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A Superb Cell Phone Alternative...p. 14

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On The Cover
Here's a look at the 41st Rescue Squadron at Moody Air Force Base, Georgia, practicing extracting a downed flight crew behind "enemy lines." Do YOU have tons of military frequencies? We bet you do! Managing those frequencies and stations can be quite a task, but with your trusty PC and some time, it's super easy. Be sure to check out Joe Cooper's Frequency Database And Logging column on page 66 for details. (Photo by Larry Mulvehill)

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— Passport to World Band Radio, 1998
20th Anniversary Contest Results!

Can you believe it—January 2003, already? It seems like just yesterday that everyone was concerned about the Millennium and Y2K. I don’t know about you, but as they say, “time sure flies when you’re having fun,” and I’m having the time of my life. What could be better than reaching out to you with the generosity of our fine radio manufacturers and dealers? Probably the answer is actually winning any of the goodies we talked about in our October Pop’Comm.

First, as you might imagine, the Pop’Comm mailbag was bursting at the seams during the past few weeks. The only time I’ve seen so much mail was a few years back when we didn’t run an Alice Brannigan column one month! We’ve received a total of 523 contest entries; with many of you sending personal notes and even QSL cards with your entry. One reader said it was the first time—and he’s got every issue since 1982—he had ever cut up a copy of the magazine.

So, let’s get down to business. In October we asked 10 questions, the answers to which were found in either that issue or the past 12 months. First, let’s look at the questions and answers:

1. Who was the author of “Buying That First Radio” in the January 2002 issue of Pop’Comm? A: Ken Reiss

2. What’s the manufacturer’s name and model of the small PC radio in the advertisement on page 13 of the February 2002 issue of Pop’Comm? A: Ten-Tec RX-320 PC Radio


4. In this issue of Pop’Comm (October 2002) which amateur transceiver does writer Alan Dixon recommend as a good VHF/UHF scanner? A: Vertex Standard FT-7100M

5. In this issue of Pop’Comm (October 2002) writer Ken Reiss’ Anniversary Special photo feature shows several scanners and receivers from the past. What was the UHF frequency coverage of the Patrolman 6 receiver? A: 450 to 470 MHz


7. In this issue of Pop’Comm (October 2002) writer Gerry Dexter mentions that HCB’s new station in Australia will soon take to the air. What does Gerry report as the target date for it to begin broadcasting? A: December 22, 2002

8. From the April 2002 issue of Pop’Comm, what’s the nationwide frequency used by most railroads for EOT (End of Train telemetry)? A: 457.9375 MHz

9. According to information found in the May 2002 Pop’Comm, what AM broadcast station in Detroit was initially news station 8MK? A: WWJ

10. According to an article in the July 2002 Pop’Comm, what small Southeast Asia country uses relay sites in Russia and Canada? A: Vietnam

There you have it. The winners of our 20th Anniversary Contest are:

The Grand Prize, a brand new AOR AR-8600 Mark II and Ten-Tec RX-320 PC Radio, goes to Dave Cameron of Whitehouse Station, NJ. The AR-8600 Mark II is a superb-performing handheld receiver with coverage from 530 kHz to 2040 MHz with 1,000 memories! Ten-

(Continued on page 64)
Find out what you have been missing - Capture a signal and automatically tune a receiver - and never miss any action again!

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Phil's Easy Way To Improve Your UHF TV Reception

Missing Out On Broadcast UHF TV? Here's Help . . .

By Phil Karras, KE3FL <ke3fl@yahoo.com>

For a while now I've been interested in finding out if I can improve my UHF TV reception. We've lived in our present house for over 10 years now and have struggled with the UHF reception for all that time. The VHF stations from both Baltimore and Washington DC are not too bad, even with just rabbit ear antennas, but the UHF has only been good for one or two stations.

My Rating System

- Bad—Can tell there is an image in the snow, but not viewable
- Poor—Can see the image, almost viewable
- OK—The image is viewable, but has much snow
- Good—Much more image than snow, acceptable
- Perfect—The image is clean with no snow

I first tried the bow-tie antenna; I'm sure you've seen it—it's simply a bare-wire antenna that looks like a bow-tie. It has twin-lead feedline coming off it that's about three feet long. The center plastic piece has a grabber that attaches to the largest diameter section of your rabbit ears. This didn't help much so I thought I'd give it some height. I went to the hardware store and put the antenna on a pole about three feet long, added the feedline, and placed the antenna on the roof. I was unable to get it on the peak because I already had a metal support for my HF dipole there, but reception improved markedly.

After about a year, I noticed that reception was not as good as I remembered. I went outside to inspect the antenna and found that the bow-tie was rusted and the twin-lead didn't look very good. Upon closer inspection I noticed that the main reason the reception was no longer as good as I remembered was that the twin-lead was completely disintegrated. There was no longer a connection from the rusty antenna to the TV. I knew this was only to be a temporary test and not a real solution, so I wasn't bothered by the results. I also knew that the "clear" twin-lead was not meant for outdoor use, and now I know why. So now I wanted to build my own weather resistant bow-tie antenna.

During this time I found an interesting piece of wire that was stiffer than any copper wire. It soldered well, held its shape, and had some spring-back as well. It sure seemed like wonderful stuff to make antennas out of; so I trekked to hardware and electronics stores but no one knew where it came from or what it was. It had a coating on it just like my copper house wiring and was about the same thickness. Finally, at a Home Depot, I met a man who took me all around and showed me various types of wire. We actually found some rods that looked like they were made from the same material. We didn't find the exact stuff, but during the process he asked if the wire might be coat-hanger wire. I didn't think so, but the more I thought about it the more I thought it just might be. When I got home that evening I asked my wife about it and she said it was a simple department store (Ames) coat hanger we bought at Ames. She said they don't hold their shape for heavy dresses. Well, it turns out that they still sell them and she did buy them again—for me for my antennas. This time when I went back to the hardware store I was able to buy as much of the brown twin-lead as I wanted.

