOA Relay, Botswana	
1200	15565	BBC, England		2000	17850	Radio Exterior de Espana, via Costa Rica	SS
1200	11760	Radio Havana Cuba	SS	2000	15505	Radio Kuwait	AA
1200	4980	Xingiang PBS, China	CC	2000	15345	RTV Marocaine, Morocco	AA
1230	9930	KWHR, Hawaii		2000	11665	Radio Japan/NHK	JJ
1300	9740	BBC Relay, Singapore		2000	13610	Radio Damascus, Syria	
1300	11510	Radio Free Asia, via Kazakhstan	Khmer	2000	15150	Voice of Indonesia	
1300	7295	Radio Malaysia		2030	11635	Radio Jamahiriya, Libya, via France	AA
1300	11590	China Music Jammer		2030	11755	YLE/Radio Finland	Finnish
1300	15450	RT Tunisienne, Tunisia	AA	2030	15630	Voice of Greece	Greek
1300	11685	Radio Thailand	CC	2030	11905	Radio Tashkent, Uzbekistan	
1330	12010	Radio Australia, via Singapore		2030	11625	Vatican Radio	FF
1330	9520	Radio Veritas Asia, Philippines	unid	2030	17705	Radio Nacional, Venezuela, via Cuba	SS
1330	11810	Radio Jordan	AA	2030	17775	Caribbean Beacon, Anguilla	
1330	11680	Korean Central Broadcasting System, N. Korea	KK	2100	11920	Swiss Radio Int.	FF
1330	12070	Radio Netherlands, via Uzbekistan	unid	2100	9855	Radio Kuwait	AA
1330	11500	Voice of Russia via Tajikistan	Hindi	2100	9950	All India Radio	
1330	11605	Radio Taiwan Int.	unid	2100	9990	Radio Cairo, Egypt	AA
1400	6150	MediaCorp Radio, Singapore		2100	11950	Radio Free Asia, via Northern Marianas	CC
1400	15150	Voice of Islamic Republic of Iran	AA	2100	9915	BBC Relay, Cyprus	AA
1400	9525	Voice of Indonesia	II	2100	13830	Voice of Croatia	
1400	15380	Adventist World Radio/KSDA, Guam	unid	2100	12010	Radio Sawa, USA, via Morocco	AA
1400	9705	Voice of Pujiang, China	CC	2100	13855	AFN/AFRTS, Iceland	USB
1400	9590	Radio Australia		2100	9745	Radio Sawa, USA, via Greece	AA
1430	15425	VOA Relay, Philippines		2100	11975	VOA Relay, Sao Tome	
1430	15760	Kol Israel	HH	2100	13800	Radio Bulgaria	SS
1430	15350	Voice of Turkey	TT	2100	9970	RTBF, Belgium	
1500	9335	Voice of Korea, North Korea		2100	7450	Radio Makedonias, Greece	Greek
1500	15745	Vatican Radio	II	2130	9725	Radio Romania Int.	
1530	11650	Voice of Islamic Republic of Iran		2130	11715	All India Radio, Goa, India	
1530	17770	Channel Africa, south Africa		2200	15315	Radio Netherlands Relay, Bonaire, NWI	DD
1600	15210	Broadcasting Service of Kingdom of Saudi Arabia	AA	2215	6180	Cyprus Broadcasting Corp.	Greek, wknds
1600	11690	Radio Jordan		2230	17800	Voice of Nigeria	
1600	11570	Radio Pakistan		2230	7460	Radio Nacional del la RASD, Sp., Sahara, Algeria	AA/SS
1600	15325	Radio Canada Int., via England	RR	2300	11980	HCJB, Ecuador	GG
1600	15395	UAE Radio, Dubai		2300	4845	Radio Mauritanie, Mauritania	AA
1630	9430	FEBC, Philippines	CC	2300	13865	INBS, Iceland	Icelandic
1700	15410	VOA Relay, Sao Tome		2300	17680	Voz Cristiana, Chile	SS
1700	15120	Voice of Nigeria		2300	1780	Radio Nacional Amazonia, Brazil	PP
1700	17485	Radio Prague, Czech Republic		2330	15275	Deutsche Welle Relay, Rwanda	GG
1730	13710	Broadcasting Service of Kingdom of Saudi Arabia	AA	2330	5030	Radio Burkina, Burkina Faso	FF

New, Interesting, And Useful Communications Products

Niljon's New VHF/UHF Antenna

A new VHF/UHF antenna is now available that scanner enthusiasts, amateur radio operators, and even commercial radio operators can use. The Niljon multi-frequency, multi-polarized Super-M V/U-NMO model consists of three blackened stainless steel radials in three different lengths affixed to a one-inch wide by three-quarter-inch high aluminum hub. The hub assembly screws on to a standard 5/16-inch 24 LM-style NMO adapter, which is included for attaching to a standard NMO roof mount. The complete assembly weighs only 4.7 ounces, assembles in just a few minutes, and comes with a two-year warranty. Overhead clearance when mounted to the vehicle's roof is only 18 inches.



Niljon's VHF/UHF antenna is available now and carries a suggested retail price of \$79.95.

The Niljon V/U-NMO antenna receives 25 to 1300 MHz and will transmit and receive at 130 to 180 MHz, 200 to 225 MHz, and 430 to 480 MHz.

According to Niljon, "Performance over flat terrain with no man-made obstructions is going to be generally equal to or slightly improved over most existing similarly equipped, high performance, NMO-style mobile antennas."

The V/U-NMO model is available from Ham Radio Outlet, Universal Radio, and Grove Enterprises with a suggested retail price of \$79.95. A mobile version, without the NMO adapter, and a base station version are also available.

More product information and dealer locations are available on the Niljon website at <http://www.niljon.com>. You can also call them at 512-250-8595. Be sure to tell the Niljon folks that you read about their new VHF/UHF antenna in *Pop'Comm*.

CQ Magazine Back Issues Online

CQ Communications, Inc., of Hicksville, New York, publisher of *CQ Amateur Radio* magazine, and Buckmaster Publishing of Mineral, Virginia, jointly announced plans to create a searchable online archive of *CQ* magazine back issues, eventually dating back to the magazine's first issue in January 1945. A beta test version covering 1990 to 2002 is already online.

Buckmaster, which produces the "Hamcall" CD and website, and has for decades filmed back issues of *CQ* onto microfiche for use by researchers and hobbyists alike, currently uses advanced scanning and searching technology for online posting of documents for major corporations. This technology will be applied to back issues of *CQ*, under an agreement announced today by *CQ* Publisher Dick Ross, K2MGA, and Buckmaster President Jack Speer, N1BIC. As currently envisioned, searches will be free, while access to reading and printing specific pages will require a subscription at a nominal fee.

According to Speer,

In addition to very high-quality scans of each page of each issue," we use optical character recognition (OCR) to automatically index each word in each article. Our search engine, which is too complex to be included on a CD-ROM, will identify each article containing the search term(s). The indexing of every word eliminates the restriction of most indexes and search engines that are limited to looking for key words that have been manually assigned or indexed.

Speaking for *CQ*, Ross said,

Our readers have been asking us for several years about putting back issues of *CQ* onto CD-ROMs, but frankly, we have been unhappy with the limitations of the search engines that we're able to put onto a CD. If the indexer hasn't chosen to include the word you're looking for in the index, then you're out of luck.

This system allows our readers to have access to a much more powerful search engine than we could provide on a CD, plus they don't have to purchase entire CD sets of multiple back issues in order to get access to one or two articles. This system will allow readers to pay only for what they want, and then download the article using their browser to view or print at home. We believe this will provide our readers with a better archive service at a lower cost than creating back-issue CDs or arranging many feet of shelving for housing printed copies of the magazine.

Speer says he plans to bring the *CQ* back issues online in 10-year blocks, beginning with 1990 to 2004, which he expects to be available immediately.

Initial subscription pricing is as follows:

- Searching and access to the first five pages of each issue: Free
- 1 month: \$10
- 3 months: \$15
- 6 months: \$25
- 12 months: \$45
- Lifetime: \$500

Views are limited to 100 pages per day, and the 24 most recent issues are available only to *CQ* staff. The archive may be accessed at <http://hamcall.net/cgi-bin/cqcgi>.

CQ Communications, Inc., publishes *CQ Amateur Radio*, *CQ RadioAmateur* (Spanish *CQ*), *CQ VHF*, and *Popular Communications* magazines, plus the *CQ* Library of books, videos, and CDs. It is headquartered in Hicksville, New York.

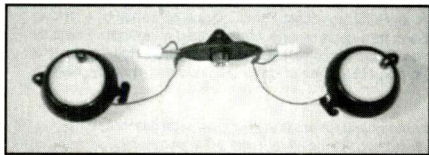
Buckmaster Publishing is a leading archiving and retrieval service based in Mineral, Virginia. In the amateur radio world, it is best known for archiving all major ham magazines onto

microfiche, and as the publisher of the "Hamcall" amateur radio international call sign lookup CD and website.

New Yo-Yo-Vee Portable Inverted Vee Dipole Antenna System

DWM Communications of Hanover, Michigan, announced their new antenna system for emergency and portable use. According to their news release,

DWM Communications has taken its "Yo-Yo-Tenna Deluxe" and added a feature to make Inverted Vee operation an easier and less time consuming experience...the famous Budwig center insulator to a pair of "Yo-Yo-Tenna" wind-up antenna reels to make connection of a PL-259 coax connector/cable a breeze.



The new DWM Communications "Yo-Yo-Vee" antenna is comprised of wind-up reels and a Budwig center connector.

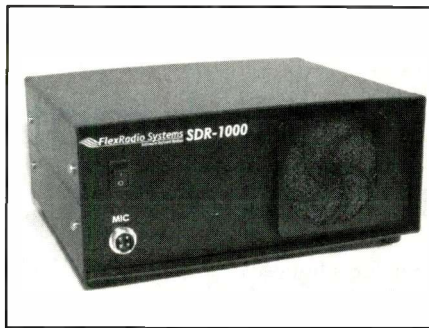
Operating, according to DWM, is simply a matter of extending the length of wire in each small reel to the band of operation you need. (Example: 40-meter operation requires approximately 33 feet of extended wire per reel, adjusting the length for minimum SWR). Of course, the antenna is ideal for shortwave listening as well.

The antenna is made of No. 22 annealed multi-strand copper with PVC insulation and covers 2 through 40 meters. You can also purchase additional single reels for \$14.95 each in pairs to cover 75/80 meters (two additional reels) and 160 meters (four additional reels). The antenna includes complete instructions and tips on inexpensive portable center supports for your Yo-Yo-Vee.

The Yo-Yo-Vee from DWM Communications is \$39.95 plus \$7.95 shipping and handling in the U.S. To order call DWM directly at 517-563-2613. You can also place a secure order on the company's website at <http://qth.com/dwm>. Please tell the folks at DWM that you read about their Yo-Yo-Vee in *Pop'Comm*.

FlexRadio's SDR-1000 Software-Defined Radio

FlexRadio System says its SDR-1000 is a "software-defined radio for the mass-



The new FlexRadio Systems SDR-1000 software-defined radio receives 11 kHz to 65 MHz and transmits on all amateur bands from 160 to 6 meters with 1 watt.

es." In a nutshell, the SDR-1000 converts your PC and sound card into a flexible software-defined transceiver; all modulation, demodulation, and control functions are defined in open source Microsoft Windows software. You can upgrade, for free and frequently, according to FlexRadio Systems.

The new SDR-1000 provides multi-mode general coverage reception from 11 kHz to 65 MHz and 1-watt PEP transmission on all ham bands from 160 to 6 meters. A 100-watt HF PA option is planned for availability about the time you read this announcement.

As a bonus, the receiver also functions as a spectrum analyzer. An all-digital automatic gain control eliminates weak-signal compression from strong nearby signals. You can start with the assembled and tested SDR-1000 board set and then add on an optional enclosure kit, low-noise RF front end, 100-watt PA, 144-MHz transverter IF, and automatic antenna tuning unit. The enclosure is designed to house all of these options.

All radio control functions are managed through your PC parallel port, including external control for up to seven transverters or other accessories. The radio requires 13.8 VDC and the enclosure dimensions are 4 x 10 x 8.5 inches (HWD).

For more information on the SDR-1000, which sells for \$499 to \$875, depending on the options purchased, contact FlexRadio Systems at 8900 Marybank Drive, Austin, TX 78750, e-mail them at sales@flex-radio.com or phone them at 512-250-8595. Visit FlexRadio Systems on the Web at www.flex-radio.com. Please tell them you read about their new SDR-1000 in *Popular Communications*. ■

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Radio New Zealand International Gets Big Bucks For Shortwave!

At last we get to begin with some good news. One government is actually increasing the budget of its national shortwave voice! Radio New Zealand International (RNZI) is to receive a big buck boost for fiscal 2005. An additional NZ\$421,000 is being allotted for RNZI's operations, and over two million more is to be spent on a new digital shortwave transmitter! RNZI, a favorite of many North American SWLs, is a major voice providing a much-needed service to the widely scattered islands of the Pacific.

More good news: Denmark is back on shortwave! No, not Radio Denmark, and not via Norway. As advertised a few months ago, World Music Radio (WMR) has initiated transmissions from a new 10-kW installation near the town of Karup. WMR opened in 1967 broadcasting from Holland and, then a few years later, switched to airing programs via a series of private broadcasters (including Radio Andorra and some of the private Italian stations). The initial test broadcasts on **5815** and **15810** were running mostly musical selections, seemingly around the clock. WMR won't be an easy catch outside the East Coast, but if you do get lucky, reports should be sent to P.O. Box 112, DK-8900, Randers, Denmark.

Radio Kiribati Back On Shortwave

Another country now back on shortwave is Kiribati, a Pacific Island nation that was active on HF some 20 years ago. Radio Kiribati is now using **9825** with broadcasts intended for listeners in the Line Islands. We don't have a full schedule at the moment, but best reception chances should be around 0600. The mailing address is Broadcasting and Publications Authority, P.O. Box 78, Bairiki, Tarawa, Republic of Kiribati. (And, as the Smothers Brothers eventually learned, the country name is pronounced Keer-a-bhas.)


Iceland State Broadcasting (RUV) is still active on shortwave and airs news in Icelandic to Europe at 1215 to 1300 on **15775** and 1755 to 1825 on **13865**. Also to North America from 1410 to 1445 and 1835 to 1905 on **15775** and 2300 to 2335 on **13865**, all in Icelandic.

VOA's Expanded Urdu Service

You can hear the Voice of America's new expanded Urdu service, called Radio Aap Ki Dunyaa, as follows: from 0100 to 0200 on **7155** via Morocco, on **9835** via Greece, and on **11805** via Thailand; from 1400 to 1500 on **9510** via Thailand, on **11790** and **15170** via Greece, and on **15255** via Sri Lanka; from 1700 to 1800 on **11905** via Philippines and on **12155** and **15545** via Sri Lanka.

Those coalition maritime shortwave broadcasts, which we mentioned last time, turn out to be the work of something called the U.S. Navy Maritime Liaison Office, known as MARLO. Initially, anyway, the broadcasts are coming from a variety of ships in the area, supposedly using just 250 watts. MARLO is

RADIO RHINO INTERNATIONAL-AFRICA
Voice for freedom, liberty, Democracy, Justice
An equely developed Africa



*"I have surely seen the affliction of My People and
Have heard their cry; for I know their sorrows"*

Tuesday, 11 May 2004

QSL VERIFICATION OF RECEPTION

Dear Listener, I hereby certify that the Radio Transmission you tuned to from 17:00 to 17:30 UTC weekdays, from 15:00 to 15:59 UTC Weekends from Sept.2003 until to date, under Frequency 17.780 Short Wave, was an SOS broadcast from Cologne on behalf of a sinking boat of Humanity whose boat has been torn apart by one Africa's most dangerous Political Sharks in Uganda bred and sustained by certain Western Imperialists and establishments to continually keep Uganda and Africa in perpetual state of civil wars, sickness, poverty, illteracy etc.

Unlike other previous broadcast you may have tuned to in your past experiences, RRIA appeals to your attention and time to tell your friends, kin, neighbour, community and governments to rescue humanity in Uganda and Africa.

Thanks for having tuned in to Radio Rhino International - Africa.
With Compliments and Greetings from Cologne - Germany.

Godfrey Ayoo, ELUM-ANIAP
Director RRIA
VOICE OF THE VOICELESS INTERNATIONAL - Uganda eV
Tel / Fax: 0221 9912907
Mob: 0162 8854488

mail@radiorhino.org
pc-godfree@netcologne.de
vivaupc@web.de
www.radiorhino.org

*"And as we walk, we must make the pledge that we shall march a head. We cannot turn back. There are those who are asking the devotees of civil rights 'when will you be satisfied? We can never be satisfied as long as our bodies, heavy with fatigue of travel cannot gain lodging in the Motels of the Highways and Hotels of the cities (...)
No, no, we are not satisfied, and we will not be satisfied until justice rolls down like waters and righteousness like a Mighty Stream" (Martin Luther King, 1964 Nobel Peace Laureate, assassinated for his struggle)*

Donation to Radio Rhino International - Africa (RRIA)
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50325 Koeln

Allerweltshaus eV
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Radio Rhino International beamed opposition programming to Uganda from offices in Germany.

working on an arrangement whereby the broadcasts would be relayed by the transmitters operated by Merlin Communications in the UK or UAE. Currently the broadcasts are aired on **6125** from 0300 to 0800 and on **15500** from 1400 to 1900. The transmissions urge listeners to report on suspected terrorist activity or terrorist acts committed at sea.

Shortwave Radio Africa via Meyerton, South Africa, is on the air again, on its former **4880** frequency. These clandestine broadcasts are aimed at Robert Mugabe's government in Zimbabwe. Unfortunately, they are badly timed for reception in North America.

The Italian Radio Relay Service (IRRS) is said to be carrying a broadcast called Radio For Peace (no, not that one!) directed to the Western Sahara. It's scheduled on Fridays from 1100 to 1200 and Saturdays from 1930 to 2030 on **15665** with half an hour each in Arabic and Spanish.



"AJ Janitschek" <aj@rfa.org>

04/16/2004 03:21 PM
Please respond to aj

To: <rdangelo@gpu.com>

cc:
Subject: RE: Reception Report

Richard D'Angelo

Hello Richard: greetings from Radio Free Asia in Washington DC. Thank you kindly for sending your reception report of our Tibetan programming yesterday. I have confirmed your reception on all 4 frequencies on our QSL card and have mailed the card today. Hopefully you will have it within the next week.

I have taken the liberty of attaching our Summer 2004 broadcast schedule, but the most up to date info is available at www.rfa.org

If you should ever find your self planning a trip to Washington DC, please let me know. I would be happy to host you for a tour of our broadcast facilities.

Best wishes and have a great weekend. AJ

AJ Janitschek
Radio Free Asia

-----Original Message-----

From: rdangelo@gpu.com [mailto:rdangelo@gpu.com]

Sent: Thursday, April 15, 2004 2:40 PM

To: qsl@rfa.org

Cc: Rdangelo3@aol.com

Subject: Reception Report



Abbreviations Used In This Month's Column

//	—	Parallel frequency
ABC	—	Australian Broadcasting Corporation
AFRTS	—	Armed Forces Radio Television Service
AFN	—	Armed Forces Network
AIR	—	All India Radio
anncr	—	announcer
annt(s)	—	announcement(s)
BSKSA	—	Broadcasting Service of the Kingdom of Saudi Arabia
CNR	—	China National Radio
GOS	—	General Overseas Service
ID	—	identification
Int'l	—	international
IS	—	interval signal
Lang	—	language
LSB	—	lower sideband mode
NBC	—	National Broadcasting Corporation
OA	—	Peru, Peruvian
PBS	—	People's Broadcasting Station
Pgm	—	program
RRI	—	Radio Republik Indonesia
sked	—	schedule
SIBC	—	Solomon Islands Broadcasting Corporation
TOH	—	Top of the Hour
unid.	—	unidentified
USB	—	upper sideband mode
vern	—	vernacular (any local dialect or language)
VOA	—	Voice of America
VOIRI	—	Voice of the Islamic Republic of Iran

Rich D'Angelo of Pennsylvania got this QSL from Radio Free Asia's new QSL manager. They still don't care to indicate transmitter sites.

Remember, your shortwave broadcast station logs are always welcome. But please be sure to double or triple space items, list them by country, and include your last name and state abbreviation after each log. Also much wanted are spare QSLs that you don't need returned, station schedules, brochures, pennants, station photos, and anything else you think would be of interest. And how about sending a photo of you at your listening post? Step right up and get your 15 minutes of fame!