The special wire used to make the antennas.
My next task was to take the rusted bow-tie antenna apart to see how it was made. I’m sure we all know that a folded dipole antenna has a broader bandwidth than a standard dipole as well as a 300-ohm impedance (as does the twin-lead), and I expected the bow-tie to be just that—a folded dipole—but to my surprise it was simply a standard dipole design.

A standard dipole has an input impedance of about 73 ohms (in free space)—much less than the 300 ohm twin-lead. It will have a broad bandwidth due to the shape of the antenna; since it’s like a bow-tie it’s rather wide, and the wider an antenna element, the wider the bandwidth. (Fact is, a UHF-TV antenna needs about 330 MHz bandwidth!)

So, I decided since I did not have much time that Saturday I’d simply duplicate the original design, coat it with plastic dip, and get it back up in the air. A broad-band dipole should be the appropriate length to receive the lowest frequency of use, in our case that’s TV Channel 14 at about 475 MHz. This works out to be about two feet for a full wave, so a half-wave dipole would be one foot, with each half six inches long. To make things easy, I simply traced the shape of the antenna and bent the wire to that shape, soldered it, mounted it on some Plexiglas, and mounted it all to a wooden pole.

This worked just fine. Once again we had much better reception on all TV stations, and especially the one we wanted to record from that evening while we were away.

Problem: Directionality

The big problem—or advantage, depending on your point of view—with a dipole (folded or not) is that it has directionality. We’re located about 25 to 30 miles from Baltimore and perhaps a bit further from Washington DC. Unfortunately Washington is almost due south and Baltimore due east of us. This got me thinking that if the antennas used for TV transmission are vertically oriented (after all, they usually want full coverage in all directions) why is it that we always use horizontally polarized antennas for TV reception? (Generally speaking we do the same for FM broadcast radio!) This doesn’t make much sense since the ARRL Handbook 1992, page 17-18 states, “a circuit loss of 20 dB or more can be expected with cross-polarization.” So I concluded that the transmitting antennas MUST be horizontally polarized or we would lose far too much signal. However, I had to see if this was correct because if it were vertically polarized I could make a vertical antenna with 360 degrees of viewing!

If I were to change my antenna to vertical I’d have the possibility of getting a full 360-degree field of view with the right antenna. Would this help? Which antenna should I use?

The J-pole antenna is one of the best and at these frequencies it wouldn’t be very big either. The biggest problem with a J-pole is that when it’s made of wire it has a rather narrow bandwidth. Made of pipe it would be better, but the bandwidth we need for UHF TV is on the order of 100s of MHz (something like 330 MHz for Channel 14 to Channel 69—whatever happened to the channels up to 83? Anyway, Channel 14 = 475 MHz, Channel 69 = 805 MHz.)
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These are the Satellit 800 Millennium's major features. For a detailed specification sheet, contact Grundig.
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- Massive, built-in telescopic antenna.
- Connectors for external antennas - SW, AM, FM and VHF Aircraft Band.
- Line-out, headphone and external speaker jacks.

**The Power Supply**
A 110V AC adapter is included for North America (a 220V AC adapter is available upon request). Also operates on 6 size D batteries. (not included)

**Dimensions:** 20.5” L X 9” H X 8” W
**Weight:** 14.50 lbs.

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The bow-tie antenna might work but I'd have to change the design so it could see 360 degrees. After all, a wide dipole made of wire still has a narrow bandwidth when viewed edge on.

I came up with a double bow-tie that is made from two bow-ties attached with 90-degree joints. This should be pretty close to a really wide element dipole. Unfortunately, when I tested this antenna it was equally poor in all directions. When I mounted the antenna horizontally the results were much better on some stations and poor to bad on others. This proved to me that the UHF TV stations are transmitting horizontally polarized signals.

**Designing The 360-Degree Horizontally Polarized UHF Bow-tie Antenna**

The idea here is almost the same for the vertical antenna except we need to put the 90-degree elements off in the horizontal plane. When I tested this antenna I found that some positioning was needed (as expected, there are still weak spots, and perhaps nulls) but I was able to get all stations as well as I could with the standard bow-tie when the standard antenna was pointed in the right direction for a given station.

The impedance of a folded dipole would normally be 300 ohms, but if I attached two folded-dipoles to the same feedline that impedance would be reduced to 150 ohms. But what would happen if I attached the two folded dipoles at the top center? In this case I believed it would look like a very large diameter element antenna and still have a feed-point impedance of 300 ohms.

I saw no marked improvement using the folded-dipole over the bow-tie dipole antenna. The 360 degrees did seem to improve the reception of some stations, so I now get both Washington Channel 20 and Baltimore Channel 24 perfectly. My conclusion is that it doesn’t seem to matter much if we use a bow-tie dipole or folded dipole because reception is the same, at least without instruments to measure any minor differences. Since a folded dipole or the wide element bow-tie antenna use the same amount of wire, there is no advantage of one over the other in that respect either. I can only suggest that you build the one you believe will be easier to make and maintain. I found it easier to make the 360-degree bow-tie dipole than the 360 degree folded dipole, so when I do it again that’s probably the one I’ll build.
Beaming signals in from a direct-broadcast satellite to watch your favorite TV movie in surround sound may be a fraction of what these geostationary satellites can do in their lofty 22,500-mile orbit above earth. As many as six geostationary satellites might have programming that will go well beyond just watching TV from a single satellite in space. Think about getting broadband Internet and multimedia satellite wireless communications off of several different satellites. Also consider the emerging technologies that will bring unprecedented efficiency to broadband data compression for audio, video, and multimedia with all six satellites with multiple beams aimed at multiple satellites simultaneously.