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

ALBANIA—Radio Tirana, **6115//7160** at 0230 with IS, ID, schedule, news. (Burrow, WA)

ANGOLA—Radio Nacional, **4950** at 2348 with PP and non-PP talks, songs. (DeGennaro, NY)

ANGUILLA—Caribbean Beacon, **11775** with Gene Scott at 2057. (Brossell, WI)

ANTIGUA—BBC Relay, **5975** ending news and Asian financial items at 2359. (Little, NC)

ARGENTINA—Radio Nacional, **6060** in SS with markets and weather for Argentine provinces at 0925. (DeGennaro, NY) RAE, **11710** with email address and QSL details at 0205. (Burrow, WA)

ARMENIA—Voice of Armenia, **9965** with inst. music and talks in SS at 0425. (Brossell, WI)

ASCENSION ISLAND—BBC Relay, **15400** with news at 1800. (Brossell, WI) **12095** to South Africa at 1900. (DeGennaro, NY) **17830** with news at 2005, // **12095** and **15400**. (MacKenzie, CA)

AUSTRALIA—VL8T, Tennant Creek (p), **4910** at 0825 with man in EE. Carrier cut at 0829:30. (D'Angelo, PA) Voice International, **13635** with sports news, ID, religious music from 1519 tune. (Burrow,

WA) **13685** at 1010 with a talk on DXing, then into religion and pops. Many "Your Voice" IDs. (Barton, AZ) **15150** with talks and songs in CC at 1746. (Brossell, WI) Radio Australia, **5995//7608//7240//9475//9590** with "Asia Pacific" news program at 1521. (Burrow, WA) **6020** with news at 1200, 9475 at 1135, **9650** with ID at 1200. (Northrup, MO) 9475 with interview at 1115 and **9580** with Pacific region news at 1002. (DeGennaro, NY) **9590** with news at 1404. (Brossell, WI) **9660** in EE with some SS as well at 0420. (Little, NC) **12010** via Singapore in CC at 1340. (Brossell, WI) **17795** with sports show at 0130. (Paradis, ME)

AUSTRIA—Radio Austria Int., **13730** in GG at 1011. (DeGennaro, NY) Adventist World Radio via Austria, **9875** in AA at 0420. (Brossell, WI)

BELGIUM—RTBF Int., **9970** with Johnny Cash songs at 2120. (Brossell, WI)

BOLIVIA—Radio San Miguel, Riberalta, **4904v**, at 0130 with local music, SS talk, ID. Abrupt sign off at 0202. (Alexander, PA) 0949 with SS talks, songs, local news items. (DeGennaro, NY) Radio Santa Cruz, Santa Cruz, **6135** at 0855 with sign on anmts, many IDs, local music. (Alexander, PA) 0945 with songs and commercials. (DeGennaro, NY) Radio Mosaj Chaski, Cochabamba, **3310** in QQ and some SS with music and talk at 0833. (DeGennaro, NY)

BOTSWANA—VOA Relay, **9775** with news items monitored at 0419. (Brossell, WI) **17895** with a press conference at 1950. (MacKenzie, CA)

BRAZIL—Radio Cultura Ondas Tropicais, Manaus, **4845** at 0230 with Brazilian ballads, PP talk, ID and sign off anmts followed by a four-minute national anthem to 0259 off, which is later than usual. (Alexander, PA) Radio Nacional, Sao Gabriel Cachoeira, **3375** at 0925 with PP talks, songs and commercials. (DeGennaro, NY) Radio Universo/Radio Tupi, Curitiba, **6060** with religious talks in PP at 0936. (DeGennaro, NY) Radio Brazil Central, Goiania, **4985** in PP with music at 0506. (DeGennaro, NY) Radio Nacional, Macapa, **4915** at 0848 with music. ID at 0950. (DeGennaro, NY) Radio Rural, Santarem, **4765** in PP with music at 0816. (DeGennaro, NY) Radio Clube Paranaense, Curitiba, **6040** at 0922 with PP talks and ID at 0923.

(DeGennaro, NY) Radio Marumby, Florianapolis, **9665** at 0930. (DeGennaro, NY) Radio Difusora, Taubate, **4924** in PP at 0146. (Jeffery, NY) Radio Difusora, Roraima, **4875** with music and man anncr in PP at 0125. (Jeffery, NY) 0839 with birthday greetings. (DeGennaro, NY) Radio Nacional Amazonia, **6180** with call-in program at 0917. Also **11780** at 0952. (DeGennaro, NY) 0300 with multiple IDs. (Burrow, WA) 0327. (Brossell, WI) Radio Clube do Para, Belem, **4885** with PP ID at 0857. (DeGennaro, NY) Radio Alvorada, Parintins, **4965** with ID at 0902. (DeGennaro, NY) Radio Anhanguera, **4915** at 0136 with talk by man, music. (Jeffery, NY) 0847 with call-in show. (DeGennaro, NY) Radio Difusora Acreana, Rio Branco, **4885** with music, ID 0959. (DeGennaro, NY) Radio Difusora da Amazonas, Manaus, **4805** with PP songs, commercials at 0943. (DeGennaro, NY) Radio Brazil, Campinas, **4785** with PP commercials at 0938. (DeGennaro, NY) Radio Novas de Paz, Curitiba, **9515** with music at 0949. (DeGennaro, NY) Radio Educacao Rural, Campo Grande, **4753** with PP talks, music at 0935. (DeGennaro, NY) Radio Bare, Manaus, **4895** at 0245 with PP vocals, ID at 0255. (D'Angelo, PA) 0827 with music. (DeGennaro, NY)

BULGARIA—Radio Bulgaria, **9400** at 0300 with IS, ID and into talk. (Burrow, WA) 0330 in RR. (MacKenzie, CA) **9700** with 0054 sign on and into FF at 0100. Also on **13800** in SS at 2100. (DeGennaro, NY)

CANADA—Radio Canada Int., **9755** heard at 0228 with news feature. (Little, NC) **15325** via England in RR at 1615. (Barton, AZ) CFVP, Calgary (p) **6030** at 0340 with oldies, man host, commercials. Covered at 0400 by GG language station signing on. (D'Angelo, PA)

CHILE—Voz Cristiana, **6070** in SS with religious talks and jazz at 0935. (DeGennaro, NY) **17680** with Christian pops. Closed at 0000. (Barton, AZ)

CHINA—Voice of Puijiang, **9705** in CC at 1407. (Brossell, WI) Ne Menggu PPS, **9520** in CC at 1130. (Northrup, MO) China Music Jammer, **11590** covering RFA via Armenia at 1319 and **11875** over CBS-Taiwan at 1345. (Brossell, WI) China Radio Int., **6040** via Canada with news, Chinese culture at 1019. **9580** via Cuba at 0133 with "Life in China Today." Also **11750** with news at 1115. (DeGennaro, NY) **9440** in CC at 1135. (Northrup, MO) 9580 in EE at 0208. (Burrow, WA)

CLANDESTINE—Radio Sawa to Iraq, **9745** via Greece with ID in AA at 2115. Also on **12010**. (Brossell, WI) Radio Free Asia via Kazakhstan, **11510** in listed Khmer at 1325 and **11950** via Northern Marianas in CC at 2111 (Brossell, WI) Radio Free Europe/Radio Liberty, **15455** via Thailand in unid language at 0126. (Jeffery, NY) Radio Liberty, **11725** via Germany in European language with "This is Radio Svoboda" IDs. Off at 0500. (Moser, IL) Sudan Radio Service, **11665** via UK from 0259 sign on with instrumental music, ID and



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Richard A. D'Angelo
2216 Burkley Drive
Wyomissing, PA
19610 USA

Bible Voice Broadcasting, based in the UK, sent this QSL to Rich D'Angelo

frequencies and mentioning studios are in Nairobi. Then news followed by "The Road to Peace." (D'Angelo, PA) Radio Marti, **7365** in SS at 0826. (Little, NC)

COLOMBIA—La Voz del Guaviare, San Jose Guevara, **6035** in SS at 0911. (DeGennaro, NY) La Voz de tu Conciencia, Puerto Lleras, **6009.6** at 0905 with SS songs. (DeGennaro, NY)

CROATIA—Voice of Croatia, **9925** via Germany at 0200. (Paradis, ME) 0240 in SS. (MacKenzie, CA) **13830** (direct) with news and music in Croatian heard at 2106. (DeGennaro, NY)

CUBA—Radio Rebelde, **5025** in SS at 0805. (Little, NC) 0854 with news and music. (DeGennaro, NY) Radio Havana Cuba, **6000** in EE at 0414, **9655** in SS at 0433 and **9820** at 0224. (Little, NC) **9550** in SS at 1205 and **11760** in SS at 1200. (Northrup, MO)

CYPRUS—BBC Relay, **9410** with news items and features at 0338. (MacKenzie, CA) **9915** in AA at 2120. Also on **15180** in AA heard at 1750. (Brossell, WI)

CZECH REPUBLIC—**6200/7345** in SS at 0201. Supposed to be in EE at this hour. (Burrow, WA) **11615** in Czech at 1158 and **13580** in SS at 1910. (DeGennaro, NY) **17485** opening with schedule anmt heard at 1700. (Barton, AZ)

ECUADOR—La Voz del Upano, Macas, **4870** at 0955 with local ballads, several IDs and into religious programming. (Alexander, PA) 0957 with ID and anthem at sign on. ID as "Radiodifusora Catolico." (DeGennaro, NY) Radio El Buen Pastor, Saragura, **4814** at 0949 with talks in QQ. (DeGennaro, NY) Radio Quito, **4919** in SS at 0906. (DeGennaro, NY) La Voz del Napo, Tena, **3280** at 0917 with QQ talks, music. (DeGennaro, NY) 1005 with HC folk music, SS anmts. (Alexander, PA) HCJB, **3220** in QQ at 0914. (DeGennaro, NY) **11980** in GG at 2310. (Barton, AZ)

EGYPT—Radio Cairo, **9990** in AA at 2120. (Brossell, WI) 2202 in EE; news at 2215. (Burrow, WA)

ENGLAND—BBC, **6195/9410** to Europe at 0429. (Little, NC) **15565** with "Newshour" at 1201. (Jeffery, NY)

FINLAND—YLE/Radio Finland, in

Finnish at 2056 on **11755**. (Brossell, WI) in Finnish with US Country Music at 1143. (DeGennaro, NY)

FRANCE—Radio France Int., **9830** (via Japan—gld) in SS at 1009, ID at 1010. (DeGennaro, NY) **11665** (French Guiana—gld) in SS at 0103. (Werona, NC)

GABON—Africa No. One, **17630** with FF talk at 0954. (DeGennaro, NY)

GERMANY—Deutschland Radio, Berlin, **6005** in GG with classical music at 0515. (DeGennaro, NY) Bayerischer Rundfunk, **6085** in GG at 0525. (DeGennaro, NY) Deutschlandfunk, Berlin, **6190** in GG with classical music at 0017. Time signal at 0100 and man with ID and news. (D'Angelo, PA) Sudwestrundfunk, **7265** with talks in GG at 0427. (Brossell, WI) Deutsche Welle, **9700** (via Rwanda—gld) at 0510 with EE sports result, soccer. //9630. (Moser, IL)

GHANA—Ghana Broadcasting Corp., **4915** with ID monitored at 2345, then news. (DeGennaro, NY)

GREECE—Voice of Greece, **9420** in Greek at 0340. //7475. (MacKenzie, CA) **9420** in Greek at 2146, **12105** in Greek at 1905 and **15630** in Greek at 2027. (DeGennaro, NY) VOA Relay, **15255** with news at 1610. (Barton, AZ)

GUAM—Adventist World Radio, **11975** with Greek-sounding music at 1530. Also on **15320** at 2240. (Barton, AZ) **15380** in unid language at 1422. (Jeffery, NY)

GUATEMALA—Radio Verdad, **4053** with talk in SS at 0428. (Brossell, WI)

GUYANA—Voice of Guyana, **3291** in EE with ID at 0830 after Hindi-type music. (DeGennaro, NY)

HAWAII—KWHR, **9930** with ID at 1229 and "We are now beaming to Southeast Asia at 365 degrees on this same frequency." (Brossell, WI) AFN/AFRTS, **6350 USB** at 0834 with "Sports Overnight America" and PSAs inserted where the commercials usually go. AP news at 0500. (D'Angelo, PA)

HUNGARY—Radio Budapest, **9590** with "Insights for Central Europe" at 0100. (Paradis, ME) **9835** at 0220 with current events items. (Little, NC)

ICELAND—Rikissutvarpid, **13865 USB**



Radio Nacional del Paraguay shows off its building in a color QSL sent to Rich D'Angelo.

opening at 2248 in Icelandic, brief instrumental music. After a tone for 2300, ID by woman and then news. Off at 2329. (D'Angelo, PA) AFN/AFRTS, Grindavik, **13855 USB** with news commentary at 2110. (DeGennaro, NY)

INDIA—All India Radio, **9425**, Bangalore, in HH at 0022; **9445**, Bangalore, in EE to Europe at 2149; **9470**, Aligarh in EE to SE Asia at 1122; **11620**, Delhi, in Hindi at 1052; **13605**, Bangalore in EE to West Africa at 1916 and **13695**, Bangalore, in EE at 1015. (DeGennaro, NY) **9950** in EE at 2120 and **10330** in Hindi at 1410. Also on **9820** with similar programming at 1315. (Brossell, WI) **11715**, Panaji, Goa,

at 2132 with EE talk. News at 2200, //9950. Also **15075**, Bangalore, from 0313 with IS, woman with ID and opening amnts, //13695 which was very weak. (D'Angelo, PA)

INDONESIA—Voice of Indonesia, **9525** in II heard at 1315. (Brossell, WI)

IRAN—Voice of the Islamic Republic of Iran, **9635//11650** with Koran at 1535, ID 1537, program notes, ID and into news. (Burrow, WA) **11695** with Koran at 1330. (Brossell, WI) **15150** in AA at 1412. (Jeffery, NY) In AA to the Middle East at 1424. (DeGennaro, NY)

ISRAEL—Kol Israel, **15760** in HH at 1445. (DeGennaro, NY) **17540** with news in EE at 1915. (Weronka, NC)

ITALY—RAI Int., **9674** in EE at 0123 and **11920** via Singapore in II at 1035 beamed to Australasia. (DeGennaro, NY) Italian Radio Relay Service, **13840** at 1030 with continuous U.S./Europop and light instrumentals. ID at 1124 and Milano address. Then an EE religious program. (Alexander, PA)

JAPAN—Radio Japan/NHK, **5975** (via UK—*gl*), **6110** (Canada—*gl*), **7230**, **15195**, **17810** and **21755** with news in EE at 0515. (Burrow, WA) **9530** via French Guiana in JJ at 0840. (Barton, AZ) **9530** via French Guiana in JJ at 0954, **9540** in JJ with ID at 0959 and into SS, **15590** via French Guiana in SS at 1001. (DeGennaro, NY) **11665** in JJ at 2000. (Barton, AZ) **15355** via Gabon ending transmission at 1758. (Brossell, WI)

JORDAN—Radio Jordan, **11690** monitored at 1618 with "96.3 FM ID" and Middle East music. (Burrow, WA) **11810** in AA at 1337. (Brossell, WI)

KUWAIT—Radio Kuwait, **9855** in AA at 2117. (Brossell, WI) **15505** in AA at 2022. (DeGennaro, NY)

LIBYA—Radio Jamahiriya/Voice of Africa, **9415** via France in unid language at 1205. (Northrup, MO) **11635** via France in AA at 2050. (Brossell, WI)

LITHUANIA—Radio Vilnius, **7325** on cable TV options there at 0033. (Moser, IL) **11690** with feature on labor productivity in Lithuania at 0047. (Weronka, NC)

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KRMI (Radio Michigan International) issued this large, color QSL to Rich D'Angelo for reception on the popular pirate frequency of 6925.

MADAGASCAR—RTV Malagasy, **5010** at 0305 sign on with IS, choral anthem at 0308, ID by man and opening in Malagasy, then vocals and news program. (D'Angelo, PA) Radio Netherlands Relay, **9895** in SS at 0245. (MacKenzie, CA)

MALAYSIA—Radio Malaysia, **7295** at 1500 with news, "Radio 4" jingle, ID again at 1509. (Burrow, WA)

MEXICO—Radio Educacion, **6185** with classical piano and SS talk at 0944. (DeGennaro, NY)

MAURITANIA—Radio Maruitanie, **4845** in AA at 2338. (DeGennaro, NY)

MOLDOVA—Voice of Russia via Moldova, **7125** at 0432. (Little, NC) **9665** in SS at 0047. (DeGennaro, NY)

MOROCCO—RTV Marocaine, **15345** with songs and talks in AA at 1755. (Brossell, WI) 2017 with man/woman doing news. (DeGennaro, NY) VOA Relay, **15410** to Africa at 1800. (Paradis, ME) **17785** in FF at 1936. (Jeffery, NY)

NETHERLANDS—Radio Netherlands, **11655** with program on requirements for joining MI5, British Secret Service at 2050. (Brossell, WI) **13700** in DD at 1000. (DeGennaro, NY)

NETHERLANDS ANTILLES—Radio Netherlands via Bonaire, **15315** in DD at 2220. (Barton, AZ)

NEW ZEALAND—Radio New Zealand Int., **6095** with current events program at 1400. (Barton, AZ) **9615** with news at 0501, "National Radio" ID at 0506. (Burrow, WA) 0518 on water rights for agricultural areas. (Moser, IL) **9885** with news at 1018. (DeGennaro, NY)

NIGERIA—Voice of Nigeria, **15120** at 0625 with program preview, IDs. Some of the time with good, clean audio, other times impossible to understand. (Alexander, PA) 1743 on current domestic political climate.

(Brossell, WI) 1800 with ID, program preview, news. (Burrow, WA) 1819 on African geography, history. (DeGennaro, NY) **17800** at 2245. (Barton, AZ)

NORTH KOREA—Voice of Korea, **9335** with DPRK news at 1514, ID 1517. (Burrow, WA) **11710** with "Flute Solos by Socialist Revolutionaries" at 1347. (Brossell, WI) **13650** (new) at 1000 with EE news, commentary, ID. // **9850** and **11735**. (Alexander, PA) Korean Central Broadcasting Station, **11680** with talks in KK and military music at 1340. (Brossell, WI)

NORTHERN MARIANAS—KFBS/Far East Broadcasting Co., **11580** in CC with music and religious talks at 1104. (DeGennaro, NY)

PAKISTAN—Radio Pakistan, **11570** at 1555 with IS and program start at 1600. Off abruptly at 1615. (Burrow, WA)

PARAGUAY—Radio Nacional, **9737** with talk and call-in show in SS at 1009. (DeGennaro, NY)

PERU—Radio Peru, San Ignacio, **6537** with OA music, SS talk, ID. Off in mid-song at 0515. (Alexander, PA) Radio Horizonte, Chachapoyas, **5019.9** at 0010 with SS talks, TC, OA music. (Alexander, PA) 1034 with OA vocals, SS man anncr, IDs. (D'Angelo, PA) Radio Imperio, Chiclayo, **4386.6** at 0820 sign on with OA music, SS sign on anmts, IDs. (Alexander, PA) 0836 with Andean music. (DeGennaro, NY) Radio Andina, Huaraz, **4995.6** at 0215 with SS talk and OA vocals, ID and frequency anmt at 0235. Off just after 0300. (D'Angelo, PA) Radio Santa Monica, Cusco, **4965** at 0918 with SS talks and music. (DeGennaro, NY) Radio Huanta 2000, Huanta, **4747** in QQ with songs at 0940. (DeGennaro, NY) Radio La Poderosa, **6536**, 0115 with OA music, echo anmts, SS talks, ID and abruptly off at 0204. (Alexander, PA)

PHILIPPINES—VOA Relay, **9545** in

CC at 1210. (Northrup, MO) **15145** with jazz, ID at 2325. Special English at 2330. Parallels: **9725** (Germany), **11805**, **11965** and **12055** (Philippines) and **13755** (N. Marianas) (MacKenzie, CA) **15425** with news format at 1432. (Jeffery, NY) Radio Veritas Asia, **9520** in unid Asian language at 1330. (Brossell, WI)

PIRATES—Take It Easy Radio, **6925 USB** at 0142 playing Pink Floyd and Johnny Cash. (Hershey, OH) 0206 with Merlin. Ontario mail drop address and music to 0201 close. (D'Angelo, PA) 0400 with a Jeff Foxworthy sketch, rabbits and rodents are our friends. (Barton, AZ) Captain Morgan Radio, **6950 LSB** with "Twilight Zone" theme, B.T.O., Paul Simon at 0130. (Barton, AZ) Ironman Radio, **6925** at 0255 with non-descript vocals, man anncr with ID, talk, more music. (D'Angelo, PA) WMBR Black Mountain Radio, **6955** with Stevie Ray Vaughn numbers at 0300. (Barton, AZ) Radio Free Speech, **6925** at 2317 with "Bill O' Rights" and company. Comedy bits, parodies, possible Bob Newhart thing. At 2330 "You are listening to Radio Free Speech and the Reverend Holy Moly." Gives P.O. Box 452, Wellsville, NY 14895 as contact address and noted that a pocket-size copy of the Constitution was available on request. (Wood, TN)

PORTUGAL—RDP Int., **11655** with news in PP at 0006. (Little, NC) **13640** with interview in PP at 0953. (DeGennaro, NY) 17575 with church service in PP at 1820. Stronger on // **17615**. (Barton, AZ)

PUERTO RICO—AFN/AFRTS, Roosevelt Roads, **7507 USB** with NPR programming at 1028. (DeGennaro, NY)

ROMANIA—Radio Romania Int., **9725** with news of an local event at 2136. (DeGennaro, NY) **15380** at 1830 with program on the role of churches in Romania. (Barton, AZ)

RUSSIA—Voice of Russia, **9430** with dramatic story ending at 0500. (Moser, IL) **9830** in SS to South America at 0104. (DeGennaro, NY) **11630** in RR at 2045. (Brossell, WI) **12070** with jazz show at 1930. (Paradis, ME)

RWANDA—Deutsche Welle Relay, **15215** in GG at 1751. (Brossell, WI) **15275** in GG at 2350, // **11865**, **15410** (Antigua) and **17860** (Rwanda). (MacKenzie, CA)

SAO TOME—VOA Relay, **11975** monitored at 2113. (Brossell, WI) **15410** at 1727. (Jeffery, NY)

SAUDI ARABIA—BSKSA, **9870** in AA at 2118. (Brossell, WI) **15205** with call to prayer at 1610. (Barton, AZ) **13710** in AA at 1730. (Paradis, ME)

SERBIA-MONTENEGRO—Int. Radio of Serbia & Montenegro, **9580** at 0000 with IS, opening ID, news and press review. Sign off ID at 0021: "Radio Yugoslavia—the international radio of Serbia and Montenegro." (D'Angelo, PA) 0454 with ID, schedule and music. (DeGennaro, NY)

SINGAPORE—Mediacorp Radio, **6150** at 1458 with "Heart to Heart" program, "News



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OUAGADOUGOU, le 26 AVR. 2004

**MONSIEUR LE CHEF
DES PROGRAMMES**

A

J. Paul JOHNSON

Objet : rapport d'écoute.

Monsieur,

Comme suite à votre correspondance, relative à votre rapport d'écoute le 10/03/2004 sur la Radiodiffusion du Burkina, c'est avec un réel plaisir que nous l'avons reçu et sommes très flattés de savoir que vous arrivez à nous capter et qu'il y a, en plus des auditeurs lointains ; la station captée le 07 février 2004 à 23 heures 45 était effectivement la nôtre.

Nous vous remercions pour l'intérêt que vous accordez à Radio Burkina et le temps que vous lui avez consacré ; cela réjouit et réconforte l'ensemble du personnel. Nul doute que ce geste au-delà des rapports d'écoute, traduit votre disponibilité à soutenir les travailleurs dans leur noble mission.

Tout en vous remerciant mes sincères remerciements pour ce soutien inestimable à nos actions quotidiennes, je vous prie de croire, Monsieur, ma parfaite considération.



Paul Johnson of Illinois lucked out with a QSL letter from Radio Burkina, Burkina Faso, on 5030.

Radio 938" ID at 1600. (Burrow, WA) BBC Relay, **9740** at 1310. (Brossell, WI)

SOUTH AFRICA—BBC via Meyerton, **15420** monitored at 1800. (Brossell, WI)

SOUTH KOREA—Radio Korea Int., **9560** via Canada at 0212 with divorce stats for Korea and other items, cultural news, Korean language lessons. (Burrow, WA) 0230 with DX program, letters show and music requests. //15575. (MacKenzie, CA)

SPAIN—Radio Exterior de Espana, **11910** via China in SS at 1335. (Brossell, WI) **13720** in SS at 1003 and **11815** via Costa Rica in SS at 1126. (DeGennaro, NY) **15125** in SS at 2315, **15160** in SS at 2347 and **17850** via Costa Rica in SS at 2003. (MacKenzie, CA)

SWEDEN—Radio Sweden, **6065** in Swedish at 0521. (DeGennaro, NY)

SWITZERLAND—Swiss Radio Int., **11920** in FF at 2107. (Brossell, WI) **13645** via Germany in AA at 1920. (DeGennaro, NY)

SYRIA—Radio Damascus, **13610** in AA at 1023. (DeGennaro, NY) 2012 with news headlines in EE, possible ID at 2027, clear ID 2029. (Burrow, WA)

TAIWAN—Radio Taiwan int., **5950/9680** (both via WYFR—gld) at 0248 with "New Music Lounge," ID and address at 0256. (Burrow, WA) 11605 in unid Asian language at 1332. (Brossell, WI) 15130 via WYFR in SS at 2323. (MacKenzie, CA)

TAJIKISTAN—Voice of Russia, **11500** in listed Hindi heard at 1329. (Brossell, WI)

THAILAND—Radio Thailand, **5890** on privatizing Thai economy at 0320. (Barton, AZ) (might be via Greenville—gld) **9790** in CC at 1315. **11685** with bells IS at 1259, ID in CC with several mentions of Thai and into presumed news. (Brossell, WI) **13695** with EE news at 0035, then business news. (Moser, IL)

TURKEY—Voice of Turkey, **9460** in TT at 0350 with IS and IDs, anthem at 0355, ID, time pips at 0400, //15225. (MacKenzie, CA) 2153 in TT with music behind announcers. Also **15350** in TT at 1432. (DeGennaro, NY)

TUNISIA—RT Tunisienne, **15450** in AA at 1321. (Brossell, WI)
UGANDA—**4976** at 0300 with xylophone IS, woman with opening ID: "This is Radio Uganda" and brief orchestral anthem. At 0304 another ID, opening anmts and frequencies. Then local vocals. (D'Angelo, PA)

UNITED ARAB EMIRATES—UAE Radio, Dubai, **13675** in AA at 1018. (DeGennaro, NY)

UZBEKISTAN—Radio Netherlands relay, **12070** in unid Asian language at 1345. (Brossell, WI) Radio Tashkent, **11905** at 2030 with IS, music bridge, possible ID and mentions of Uzbekistan, another possible ID at 2038, then a clear ID at 2048. (Burrow, WA)

VATICAN—Vatican Radio, **9605** in PP to Brazil at 0036. (DeGennaro, NY) **11625** in FF at 2045. (Brossell, WI) **15475** in II at 1516. Multiple IDs and into SS at 1520. (Burrow, WA)

VENEZUELA—YVTO, Observatorio Cagical, **5000** with SS time announcement breaking through WWV at 0904. (DeGennaro, NY) Radio Amazonas, Puerto Ayacucho, **4939.6** with SS songs and talk at 0956. (DeGennaro, NY) Radio Nacional de Venezuela, **17705** (via *Radio Havana Cuba—gld*) in SS at 2035 and suffering interference from Voice of Greece via Delano. (DeGennaro, NY)

VIETNAM—Voice of Vietnam, **9730** with news in EE at 1902, ID 1908. (Burrow, WA) **13740** in EE at 1620. (Barton, AZ)

YEMEN—Republic of Yemen Radio, **9779.7** in EE at 1844, ID 1859 and into AA. (Burrow, WA)

ZAMBIA—The Voice, **4965** with songs, music and religious messages at 2353. (DeGennaro, NY)

ZIMBABWE—ZBC, **3306** in unid African language at 0410. (Brossell, WI)

And that's it. We're down a bit this time, perhaps thanks to not-so-great reception conditions. Nonetheless, let's raise a mighty roar of thanks to the following who did the good thing this time: Rick Barton, Phoenix, AZ; Joe Wood, Venore, TN; Bruce Burrow, Snoqualmie, WA; Stewart MacKenzie, Huntington Beach, CA; Dave Jeffery, Niagara Falls, NY; Robert Brossell, Pewaukee, WI; Mark Northrup, Gladstone, MO; Paul Johnson, Galesburg, IL; Howard Moser, Lincolnshire, IL; Matthew Little, Morgantown, NC; Rich D'Angelo, Wyomissing, PA; Ray Paradis, Pittsfield, ME; Ron Hershey, Cincinnati, OH; Brian Alexander, Mechanicsburg, PA; Ciro DeGennaro, Feura Bush, NY and David Weronka, Benson, NC. Thanks to each one of you!

Until next month good listening! ■

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 **Ray Paradis** of Pittsfield, Maine, who'll be getting a copy of the 2005 edition of *Passport to World Band Radio*, courtesy of the good folks at Universal Radio. You should have Universal's current catalog on your radio bookshelf. It's easy to get a copy of this gem-filled wish book. Just call 614-866-4267, or e-mail them at dx@universal-radio.com or drop a note to them at 6830 Americana Parkway, Reynoldsburg, OH 43068.

When Intercepting Becomes Illegal— And A Warning

It's ironic that the government's secret base at Area 51 has become the target of such open public controversy. I remember when I first learned of the base in the early 1980s, about the time I began to get interested in black projects. Then it had no name (other than the Groom Lake base) and was considered an open secret, known only to those who worked there and within aviation journalist circles. We considered it a piece of privileged information among us, and whenever we caught hints of some new piece of secret hardware flying in the night skies, chances were that stealth-stalkers could be seen camped out on Freedom Ridge hoping to catch a glimpse.

Back then, even though the base was closely guarded, one could usually observe the base unnoticed by security patrols. When word of a possible link to Bob Lazar's (the physicist who reportedly worked on secret "saucer" projects for the government near Area 51) flying saucers was published, it was as if someone had opened the floodgates. Soon every UFOie was camped out on Freedom Ridge or at the "black mailbox" (an actual mailbox in the area that's become a sort of unofficial landmark), waiting for the mother ship from Beta-Two Reticuli to take them home.

Since then the "secret" base at Area 51 has been featured in dozens of books, hundreds of articles, and even Hollywood movies. What was a great place to go to do some first-rate military monitoring of the Nellis Range has become a tourist destination, much I'm sure to the great irritation of the Pentagon.

How Did This Happen?

We consider this country to be an open and free society, so when this black hole of a base was discovered right in the heart of freedom-loving America, and no information about its purpose was forth-coming, it became the focus of intense scrutiny and speculation. In other words, the military shot itself in the foot by classifying the base as so deeply secret. If in those early days it had just stated that classified work involving emerging military technology was the focus of the base (something our adversaries have known for years, but the American taxpayers were being kept in the dark about) maybe the public's fascination with the place wouldn't have been so great.

Ben Rich's book "Skunk Works" covers the history of Lockheed's legendary aviation engineers who cracked the code of stealth design which led to the development of the first true stealth aircraft. In the book Ben recalled (and I'm paraphrasing here), "We never stamped any piece of paper at the Skunk Works as 'Top Secret' because that was the best way to draw attention to it. We just use common sense and kept classified papers and designs locked up and away from prying eyes."

Says Steven Aftergood, Director of the Federation of American Scientists' Project on Government Secrecy, "Area 51 is a concrete manifestation of official secrecy at its most intense, and that invites a mixture of paranoia and speculative fantasy that has become ingrained in popular culture." As a result of the

very secrecy designed to protect it, Area 51 has become a household name. Without realizing or intending it, the secrecy surrounding Area 51 is just the thing that has made it so famous.

One of the people at the forefront of digging up information about the base is a man named Chuck Clark, and now he's in trouble for doing just that. Chuck is a local resident, "UFO expert," and amateur astronomer who has appeared on many talk shows to discuss the secrets of the secret base. He has even published a book, *Area 51 & S-4 Handbook*, for tourists visiting the area. Every saucer-seeking guru claims it's the ultimate source of information on the base, even though some say it was a rip-off of *Area 51 Viewer's Guide*, the excellent book by Glen Campbell, another Area 51 activist.

Both Campbell's and Clark's guides describe a network of motion sensors that alert security forces at the base to any approaching vehicular traffic. Amazingly, these sensors are on public land and are easy to locate by anyone with a frequency counter. Glen Campbell was the first to discover them, and he was even able to log all the frequencies used by the array. When information on the sensors became public knowledge, many tourists made a game out of finding them. The sensors briefly disappeared and were replaced with more discrete sensors that were harder to spot and only transmitted their data a few minutes after a vehicle passed by, obviously in an attempt to foil those hunting them with frequency counters.

Missing Government Property?

Now the federal government says one of the sensors is missing. Because Campbell has basically retired to Las Vegas, suspicion has fallen on Clark, who has written about these gizmos at length, talked about them on TV, and even admits to digging them up and examining up to 40 of them (though he says all were put back). The Feds have decided it was Clark who took it. As a result, FBI and AFOSI (Air Force Office of Special Investigations) agents raided his home in Rachel, Nevada. The agents carted off his computer, photographs, and records.

Since the raid, federal authorities charged Clark with a single count of interfering with a communications system used for the national defense, but curiously not with theft of federal property. According to the indictment "On March 12th, 2003 Clark allegedly obstructed, hindered and delayed 'a signal from a mini intrusion device' located outside 'the Nevada Test and Training Range'—a reference to the government land that encompasses the Groom Lake site."

This charge is curious because it is the first time anyone has ever been charged with "delaying" a signal of any kind and, in particular, from a covert government transmitter located on public land. The scary implication is that the federal government could place sensors or eavesdropping devices anywhere (and not just on highways near secret air force bases) and if you find one, alter it, steal it, destroy it, or go public with it, you could

be subject to having your property seized and you and yours becoming the subject of a federal investigation.

It's quite clear in our post 9/11 world that this case is much more than an attempt to get a stolen sensor returned (and there seems to be no proof Clark took it), but also to send a strong message to anyone skulking around secret air bases that the federal government does not like tourists, journalists, curiosity seekers, and taxpayers prying into their secret business. I see this as the ultimate result of all the attention the base has received because of people like Clark who have promoted Area 51 as the ultimate UFO tourist spot.

You would think that someone as outspoken as Clark has been about Area 51 (claiming the secrecy surrounding the base infringes on the people's right to know) would have sought the aid of a famous ACLU attorney in an attempt to show that the case was not about sensors but about the government's attempt to intimidate journalists writing about Area 51. In reality the case is the government's attempt to warn journalists against writing about security measures surrounding Area 51. As a result, the normally outspoken Clark seems to be lying low, a reaction I'm sure military agents predicted, having probably employed psychologists to profile Clark's psyche before they decided to prosecute.

Campbell, on the other hand, would be howling long and loud to the press and would be bringing even more unwanted attention to the base. When Campbell was arrested once for interfering with Area 51 security (he locked a car door when the sheriff ordered a search of the vehicle in question) he made sure it became worldwide news.

Clark's Choices

The Pentagon, it seems, has learned its lessons and now picks the battles it can win. My guess is that their case against Clark is strong and that his only recourse is to comply with their wishes, even though it could have been anyone who read Clark's writing about the sensors who found and stole one. And that might be precisely the government's point. By revealing the location of the sensors, Clark (allegedly) may have contributed to their discovery and theft.

As a result, in a deal quietly reached with prosecutors last January, Clark agreed to "either locate and return the sensor removed on March 12, 2003 or pay restitution to the United States Air Force to replace the missing sensor." In exchange, the government agreed to suspend proceedings against Clark and to place him on a kind of probation called "pretrial diversion," meaning if Clark goes a year without interfering with any of the road sensors, and doesn't otherwise break the law, the government will drop the felony charge.

Therefore, Chuck Clark's government woes should serve as a warning that the days of "interceptors" sitting in lawn chairs on mountain tops or outside a fence line observing the military going about its business are long gone. Homeland Security is now paramount and new wide-ranging laws have been made that could get you in deep federal doody if you decide to become a thorn in the side of Air Force security.

So, if you decide to do some on-scene military monitoring, take heed and be very discrete. I have done my share of monitoring in "sensitive" areas but I have never interfered with security forces or dinked with government property. Let's understand the modern mindset of those who guard the gates and realize their job now dictates that anyone could be a threat.

This may seem strange coming from someone who just had published in this magazine an article on monitoring the

President's ranch in Crawford; however, you'll notice that at no time did I interfere with security forces or mess with government property. Also take note that the frequencies used in the area were already well documented publicly and have been published on the Internet, and therefore available to anyone, for some time. Besides, there's a big difference between writing a first-person story about my monitoring adventure in Crawford and telling the world where all the security sensors around Area 51 are located and how to thwart them.

Don't Push The Envelope

I'm not saying we should let the government infringe on our rights to enjoy this hobby, let's just not give them any more reasons to make new laws restricting it. Passive monitoring is fine. Just don't become targets by thumbing your nose at the Air Force security teams, publishing the security-related data, or otherwise interfering with their already difficult job of protecting sensitive areas. In other words, don't do anything stupid like trespassing on government property or dinking with their gizmos and writing about where they are located.

Once Campbell (so wrapped up in his adopted role of unofficial watchdog of Area 51) went so far as to try to identify all the "Cammo dudes" tasked with security at Area 51 and threatened to publish their names and pictures on the Internet. At the time I thought (and still do) that it was a horrible idea that was bound to get him in trouble. More important, it was also an infringement on the privacy and security of the families of those employed.

However, if you feel you are being singled out for persecution unjustly and that your rights as a citizen of this country are being trampled in the name of Homeland Security, then indeed fight for your rights. Just be damned sure you haven't done anything unlawful in the first place and that your case is strong.

There are those inside the security establishment who think that radio monitors are spies, a type of hacker up to no good, and the knowledge they possess and acquire through their eavesdropping is a threat. They want to draft new laws restricting our hobby. Let's not give them examples of stupidity to draw upon. Let's prove them wrong. Let's monitor smartly and report what we intercept, but always be mindful of the security implications. Enough said.

Reader Needs More Power

Rick Ericksberg writes:

I read with interest your column in the June *Pop'Comm* about your home setup and was wondering if you could help me. In addition to the existing equipment in my home shack, which uses mostly commercial power, I wanted to set up a mobile 2-meter transceiver powered by a car battery for times when the wall power goes out, which is fairly frequent where I am. This would be especially useful for Skywarn activation, etc. My question: is there any downside to using a deep cycle battery for this application? I know normal car batteries are quick-crank types that provide a brief jolt to start a vehicle. I know deep cycle batteries provide a steady flow of current and are better for repeated charges over time. I just don't want to potentially damage the radio. Would a deep cycle battery be a better choice? Thanks.

Rick, using a car battery of any kind in your home could be potentially hazardous, unless it is one of those new, sealed multi-cell types now available at most car parts stores.

Regular types (even if they are sealed) can give off potentially explosive and caustic gasses and are intended for in car

or outdoor (well-ventilated) areas only. I used to use one to power my GMRS rig during times when the power was out in my home shack, but I located the (deep cycle) battery outside and ran power cables inside to my equipment. I kept it charged using a solar charger, the type used to keep batteries charged for use on electric fences. You can find these chargers at agriculture-related stores.

I use a gel-cell I bought at a Hamfest for \$30, which I charge with a standard automobile trickle charger. To keep it from developing a memory, I make sure I discharge it once a month by leaving the radio on and running the battery down. Good luck on your power project!

An F-117 IFE Catch

Mark Cleary of Charleston, South Carolina, passed on this exciting UHF MILCOM catch:

I have an interesting UHF log. I was monitoring the Charleston AFB air show, having just returned home from it early to beat the heat, when I caught STEALTH 91 (F-117A) on Tower freq 239.000 inbound to do a flyby reporting he had a fire in one engine. He shut down the engine and the fire warning light eventually went out. He ended up making an emergency landing at KCHS and was taken to a vacant hangar away from the prying eyes of the 125,000 visitors. Crash/Fire response was on 415.550, 406.750 MHz. Engine damage was discussed by Central Control on 415.150 MHz.

At the end of the show, after the paratroop drop, there was another IFE (in-flight emergency): MOOSE 41 (C-17A) came up on Approach freq 135.800 and CP (Command Post) freq 349.400 reported inbound to Runway 15 declaring IFE for gear problem. 8 souls on board, 30 k fuel. Pilot requested crash and fire response. A busy day for the crash crews!

Readers Logs

I want to remind you that you can send in your MILCOM loggings above 30 MHz, including UHF aero band catches. Just do so in the format below. Many thanks to our ever-faithful UTE monitors who submit their logs every month. Maybe you'd like to be one of them?

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

4721: REACH 3632 calling Andrews HF-GCS with No Joy at 0121. (MC)

4739: FIDDLE calling CARDFILE 71C with No Joy at 0017. (MC)

4739: FIGHTING TIGER 22 wkg GOLD-

ENHAWK followed by ANDVT monitored at 0108. (MC)

5717: TRENTON MILITARY and HALIFAX MILITARY hailing each other. Both are loud and clear here, but can't hear each other at 0020. (MC)

5732: SERVICE CENTER connects 91J to HAMMER for posit update at 2341. (MC)

5732: CG 1720 (HC-130, CGAS Clearwater) p/p to Group Key West to coordinate comms with cutters on 3A04 and 3A17 at 2351. (MC)

6694: RESCUE 311 p/p via HALIFAX MILITARY to RCC HALIFAX. Halifax reports Shearwater Ops will have fuel available at 0111. (MC)

6712: REACH 9002 with Mainsail call with no answer at 0226. (MC)

7527: Parkhill encryption then SERVICE CENTER connects OMAHA 558 to HAMMER at 2351. (MC)

7849: FALCON (Naval Base "Mariscal Juan Crisóstomo Falcón", Venezuelan Navy): 2329 USB/ALE TO CGEJM (Cuartel General Ejercito-Movil-Venezuelan Army Hqs (Mobile). (RP)

8240: Cutter EAGLE wkg Group Miami at 1502. (MC)

8337.6: X4J, Y6L, S7H, and I9W USCG cutters heard with voice comms north of Haiti at 0045. (MC)

8912: CG 1717 (HC-130, CGAS Clearwater) p/p via SERVICE CENTER to MIAMI OPS then CLEARWATER AIR at 2243. (MC)

8918: New York (MWARA CAR-A): 0446 USB w/Iberia 6120 (EC-DIA, B-747) w/position report and SELCAL check (EJ-GL). (RP)

8971: RED TALON 71C wkg FIDDLE to report they are unable to prosecute due to WX on station. FIDDLE does not copy and RED TALON 71B relays at 2147. (MC)

8983: CG 1502 wkg CAMSLANT to relay to Cutter *Gallatin* via 402 Net to come up on HF secure at 1149. (MC)

8992: NAVY CW 780 p/p via Offutt HF-GCS to VR-62 DUTY OFFICE, NAS Brunswick at 2157. (MC)

8992: VIKING 17 p/p via Puerto Rico HF-GCS to NAS Jacksonville Base Ops and Duty Office at 0126. (MC)

9052: CGGN (Venezuelan National Guard HQs): 0107 USB/ALE TO CUFANI (Unified Command of National Armed Forces). (RP)

9025: CG 1504 ALE initiated call to ICE PATROL. Reports out of 44-30N visibility is excellent. Negative icebergs at 2049. (MC)

9031: Architect (RAF Flight Watch): 2325 USB w/Ascot 6502 (not heard) w/radio & SELCAL check (?K-ES). (RP)

10115: SCLC512 (Communications Logistics Center, 512th Jungle Inf Bn, Venezuelan Army): 0008 USB/ALE TO CLC51 (Communications Logistics Center, 51st Jungle Inf Bde). (RP)

10242: CG 1502 in position 37-03N 056-29W p/p via CAMSPAC to Homeplate reporting ETA and requesting lodging arrange-

ments. States they are also in comms with RCC Bermuda at 0153. (MC)

11205: VIKING 27 reporting to SMASHER they are on deck at Manta, Ecuador at 0025. (MC)

11232: RESCUE 313. (MCwest of Winnipeg) p/p via TRENTON MILITARY to RCC. RCC reports the ELT was heard in position 50-47N 115-09W by another aircraft piloted by a friend of the downed aircraft's pilot at 0028. (MC)

11232: RESCUE 313 p/p via TRENTON MILITARY to RCC. RCC reports vessel is stuck in the ice near Flower Point. The 3 POV have made it to shore and they are directed to drop a radio to them at 2127. (MC)

11232: RESCUE 336 p/p via TRENTON MILITARY to RCC HALIFAX. Halifax tells them to remain on station and watch for flares. Cutter *Frederick Steed* told to contact Halifax on Sat phone at 0005. (MC)

11494: 60A ops and position report to PANTHER at 2320. (MC)

12984: 4XZ (Israeli Navy, Haifa): 0431 CW w/VVV DE 4XZ 4XZ. (RP)

13500: 61B (LST "Capana," T-61, Venezuelan Navy): 1052 USB/ALE TO CGA (Venezuelan Navy HQs). (RP)

13089: CAMSLANT wkg Cutter EAGLE regarding comms schedule at 1823. (MC)

13200: NAVY LF 23 (P-3C, VP-16) requests p/p. Not patch quality at 2143. (MC)

13907: VAGABOND and 5926 telling RED BREAST they are weak and barely readable at 0203. (MC)

13907: 61A airborne with 5 POV requests guard from PANTHER. PANTHER requests to know if they tried to contact them on PANTHER Net before COTHEN at 0026. (MC)

13927: KING 16 (HC-130) (over Dallas, TX) p/p via AFAIRE to Hurlburt Field Base Ops reporting 0330 Z requests WX at 0152. (MC)

13927: AIR FORCE RESCUE 14864 (HC-130 #64-14864) p/p via AFAIRE Maine at 2349. (MC)

14569: CLC51 (Communications Logistics Center, 51st Jungle Inf Bde): 0001 USB/ALE TO SCLC514 (Communications Logistics Center, 514th Jungle Inf Bn). (RP)

15094: KNY90 (SHARES station) monitored at 1606 in USB/ALE TO KAN38 (SHARES station). (RP)

This month's star contributors are Mark Cleary (MC) and Ron Perron (RP)

Share Your Monitoring Stories!