While your handy-dandy, 18-inch dish and its associated LNB (Low-Noise Block) down converter have worked hard through wind and thunderstorms to stay locked onto that single satellite, the time is coming for new technology to put this parabolic reflector into motion for some dynamic satellite tracking.

The recreational vehicle and maritime yacht market has indeed produced some outstanding in-motion satellite tracking antenna units hooked into your direct broadcast satellite or dish receiver system. KVH (<www.kvh.com>) has been a leader in this technology, offering five antenna configurations from 18- to 24-inch parabolas covered by a white fiberglass radome for unsurpassed satellite acquisition and in-motion tracking for any type of sea or rough road conditions. I have extensively tested their TrackVision LM compact, a 15-inch-high, 33-pound automatic antenna for motor homes, and it worked flawlessly throughout the United States and lower Canada. The antenna is a 12-volt DC parabolic dish with dual-LNB output and low-noise block converter with built-in preamp. A molded ABS radome encloses the base plate and is secured in place to your motor home with standard fasteners. The integrated receiver decoder receives satellite signals from the KVH antenna unit for signal decoding, processing, and channel selection, and then sends the signals to the TV set for viewing. Messages are sent from the integrated receiver decoder to the antenna unit and are then received from the antenna unit for display on the TV screen. The IRD (Integrated Receiver Decoder) also provides the interface for the user to activate authorization for reception.
These simple DIP switches on the controller may select any or all satellites to be tracked.

The tripod mount for the flat panel satellite antenna.

The KVH unit stays locked onto the direct television satellite equally well whether you're on the water or going down a bumpy road. Just as long as the antenna has a clear shot at the direct broadcast satellite, reception remains locked on without picture freeze. The KVH TrackVision LM antenna sells for approximately $3,500, and an almost identical marine version was recently seen discounted for under $2,999.

But how many of us actually want to watch TV while zipping across the water or driving up and down a mountain road? The better view is outside your window! But then again, how many of us want to go through the job of putting out the dish antenna, adding the little signal strength meter for aiming the dish, taking the meter out and looking for signal strength on the TV, and then wondering why your program never comes up? That's because you aimed the dish on the wrong satellite—so you repeat the process until you finally get the right bird. If you're patient, this system works well and is truly designed for a home installation where you aim and leave it. It will work on an RV, too, but you still need to go through the process of finding the right satellite and getting the dish locked in for best signal strength.

Some motor homes have a mechanical crank dish antenna system which works well and, best of all, has a signal strength meter that you don't need to keep taking out of line to get reception. And for under $1,500, you can purchase an automatic-acquisition satellite dish antenna system which will magically find the right satellite and lock in with great reception. But you still have that 18-inch, concave dish that nests on the roof and must be taken apart and stuffed somewhere inside your motor home for transport. Wouldn't it be nice if there were an alternative to the parabolic dish?

The Answer: A Flat-Panel, Microwave Phased Array

The flat military radars you see on television during the numerous missile strikes are phased array. Hundreds of microwave elements are etched on a flat circuit board, and are phased in such a way as to concentrate the main lobe of reception energy to specifically one tight spot in the sky. There may be a flat panel with phased-array elements beaming in two specific spots on the sky—maybe one for TV reception and one for downlinking your e-mail messages, all without the antenna having to move.

I recently tested the motorized and the portable flat-panel satellite antennas from a Southern California company called SatCom Electronics (<www.satcomweb.com>). Dr. H. H. Chung, founder of SatCom first let me test a five-pound, 12 x 16-inch, rectangular panel that is only one-inch thick. The panel comes with a tripod for easy deployment anywhere, allowing you to pull in direct broadcast signals with nearly the same signal strength as an 18-inch dish. The thin panel has a built-in LNB, which runs off of the voltage coming out of your direct broadcast satellite receiver (typically 11-1/2 to 19 volts). It works as well on the Dish network as well as DirecTV, and an optional digital signal strength meter lets you quickly tune in what you hope is the correct satellite. If your original dish was pulling in a satellite signal strength of 88, it will be about six units less, but you have plenty of signal strength left over in case heavy showers occur between your flat panel and the distant satellite.

The signal strength meter needs to come out of the circuit to maximize reception on your TV. And once the meter is out, you
can tweak the flat panel to pick up a few additional signal strength units. While you’re playing with the flat panel, you’ll quickly see that small changes in azimuth and elevation don’t result in nearly as much dropout as you originally got with your dish. This is a positive feature if your unit is mounted on a relatively small motor home, especially if people inside are slightly rocking the mobile house back and forth. The flat panel will hold onto the picture better.

But best of all is how lightweight and storable the flat panel is when you’re ready to move to another location. It can easily store under a mattress in the sleeping quarters. You certainly can’t do that with a big parabolic dish and the protruding LNB arm!

I also tested the new SatCom Electronics motorized, flat-panel antenna system. The flat panel is the same size, but mounted on a motorized azimuth and elevation mount system. The motorized antenna system weighs around 24 pounds; I’m told a lot of that weight is back-up strength to protect the antenna in high winds when nested and driving down the road. When turned on, the motorized unit will obediently un-nest, take a sweep of the horizon, beam in on the correct elevation, and then compute what satellites it is detecting in the geosynchronous orbit. All this computing takes place in the control unit that mounts by your TV set. After about a minute, you get either Dish or DirecTV reception from the default generic search mode, the DirecTV mode, or the Dish Network mode. These modes are selected via the four dip-switch controller on the rear of the control unit.