Well, we sure caught some superb utility action this month. I'm sure other readers are having similar results at the radio, so don't forget to send me your own utility radio experiences. You can write to me at "Utility Communications Digest," *Popular Communications*, 25 Newbridge Rd., Hicksville, NY 11801. ■

Q. What did the New York City radio station WOR rebroadcast in the summer of 1939 to give their listeners a “feel” for the rapidly approaching world war?

A. German Intelligence had a communications center in Wohldorf near Hamburg, Germany. They were transmitting a torrent of message traffic to their 16,000 agents worldwide. WOR recorded these coded messages, which were mostly gibberish, and rebroadcast them to their hundreds of thousands of listeners. These curious listeners heard the eerie sounds of impending war.

Q. When was radio first used in support of a popular uprising?

A. Many people will tell you that it was Lenin, who made a speech announcing the success of the Bolshevik Revolution in 1917, who first exploited the power of radio in such an endeavor. His speech was transmitted by the wireless operator aboard the cruiser *Aurora* in a series of Morse code transmissions. The cruiser was anchored in St. Petersburg, near the Czar’s Winter Palace, and had fired the first shot announcing the beginning of the Revolution. Well, sorry Vladimir, you get the second prize.

First prize goes to The Irish Republicans for their transmission on April 25, 1916. The Republicans knew that if they were to succeed with their now-famous Easter Uprising they would have to scramble communications between Ireland and England. To do this they cut the undersea cable which carried the “official” message traffic somewhere in the Irish Sea. In order to get the message out that the job had been done, a message was sent out by Morse code. Republicans had occupied the Irish School of Wireless Telegraph and repaired a ship’s radio. They kept transmitting for 20 hours, beginning at 5:30 p.m. local time. Who was involved and whether the transmitter was aboard the ship that cut the cable or on school property has never been satisfactorily determined. Up the Rebels!

Q. During World War II and The Korean War military channels of notifying families that their loved ones were Prisoners of War were very slow. Many people got the word from other sources. What were these sources?

A. Loyal Americans would listen to enemy shortwave propaganda broadcasts on a regular basis. They had no sympathy with the enemy causes but knew that the names and hometown addresses of POW’s would be broadcast over these propaganda programs. Never officially organized, these citizens gave of their time to copy down messages and mail postcards and letters to families, who only knew their servicemen were listed as “Missing in Action.” These precious messages turned despair into hope. Some families received 30 to 60 such messages.

Q. Arturo Toscanini did a great deal to popularize Opera and Classical Music in America. Conducting the NBC Orchestra every Sunday, he was a mainstay in many American living rooms through the 1930s and ’40s. How far did his audience reach?

A. One couple in Baltimore reported that their canaries wouldn’t sing during his program but would hold forth with classical music immediately afterwards. Whether that is true or not is open to conjecture. The following, however, did occur. The famous conductor once got a letter from a regular listener, an elderly man who was a shepherd in the mountains of Wyoming. His letter explained that he had two precious possessions to keep him company during the lonely vigil over his sheep. He had a battery-operated radio and a violin he had played since he was a child. He had been alone for so long he could no

longer reliably tune his violin. Could the great Toscanini please start his next radio broadcast with the sound of a loud A? With a good sound of the A the shepherd said he would be able to tune his violin, which kept him company until the next Sunday. Batteries were too expensive and were only used for important broadcasts. At the beginning of the next Sunday broadcast Toscanini began the performance by announcing, “For a dear friend and listener back in the mountains of Wyoming the orchestra will now sound an A.” With the wave of the conductor’s baton the entire orchestra reached out over the miles and saluted their fellow musician with a perfect A. ■

Looking Back . . .

Five years ago in *Pop’Comm*:

Indeed the clock was ticking and we were all in high gear with concerns about Y2K, and hardly a day, or even newscast, went by without some mention of it. In September 1999, we featured a look at how you could power your station from solar power. Just for the record: The batteries, solar panels, and equipment featured in that article are still operating! AOR had just announced its new AR16B handheld receiver, ICOM America debuted their new IC-T81A four-band handheld, and Ten-Tec’s ad on page 47 featured the “PC Radio” that tuned 100 kHz to 30 MHz—a stand-alone black box that connected to your computer’s serial port. PSK31, a new digital keyboard mode, was covered extensively in “The Ham Column” by none other than Kirk “Time Flies When You’re Having Fun” Kleinschmidt.

Ten years ago in *Pop’Comm*:

They say the more things change, the more they stay the same—or something like that. We found it interesting that in September 1994, Tom Kneitel reported that the Mil Band (225 to 400 MHz) is strangely ignored in some monitoring circles, and even that, “...the majority of scanners to come out have not included coverage of the 225 to 400 MHz band.” It’s interesting that while some 10 years later more and more radios do cover the Mil Air band, there are still those that don’t, including Uniden’s new BCT-8 reviewed in this month’s *Pop’Comm* by Rich Arland. Is that news of a “new” book, entitled “Military Monitoring,” by writer Steve Douglass on page 24? Sure enough—and we thought Steve just turned 29! At \$899, AOR had just debuted their new AOR AR3030 receiver with coverage from 30 kHz to 30 MHz, weighing in at about five pounds. Complete with digital readout, it could operate from 115 VAC, a 12 VDC source, or even 8 “AA” batteries.

Twenty years ago in *Pop’Comm*:

Oops, looks like war in the Middle East topped the monitoring agenda in September 1984, as the Iran-Iraq War was nearly four years running. Gerry Dexter’s article “Shortwave From The Persian Gulf War” featured the usual combatants: Iran, Iraq, Kuwait, and other countries that are—were—squarely in the “middle” of it all, including Qatar and Oman. The article included frequencies and times, and even a QSL from Radio Baghdad. In the “On The Line” column, the topic was cordless eavesdropping. New equipment 20 years ago included the JRC NRD-515, billed as “a fine performer with low phase noise.” Oh, yes, and if you were interested in a piece of gear or advertised product you either wrote or called the company; there were no Websites on any ads back in 1984!

The Ultimate S-Meter

Last month I showed how to add a simple S-meter to your vintage tube receiver. The design was passive, requiring no additional active components to work with other than the externally boxed S-meter display. Even some high-end communications receivers used similar schemes; after all, it is the engineer's job to do the design in the cheapest manner possible, while using the fewest components to reduce costs and sources of problems. The fewer components, the less likely something will fail, or be miswired on the factory assembly line. I also promised to follow up with a more elaborate design, and here it is.

I guess I'm not much of an engineer, since I like receivers with lots of tubes and controls to play with! **Figure 1** is representative of a circa 1950s-era handbook S-meter circuit. The circuit works like a bridge, with the 6C4 triode working as the variable element. It's nice, simple, and effective, but there are several inherent drawbacks. The meter will need re-zeroing as the tube ages, and the design also places B+ voltages on the meter assembly. This can be a concern in some early meter designs that used a metal mechanical zeroing adjustment, which could be "hot" with voltage!

Out Of The "Junkbox"

The S-meter for this project was garnered from my junkbox and is likely a relic from some long forgotten hamfest; I suspect in its former life it graced the panel of a vintage communications receiver that I've been yet to identify. I didn't know the specifications for the meter movement, but by applying some basic electrical theory to learn the meter's electrical specifications, they were quickly uncovered. Using my digital Fluke meter, I noted that the meter had a DC resistance of 111 ohms, and that at full-scale deflection I measured 0.115 volts across the meter terminals. Ohm's Law (current equals voltage divided by resistance) showed that the meter movement was 1 mA (for full-scale deflection.). The meter was designed to be backlit, so I added a No. 47 pilot lamp to illuminate the translucent amber celluloid dial scale. Neat!

The completed S-meter accessory is shown in **Photo A**. Any meter movement between 500 μ A and 1 mA should do fine. A 500- μ A movement will be more expensive, and likely harder to find, but it will work better in some instances. It's nice if you have a meter with a calibrated scale for S units, but since S-meters are mostly used for comparative versus absolute signal strength readings, any 1-mA meter can be pressed into service.

Balanced Bridge S-Meter

The classic circuit shown in **Figure 1** works well, and it was one I used with success on surplus military ARC-5 receivers as a teenager. A few late weekends tinkering on the workbench (well illustrated by **Photo B**) resulted in the circuit shown in **Figure 2**. Rather than use a single triode tube and passive resistive elements for the bridge, I came up with a scheme where both lower legs of the bridge use one-half of a 12AU7 medium

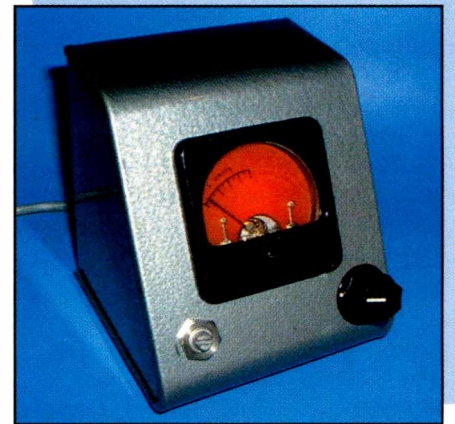


Photo A. The completed S-meter is housed in an attractive, vintage-looking Bud project enclosure.

mu triode. This keeps the bridge balanced as the tube ages, and the S-meter keeps zeroed with less fiddling!

Development

Note that this project's development made good use of the Stark variable high-voltage DC supply featured in one of last

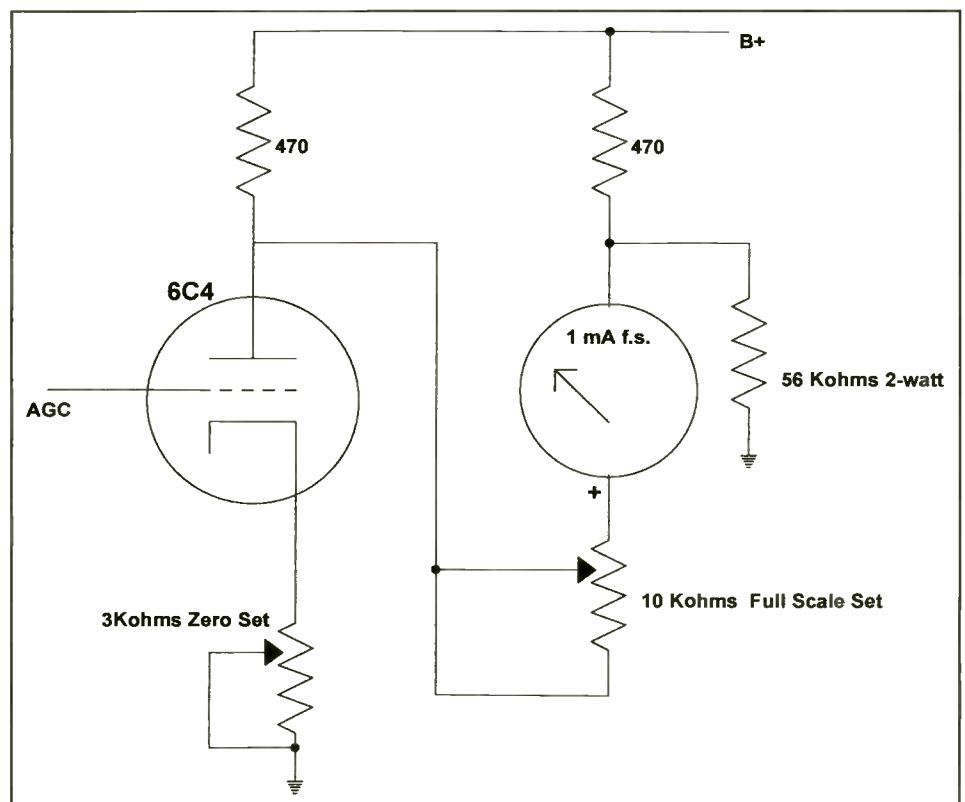


Figure 1. A single triode is used for this active S-meter circuit. As the tube ages, the meter will require re-zeroing to compensate for drift.



Photo B. It's 3:30 a.m. Saturday morning and the final touches are being added. Note the well-used coffee mug.

output (negative bias voltage) to simulate AGC signals. Things were looking good, but I felt I could do better. For one thing, the meter needed at least 4 volts of maximum AGC for full deflection. I wanted it to work with AGC voltages as low as 2 volts. The meter was at plate voltage potential—another risk I wished to minimize.

Reaching Our Goal— The Ultimate S-Meter!

I'm not afraid to try new ideas and experiment. On a lark, I connected the meter between the two cathodes instead of the plates, which evolved into the circuit shown in **Figure 3**. The meter was noticeably more sensitive, and I was able to achieve full-scale S-meter deflection with AGC voltages under 2 volts, and with B+ plate supply voltages of around 100 VDC! This was a big improvement, and the dangerous DC voltages were no longer present on the meter assembly.

Note that the meter polarity was reversed in **Figure 3** because the voltage action on the cathode and plates are opposite to each other. Also, I've indicated the

year's columns. The supply allowed us to operate the meter in stand-alone fashion, without a receiver, as the design was refined. The circuit in **Figure 2** worked as

hoped, and would have interfaced with receivers with AGC voltages between 4 and 27 volts maximum. This range was confirmed by using the Stark's variable C

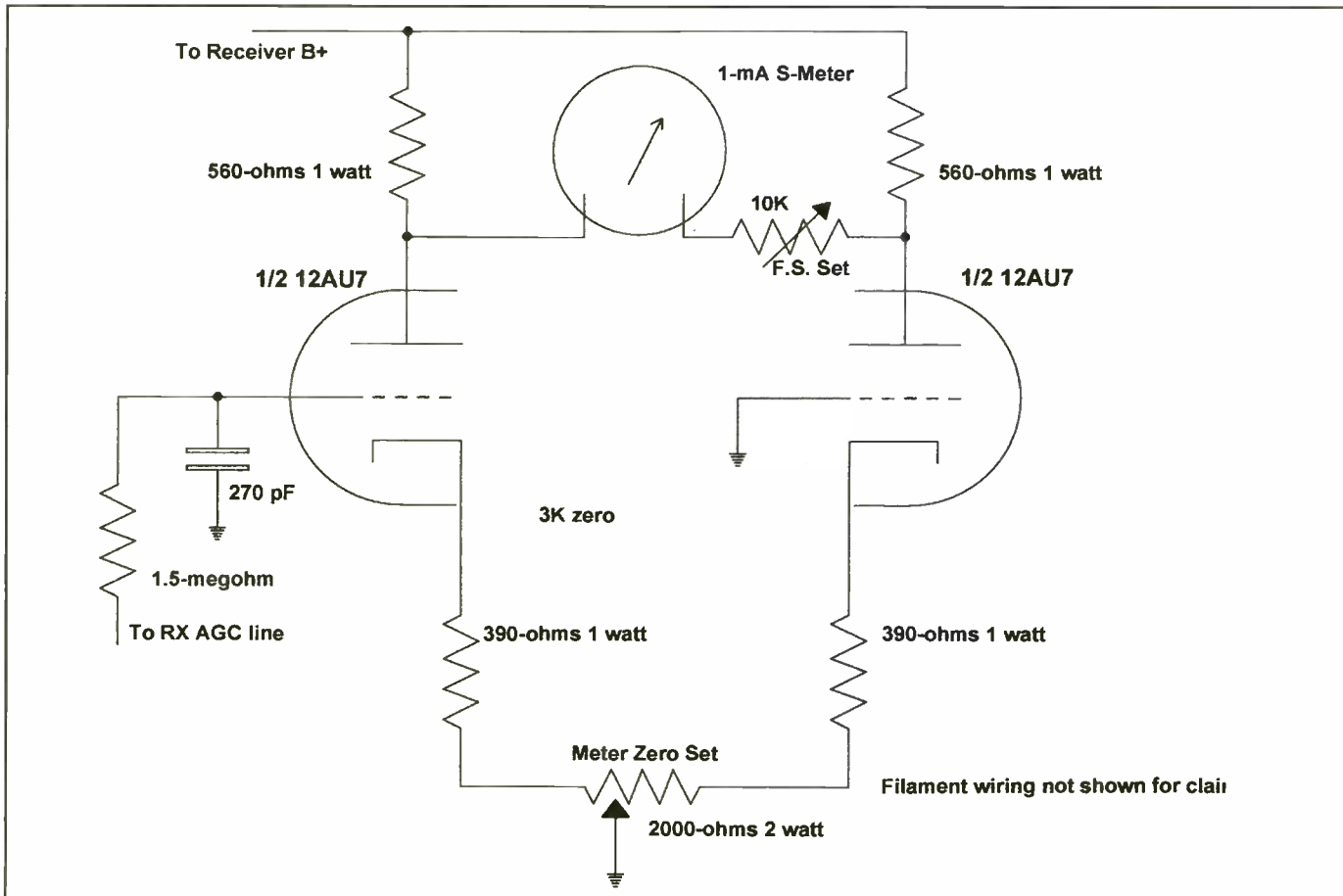


Figure 2. Using two triodes allows the effects of tube aging to cancel out, keeping the meter zeroed over the life of the dual-triode.



Photo C. Here's a peek on how things were put together. The 12AU7 is mounted on a small-aluminum bracket, along with a terminal strip for mounting most of the components. Photo D better illustrates this area.



Photo E. SWL Nirvana! What could be sweeter than this vintage Hallicrafters S-53 and companion S-meter to tune her by?

preferred wiring for the clockwise (CW) and counter-clockwise (CCW) legs of the Zero Set potentiometer. When zeroing, you intuitively anticipate the meter needle rising when going CW.

To achieve full-scale deflection at higher AGC voltages required increasing the B+ voltage to around 200 volts. This is not a problem, as most communications receivers will have more than enough B+ available voltage. Note resistor R1 shown in **Figure 3**. The value for R1 should be determined empirically on a case-by-case basis. The goal is to use as much resistance as possible: too high a value might prevent the meter from reaching full-scale before the tube reaches saturation. The ideal situation is to be able to set the meter for full scale on a very strong signal with the 10-k ohm field strength (F.S.) calibration pot set for near minimal resistance. This also limits the current drawn by the S-meter. Remember that many communications receivers

were not designed to power external accessories! It will also reduce the 12AU7's dissipation, increasing tube life.

In retrospect, it might be better to play with the cathode biasing resistor values to compensate for the different AGC and B+ voltages found in different receivers, Alas, it's hard to make a one-size-fits-all that'll meet all possible variations that might be encountered. My guinea pig for these projects is my venerable S-53 Hallicrafters receiver. I found that a 10-k ohm 2-watt resistor (installed in the receiver chassis) worked well for R1 to reduce the set's 240 VDC B+ voltage. Since the receiver was used for several previous projects, we had already installed the necessary accessory jack on the rear apron of the receiver. This was a rectangular recessed 6-pin Jones-style receptacle to provide filament, B+, AGC, and ground for external receiver accessories. Many receivers were made with factory-installed accessory sockets.

Design Notes

Photos C and D detail the internal meter construction. The meter box is made by Bud Industries of Ohio (www.budind.com/index.html) and is aluminum, so it is easily drilled and punched for the meter and controls. Once you gather the parts for this project, spend some time doing dry assemblies to see what layouts give the best fit. The potentiometers can be mounted on the rear panel if you prefer. Screwdriver-adjustable pots would be fine; once set, the controls will require infrequent adjustment. I opted to use a shafted pot with a knob for the zero-set control, but it isn't necessary.

Using shielded cable between the receiver's accessory jack and the meter box can help to minimize noise pickup on the AGC line. I placed four stick-on felt pads on the bottom of the Bud enclosure to serve as protective feet.

Calibration

A signal generator is the best method to quickly calibrate the S-meter. With no signal, no antenna, and on a very quiet band, set the Zero Set potentiometer for a zero reading on the meter. Tune the receiver to a very strong station (or signal from your



Photo D. Most of the component leads are supported between the solder terminal strip and the 9-pin 12AU7 tube socket. Vintage parts were used when available. Insulated tubing covers bare component leads for neatness and to minimize the chance of shorts.

generator), and use the F.S. set potentiometer to set the meter for full-scale deflection. If you can't achieve full scale, you may need to increase the B+ (decrease R1 value) if the AGC maximum voltage is higher than 10 volts. One other undocumented feature was the lack of interaction between the Zero Set and F.S. pots; thus the calibration procedure is easier and faster!

Here's the S-meter and my Hallicrafters S-53 receiver (**Photo E**) together at my listening post! I think this S-meter is more in line with the vintage look of the Hallicrafters receiver. I suspect they will be working together for a long time, adding a new dimension to my shortwave DX enjoyment.

AC Line Safety Capacitors

We've discussed the necessity of using the proper UL-rated components for AC line bypassing, but I've been unable to recommend a source of these parts until now. But we've learned that Just Radios has added AC line bypass and across-the-line rated AC safety capacitors to their extensive line of high-voltage replacement caps for hobbyists. The company is supplying radio restorers with high-quality replacement caps at exceptional prices.

Photo F shows a few representative examples of their new line of rated capacitors. The round ceramic disc capacitors are X1/Y1 rated for both across-the-line and line bypassing service. The yellow rectangular capacitors are X2 rated for across-the-line, noise suppression, and for antenna coupling applications. A good link for information on the proper use of these capacitors can be found at www.justradios.com/afetytips.html. You can also peruse Just Radio's extensive offerings at www.justradios.com,

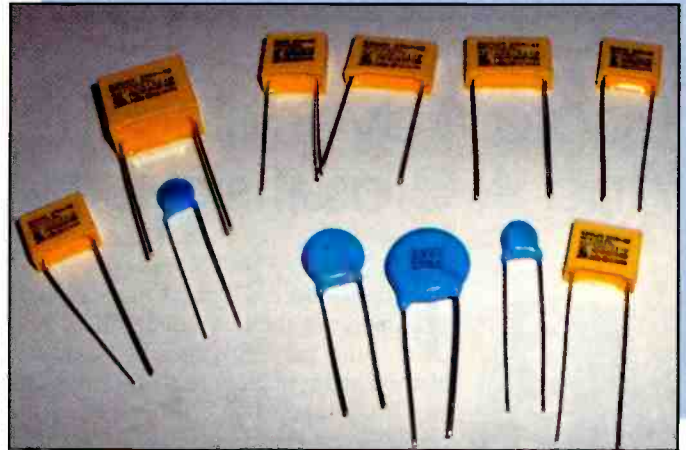


Photo F. Thanks to the folks at Just Radios, there's no excuse not to use the proper components for AC line voltage bypassing! Safety first!

or contact them at Just Radios, David Cantelon, 42 Clematis Rd., North York, Ontario, Canada M2J 4X2. A \$10 minimum order applies. They are fine folks to deal with, and please tell them *Pop'Comm* sent you.