Dr. Chung recommends letting the unit acquire up to six satellites in memory from the generic search mode. Then, it’s simply a press of a single button to go between those six satellites to find the one that is bringing you the picture that your receiver decodes. Keep in mind that there are six direct broadcast television satellites for North America, but very soon you may be seeing company mergers where you might have one new receiver that will actually need two different satellites for optimum programming of your choice. Dr. Chung reports that, while there is no limit to how many satellites can be found automatically by the antenna, it depends on your receiver to decode the program received. Six satellites are memorized for instant lock-on.

The remote controller shows you exactly which satellite you are tuned into. If you’re staying put and this is the satellite you want, you can turn off the power to the controller, which saves a few hundred milliamps of your RV battery.

So how expensive are these new flat-panel arrays? A flat panel with a single LNB is $250; you supply your own little tripod and unscrew the coax from your present parabolic dish and then screw it onto the flat panel. You will notice that your flat panel has a slightly different elevation angle than your dish. This is because your dish probably uses an offset feed; the flat panel does its signal pick-up flat off the active phased-array elements.

If you want the mobile, fully-automatic acquisition set-up, it’s probably going to set you back around $1,500 or about half as much as the full in-motion and much larger big dome set-ups. As more services for computers get piggybacked on television satellite signals, plan for the need for automatic antenna pointing, and ultimately the need for a flat panel that might tune in two closely-spaced satellites in orbit.

Again, the SatCom Electronics system worked well in my relatively small mobile communications unit, and it is smart enough to nest even though I drive off forgetting that I left it turned on and deployed in the up position. Very smart!
Hello and welcome to the first installment of "Homeland Security" ("HOMSEC") in the New Year. My name is Rich Arland and I will be assuming the editorial duties of this column effective this month. Before going any further, let me compliment Alan Dixon on the outstanding job he has done in getting "HOMSEC" off the ground. Alan started this column about six months ago as a means to alert and inform the readers of Popular Communications about pertinent communications issues in these unsettled times.

In the last year and three months, since the cowardly acts of terrorism were committed against our country, Americans have become more attuned to the need for increased awareness and security in their daily lives. This is where "HOMSEC" comes in. The main thrust of this column was envisioned as a clearinghouse for information for the technically savvy folks who want to be on top of their personal security with a slant towards communications. The mission of this column remains unchanged.

I am writing this column shortly after the one-year anniversary of the tragedies of September 11, 2001. Today Fox News reported yet another homicide bomber detonated a device killing six and injuring over 40 in Tel Aviv. Last weekend in Buffalo, New York, five alleged Al Qaeda-aligned American Citizens were arrested, suspected of possibly planning terrorist attacks on our country. A sixth member of this supposed cell was apprehended earlier this week. This brings up the ugly reality that American citizens, recruited by Islamic extremists, are targeting our country. Why? How could anyone who has experienced the American lifestyle possibly want to undermine our country, its freedoms, and its way of life? For that you’ll need to understand the mindset of the terrorists, which is no easy task.

Recruiting Americans to perform terrorist actions in the U.S. brings up rather interesting situations. As citizens, these folks fall under the protection of the Constitution and, therefore, have all the rights and privileges guaranteed therein. Also, these terrorists, once apprehended, cannot be legally “exported” to other countries that might employ rather drastic interrogation methods, which we in America would be prohibited from pursuing. Finally, these folks “fit in.” They are cognizant of the ways Americans do things and they don’t stand out in a crowd. We are dealing with an extremely cunning enemy, one we are just beginning to understand.

In a recent interview this morning on Fox & Friends, a former member of an Israeli counter-terrorism unit publicly stated that the United States was in for the same type of homicide bomber attacks that have plagued Israel for years. While the World Trade Center and Pentagon attacks were terrorist atrocities on a colossal scale, it’s the lone extremist who detonates a device in a shopping mall that creates real terror. Making folks feel unsafe no matter where they are or what they are doing is the ultimate goal of terrorists.

The threat is real, folks. We are at war. Make no mistake about it, America has been targeted, and will sustain further terror attacks simply because of our basic freedoms and the fact we are a tolerant people. These qualities are seen by some not as redeeming values but viewed as major weaknesses. An alert, informed populace is a formidable obstacle to terrorism. The more diverse your personal communications system is, the more effective you become in combating terrorism.

Having said all that, I suppose it would be appropriate for me to present a brief bio of my training and myself. I am a 56-year-old retired USAF Master Sergeant whose specialty was long haul and tactical communications systems. I spent almost three-fourths of my 20-year career overseas in the Air Force Communications Command. For the last 13 years I have taught vocational electronics in Pennsylvania, and for two and a half years was on the Pennsylvania Department of Corrections Video Surveillance Committee. After receiving training in Vulnerability Analysis and Threat Assessment (VATA) from the experts at Sandia National Laboratories, our team traveled statewide, visiting correctional facilities, helping to design and implement upgrades in surveillance and threat assessment. To augment this training, I have received follow-on training in Technical Services Counter Measures (TSCM) from the Technical Services Agency at Ft. Washington, Maryland.

In college I majored in electronic communications. I received my Novice amateur radio license in 1963 and have been con-...
Bill Harding, KA3QPQ, is hard at work at the VHF station during Field Day. Bill is the Communications Officer for the Luzerne County Sheriff's Office, as well as a HAZMAT instructor for the local Emergency Management Agency. Bill views Field Day as a chance to have some fun while sharpening his emergency communications skills.

In its simplest form, communication is the process of imparting intelligence from one person to another. Whether it is speaking face-to-face or using a satellite phone from 12,000 miles away, the idea is to have an exchange of information between people. Long-range communications can encompass everything from drums, smoke, or radio signals to modulated laser light speeding down a piece of fiber optics. In the end, it's still two people who want to exchange information.

The Bane Of Cell Phones

As we’ve just passed the first anniversary of the terrorist attacks against our nation, we are constantly reminded of those evil deeds and their horrific results in the news media. Many accounts from on-scene eyewitnesses, including the Secretary of Defense Donald Rumsfeld, speak to the lack of cellular telephone service immediately following the attacks of 9/11/01.

Even though I have one, I don’t really like cell phones. Period. They are obnoxious little devices that disrupt our private lives and cannot be counted on to be a viable means of communications in times of disaster. How many times have you been in a theater, at dinner engagement, or otherwise enjoying the company of a loved one only to have your relaxed mood shattered by the incessant ringing of a nearby cell phone? If the incoming call concerned something of an earth-shattering nature it would be tolerable. However, 99.99 percent of the time it is someone calling just to say “hello” and shoot the bull. These conversations continue for 10 to 15 minutes, thoroughly disrupting your mood and making you wish you had access to an 800-MHz jamming transmitter! The most obnoxious display of the misuse of cell phone technology that I have personally witnessed happened a few months ago in a local shopping mall. Two pre-teenage girls were walking side-by-side down the mall, chatting to each other via their cell phones! What a waste of spectrum. God, I hate cell phones!

About the only beneficial thing directly relating to communications (or lack there of) that happened on September 11, 2001, was the disruption of cell phone communications in the areas affected by the acts of terrorism. It demonstrated, on a grand scale, just how fragile the cellular telephone communications infrastructure really is. Within seconds of the aircraft plunging into the World Trade Center, the cell phone circuits were jammed. By the time the towers fell there was virtually no cell phone communications available. Ditto for the Pentagon.

From some of the reports I have seen, the Fire/Police and EMS trunked radio systems didn’t fare much better. The walkie-
talkies used by the rescue personnel at the World Trade Center did not function as envisioned, leaving many emergency responders totally out of contact with the command center and their superiors. Without real-time communications, casualties mounted, evacuation efforts slowed and chaos reigned. We all witnessed these horrible events over and over again thanks to our wonderful news media. “If it bleeds, it leads,” to coin an often used idiom in the broadcast news industry. Too bad it wasn’t Sweeps Week.

The bottom line regarding cell phones: do not depend upon a cell phone in a large-scale emergency situation. The cell sites quickly become saturated, calls cannot be processed or completed, and, in severe instances, the telephone companies (TELCOs) will implement a protocol called Line Load Control that actually lessens the load of call processing on the TELCO equipment. Basically the TELCOs restrict access to an affected area. In short, your precious little cell phone becomes totally useless, unless you need a paperweight.

**Cell Phone Alternatives—A Look At Amateur Radio**

Obviously, if you want to communicate in times of emergency, you cannot rely upon conventional means like telephones or cell phones. You need something different. Certainly you can use Amateur Radio, provided you have the necessary license. A 27-MHz CB (Class D Citizen’s Radio Service) is another option, as are the Family Radio Service (FRS) and the General Mobile Radio Service (GMRS). All of these have certain advantages and disadvantages which need to be discussed. This month we’ll take an in-depth look at Amateur Radio. In subsequent “HOMSEC” columns we’ll cover Citizens Band Radio, FRS, and GMRS. 

Affectionately known as “Ham Radio” by the over 600,000 Americans that are licensed under Part 97 of the FCC Rules & Regulations. Amateur Radio has had a long, proud history of responding to provide communications for natural and man-made disasters dating all the way back to 1913. Amateur Radio, as defined by the FCC, is a radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs, that is, duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest [97.3 (a)(A)].

In plain language amateur radio is a hobby. But what a hobby! No other hobby offers the participant a chance to provide valuable service to his or her community during times of emergency or disaster. Under Part 97, Subpart E, the FCC is very specific about how radio amateurs can handle emergency communications. Amateur radio is unique in that the FCC expects hams to provide communications in support of emergency and disaster relief efforts.

**“But It’s Tough to Get a License…”**

Over the last 10 years, the licensing rules have been relaxed tremendously. Now, seemingly anyone who can remember their name and is still breathing can take and pass the license exams. CW proficiency, although still a requirement for high frequency (HF) operation, has been reduced to only five words per minute for all classes of licenses, Technician through Extra. What this means to the uninitiated is that it is extremely easy to obtain a ham radio license. A few weeks spent learning a bit about ham radio and basic electronics along with studying for a CW test (hey, my 12-year-old daughter passed her five-wpm test!) and you’re a ham.

**“OK, I Got the License, Now what?”**

What will ham radio do for you in your quest for the “perfect” communications system? For one thing, the sheer number of discrete frequencies available to the ham radio operator is staggering. The HF (high-frequency or shortwave) spectrum stretches from 3 to 30 MHz. Within this range ham radio operators have use of nine bands ranging from 3.5 to 29.7 MHz. This gives hams the ability to conduct worldwide communications 24 hours per day, seven days per week. You see, HF signals can be reflected off of the various layers of the ionosphere. This causes an HF signal to propagate great distances by “skipping” off of the ionosphere. Of course, this is a very simplistic explanation of how HF communications works, but you get the idea. So for long-haul comms, hams use HF.

Radio amateurs also have a lot of spectrum above 30 MHz, in the VHF and UHF regions. This portion of the spectrum is
very similar to nearby fire/police/EMS frequencies: Line of sight (LOS) wave propagation using relatively low power FM handheld and mobile radios. FM is the preferred mode due to the ability of FM to defeat noise and provide crystal clear voice communications. The V/UHF region is where FM repeater systems live. Repeaters allow low-powered handheld and mobile radios to dramatically extend their range. A typical repeater is sited in a lofty location (high atop a building, broadcast antenna, mountain top, etc.) and simultaneously receives a signal from a mobile or handheld radio on one frequency and immediately retransmits what it hears on a second frequency. This happens at the speed of light and is seamless to the user. A 1-or 2-watt handheld V/UHF transceiver could typically reach out over 40 to 50 miles using a repeater. Naturally, this makes V/UHF frequencies extremely attractive as tactical communications channels during emergencies and disasters. Most repeaters feature an auto patch option, which allows users to make telephone calls from their radios, through the repeater to a phone line. Again, it's extremely handy, as long as the local TELCO dial central office (DCO) remains working and can process calls.