Let's See Your Meter Project

We'd like to hear about your meter project. How about sending along some photos? You can write to me at radioconnection@juno.com or to "The Wireless Connection," *Popular Communications*, 25 Newbridge Rd., Hicksville, NY.

Until next time, keep those soldering irons warm! ■

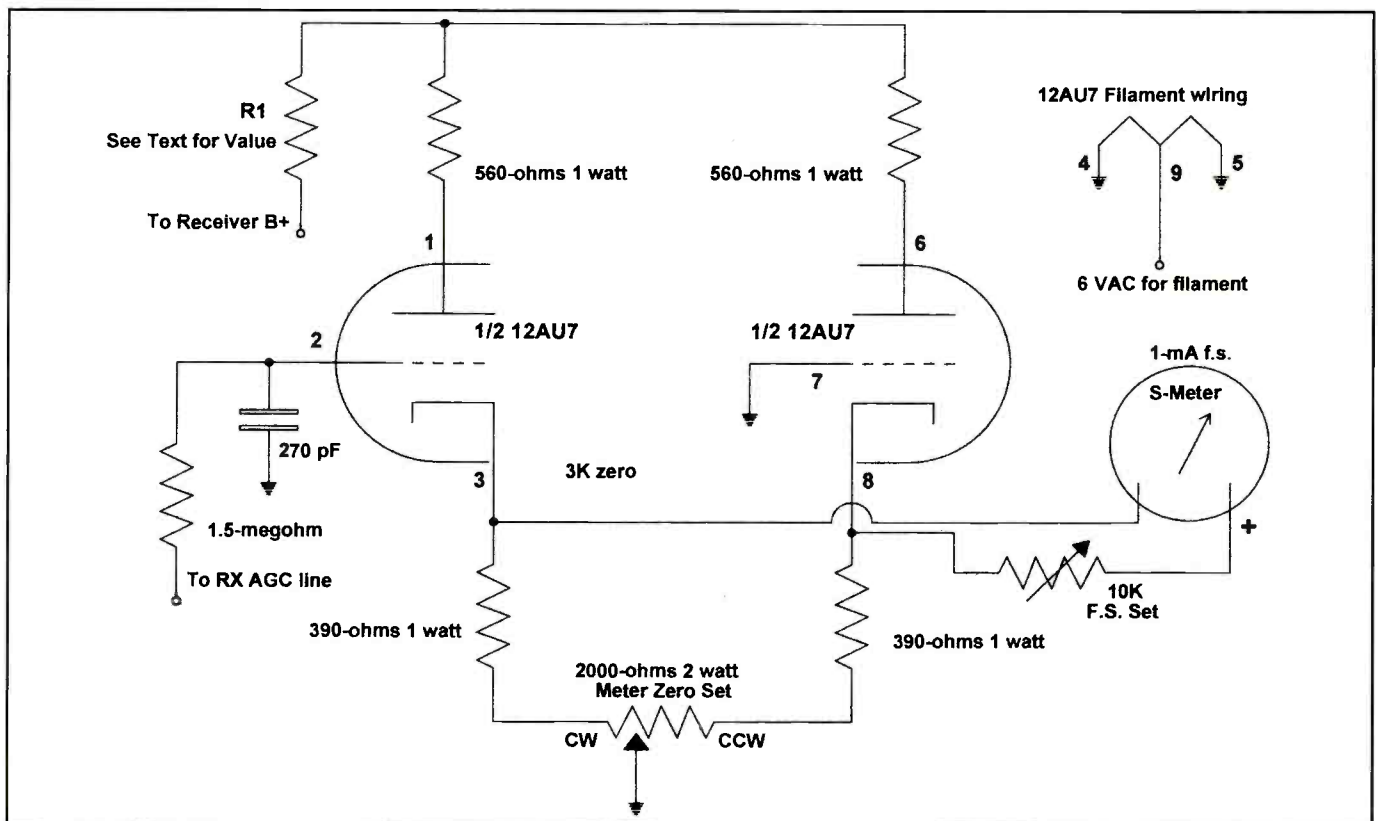
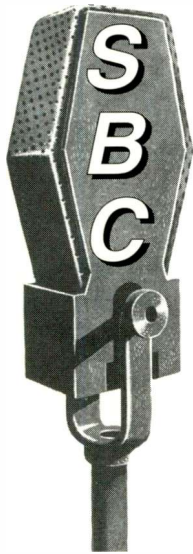


Figure 3. This circuit is more sensitive and limits exposure to high voltages on the meter terminals. Note that the meter polarity is reversed from that of Figure 2; also the CW and CCW terminals on the Zero Set potentiometer are reversed.

Radio Advertising, Remote Broadcasts, And A Classified Experiment



In the 1930s the Radio Corporation of America's publicity department was crafting the first pages of broadcast history, and it made sure that RCA-related stations figured large in that seminal literature. A chief component of RCA's spin was the story about WEAF New York having "invented" radio commercials.

WEAF, which stood for Wind, Earth, Air, and Fire, was owned by AT&T (and not RCA's National Broadcasting Company, or NBC) at the time of the 1922 "eureka moment" when some real estate agent proposed giving the phone company a hundred bucks to have WEAF announcers read a prepared "talk" about a new housing development. According to the subsequent publicity accounts, fantastic listener response resulted in all the

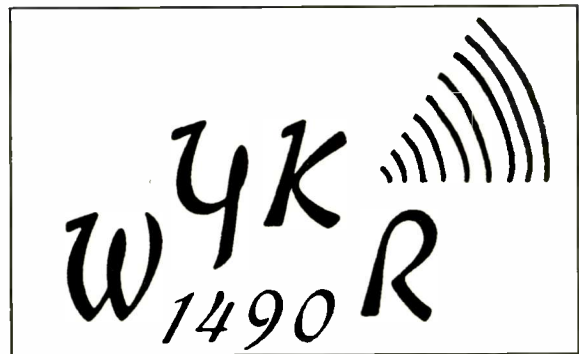
advertised dwellings being quickly sold, and the concept of selling broadcast time, or what AT&T coined "toll broadcasting," crystallized.

RCA officials conveniently forgot to mention radio's earlier quid-pro-quo forays, such as the circa-1914 on-air ads run by the pioneering San Jose, California-based Herrold station in exchange for phonograph records from a local music store. But, because WEAF was operated by a big company that understood the value of charging people for the privilege of talking to other folks, this "toll broadcasting" received the immediate attention of the AT&T brass. For starters, they wanted to charge royalties to any other station that followed the WEAF "say for pay" formula.

Even the government quickly recognized commercial radio's potential power. Regulators worried about AT&T controlling the airwaves' commercialism—plus they were making money from phone commerce. No doubt Washington was happy to see AT&T sell WEAF to RCA for use as the flagship station of its fledgling NBC radio network. Much of the facility's then remarkable million dollar price tag was attributed to its likely ability to reach lots of listeners who could be persuaded, by way of sponsors' messages, to buy things. Though most of America's radio stations that followed the likes of WEAF were planned and built by people who had a deep love for broadcasting, it was the anticipated advertising income that made those projects possible.

My Favorite Radio Commercial Tale

The word "apocryphal" is sometimes used to describe a story that's pretty much true, except that nobody remembers which part is the "most accurate." Many apocryphal stories are so much fun to tell and hear, however, that there's little incentive to scrutinize them. The WEAF realtor ad serves as an example, but



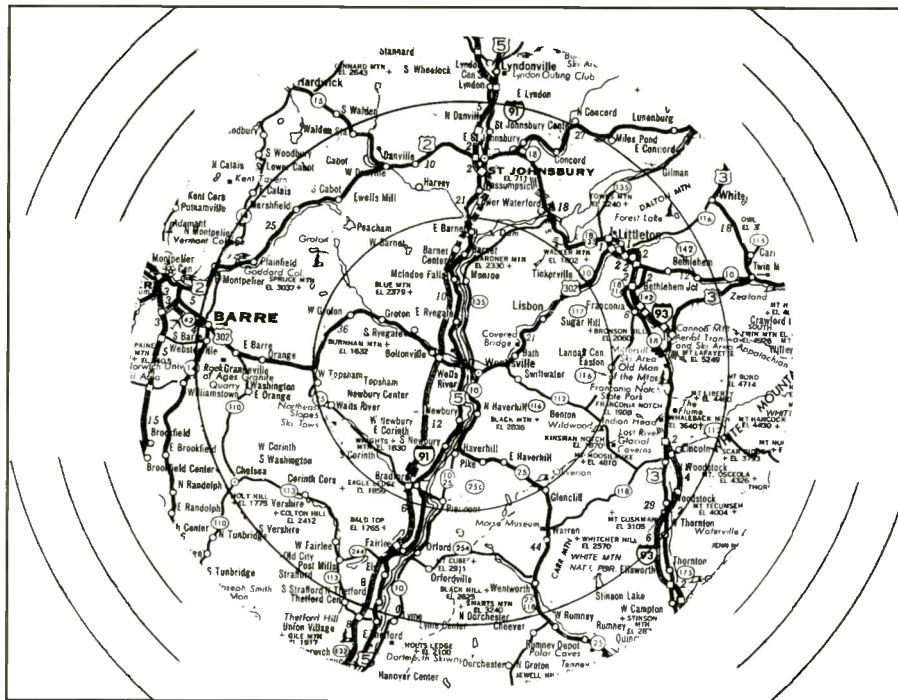
isn't the best. I heard another one that those old RCA publicity folks would have loved to claim. Admittedly, it has been reconstructed from my childhood memory of visiting a tiny Vermont AM, and embellished by my dad who always seems to decrease the ad's price and increase its commercial effectiveness with every telling.

We heard this story in the early 1980s when my family was vacationing in the New Hampshire-Vermont region. Dad stopped at several small radio stations along the way, including the very interesting WYKR in the tiny community of Wells River, Vermont. I do remember that "Yankee Kingdom Radio" was housed in a really old former school building that its owners had purchased for a broadcast headquarters and residence. According to a brochure my father requested there, WYKR 1490 first took the air in early October 1976 with 1 kilowatt during the day and 250 watts at night. Daytime coverage was estimated to reach some 40 towns with a combined population of about 35,000. WYKR's after-sunset footprint was considerably smaller with just a few thousand folks potentially in its path. This 250-watt version gives our tale a great setting, but I'll have to come back to that.

Meantime, let's just say that WYKR 1490 was the quintessential friendly little AM in a modest New England burg. Between 6 a.m. and 10 p.m. Mondays through Saturdays, and 7:30 a.m. until 9 p.m. Sunday, listeners were treated to 40 percent country music, another 40 percent worth of middle-of-the-road pop, and the remainder in big band, classical, rock, gospel, talk, and sports format blocks. The brochure said, "Locally owned and operated by the Puffer Brothers (Eugene and Harold) and their families, WYKR ran with a philosophy of community involvement...and maintained two sets of remote, on-the-road equipment for on location broadcasting." This meant that every local fair and event of note was in a good position for some WYKR word of mouth.

And Now, The Rest Of The Story...

An easy-listening album spun on a WYKR turntable as the DJ proudly handed my father the aforementioned station flyer. Dad smiled at the commercial rates and chuckled about WYKR's cute little \$1.40 price for a 15-second commercial "spot." "Hey, don't laugh too hard," the fellow smiled, "A few



Lots of circles are typical of a small station's coverage map. Notice that none are linked to any specific signal strength or scale of miles. Also common to small market operations are maps filled with towns that few who live outside the area could identify. When WYKR distributed this map in the late 1970s, the station was a true "peanut-whistle" on the local 1490-kHz channel, offering 1000 watts days and just 250 at night. By the mid 1980s, it had shifted to a 5-kW daytime-only outlet on 1100 kHz. Calls were switched to WTWN, with the WYKR identity adopted by a co-owned FM. No matter the form, the WYKR ownership has long maintained a strong tradition of community service-oriented local ownership.

years ago we had dollar ads at night and they worked real well, too!"

That's when the DJ decided to let the LP track into the next song and started telling us about a guy in a nearby hamlet who opened a small carpet/flooring shop in a section of his basement. "It was a pretty shrimpy operation," the DJ said, "just a few carpet samples, some carpet installation tools, tape measures, and a card table with a moneybox, pencil, and receipt book on top. The guy was just hoping to do something on the weekends to earn a bit of extra money. His wife set up any appointments or jobs that trickled in. Their home phone doubled as a business line."

Anyway, we stood in the WYKR studio and heard how the fledgling businessman gingerly walked into the station one late winter's afternoon. He'd just gotten off work at some local garage and came by to inquire about radio advertising. After learning that spots could be had for a buck when WYKR dropped to 250 watts, the fellow jotted down a few details about his tiny business, counted out five one-dollar bills, and quietly headed out the studio door. He did turn to whisper the question, "when can I hear my ad?" and was happy to discover that the WYKR

jock would do one live after the next song.

At that very moment, a contractor was driving back home to Boston. He'd been overseeing the construction of some upscale vacation condominiums overlooking the Connecticut River a few miles outside WYKR's community of license. While his truck sped down Interstate 91, the builder made a mental checklist of all he'd accomplished that week. The condos were nearly ready to put on the market. He began to relax and twisted the radio tuning knob up the dial in search of some music. Everything was coming together, windows, siding, landscaping, and, "Oh No!" he shouted. "I forgot to see about the carpet!"

Almost simultaneously with that realization, the song on his truck's radio ended and a 35-word commercial about the aforementioned carpet shop came through the speaker. The contractor heard a phone number, repeated it aloud so he wouldn't forget it, pulled over to the side of road, and scribbled it on a donut bag strewn in front of the passenger seat. Soon after he resumed highway speed, WYKR faded into the static and the chilly evening air. Two hours later, the carpet guy and his wife were sitting at

their kitchen table when the phone rang. "Sure," they said when asked if they could head to the condos the following morning and work up an estimate. It turned out that the one-dollar WYKR commercial yielded a \$24,000 carpet contract - or some remarkable amount like that. It just goes to show that you never know who's listening to the radio.

Sometimes It Seems Like Nobody Is Tuned In!

Mike Landry worked as a major-market air-personality at WPEN, Philadelphia, but counts his tenure at Chester, Pennsylvania's WEEZ 1590-AM as the most educational, and humbling, aspect of his radio career. This was mainly due to the dubious mid-1970s remote broadcasts the rim-shot Philly station would often have him work. Here, in my admittedly apocryphal paraphrasing, is an account of one of Landry's most memorable personal appearance remotes:

At one of them, I was trying to drum up business in some old mom and pop hardware store, playing scratchy 45-rpm records, beg-

POWERPORT IC-R2
Leather or Neoprene pouches
 New for the Icom IC-R2
 Beautiful glove leather with a spring steel belt clip or sporty neoprene in red or black. Well padded with water proof material.

STARTING AT \$14.49 800 206-0115 www.powerportstore.com

Scanners, SW, FRS and More: **NEW** **NEW**

Lee Electronics
 I-800-578-6006 Tech: (724) 275-5822
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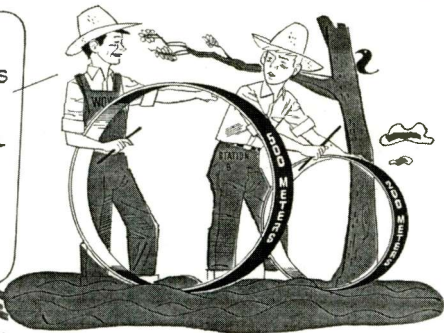
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 A.R.C., P.O. Box 802-T14, Carlisle, MA 01741
 Phone: (978) 371-0512; Fax: (978) 371-7129
 Web: www.antiqueradio.com

WOW.... the farm boy with the big hoop*

IF YOU WANT YOURS TO GO AS FAR AS MINE... YOU'LL HAVE TO PUSH TWELVE TIMES AS HARD!



HERE'S the explanation: Natural and man-made obstacles impede the progress of radio waves. Long waves (low frequencies) are impeded much less than short waves (high frequencies) and hence go much farther with less power than shorter waves.

It requires approximately TWELVE TIMES as much power to push a radio signal a given distance on wavelength of 270 meters as is required on a wavelength of 508 meters.

508.2 METERS = 590 KC.

272 METERS = 1100 KC.

ASK ANY ENGINEER



* Also the station with the BIG HOOPERS!

RADIO STATION
WOW INC.
OMAHA, NEBRASKA
590 KC - NBC - 5000 WATTS
Owner and Operator of
KODY AT NORTH PLATTE

JOHN J. DILLON, JR. PRES. & GEN. MGR.
JIMMIE S. BIRNBAUM, VP. & MGR. REPRESENTATIVES

When trying to convince advertisers to buy time on one's station, emphasizing signal coverage has always been the name of the game. With a simple "big hoop versus small hoop" metaphor, this 1948 ad for Omaha's WOW explains how the 5-kW station's low dial position can outdistance even a more powerful one on a higher frequency. Of course, it's also vital that a coverage area, no matter how many square miles, actually cover populated areas.

ging for someone—anyone—to walk into the place and ask for a free album or other "great prizes" I'd been plugging over the air for nearly an hour. The storeowners were getting mad that they'd spent good money for the broadcast and no one was responding. And then it started raining like crazy, thundering, too. With every bolt of lightning the static would rip through my headphones like shotgun blasts. Who in their right mind would go out in a storm like that? But I had to keep broadcasting cheery invitations even though there was virtually nothing left to say about this store, which wasn't really offering anything special. Worse than that, the owners weren't very friendly or talkative. They expected a flock of enthusiastic customers to provide the instant excitement and testimony.

Anyway, about two and a half hours into this three-hour remote, the sun came out and reflected off giant puddles in the parking lot. Finally, this guy clomps through the door. He had a huge smile, and inquisitively came towards me and my microphone. I was on the air ad-libbing, for the umpteenth time, a pretty generic ad for the store—"get whopping 5 percent off on any garden hose over 20 feet during our sensational store remote broadcast extravaganza," and stuff like that. Right in the middle of all this, the customer asks, "Who in the #@%! are you talking to?" and then began explaining some kitchen plumbing problem he was experiencing, complete with a revelation that his brother-in-law was a real #\$\$%* jerk who tried to fix it with Drain-O and several disassembled coat hangers twisted together for length.

Bottom line was that he thought I was in the store and figured I could show him what to buy to fix his sink. He knew nothing of the

remote. Even so, I made sure the guy "won" a record, took a WEEZ bumper sticker, got interviewed—twice—on the air, and had him promise to tune in. "Where did you say it was on the dial?" anyone who was still awake probably heard him bellow near the open mic, just before he strode toward the sleepy checkout aisle with his 40-cent pipe elbow and valuable WEEZ prizes. He also helped himself to the first piece of a radio-shaped cake the owner's wife had made for the hundreds of anticipated remote celebrants—who never showed up.

Pie-R-Squared

Landry's goofiest radio remote recollection involves a much higher headcount. In fact, he says covering the pie-eating contest as a promotional gimmick for a strip-mall drew a respectable group of willing participants and dozens of curious spectators. He explains,

I had no trouble giving out freebies, like sponsors' pens, some left-over "stiff" records, and WEEZ stickers, that day. The interviews started out well, too, especially the one with the lady who owned a bakery that provided the promotional goodies for the pie-eating event. She stayed to offer color commentary of the conspicuous consumption. We did three or four qualifying rounds, a couple of semi-finals, and then the big elimination bout. Real exciting play-by-play and great crowd noise! Someone later told me it sounded like Olympic ski racing coverage.

Eventually, it all came down to some skinny hippie and a junior high-age girl who was a bit on the heavy side. In short order, the chubby gal left the hippie with hands raised in acquiescence and blueberry filling running down his beard. "Oh my goodness!" the bakery proprietor exclaimed to WEEZ's audience, "She's grabbing another slice to solidify her winning record!"

The program log called for an "awards show" during which the top pie eater and several other contest winners would be honored and get the chance to say a few words on the radio. These were mostly kids who won modest gift certificates or promotional trinkets from the mall stores for various feats, from coloring Smokey the Bear pictures, to hula-hooping for 16 minutes (WEEZ was at 1590, close to most analog dials' 16 mark).

A decent crowd seemed to encircle the station remote gear as we began the ceremonial broadcast. First up was that pie-gobbling champ. She moved slowly to our table and, as I started asking her how it felt to be a winner, she braced herself and began slightly swaying and softly moaning. I remember holding out the Electrovoice 653A microphone for her reply. The only words then uttered came from someone in the crowd who yelled, "Oh gross!" Several teenage boys nearby laughed, "Stand back, she's barfing big time!"

Needless to say, the next minutes were pretty disgusting. She splattered the equipment and me. Some spectators got hit, too, which—except for a few junior high-age wise guys—made the onlookers scatter.

And then things got worse. The girl's mother suddenly appeared and berated me for "making a public fool out of her daughter." The agitated woman also boisterously indicated exactly what she thought of our pie eating contest, the bakery sponsor, and the radio station. I would have loved to go to a record, but both turntables on the remote unit were flooded with pie glop.


Luckily, the part-timer who was babysitting the board back at the studio/transmitter site had the presence of mind to slam a music tape into the cart machine. It gave me a chance to consider going into another line of work!

To Radio Advertising's Drawing Board, And Back

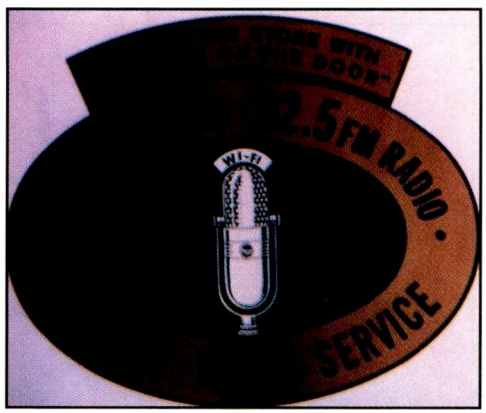
Gordon McLendon was a radioman who loved to think "outside the box." In the late 1940s and '50s, when many broadcasters figured television would leave no room for growth of the sound medium, he thought up new, successful ways to pro-

for
dynamic
delaware
county

WEEZ—Chester—1947
 Frequency: 1590 Kc.....Power: 1000 Watts
 Owned ByWDRF, Inc.
 Address.....3500 Edgmont Ave.
 Tel.: Tremont 4-4323.....Independent
 Station Representative.....Weed
 President.....Ogden R. Davies



WE EZ RADIO 159
 3500 Edgmont Ave.
 Chester, Penna.
 Tremont 4-4323



Transmitting throughout the suburban Philadelphia market, including portions covered by WEEZ Chester, Pennsylvania (in our remote broadcast story), WIFI was so named to capitalize on the High Fidelity, or Hi-Fi, audio craze of the late 1950s/early 1960s. Today, the "wi-fi" terminology is commonplace in wireless computer connection applications. The colorful WIFI decal is representative of custom-lettered stickers given to stations that bought RCA equipment. The decals were supposed to be affixed to the front doors of station advertisers so as to encourage listeners to buy from station sponsors. Note the classic RCA DX-44 microphone icon.

Circa 1964, Chester, Pennsylvania's WEEZ claimed influence throughout Delaware County in the Keystone State. Radio 159 (for 1590 kilocycles) was situated approximately halfway between Wilmington (Delaware) and Philly. Over the years, it bore a variety of callsigns, like WPWA, WDRF, and WQIQ, in addition to the WEEZ moniker. The station is probably best known for having once employed (as music director and part-time DJ) Bill Haley, who later became the rock 'n' roll pioneer of "Rock Around The Clock" fame.

gram radio stations against TV. The enthusiastic Texan fought conventional wisdom with target formats like Top-40/personality, beautiful music, all-news, and even a national sports-oriented network.

One of McLendon's most interesting formatic forays, though, was the all-classified advertising programming he installed on his Los Angeles-based FM station dubbed K-ADS. Today, this experiment is but a blip on the radio history radar screen, but deserves mention for originality, and closer consideration in light of the efficient consumer billing technologies not available in 1967 when McLendon's K-ADS was on the air.

The project was originally made possible when a new frequency modulation outlet came on throughout the LA/Southern California market during October 1957. This KGLA-FM resided at 103.5 megacycles with 12.5 kilowatts and an antenna height (above average terrain) of 3,100 feet. By all accounts, KGLA was a typical FM of its time, offering mostly easy listening/middle-of-the-road music.

In 1965, McLendon wanted an FM to team with the Mexican powerhouse XTRA, a "border-blaster" AM that he was leasing and programming with all-news. He negotiated a \$400,000 deal for KGLA in late summer, but had to wait until the next July for the sale to gain FCC

approval. That's because the transfer application sought permission to air a steady diet of classified advertising in an era when regulators frowned upon stations running more than 18 minutes of commercial matter per hour. The Commission narrowly approved the deal and granted only a one-year (as opposed to three) license. To gain renewal, it told McLendon that he'd have to file regular reports detailing all aspects of the station format's effectiveness at meeting the public interest. Additionally, the FCC said the FM could only broadcast the classified ads from 6 a.m. to 10 p.m.

**Tell Us How We
Should Do This**

Shortly after officially acquiring KGLA, McLendon successfully requested that its callsign be changed to KADS-FM or K-ADS connoting the anticipated

classified ad fare. According to one of McLendon's statements to the Commission, "on Monday, October 24, 1966, [listeners stated hearing] a round-the-clock, 24-hour, live, call-in interview program as to what their ideas were for the broadcast presentation of classified ads." The unusual talk show ran 268 hours.

The new K-ADS format debuted on November 5, 1966. Classifieds ran from 6 a.m. to 10 p.m., as permitted. Classical music, public service messages, and K-ADS promotional announcements rounded out the schedule. Categories rotated in various cycles throughout the format included the likes of real estate, car/truck sales, employment, home repair services, personals, and obituaries. McLendon's staff was authorized to fine-tune the schedule so that the various categories were intermixed. That way, a listener hoping to hear about houses for sale wouldn't be bored with an hour of ads about used



BROADCAST PRO-FILE
 28243 ROYAL ROAD
 CASTAIC, CA 91384-3028

Complete radio station histories at a nominal cost. Write for catalog.

TALK ABOUT IDEAS



k-ads
LOS ANGELES

AGAIN, McLENDON "OUT-IDEA'D" ALL BROADCASTING
WITH "ALL WANT-ADS" K-ADS IN LOS ANGELES
FIRST, ONLY ALL ADS RADIO ANYWHERE!

With the debut of K-Ads, the flood-gates swing open to the largest "open-air" market in the world. Want-ads, only want-ads, nothing but want-ads — 16 hours a day. Want-ads for jobs, for cars, for houses. Want-ads for anything, everything — from

A (accordions) to Z (zipper repair). Want-ads beamed to a two-county area of more than 2,680,000 households and 8,000,000 ready and eager buyers and sellers. Another new, startling, heretofore uncharted direction for radio's limitless horizon.

The McLendon STATIONS: KLIF, AM KNIS-FM • DALLAS / KILT AM KOST-FM • HOUSTON / WNUS, AM-FM • CHICAGO / WYSL AM-FM • BUFFALO / KCND-TV, PEMBINA (WINNIPEG) / WDTM • DETROIT / KADS • LOS ANGELES / KABL AM-FM over San Francisco / U.S. Sales: X-TRA NEWS over Los Angeles

The "Old Scotchman," Gordon McLendon, is depicted as a bright idea who dreamed up the "first and only all-ads radio anywhere!" Fine print in this Broadcasting magazine ad read:

With the debut of K-Ads, the flood-gates swing open to the largest "open-air" market in the world. Want-ads, only want-ads, nothing but want-ads for jobs, cars, for houses. Want-ads for everything—from A (accordions) to Z (zipper repair). Want-ads beamed to a two-county area of more than 2,680,000 households and 8,000,000 ready and eager buyers and sellers. It's another new, startling, heretofore uncharted direction for radio's limitless horizon. The McLendon Stations, KADS Los Angeles, KLIF-AM/KNUS-FM Dallas, KILT-AM/KOST-FM Houston, WNUS AM-FM Chicago, WYSL AM-FM Buffalo, KCND-TV Pembina (Winnipeg), WDTM Detroit, KABL AM-FM over San Francisco, US Sales for X-TRA NEWS over Los Angeles.

cars. The station also tried out free political ads for major California candidates, interview-ads (during which a caller was interviewed by the K-ADS host about his/her product or service), and adding regular "spot" advertising.

We're Paying Postage To Send A Bill For 19-cents?"

In a Summer 1972 *Journal of Broadcasting* article on KADS-FM, James Kushner noted that the original K-ADS rates to run a classified ad over the station "varied from one to seven cents a

word." Imagine trying to get someone to render payment for a short ad. The easier it was to place a classified, the more likely that people would forget to send in their money. Nor would they worry about promptly paying up. "The rate of collection was a dismal 50 to 70 percent," it was reported.

When station officials decided to no longer charge private individuals for classifieds (because of anticipated revenues from commercial advertisers), the number of people using this free service jumped from 17 (over a two-week sampling period) to some 3,000. Not even this increase, however, encouraged McLendon. He declared the K-ADS classified advertising format a flop in August 1967. Kushner says McLendon's final FCC report on the K-ADS experiment tells why:

The station developed a variety of approaches to an all-ad concept, and each of these cost more money than it brought in. The cost of hiring extra staff for the free ads, care needed to guard against ad hoaxes, and a reorganization of the sales staff to concentrate sales activities on [conventional advertisers'] agencies all added up. The sales department, which at first had been organized in the manner of a newspaper classified department, eventually resembled most radio sales departments.

K-ADS Coulda Been A Contender, But...

McLendon told the FCC his all-classified concept would have worked had he been able to leave his other radio properties, move to Los Angeles, and devote full-time to "supervising the format." He rightly maintained that the most effective classified ad medium is an "immediate" one with radio's instant word-of-mouth capacities. Radio being more agile than print, convinced him of this. There was also hint that he felt that FM's then-limited share of the available radio audience hampered K-ADS' success and that, had 1967-era FM enjoyed car radio parity with AM, his all-classifieds FM would have attracted the listenership requisite for major commercial sponsors to subsidize.

Dwelling on regrets, though, was not a shortcoming of "the Old Scotchman," as he was known. As soon as McLendon was satisfied that he'd danced long enough with K-ADS project, the radio entrepreneur converted it into a "good music" outlet called KOST-FM, pronounced with a long "O" for California COAST. The FCC appeared relieved that it wouldn't have to fool around with another one-year renewal cycle and frequent reports on all-classified radio, so it voted to give KOST-FM a regular three-year license.

This product of McLendon's, although long since under other ownership, is still going strong, attracting both a sizeable audience and respectable roster of advertisers. Arguably, while KOST-FM doesn't lack good publicity in the Los Angeles region, few probably are aware of its historical link with a very interesting advertising experiment.

Profiles In Radio History

Taking a cue from the old peanut butter commercial, "If you like peanuts, you'll love Skippy," I'd like to remind you that anyone who likes my column will love the station histories and vintage radio photos available from the new Broadcast Pro-File catalog. Request your copy by writing to 28243 Royal Road, Castaic, CA 91384-3028.

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

Ham Radio Book & CD Special!

Ham Radio Magazine Anthologies

Introducing the first four of a new series of anthologies drawn from the pages of *Ham Radio* magazine. Now you can enjoy collections of the best material published in *Ham Radio* magazine, conveniently arranged by subject and by original publication date. Choose your interest, your time period, and choose your Anthology.

Homebrewing Techniques - This anthology brings together the most useful and practical advice and techniques for the person who wants to build anything from small solid state projects to beam antennas. **Order No. AHOME \$19.95**



Test Equipment & Repair Techniques - From building test gear to trouble shooting the rig, this anthology of the best articles on the subject has been carefully selected to meet today's needs. Includes techniques and devices that work and are easily duplicated, and gives today's Hams a much-needed helping hand at solving equipment problems on their own. **Order No. ATEST \$19.95**



Ham Radio Anthology: Antennas - Carefully selected, these first two antenna anthologies cover all types of antenna designs and theory from 160 meters through microwaves. All articles have been selected to be as timely and valuable to today's Ham as they were to *Ham Radio* readers of the time. These first two volumes will be followed by two additional volumes.

Antennas - 1968-1972.....Order No. ANT1 \$19.95

Antennas - 1973-1975.....Order No. ANT2 \$19.95



Get all 4 Anthologies for only \$75.00
Save \$\$ and get free shipping & handling!

That's right, only \$75 for all 4 books and FREE shipping & handling!

All 4 Anthologies.....Order No. 4ANTS \$75.00

Ham Radio Magazine on CDs



Enjoy quick and easy access to every issue of this popular magazine, broken down by years! Three sets, each containing 4 CDs.

1968-1976 Order No. HRCD1 \$59.95

1977-1983 Order No. HRCD2 \$59.95

1984-1990 Order No. HRCD3 \$59.95

Buy All 3 Sets— you'll save \$29.90 and get a FREE Calendar and shipping too!

Order No. HRCD Set \$149.95



Get it all and Save over 20% All 4 Anthologies and all 3 Sets of HR CDs for only \$175 - Save \$49.95 Plus a FREE 2004/05 Calendar!

FREE Calendar with every \$100 purchase!

Amateur Radio Calendar - This 15 month calendar (January 2004 through March 2005) brings you 15 spectacular images of some of the biggest, most photogenic shacks, antennas, scenics and personalities in our hobby!

\$8.95 value - FREE with \$100 purchase!

Get all 6 for only \$175.00

All 4 Anthologies \$75.00

All 3 sets of HR on CD ~~149.95~~

If purchased separately \$224.95

Plus a FREE 2004/05 Calendar and shipping!

Order No. HRSpecial \$175.00

FREE 2004/05 Calendar with every \$100 purchase!

Name _____ Callsign _____

Street Address _____

City _____ State _____ Zip _____

Qty	Item #	Description	Price	Total Price
Shipping and Handling: US and Possessions - Add \$5.00 for the first book, \$2.50 for the second, and \$1 for each additional book. FREE SHIPPING ON ORDERS OVER \$75.00 (merchandise only). Foreign - Calculated by order weight and destination and added to your credit card charge.			Shipping/Handling	
			Total	

Method of payment Check Money Order Visa MasterCard Discover American Express

Credit Card No. _____ Expiration date _____



CQ Communications Inc., 25 Newbridge Rd., Hicksville, NY 11801/516-681-2922; Fax 516-681-2926
Order Toll-Free 800-853-9797

When Going Microwave Mobile, Mount Up For Improved Signals

When testing the range performance of a new Yaesu VR-5000 all-mode, 100-kHz to 2,600-MHz communications receiver, I stumbled on some remarkable differences that varying antenna mountings made in the receiver performance above 1,000 MHz. My discovery was a no-brainer, but I really didn't realize how poorly the typical whip performs when mounted down low on a vehicle.

If you have been scanning for some time you realize there's not much difference in range performance of the stainless steel, low-band, 30-MHz to 50-MHz whip. Sure, we try to get it up as high as possible, but then it starts knocking out fluorescent lights at gas stations and what not, so the reasonable approach is to mount the whip down at bumper level.

For VHF high band, and even UHF, the non-resonant, extra-long bumper-mount whip seems to pull in signals just as well as a dedicated spike on the roof for VHF and a separate spike for UHF. And since none of us are going to punch a hole in our roofs when the good-old whip has been working quite well, we simply take advantage of one antenna for all bands.

Gordo Tries A Paperclip!

With many municipalities switching to 800 MHz, and the new ICOM ham radio system at 1.2 GHz, plus the fascinating world of tuning WiFi hot spots at 2.4 GHz, I again questioned how effective the good-old stainless steel whip antenna would be on the mobile. Again, I tested it with the FT-5000 Yaesu communications receiver (what a fine piece of equipment this is with its built-in spectrum analyzer giving a graphic presentation of how well different antenna systems perform at specific frequencies).

At 1,000 MHz and above, the big tall whip is terrible. In comparison, I took a large-sized paper clip and stuck it into the center of my top hatch trunk-mount, and *its* performance above 1,000 MHz was unbelievable. My paper clip up high was pick-

ing up a WiFi neighbor's wireless system five houses away, but when I switched over to the big whip, I'd need to be nearly parked in his driveway for similar reception. The paper clip was nearly resonant at 2.4 GHz, and the big whip was hundreds of wavelengths too long, and also mostly shielded by the car body.

Same thing with receiving 800-MHz public safety calls, too. While the whip would work and give me S1 on the control channel's constant data signal, switching over to my fully extended large paper clip on the hatch mount popped the signal up to S9! As a test, I then tuned in a distant weather station, and the little paper clip did miserably, while the extra long whip did fine.

While I don't recommend an extended paper clip as your permanent 1000- to 3000-MHz antenna system, I do recommend the simple hatch-mount assembly that literally grabs any signal above 1000 MHz dramatically better than how a longer, lower-mounted whip could do.

The Better Hatch Mounts

The most popular elevated hatch mounts, also known as trunk-lid mounts, come from your local ham radio dealer. Hatch mount importers (I don't think any are made in the USA!) include Comet, which also imports Maldol antenna mounts, Diamond, and MFJ. Yes, there are some other look-alikes, but steer clear; these imitations have exposed metal components that could rust badly. Some roof-rack mounts are also available from the above manufacturers.

While trunk-lip antenna placement is satisfactory for frequencies below 1000 MHz, you must really go to the roof line of your vehicle to get improved reception at 1000 to 3000 MHz. On the lip mounts, the very best spot may be on the top part of the hinge-side opening of a car door, or maybe on the top lip of a hatch. The whole idea is to get the radiating element—maybe only a couple inches long—in line with the top of the roof, but no lower!



Check out the difference: Both photos show the signal strength of a narrow-FM signal on the Yaesu FT-5000, but the better signal strength on the right is the result of using a magnetic antenna mount on the vehicle's roof!



A trunk-lip mount on the SUV will hold some very tall antenna systems.

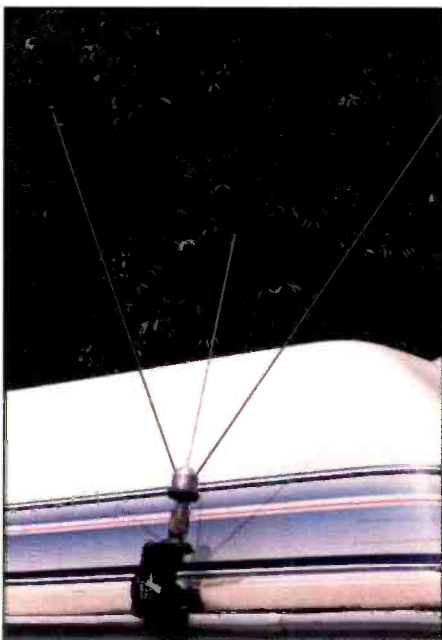
Most of the mounts come with a short section of RG-174 high-loss coax, terminating to Teflon-type low-loss coax that ultimately goes to your receiver, scanner, or transceiver. In my case, it went to antenna "A," an SO-239 port on the Yaesu FT-5000 communications receiver and



Four Allen screws hold this lip mount securely to the top of the rear door.



The small RG-188 coax goes under the vehicle's door jamb, then changes to large RG-9913 type coax.



This unique tri-band monitor whip from Universal Radio worked well at 2.4-GHz WiFi.

spectrum analyzer. At WiFi territory, at 2.4 GHz, I'm sure this coax assembly probably introduces a couple of dB loss, but the advantage of getting the antenna up high at roof line adds many more dB over something inside the vehicle or a longer whip on the back bumper.

Experimenting With Different Element Lengths

Depending on what you are tuning in above 1,000 MHz, you will need to experiment with different element lengths. For mobile use, about the highest band that commercially made collinear antennas are offered for is 1.2 GHz. Anything higher than that, a quarter-wavelength spike works great. Time to break out those super-sized paper clips and do some experimenting with one end jammed into the antenna mount receiv-

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The higher, the better! You'll hear more and talk farther if your mobile antenna is mounted up high.

er. If you terminate to an N receptacle, be very careful that you don't damage the center pins. Never force a PL-259 down onto an N receiver.

When testing the Yaesu FT-5000, I was amazed at how much activity there was from household computers working wireless at 2.4 GHz. Its spectrum analyzer was a great way to spot where they're operating on the band.

Next year, the FCC will likely develop a new type of ham radio license with priv-

ileges on four high-frequency band segments, plus loads of VHF and UHF band assignments, so your elevated lip-mount may see some double duty. Most lip mounts will securely hold lightweight, fiberglass, high-frequency whips. They will easily hold any type of dual-band or tri-band mobile antenna. Getting a high-frequency fiberglass whip up that high on your vehicle using the roof as the ground plane will dramatically increase your sky-wave capabilities to hear and talk with

distant stations across the country. It will also present an almost flat SWR to your new high-frequency equipment.

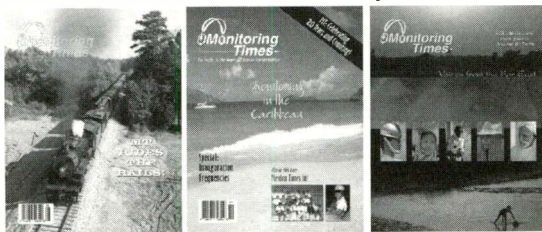
The Down Side

About the only negative to most lip mounts is the extremely soft metal found in the four Allen screws that hold the mount to the lip on the inside. When you get to the final tightening process of the mount, the blasted screw will usually strip out where your hardened steel Allen wrench is inserted, causing you to skin up your knuckles. Ugly. If only the imported lip mounts would come with better Allen screws!

It's Time To Go Mobile

Remember, your mobile antenna installation is only as good as the mount. If it uses Allen screws, they must make proper contact with the vehicle, and always be sure the trunk-lip or hatch-mount is large enough to handle the antenna you intend to use on your mobile setup. And don't forget to send in your mobile antenna installation photos to me at *Pop'Comm*, "Radio Resources," 25 Newbridge Rd., Hicksville, NY 11801. ■

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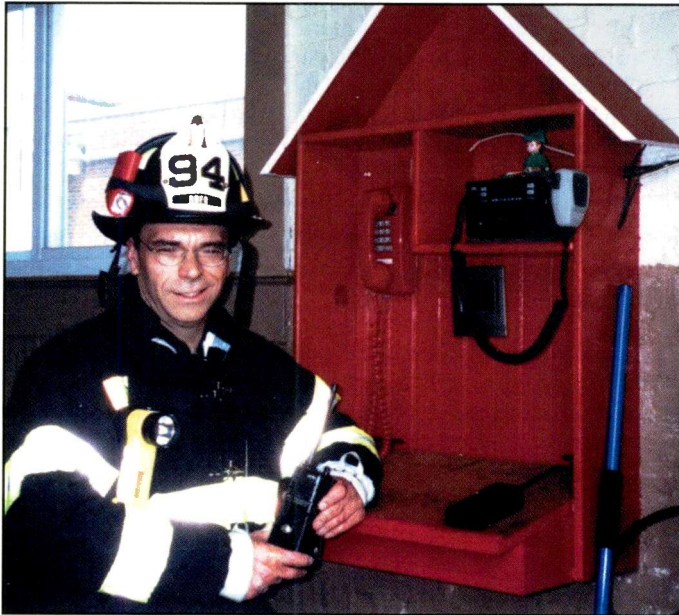
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Congratulations To Douglas L. Haviland, KC2LPX



New Jersey's Douglas Haviland is part of an area-wide fire and EMS radio notification group and former chief of the Red Bank, New Jersey, Volunteer Fire Department.

Our September Winner: Douglas Haviland Of New Jersey!

Pop'Comm reader Doug Haviland, KC2LPX, tells us,

I got my first scanner, a Bearcat 4/6 Thinscan pocket scanner, in 1980, shortly after I had joined the local First Aid Squad. At the time, they had yet to purchase and distribute pagers; instead the Squad relied on bulky Electron receivers that had to be plugged in at home. That Bearcat was a great radio, though you were limited to crystals and only six channels.

Through my involvement with the First Aid Squad and Fire Department I met other people who shared my fascination with Public Safety Radio. We all progressed from crystal radios to the new programmable scanners. My first was the Regency M-100, a 16-channel mobile/base scanner. This model Regency also formed the basis for the first programmable two-way VHF radios my squad purchased, which were sold under the trade name Wilson.