Let's not forget V/UHF simplex (non-repeater) operations. This tactical communications mode is great for providing back-up comms channels that are not dependent upon a repeater. Comms nets can function apart from repeater links, offering a very diversified emergency communications system.

Digital comms modes are also a favorite way to expand V/UHF emergency communications systems. Packet radio and PSK-31 modes are excellent methods of providing large amounts of data into and out of a disaster-stricken area. Passing long lists of personnel housed in emergency shelters via FM voice is a tedious task and always subject to mistakes in spelling by the operators on either end of the circuit. However, when the emergency communicator is given a list of shelter residents and prepares a message that is transmitted via Packet radio, an error-free copy is available at the receiving end. Digital modes are also great ways to transmit logistical support information between emergency response organizations and shelters.

Hams also use both slow and fast scan television. Slow scan TV is a method of transmitting single frame pictures on a 3-kHz voice path, and is used primarily on the HF bands. Fast scan TV, due to the much wider bandwidth required for full motion video transmission, is found on the UHF frequencies, with the accompanying audio transmission being sent on VHF. It's a little more complicated to implement, but a useful tool nonetheless for providing tactical visual assessments during disasters. Fast scan TV equipment is relatively compact and battery operated, so deployment in a disaster scenario is very practical.

The Personal Touch

Exotic communications equipment aside, the real value of ham radio stems from having a large pool of trained, radio-savvy individuals with unique communications abilities and equipment readily available to furnish emergency communications. The national organization for amateur radio, The American Radio

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Relay League (<www.arrl.org>), sponsors the Amateur Radio Emergency Service (ARES) and the Radio Amateur Civil Emergency Service (RACES). These two organizations are composed of groups of highly trained radio amateurs who specialize in disaster response communications. ARES/RACES members are some of the first folks on the air during and after hurricanes, tornadoes, floods, earthquakes, and nuclear power plant drills, etc. During the terrorist attacks on September 11, 2001, ARES/RACES personnel helped establish and maintain communications links and nets in support of the disaster relief efforts at the World Trade Center, The Pentagon, and the United Flight 93 crash site in western Pennsylvania. While ARES and RACES do similar things (i.e., providing emergency communications in times of disaster), they are really two distinctively different entities.

ARES was conceived in 1935 as a group of radio amateurs who have voluntarily registered their capabilities and equipment for emergency communications purposes. ARES often recruits members from local amateur radio clubs. Any licensed amateur radio operator who has a desire to serve his or her community is eligible for ARES membership. If your station is capable of operating on emergency power that’s a definite plus, but not a requirement. The ARES comes under the leadership of a local Emergency Coordinator (EC) who reports to a District Emergency Coordinator (DEC). All this falls under the supervision of the ARRL Section Manager (SM) and his Section Emergency Coordinator (SEC). (Fig 8-6, PG 8-7 ARRL Ops Manual, 7th Ed.)

RACES originated in 1952, based upon a potential wartime use during the early days of the Cold War. It is as a federally backed program, overseen by the Federal Emergency Management Agency (FEMA) which parallels ARES, but has a much broader scope. RACES members must be officially enrolled (registered) in order to participate. RACES operations are conducted by radio amateurs using their own primary station licenses (the FCC no longer issues special RACES licenses or calls). The FCC, upon request of a state or federal official, authorizes RACES operations during periods of local, regional, or national civil emergencies. In other words, RACES operators are “called up” or “activated” much like the National Guard. Operator privileges for RACES members are dependent upon and identical to those for the class of license held in the Amateur Radio Service. Additionally, all modes and frequencies authorized in the Amateur Radio Service are available to RACES members. Differences occur when the President invokes his War Emergency Powers. At that time, all amateur operations will cease and only RACES personnel will be allowed on the air on specific frequencies. In short, the only authorized operations conducted on the ham bands in the United States would be by RACES members, conducting civil defense communications. Further, when operating in a RACES capacity, RACES personnel and their stations cannot communicate with non-RACES amateurs.

I’ve briefly explained the purpose and duties of both ARES and RACES. If you are a licensed radio amateur, or are contemplating getting your ham ticket, I urge you to give some serious thought to becoming an ARES and/or RACES registered radio operator. You can belong to both. The ARRL advocates dual membership to ensure that its emergency communicators are available to fulfill any communications requirements needed, whether from a natural or man-made disaster up to and including activation under the War Powers Act. It makes sense to become both an ARES and RACES participant—the ability to “switch hats” and smoothly transfer from a RACES to an ARES environment (or vice versa) provides tremendous flexibility in the emergency communications business.

You will find ARES/RACES members furnishing emergency communications support to a variety of agencies. The following organizations have signed official Memorandums of Understanding (MOUs) with the ARRL: The American National Red Cross, The Salvation Army, The Federal Emergency Management Agency, The National Communications System, The Association of Public Safety Communications Officials International, and the National Weather Service. All these groups have one requirement: they need emergency communications personnel to ensure the safety, well being, and security of the United States and to help individuals and families during times of disaster.

“But What About Training?”

To ensure a high state of readiness, the ARRL also sponsors a series of continuing education classes in emergency communications. Check out the League’s Website for further details to see how you can become better trained for emergencies. In addition, your local ARES and RACES organizations regularly hold training classes and message handling
classes in support of their respective agencies. Training is part of the emergency communications game. If you don’t have the necessary training you are more of a hindrance than a help. This is one area that many professional communications organizations insist upon. Anyone desiring to support them in an emergency communications role needs specialized training. It is incumbent upon each ARES/RACES member to obtain all the training possible to be an effective communicator when called upon.

Formal training is fine for teaching the basics of traffic handling, communications protocol, and various situations unique to the agencies you may have to support in times of emergency. However, nothing takes the place of a real live communications exercise. Each year the ARRL sponsors a Simulated Emergency Test (SET), and, the grandaddy of ‘em all, ARL Field Day.

The SET is conducted annually on the first full weekend in October. The purpose of the SET is to fine tune response efforts to a given scenario, uncover weak spots in the response efforts, demonstrate proficiency in emergency communications, and focus on ARES communications at the local level.

Edsel Murphy University

Field Day (FD) on the other hand, tests the entire emergency communicator’s bag of tricks. Held the fourth full weekend each June, it gets more hams out of their comfortable shacks and into the bush than any other event. The training received by FD participants is invaluable.

Edsel Murphy (you know Edsel: “If it can go wrong it will go wrong, at the most inopportune time and at the greatest possible expense...”) positively lives for FD. The idea behind FD is to select a primitive site (one without permanently erected antennas or commercial power), erect antennas, set up station equipment, and then operate your station for 24 hours, making as many contacts with other hams as possible.

FD contacts require successfully copying an “exchange” between two stations. This exchange is similar to those used in contesting. Each FD station is assigned a class of entry: 1A, 3B, 2D, etc. These entry classifications are based upon the number of simultaneous transmitters on the air (1, 2, 3, etc) and the size of the effort (A, one or two people–battery operation, B, three or more or club station–battery or non-renewal power source, D, home station running on emergency power, etc). Therefore, a 1A station normally identifies a very small (one transmitter) one- or two-person effort, powered by batteries, solar panels, etc. At the other end of the spectrum, a 7B station has no more than seven simultaneous transmitters on the air, and will be using either battery power or power generating equipment of some sort (gas or diesel generators). Stations only compete with other stations in the same category.

The rest of the exchange consists of the station’s ARRL section: EPA (Eastern Pennsylvania), NNJ (Northern New Jersey), WWA (Western Washington), NLI (New York-Long Island, etc.). In order to have a successful FD contact (QSO) both stations need to correctly copy each other’s exchange. FD submissions are checked at League Headquarters and winners of each class are published annually in the December issue of QST. While often thought of as a contest, FD is actually a real-world emergency communications exercise that is an excellent way to develop and hone the skills needed by anyone desiring a high level of competency as an emergency communicator.

The most interesting aspect of FD is testing the ability of participants to overcome obstacles in setting up and maintaining an emergency communications station. Emphasis is placed on thinking outside the box and problem solving in an effort to turn in a winning score.

Earlier I mentioned my interests in QRP (under 5-watt amateur radio). Well, FD is a holy day of obligation for any QRPer. Low-powered radio gear and wire antennas lend themselves very nicely with the concept of FD. To the uninitiated (or the Great Unwashed) using 5 watts or less on the HF bands is crazy. Everyone knows nothing takes the place of a real live communications exercise. This flexibility coupled with the miniscule power requirements for QRP equipment and their extreme portability, makes for a very effective and efficient emergency communications station.

Future “HOMSEC” Columns

In subsequent “HOMSEC” columns we’ll take a close look at various types of radio gear and accessories, emergency power generation, specialized training classes offered by the ARRL and FEMA along with many other interesting topics. I hope you enjoy this column. It is your column, so please don’t hesitate to offer suggestions for topics, tips and hints on how to improve emergency communications, and feedback.

Until next time remember: Preparedness is NOT an option, so stay alert, train hard, and be ready.
First, a big thank you! Based on the *Pop 'Comm* reader surveys published in December, 25 percent of you enjoy learning about and working with vintage technology. While certainly not a majority, it shows the column has good support. Your feedback is important, and although neither Harold nor I can answer every letter or follow every suggestion, constructive criticism is welcomed. For example, here are some good ideas offered by Mike Taylor in a recent e-mail:

Hi Peter, I enjoyed the September column. *Pop 'Comm* writers are always asking for ideas for future columns so I thought I'd throw in my three cents worth. This is about what I call the "No-Frills Shortwave Set." Many of us have one. It's the rig that gets used away from the main shack or listening post. You'll find it usually on the table next to your bed, or in the den, or garage. Wherever. No-Frills Radios have three things in common, and we can build some things to make them more enjoyable. First, there's no S-meter, so let's build one! No Frills Radios also tune only AM signals, so let's build a crystal controlled BFO: it could sit next to the radio and provide a beat note for CW and SSB reception. How do you know where you are tuned on the 25-meter band when using a slide rule dial with 1-MHz markings? Let's build a crystal calibrator with selectable 1-MHz and 100-kHz marker signals. We can build these ourselves, for not much money, and we'd be able to tune SSB/CW, watch signal levels, and know where we are tuned on the dial! There's some food for thought!"

73, Mike

Thanks, Mike. I was considering doing several of the projects you suggested. In fact, I picked up a vintage Hallicrafters S-20R just to use as a guinea pig for some of the projects. An S-meter is in the works—the box and meter are on the bench.

I'm also tossing around plans for an add-on tuning eye signal-strength indicator. Ed Engelken contributed a feature a few years ago on his restoration of a basket-case Hallicrafters S-40, which included a product detector for SSB reception. I'd be tempted to offer a "plug-in" that replaces the detector tube so little modification of the set is needed. A crystal calibrator is doable, and so is an inexpensive PIC microchip-controlled digital readout add-on! Perhaps we can add a vintage Heath QF-1 Q-multiplier, and show how the device can improve the selectivity of a vintage receiver—there's an art that's been long forgotten. My main concern is parts; I'd need to be able to offer suppliers for any project I offer in the column to avoid discouraging potential builders.