When I became Chief of the Volunteer Fire Department in 1991 I had new responsibilities and new radios to play with, including the then-new Motorola MT 1000 handheld and Syntor X mobile radio. Incidentally, almost all of our vehicles were equipped with Fanon Courier eight-channel crystal scanners to monitor our local police on UHF. More recently I have gotten my ham ticket (KC2LPX) and operate GMRS with WPON-679. I am part of an area-wide fire and EMS UHF radio notification group, called FireCom Radio, and a statewide pager news group, called Emergency Action Network (EAN).

My current collection of radio equipment includes two Vertex (Yaesu) VX-500 handhelds (one VHF and one UHF); a Motorola MT-1000 (16-channel) VHF handheld and a new department-issue Motorola HT-1250. My mobiles include an ICOM 20/20 160-channel UHF and a Uniden Bearcat 780 XLT setup for conventional operating and trunking. I have a pair of RadioShack pocket scanners, a 400-chan-

nel PRO-64, and the 500-channel PRO-92, which is also set up for trunking.

Besides public safety I enjoy monitoring business band communications, including commercial trunking systems. I also like to log AM mediumwave broadcast band DX. I am currently working in education for Meridian Hospitals and MONOC (Monmouth Ocean County) in Monmouth County, New Jersey.

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.

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications*. Address all entries to: "V.I.P. Spotlight," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or e-mail your entry to popularcom@aol.com

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The DX Season Is Open!

September is the starting point of an exciting shortwave DX season. Autumn is here, and the fall DX season brings a radical improvement in radio propagation conditions. International shortwave broadcasters have split the year into broadcasting seasons. Traditionally, there are two major seasons, winter and summer, with two smaller ones centered on each vernal equinox. Shortwave DXers love the ever-changing conditions an equinox brings, but to a SW broadcast frequency planner, this time of year is a nightmare.

On September 22, 2004, at about 12:30 p.m. EDT, the sun will be directly over the equator. This means that the period of daylight and darkness is equal, and the grayline terminator runs nearly from north to south. In the low- to mid-latitude regions, sunrise should take place at approximately 6 a.m. local time and the sun should set around 6 p.m. local time.

This results in an ionosphere of almost similar characteristics over large areas of the world, and it makes it the best time of the year for long DX openings between the temperate regions of the northern and southern hemispheres on all shortwave bands. Expect a vast improvement on the higher frequencies (22 meters up through 11 meters) with more frequent short-path

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

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

Propagation on the higher frequencies will fluctuate drastically through September, however. The 10.7-centimeter flux daily values will range from the low 70s to possibly as high as 110 or so. As the flux rises near or above 110, the maximum usable frequency (MUF) may support 22 meters through 11

The Ap Index And Understanding Propagation Terminology

The Ap index, or Planetary A index, is a 24-hour averaging of the Planetary K index. The Planetary K index is an averaging of worldwide readings of Earth's geomagnetic field. High indices ($K_p > 5$ or $A_p > 20$) mean stormy conditions with an active geomagnetic field. The more active, the more unstable propagation is, with possible periods of total propagation fade-out. Especially around the higher latitudes and 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.

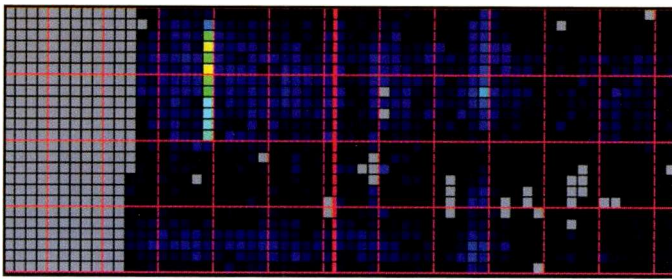
Sunspot Number (SSN): Sunspots are magnetic regions on the Sun with magnetic field strengths thousands of times stronger than the Earth's magnetic field. Sunspots appear as dark spots on the surface of the Sun. Temperatures in the dark centers of sunspots drop to about 3700° K (compared to 5700° K for 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>.



This is a November 2002 recording of major radio meteor activity. The vertical lines divide the chart into days; the horizontal are the hours of each day. The yellow indicates strong radio pings from passing meteors. From this you can see one day's strong radio activity during a meteor shower.

meters over many paths. But these openings will still be sparse until we get to the winter season. Nevertheless, September is full of surprises, including an increase in long-path conditions. A number of long-path shortwave openings on 31 and 22 meters will be possible around sunset and again around sunrise. You should look for southern Asia and the Middle East, even Africa. Also look for signals from the Indian Ocean region and the South Pacific via a long-path opening over the North Pole starting late in the afternoon to early evenings, extending later to Russia and Europe. Look for these possible long-path openings on 31, 41, 49, 60, and 75 meters.

The winter DX season is about to open up, making for exciting DX conditions. September is a month of dramatic change. High-latitude MUFs rise dramatically, bringing the high bands back to life. Nighttime MUFs start to trend lower, bringing improving conditions to the low bands as well. While the weather is still warm and fair, tighten hardware on your antenna system, check coax cables, and fine tune your radio station. Get ready to reap the DX.

Current Solar Cycle 23 Progress

Since the second peak (November 2001) in this double-peaked cycle (first peak in April 2000), the smoothed numbers are showing a consistent and somewhat rapid decline in solar activity. Cycle 23 is still showing activity, though, with daily flux numbers sometimes above 110.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-centimeter observed monthly mean solar flux of 100 for May 2004, down just a point from April. The 12-month smoothed 10.7-centimeter flux centered on November 2003 is 122, two points below October. The predicted smoothed 10.7-centimeter solar flux for September 2004 is about 86, give or take about 17 points.

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for May 2004 is 42, up a bit from April's 39, but still down from March's 49. The 12-month running smoothed sunspot number centered on November 2003 is 57, just one point down from October. The lowest daily sunspot value during May 2004 was recorded on May 7, with a count of 16. The highest daily sunspot count for May was 73 on May 16. A smoothed sunspot count of 29 is expected for September 2004.

The observed monthly mean planetary A-Index (Ap) for May 2004 is 9, down one point from April, showing a steady decline in geomagnetic activity and smoother sailing on the HF bands. The 12-month smoothed Ap index centered on November 2003 is 20, also one point down from October. Expect the overall

geomagnetic activity to be quiet to unsettled during most days in September, with some increase in disturbances.

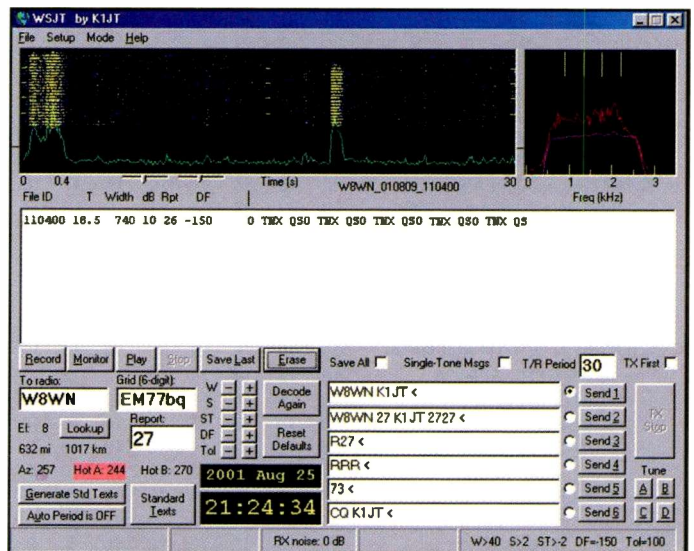
High-Frequency Propagation

Let's take a look at what can be expected of propagation of the shortwave bands this month. Starting at the highest band, it looks like we will have marginal conditions for 11 meters, though this will improve later in the winter. Long-distance reception, up to 2,000 miles, will become possible later in the fall, while north-south paths are common during this equinoctial month. Reception on 11 meters is better in southern and tropical regions. However, few broadcast stations use this band.

Thirteen and 16 meters will open more often by the end of September, especially between the Northern Hemisphere and the Southern Hemisphere. Later in the season, east/west paths from Europe and the South Pacific as well as from Asia, at least during days of higher solar flux levels, will become common, especially on 17 MHz (16 meters). Openings should be possible from all areas of the world, with conditions best from Europe and the northeast before noon, and from the rest of the world during the afternoon hours. Reception from the South Pacific, Australia, New Zealand, and the Far East should be possible well into the early evening. Many broadcasters will be using the 17-MHz band, so expect more congestion there during days of higher flux levels.

Conditions on these higher bands may still be marginal during much of the month, but as we move into longer hours of darkness in the Northern Hemisphere, these higher bands are certainly coming alive. There will be less polar propagation as we move toward winter, though, making some parts of the world difficult to hear over these paths. To catch the openings over high latitudes, get on these bands shortly after sunrise, or watch for polar signals as they close for the evening. Otherwise, the paths on the higher bands will begin to favor east-west signal paths over daylight regions.

Nineteen and 22 meters compete with 16 for the best daytime DX band during September. They will open for DX just before sunrise and should remain open from all directions throughout the day, with a peak in the afternoon. Nighttime con-



Screen shot of the WSJT Meteor Scatter software. Note the short bursts of radio reflection off a meteor and the resulting text contained in that radio signal.

Optimum Working Frequencies (MHz) - For September 2004 - Flux = 86, SSN = 29 - Created by NW7US

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

ditions will favor openings from the south and tropical areas. Look for gray-line propagation from Asia, with long-path common from southern Asia, the Middle East, and northeastern Africa as well as the Indian Ocean region via the North Pole.

Shortwave listeners who enjoy an evening with the family gathered around the radio will have plenty to hear on the 25- and 31-meter bands. These all-season bands have an incredible amount of activity since many broadcasters choose them, targeting their audiences during prime times (mornings and early evenings). Eleven MHz is expected to be an excellent band for medium-distance (500 to 1,500 miles) reception during the daylight hours. Longer-distance reception (up to 2,000 to 3,000 miles) should be possible for an hour or two after local sunrise, and again during the late afternoon and early evening. Heavy congestion will occur here, too, as many international and domestic broadcasters make use of 25 meters. Thirty-one meters, the backbone of worldwide shortwave broadcasting, will provide medium—distance daytime reception ranging between 400 and 1,200 miles. During September, reception of up to 2,500 miles is possible during the hours of darkness, and until two to three hours after local sunrise. This band, too, will be highly congested, making reception of weak, exotic signals a bit more of a challenge.

Expect an improvement in nighttime DX conditions on 41 through 120 meters during September and October, since there is a seasonal decrease in the static level as we move into fall and winter. Forty-one and 49 meters should be best for worldwide DX from sunset to sunrise. During the day, excellent reception of stations of 750 miles away is common. In early evening and into darkness, increasingly longer paths develop, up to several thousand miles. Propagation conditions don't change much on these bands through the solar cycle, so a high number of HF broadcasters rely on them. International and domestic broadcasts compete with amateurs on the 41-meter band and with each other on both. This makes for a lot of interference, especially during the late afternoon and evening hours.

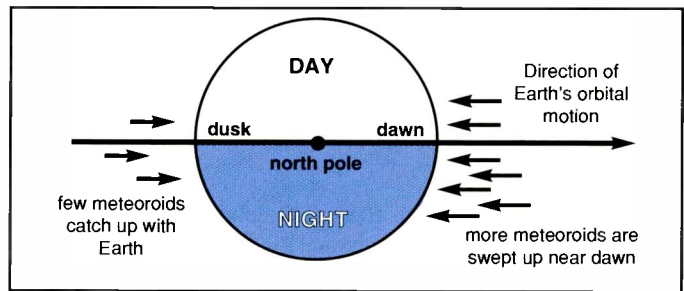
Five-, 3-, and 2-MHz shortwave bands are used mostly in designated tropical areas for domestic broadcasting. The entire 4-MHz band is set aside for domestic broadcasting in Asia, and some of this band is used throughout Europe. On all of these bands, during daylight, reception should be possible from up to 500 miles away. After sunset until an hour or so after sunrise, reception of signals from 1,000 to a possible 2,000 miles away is possible. There will still be a high level of static during September, so these bands will be a challenge to those looking for long-distance DX of exotic tropical stations. The best time to search for these would be just before sunrise and an hour or so after daylight.

Mediumwave Propagation

Signals below 120 meters will also improve, with the night-paths growing larger in the Northern Hemisphere. Seasonal static, which makes it difficult to hear weak DX signals, will decrease little by little as we move away from the autumnal equinox. Stretch out those Beverage antenna runs and start looking for signals along nighttime paths.

Propagation On VHF And Above

The month of September statistically has the lowest amount of sporadic-E (*Es*) propagation activity. Aurora (*Au*) is a much more probable mode, even now during the decline of Cycle 23. We are still seeing a moderate amount of coronal hole activity,



Meteor shower activity is more intense during those hours when your position is located on the leading edge of the Earth as it moves through a comet's tail.

as well as coronal mass ejections (CMEs). As a matter of fact, just in June 2004, there were two nearly concurrent CMEs, though they were not directed toward the Earth. If they had been, *Au* would have been spectacular.

Toward the end of September Transequatorial (TE) propagation will begin to occur between southern North America and northern South America. Openings will generally occur in the late afternoon to early evening. *F*₂ activity may occur during the day on the VHF TV bands, though the 10.7-centimeter flux levels are not going to support reliable propagation at these higher frequencies. Don't expect any east-west paths to be open. Tropospheric conditions are generally very good for many of the VHF bands during September with the appearance of different weather fronts. This will be the primary mode for working up to 300 miles.

There are several meteor showers, this month that might provide opportunity for observing VHF/UHF meteor scatter (ms) propagation DX. Sporadic activity is again high in September and, again, numerous minor showers are expected. The more reliable minor showers include the Alpha Aurigids (continuing from August), the Beta Cassiopeids (peaking September 1 to 6), the Epsilon Perseids (peaking September 3 to 7), the Delta Aurigids (peaking September 8), and the Piscids. The Piscids are active from September to October, with a peak expected on September 8, 2004, with a zero hourly rate (ZHR) of 10. The ZHR refers to the number of meteors expected to be seen in an hour under ideal conditions, like a moonless sky without interfering artificial light. Remember that radio burst rates are higher than the ZHR. Expect another Piscids peak again on September 20, 2004, with a ZHR of 5.

Another interesting meteor shower is the Zeta Lyrae, expected to peak at 2112 UTC, September 17, 2004. Forecasts predict this shower to produce a ZHR of 20. Again, the radio burst rate will be higher.

Wanted: Your Questions, Suggestions, Comments!

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 using a cell phone or other WAP device, check out <http://wap.hfradio.org/>, the wireless version of my propagation site.

I hope to hear from you. Send a letter or an e-mail to me. Until next month, Good listening!

Feed Line Here Is Ladder Line!

Tradition—of which ham radio abounds—is a double-edged sword. On one hand, it helps us understand who we are by way of who we were and where we came from. That's the good part. The bad part is when tradition is followed blindly simply because it's tradition. For example, some Asian cultures used to “fold” the feet of female babies back onto themselves to limit their mobility as adults or to force them to walk a certain way. It's not cool now and it really wasn't cool then, but it was traditional. Get my point?

Now, ham radio has some excellent traditions that we all respect and enjoy, but one—feed line (traditional since just after WWII, anyway)—traditionally used when, ironically, an even older, more traditional feed line is probably the better choice! Specifically, I'm talking about the prevalent misuse of coaxial cable when open-wire line or ladder line offers much better performance.

Before you run out and chop off your shiny new coax, let me explain myself. The mysteries of coaxial cable are plentiful, as are the myths and the misuses. Because coaxial cable is so handy and so readily available, and usually handles the job of getting our radio signals from the antenna to the rig (and vice versa), coax is often used improperly. Many beginners have only fuzzy ideas of how to use the stuff and only fuzzy ideas about things like impedance, velocity factors, wavelength, etc.

Even after 27 years of hamming, I'm still not fully up to snuff on the physics and the mathematics of coaxial transmission lines, but I've accumulated enough hard-won “field data” to save you a lot of headaches and get you started on the right foot. Newbies and veterans alike should really listen up, because “coaxial problems” are shared by hams everywhere. You might even have a real mess in your own backyard, especially if you're using a single wire antenna on multiple bands. Yep, coax works best for matched antennas at low frequencies with relatively short cable runs. For multiband wire antennas, especially those “tuned” by “antenna tuners,” the performance can be more than dismal. In fact, your coax-fed antenna system's performance might be incredibly, unbelievably, inhumanly bad! There is a fix, however. Follow along and you'll discover how and why.

So Much For Conventional Wisdom

The traditional multiband dipole—the beginning ham's standard antenna—is fed with a random length of 50-ohm coax that's whipped into submission by an antenna tuner. Conventional wisdom says to put up as much wire as possible and let the tuner worry about matching the load on various bands. Even on bands where the antenna's SWR is quite high, and a lot of energy is reflected back and forth between the tuner and the antenna, some RF energy will be radiated.

Gooch's Paradox, explained to me by former “Ham Discoveries” author Dave Newkirk, simply states, “RF gotta go somewhere.” And indeed, it does. But it doesn't have to go anywhere in an elegant and useful fashion! In the high-SWR conditions often found in typical multiband, tuner-fed dipoles, Gooch's Paradox might as well read, “RF gotta heat the feed line!”



Need to work multiple bands with a single wire antenna? Then your transmission line should look like this! Ladder line, available from most amateur radio stores, usually requires an antenna tuner, but it can improve your on-air performance dramatically. This line, photographed in my backyard, measures a bit more than one inch in width.

For example, a 66-foot dipole fed with 50 feet of high-quality, low-loss coaxial cable will tune up on all bands, 40 through 10 meters. Tuning on some bands will be touchy, but you can work stations, DX included. But how much power is being wasted because of high SWR? The manufacturer's data sheet says our cable has 1.5 dB of loss per 100 feet at 100 MHz (loss increases with cable length and frequency). We're using only 50 feet with an upper frequency limit of 30 MHz, so our losses due to SWR mismatches should be minimal, right?

Wrong. Those loss figures are for matched, resonant antennas. With high SWR values, a lot of power (sometimes most of your power) can be lost between your antenna and tuner, even with a low SWR between your rig and tuner. As we'll see, losses increase in proportion to SWR, too. A 3-dB loss represents

a 50-percent reduction in transmitted signal strength!

On 40 meters, our 66-foot dipole is a great match, and the antenna system wastes only about 0.2 dB. Not bad! On 15 meters, an odd harmonic of 40 meters, the match is also pretty good, translating into an acceptable 0.8-dB loss. On 80 meters, however, feed line losses approach 14 dB. And on 160 meters, losses total a staggering 27 dB! If we start with a typical 100-watt output, we'll radiate about 3 watts on 80 meters and less than a half a watt on 160! No wonder your mileage may vary!

Ladder Line Is The Answer

One way to reduce the feed line losses experienced while using multiband, non-resonant antennas is to ditch our "traditional" coaxial feed line and replace it with ladder line, which, again, is even more traditional, having been the feed line of choice in ham radio's early days before the coax craze got started! As shown in the Photo, 450-ohm ladder line (parallel conductors separated by a plastic, ladder-like insulating material) replaces the coax we previously used to feed our dipole. Ladder line, also known as "450-ohm balanced line," was the norm in the days before coaxial cable (an unbalanced line). It may not be as convenient as coaxial cable, but when used with an antenna tuner designed to handle ladder line (most are), feed line losses for our 66-foot dipole stay blissfully below 0.3 dB on all bands, 40 through 10 meters! On 80 and 160 meters—big trouble spots when fed with coax—losses total 1.5 and 8.5 dB, respectively. That's a tremendous improvement!

Ladder Line Fundamentals

If ladder line were a magic cure-all, of course, we'd never use coax. For best performance, a few ladder line tips are in order. Remember the following:

- When attaching balanced feeders to houses, structures, and towers, be sure to keep the ladder line several inches away from metal (or metal-containing) objects.
- Be sure your antenna tuner has a sufficient voltage rating. Tuning antennas with high feed line SWRs can create very high RF voltages inside your tuner. Resulting arcs and sparks can damage expensive equipment (especially on bands with the highest SWRs).
- "Balanced" antennas designed specifically for ladder-line feeders usual-

ly work better than their coax-oriented counterparts. Before MFJ introduced its tuners, most hams built their own balanced tuners or looked for venerable Johnson Matchbox tuners at flea markets.

- If arcing occurs, reduce your transmitter power output or get a tuner with beefy components. Using a 1-kW conventional tuner (with balanced feeder outputs) with your 100-watt transceiver isn't excessive.

- Water, ice, and snow can affect (unbalance) ladder line. Keep things clear for best results.

- If left flapping in the breeze, the soldered connection between your ladder line feeders and your dipole wires will probably fatigue and break rather quickly. Be sure to reinforce the junction with electrical tape, etc.

- Ladder line can be hard to find. If your local ham store doesn't stock it, check the ham magazines for wire and cable suppliers. Some ops, especially QRPers, sometimes use 300-ohm TV twin-lead instead of 450-ohm line. It's a true balanced line, but reduced feeder spacing and lower-capacity insulation doesn't always produce acceptable results.

The Deluxe Beginner's Antenna

If you're suffering from antenna restrictions of any type, a balanced feed line can provide an excellent compromise between convenience and cost. Simply install the longest center-fed dipole that's practical (make each side the same length) and feed it with enough ladder line to comfortably reach your station. And don't worry about feed line length. Some hams use 300-foot runs of 450-ohm line and laugh at the losses (which, when installed correctly, are barely measurable). With a decent tuner (the beefier the better), you'll put out a decent signal on a variety of bands. And when the ham on the other end of the conversation compliments you on your newfound signal strength, you can confidently say, "Feed line here is ladder line."

A great beginner's article on the subject can be found in "The Lure of the Ladder Line," by Steve Ford, WB8IMY. A PDF copy can be found at <http://www2.arrl.org/tis/info/pdf/9312070.pdf>.

Send your questions, comments, and QSLs to me at *Popular Communications*, "Ham Discoveries," 25 Newbridge Rd., Hicksville, NY 11801.

See you next month! ■

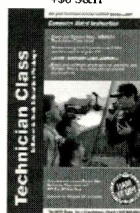
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September 2004 / POP'COMM / 75

What's Happened To Satellite Television?

We've all heard of satellite TV, and some of you may have even tried your hand at DXing these signals. But if you're new to Sat TV, where do you start? Perhaps *Pop'Comm* reader Bob Agonis's question says it all: "Is free-to-air satellite reception still popular? I find it difficult to locate anyone selling this stuff locally. Most of the stores and dealers go into clam-up mode when I mention it as they appear to want to push their subscription programs."

Satellite TV Today

These days most satellite television broadcast signals receivable in the United States are scrambled for the exclusive use of subscription satellite and cable services. That doesn't mean that there are no free signals to be found; the satellite industry calls them free-to-air (FTA) signals. There remains plenty of activity to delight satellite enthusiasts. News and sports feeds predominate, but any number of FTA shopping channels, as well as local TV stations and some music channels, can also be found.

Satellite TV DXing is more common in Europe where thousands of FTA signals are still available, including the popular Sky TV network. Some of the more popular FTA signals received in the United States are the Fox sports and movie channels, PAX TV, Bloomberg TV, Home Shopping Network, C-SPAN, Lifetime, BET, and the WB network. Given the on-going conflicts in the Middle East, various Arabic channels, such as Saudi TV, Al Jazeera, and Kuwait TV, relayed to North America via the Telstar-5 satellite have become popular. Bloomberg Radio, Cable Radio Network, CNN, Family Radio, TransWorld Radio, and the Voice of America are among the free satellite radio channels that can be received.

Visit the Lyngemark Satellite Chart website at www.lyngsat.com for a complete list of satellite channels and data, updated on a regular basis and highly recommended by enthusiasts. The SatCo DX site, *created by Tele-Satellite International* magazine and located at www.satcodx.com/usal/, is a favorite among DXers.

Receiver Requirements

Okay, now that your interest has been piqued, what about a receiver? You may not see FTA satellite receivers on the shelf in those big box stores or at the local RadioShack, but then when's the last time you saw an AOR, Drake, ICOM, or Yaesu shortwave receiver in any of those places? Seeking out a satellite receiver is going to require some extra effort. The Internet is a good place to start. Leafing through the aforementioned *Tele-Satellite International* magazine will give you a sense of what's involved. Here are some important features to look for in a satellite television receiver to help you get started.

Most FTA satellite television signals use the digital MPEG-2 compression standard to allow more signals to be broadcast from a single satellite, while some still broadcast in old-fashioned



Panasonic's CQ-CB9900U receiver includes a CD player, dot matrix graphic display, and DSP for improved sound quality.

NTSC. An FTA satellite receiver should be capable of receiving both and also be upgradeable for subscription services, such as DirecTV, DISH Network, or individual channels using Digicipher 2, the most common type of signal encryption.

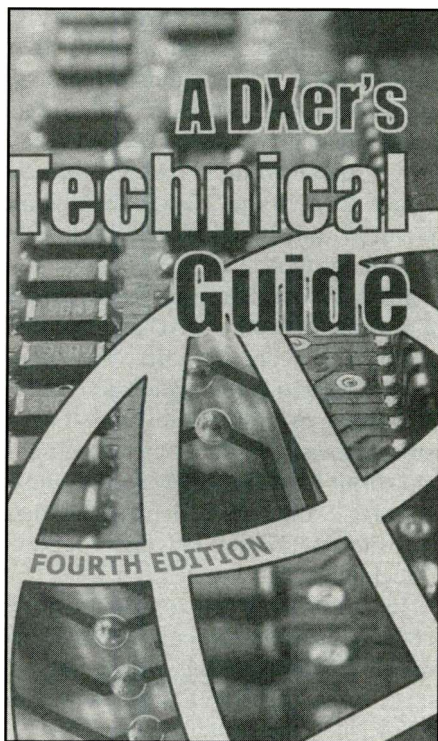
FTA receivers typically come out of the box preprogrammed with satellite data, but look for a computer port to download regular updates, or an auto-scan feature that will search for FTA signals and store the info into memory. Of course, there should be the option to manually tune in signals for the hard-core satellite TV DXer.

While it is possible to use a stationary or fixed-position dish antenna to receive in the range of a hundred signals off a single satellite, such as the Telstar 5, the receiver should be outfitted with a rotor control just in case you decide later you want to aim the antenna at different satellites. The dish antenna should be at least 30 inches in diameter for best reception of Ku and C-band signals, the satellite broadcast bands.

Keep in mind that a clear southern exposure is required for best reception, especially critical at northern latitudes where the antenna must be aimed lower toward the horizon. Look for a high-stability feedhorn to hold a solid uninterrupted digital signal. The feedhorn catches the reflected signals off the dish and sends them down the cable to the receiver. Some of the more popular receiver manufacturers are BEC, Pansat, and Motorola. To learn more about FTA satellite receivers, contact a dealer that specializes in the technology. An Internet search for FTA satellite receivers will locate dealerships. Some will subcontract local installers if doing it yourself isn't an option. Skyvision (800-500-9275; <http://skyvision.com/>) offers a free satellite TV buyer's guide.

New Digital Broadcast Receivers

The DISH Network subscription satellite TV service has introduced a top-of-the-line dual-tuner satellite receiver combined with a digital video recorder, the DVR-921. Featuring a 250-GB hard drive, it's capable of receiving and recording up to two separate programs from the DISH Network or off-air HDTV broadcasts while viewing a third pre-recorded show. The DISH Network presently offers over 800 HDTV channels.



A DXer's Technical Guide *mediumwave reference book from the International Radio Club of America.*

Panasonic has introduced its first car AM/FM IBOC digital receiver. The new CQ-CB9900U receiver includes a CD player, graphic display, and DSP for improved sound quality. Rob Lopez, national marketing manager for Panasonic car audio products, adds, "Users will find everything to receive HD Radio broadcasts included in the receiver, with no add-on equipment needed." Visit www.panasonic.com for more info. A comprehensive list of radio stations broadcasting in IBOC (In-Band On Channel) digital, or HD (High Definition) Radio, is now available at www.hd-radio.com.

New Broadcast DX Technical Guide

The International Radio Club of America (IRCA) has finally released the long-awaited 4th edition of *A DXer's Technical Guide*. Six years in the making, this is one book that belongs in the library of every mediumwave DXer. In his introduction to the guide, editor Nick Hall-Patch writes,

The effect of the personal computer and its associated technology upon the hobby has become more important than ever. Digital signal processing has appeared in at least one rel-

atively inexpensive computer controlled receiver, for example, and some DXers are using PCs not just to control one or more receivers, but also to record and process the audio from their DX catches, as well as for more conventional record keeping and reference material. PC sound cards are even being used as the final IF stage and demodulator of more conventional receivers. These changes are reflected in this latest edition, but there have also been analog advances, particularly in antenna design, and they are included. Of course, the basic technical principles underlying reception of DX have not changed, so many articles have been carried over from earlier editions.

While the guide is packed with technical information specific to mediumwave DXing, topics covered, such as receiver reviews, accessories, noise reduction, and antenna phasing, will be of interest to shortwave listeners and amateur radio operators alike. *A DXer's Technical Guide* is available from our friends at Universal Radio, or through the IRCA at www.ircaonline.org. Don't forget to tell them that you read about it here in *Popular Communications*.

QSL Information

1240 KEVA Evanston, Wyoming, QSL card in 45 days for taped report of DX test. (Martin, OR) A nice, full-data QSL card in an envelope, received in 37 days for a taped report of a special DX test, signed Michael J. Richard, QSL/DX Test Coordinator. Address: PO Box 190, 568 Airport Rd., Evanston, WY 82930. (Griffith, CO)

1570 KBRI Brinkley, Arkansas, handwritten QSL letter, bumper stickers, and business card in 75 days for a taped report. Signed Joey Rodgers, Manager. Address: KBRI, Brinkley Radio, 1501 S. Main St., Brinkley, AR 72021. Arkansas QSL #7. (Martin, OR)

1600 KCRG Cedar Rapids, Iowa, full-data letter, coverage map, photocopy of computer log for the time of reception, and "ESPN The Zone" hat in 10 days for report of reception during rare local KCKK down period. Also returned my \$1. Signed Demetrios Hadjis, Dir. of Sales & Client Relations. Address: 501 2nd Ave. SE, Cedar Rapids, IA 52401. (Griffith, CO)

1600 KATZ St. Louis, Missouri, confirmation and signature written on my report, returned with a "Gospel 1600" logo ink pen and a Clear Channel business card in 93 days. The station was heard during a rare maintenance period

for my local KCKK. Signed Chuck Atkins, VP of Operations. Address: 10155 Corporate Square Dr., St. Louis, MO 63132. (Griffith, CO)

Broadcast Loggings

Mark Connelly opens this month's selected loggings with the story of a winner of an after-work seashore mediumwave DXpedition:

I rolled into the parking lot at the Rowley, Massachusetts, salt marsh site just before 6 p.m. Eastern time (2200 UTC). Transatlantic hets were already appearing more than an hour before sunset. I deployed antennas: an active whip on the car roof and a 500-foot beverage-on-ground (BOG) running due east on the dirt path heading seaward through the marsh. By 2225 UTC, I had a substantial 1431-kHz het coming up against 1430 WXKS Everett-Boston. The BOG had good enhancement of 1431 versus the 1430 interference. Arabic music popped in and out. I cruised off to other frequencies and put some routine transatlantic catches in the book.

At 2245 UTC, it was back to 1431 kHz and I was surprised to hear a Bryan Adams song at good strength. Still there wasn't much coming in the way of ID material, so it was off to bag more transatlantic signals. The band was totally crawling with them by this time. I returned to 1431 kHz at 0034 UTC (8:34 p.m.), and my jaw dropped as the slop parted and a crisp "www.radiosawa.com" Web address came through. After the Web mention, 1431 had a typical Radio Sawa music melange: "Get Busy" by Sean Paul, then an Arabic female vocal, and then "I'm Gonna Getcha Good" by Shania Twain. This thing had a pretty good signal at times! I know not everybody has the chance to DX out of a salt-marsh, but I think this high-powered station has "legs" and could reach DXers farther inland.

Mark Schmidt on St. Pete Beach, Florida, reports hearing a new low-power FM signal: "A new FM radio station in the Crystal River area, Cool 107.5, has signed on the air. They play '50s, '60s, and '70s music. So far they do not have any on-air personalities."

The number of new low-power FM stations signing on every month, designated by an LP suffix to the callsign, is so large that I haven't been including them in the list of callsign changes. Careful tuning between the full-power signals may reveal similar surprises across the dial. The FCC online database can be used to create a listing of low-power FM radio stations by city or state. Visit www.fcc.gov and go to the Media Bureau.

Now the logs, beginning with international longwave broadcast DX from

David Hochfelder in New Jersey, using a Sony ICF-2010 receiver and Quantum QX Pro loop antenna. All times are UTC.

162 France-Inter, Allouis, France, heard at 0430 fair with talk by a man and woman in French, presumably news. (Hochfelder, NJ)

183 Europe 1, Saarlouis, Germany, at 0430 a good-to-excellent signal with news in French. (Hochfelder, NJ)

640 Radio Progreso, Cuba, at 0915 an excellent signal, no interference for about 20 minutes until it started to fade. (Ames, ME)

730 Santo Domingo, Dominican Republic, at 0613 with local and international news plus a talk show about medicine. (Medina, FL)

810 WNSI Jacksonville, Alabama, at 0050 "Old Shep by Red Foley" on a decent signal with long, deep fades. Slogan: "Playing real American country, Alabama 810." (New, GA)

950 WGOV Valdosta, Georgia, at 0115 "Magic 950 AM" urban/hip-hop

fare on a strong, clean signal with long, deep fades. I grew up in Valdosta about three miles from WGOV on U.S. Highway 84. WAAC FM is also housed there. Although I never worked at either station, I had several friends who worked there on both sides of the dial. I have visited the studios many times and I could see the towers from my house. Kinda nice to hear a hometown station even though I now make my home in Watkinsville. (New, GA)

1089 TalkSport synchros, United Kingdom, at 0330 poor with slop from 1090 kHz making this difficult copy. (Hochfelder, NJ)

1170 Radio Farda, United Arab Emirates, at 0105 after WFPB went off, this was top dog on the channel with high-energy Middle Eastern music with drums, guitars, and vocal. Atop HJNW Colombia and other Latin Americans; 1171 het notched and WWVA totally phase-nulled. (Connelly, MA)

1171 Iran, at 0041, per European reporters, this is the source of the fat het

against local-strength daytimer WFPB Orleans, Massachusetts, heard later with Middle Eastern music featuring trance-like orchestration and a sad-sounding male vocal; to good peak, easily splittable from 1170 kHz with the Drake R8A in the 2.3-kHz bandwidth position and tuned to the high side. (Connelly, MA)

1200 WXIT Blowing Rock, North Carolina, at 2200 with ID as "Newstalk 1200, WXIT" and sign-off. (New, GA)

1215 Virgin Radio synchros, United Kingdom, at 0400 fair to good at occasional peaks. Tough at times because of slop from 1210 kHz. Clear copy at end of Nirvana's "Lithium" which matched their website's "Now Playing" button. (Hochfelder, NJ)

1350 WGPL Portsmouth, Virginia, at 0900 I listened for about 15 minutes to religious programming. Slight interference from nearby Canadian station CKAD in Nova Scotia. (Ames, ME)

1400 WRAC Williamsport, Pennsylvania, at 0400 fair with a clear call ID

PENDING				KKAL	Paso Robles, CA	92.5	KWSR
New Call	Location	Freq.	Old Call	KLNR-FM	Lamar, CO	93.3	KSNZ
WCHQ	Quebradillas, PR	960	WKVN	WWRX	Pawcatuck, CT	107.7	WHJM
WXJC-FM	Dora, AL	92.5	WQOP-FM	WQQZ	Clermont, FL	88.7	WWKQ
KGLV	Shafter, CA	89.5	KQZQ	WCRJ	Jacksonville, FL	88.1	WNCM-FM
WOJL	Louisa, VA	105.5	WLSA	WMZD	Statesboro, GA	100.1	WMCD
				WEBL	Warner Robins, GA	102.5	WELV-FM
				WVYW	Dundee, IL	103.9	WZCH
				WKGL-FM	Loves Park, IL	96.7	WKMQ-FM
				WHOJ	Terre Haute, IN	91.9	WAPC
				KBOZ-FM	Bozeman, MT	99.9	KZLO-FM
				KLNB	Grand Island, NE	88.3	KKLU
				KAIZ	Mesquite, NV	88.5	New
				KKBO	Alamogordo, NM	107.9	New
				KZRM	Chama, NM	95.9	KFLH
				KRSR	Roswell, NM	89.1	New
				KQRI	Socorro, NM	89.5	New
				WBPM	Saugerties, NY	92.9	WRKW
				WVCO-FM	Johnstown, OH	103.1	WSMZ
				WSNA	South Webster, OH	94.9	WRAU
				KILN	Tillamook, OR	89.5	New
				WWGY	Grove City, PA	95.1	WICT
				WNRX	Jefferson City, TN	99.3	WEZG
				WMAK-FM	Murfreesboro, TN	96.3	WMAK
				KOOC	Belton, TX	106.3	KQXB
				KHTY	Devine, TX	92.5	KSJL-FM
				KKLU	Lubbock, TX	90.9	KQRI
				KFTZ	Navasota, TX	92.5	KMBV
				KPOS	Post, TX	107.3	KOFR
				WWIP	Cheriton, VA	89.1	New

CHANGES			
New Call	Location	Freq.	Old Call
WJHX	Lexington, AL	620	WZNN
KFFK	Rogers, AR	1390	KZAR
WAMT	Pine Castle-Sky Lake, FL	1190	WIXL
KITT	Pearl City, HI	1370	KENT
KSLJ	Blackfoot, ID	690	KZNR
KSSL	Idaho Falls, ID	1260	KZNI
KDJQ	Meridian, ID	890	KQXI
WGRB	Chicago, IL	1390	WGCI
WNGO	Mayfield, KY	1320	WKJM
KNAX	McCook, NE	700	New
WDBL	Springfield, TN	1590	WJQY
WQMV	Waverly, TN	1060	WPHC
KTFM	Pearsall, TX	1280	KVWG
KENT	Parowan, UT	1400	KITT
WSMO	Thomaston, AL	97.7	WAYI
KQSM-FM	Bentonville, AR	98.3	KFAY-FM
KLHA	Lake Havasu City, AZ	9.3	New
KBTB	Alameda, CA	92.7	KPTI
KXTY	Morro Bay, CA	99.7	KKAL

but little program content noted. (Hochfelder, NJ)

1431 Radio Sawa, Arta, Djibouti, at 0029 a fair signal with a pop Arabic female vocal and string music. (Connelly, MA)

1520 WWKB Buffalo, New York, at 0233 with news, weather, and sports: slogan, "This is Buffalo's only 50,000-watt station." (Medina, FL)

1520 KOMA Oklahoma City, Oklahoma, at 0145 "Newstalk 1520 KOMA" heard with a Neal Boortz promo on a weak signal competing with 1510 WLAC Nashville and 1530 WSAI Cincinnati. (New, GA)

1560 KKAA Aberdeen, South Dakota, at 0430 out of Coast-to-Coast AM with "Your station for talk of the town, all American News/Talk 1560, KKAA Aberdeen." (Griffith, CO)

1580 WLIJ Shelbyville, Tennessee, at 0430 a fair-to-good signal in a jumble with several local ads and a clear call ID. My most productive frequency. (Hochfelder, NJ)

Thanks, And A Final Sign-Off

Many thanks to Bob Agonis, Charles Ames, Mark Connelly, WA1ION, Patrick Griffith, NØNNK, David Hochfelder, Patrick Martin, Al Medina, KG4RWO, Ira Elbert New, and Mark Schmidt, KA8LUG.

Alas, the time has come for my final sign off here at *Popular Communications*. It would be nice if I could make a living on DXing alone, but unfortunately real work is requiring too much time these days, forcing a cutback in DX activities. I certainly appreciate being given the opportunity by Harold Ort and the magazine to share the broadcast DX hobby with you. Thanks again to all the dedicated broadcast DXers who have contributed over the years. I hope to be back sometime, perhaps with occasional special reports or as a contributor. Until then, 73 and good DX!

Editor's Note: A special drumroll and bigtime thanks to Mr. Broadcast DX, Bruce Conti, as this will be his last "Broadcast Technology" column in Pop'Comm. He will most certainly be missed. His positive, can-do attitude and ability to always meet our monthly deadlines was sincerely appreciated!

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Bill's Restoration Shortcuts (Eat Your Heart Out, Peter)

Hello, loyal readers. This is the first time I really feel outdone in my magazine writing. It's that Bertini fellow. And to think I grew up surrounded by Italians who fed me, played in rock 'n roll bands with me, and (not the same ones) even *dated* me. Now I sometimes see his column back here near me, and he's way too good. I've gotta get Harold to move his radio restoration pieces closer to the front of the magazine.

Seriously, though—some of you have told me that you first turn to "*Loose Connection*" as soon as you get your copy of *Pop'Comm* in hand. Well, it's like that with me and Bertini's column. Sure, I might be able to write about restoring old radios, but that would mean I'd have to know *how* to restore old radios (something I've tried unsuccessfully since the days when you could actually *find* a beautiful old restorable radio in the dump. Oh, pardon me. Did I say dump? I meant "solid-waste recycling center," or perhaps "landfill" would be sufficiently PC.

Of course, my first ventures in restoration involved dragging huge old radios from the huge old dump, which had no fence, and was only occasionally manned by someone whose job it was to yell, "Hey you kids! Get outta there!" I was in the seventh grade, and the dump was near the Upper Dublin (PA) High School (that should give those of you who are researching my biography for a TV special some information to go on) and the year was 1959.

My (our) restoration then consisted of discarding the case, putting the chassis on a washing machine in a friend's basement (who lived conveniently near the dump) plugging it in and getting a feel for what might be my fate if my career path involved first degree murder. We never told our parents how many times that AC house current had passed through our 12 year-old bodies, but when I would watch movies with "electric-chair" scenes in them, I remember the look on my parents faces when I said, "heck, that wouldn't hurt a person that much!"

After the ritual electrocution, it became obvious that we had to have a speaker. Many of the speakers in those radios required voltage, much like the 70-volt speakers used in public address systems today, I guess. We quickly learned to capture a few speakers which didn't need the extra voltage (and wires, which we didn't quite understand) so that we could listen to our finds without so much effort.

Somewhere out there, if he hasn't electrocuted himself, there is a person named Tad Lindelow, who is about my age, and may also have ended up with an HPJIE* such as I have. If any of you know him, take comfort in knowing that he is the other radio restorer and dump-raider long lost from my youth. He may deny everything, though, if he's gone on to become respectable.

We were constantly amazed by how good we were at making these dump-treasures work. It's now obvious that most of

our finds were in perfect working order when they were sent to their premature burial, and that in 1959 they were no longer wanted or needed. Why didn't we think to fill a warehouse with them back then?

We would tell our friends and parents that we had "fixed" them. We "fixed" them by wiggling the tubes in their sockets, or, most often, by doing nothing at all, other than listening to them, and allowing them to send 117 VAC throbbing through our arms, legs, stocking-feet on a cement floor, and probably most of our internal organs. We eventually learned to stand on a deep pile of recently dried laundry from *someone's* mother's drier to avoid conducting so much current. Of course, we thoughtfully replaced the clothing in the drier when we were through DXing for the evening.

I think Bertini's idea of placing a perfectly reliable (and long lasting) 'lytic capacitor inside either an original or carefully crafted reproduction of a waxed paper and foil capacitor is brilliant, but I know that I'm way too impatient for something like that. My plan is easier, and if only I could shoot great pics like certain other writers for *Pop'Comm* who write these great restoration articles, I'd put a quick "how-to" here on my lowly back page, but alas, I'm only a writer, not a photographer, so here's my plan:

1. Find a really nice old radio cabinet with dials and knobs intact, and either polish it up really nicely or have a woodworker or refinisher do it for you. There are veneer kits, I hear, from a couple of woodworker's supply houses.
2. Gut the thing, and discard everything from inside the beast.
3. Buy a low-powered soldering iron and a good solid-state AM-FM-Shortwave radio, preferably one with analog tuning.
4. Mount the soldering iron and the solid-state radio inside the case, using the original knobs and a system of rubber bands to turn the knobs and switches of the solid-state radio.
5. For the *pièce de résistance* (or *Ohmage*) put some household dust on the tip of the soldering iron to recreate that great smell of dust cooking on top of glass tubes.

Those of you with more sophisticated knowledge of electronics can add some neon lamps for authentic glow, and even develop a circuit to simulate the time it takes for a tube to warm up.

(And all the *serious Pop'Comm* writers thought I was just a pretty face!)

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