Most of the projects Mike suggests were popular in early amateur radio handbooks dating up to about the mid-'60s. As Mike notes, there are thousands of vintage Hallicrafters and National receivers that fit his "No Frills Radios" category. Sounds like fun to me! I'd like some input from other readers regarding Mike's suggestions. What do you think?

**Working On A Zenith Console**

Right now I'm completely restoring a Zenith 10S464 console. Zeniths have some unique restoration quirks, which we'll be exploring in a future column. This customer's set is an ideal platform to show what needs to be done.

**ZN-414 Receiver-On-Chip**

What happened to the 200 or so ZN-414 ICs that were mailed out to you? I'm a bit surprised that no one has written in with stories or photos about their one IC receiver projects? Let's see what you've done with them!

**A Radio Time-Line**

I've written that radios are a link to the past, a bridge between generations. Radios acquired from their original owners always seem to command a premium location in our displays—at least they do in my collection. My family room sports a small, nondescript AK low-boy. It was one of first sets I acquired, and the elderly woman who was selling it sadly lamented that "it doesn't play beautiful music anymore" as I was loading it into the station wagon.

Here's a story from John Brautlacht, KBKBL, who relates his uncovering the story behind his Hallicrafters S-72 receiver:

I bought a S-72 set off eBay a couple of years back. The photo shows it as found, the extra hole in the front panel turned out to be for a missing fuse holder (the wiring to the line cord was still there), it's been replaced.

After a recap and some resistor changes, I began cleaning up the front of the cabinet, and found a line-shaped marking on the inside of the cover. It looked suspiciously like an indentation left after some penciled writing had been erased. Being a fan of "Murder She Wrote" and such things, I lightly rubbed a soft pencil lead over a piece of thin paper placed over top of it. The tracing revealed a ham call sign. A Buckmaster search showed the license was still active and listed an e-mail address. I sent a polite inquiry regarding the set and was gleefully shocked to receive a very fast response from the astonished original owner! Here are some excerpts from that e-mail:
"I purchased the radio at the 8th Army PX, in Seoul, South Korea, in the fall of 1953, just after the armistice with North Korea was signed. Some years ago, I donated the radio to the Silicon Valley Emergency Communications System for a money-raising effort at the Foothill College Amateur Radio Flea market. As far as I know the radio was in good operating condition at that time. Oh, yes, I do have a picture taken of me while lying on my bunk in the BOQ with the radio just behind my head. The antenna is in the upper left corner of the radio. You're correct, there is something mounted just above the phone jack in the upper right corner. It sorts jog my fading memory. 110-Vac, 60-Hz was a bit iffy at the time. I think I may have added a fuse for extra protection. Glad to hear the radio is in the hands of someone who will appreciate it. I do have a Hallicrafters S-40U [U=universal power], external S-meter, and manual out in the garage. I purchased it new in 1946 and used it to work on code speed for my 1948 General class amateur radio license, then as the receiver part of my station until I replaced it with a National NCX-3 transceiver in the early '60s. Don Gauzbach, W6GIF.

He later sent a photo of him lying on his bunk, listening to the radio with a military headset. Next to the radio was a little travel clock. I responded with delight to this photo and was surprised a couple of weeks later when the headset and clock arrived at my doorstep—what a guy! We still correspond from time to time. I wound up buying his S-40U; when he found it was going to a good home he sold it to me for a pittance with a spare set of tubes. It still gets used periodically. If collecting radios is like eating ice cream, this the chocolate fudge syrup on top.

John, K07KBL, Bothell, WA

The Man-From-Mars Radio Hat

Remember the Man-From-Mars Radio Hat? I asked Bill Morris for additional construction details, and here’s what he has to say:

I found a reference to this set in Michael Brian Schiffer’s book, The Portable Radio in American Life. He mentioned that it was featured in a Life magazine article and in Radio Electronics. The minute I came to work with the 1949 Radio Electronics issue in hand, my coworkers demanded I build it.

Construction on the hat was nothing special. It’s just a standard army surplus pith helmet. Socket holes were punched into the helmet with a standard chassis punch. Holes for the tuning cap and antenna socket were drilled out as well.

The cardboard liner was the “chassis,” so I drew up one based on the design you see in the article. Two liners were made, one for the component mounting, the other to protect the components. I attempted to line the top liner with aluminum foil to reduce hand capacitance, but it didn’t really do the job. All of the parts were then secured with hot glue.

Touch the World with TEN-TEC

RX-340 “The Ultimate”

The Ultimate HF SWL receiver. 50 kHz -30 MHz. IF stage DSP. Sync AM selectable sideband, SAM, AM, SSB, ISB, CW. FM. 57 bandwidth filters, programmable AGC, built-in high stability TCVCXO. Completely remote controllable via RS-232 interface. 115/230 VAC operation. $3,950

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SWLing is a mouse click away. General coverage HF from 100 kHz -30 MHz. "Black box" receiver connects to your PC via one serial port. Your PC provides the operation horsepower. Download the actual operating software from our web site for a pre-purchase test drive. $295

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RX-350 is a full-featured HF DSP receiver for today’s demanding shortwave listener. 100 kHz -30 MHz. Modern IF-DSP architecture accommodates 34 built-in bandwidth filters, DSP automatic notch, and DSP noise reduction. Flash ROM upgradeable via Internet file downloads. Large LCD graphics panel for display of all receiver functions. Selectable sideband/Sync AM, SAM, AM, FM, CW, and SSB modes. Momentary SWEEP function shows hand activity on LCD screen. 1024 memories. Timer and squelch activation circuitry. 12/24-hour clock. Hi Z and Lo Z antenna inputs. 115/230 VAC or 13.8 VDC operation. $1,199

302 REMOTE/ENCODER KEYPAD

Allows armchair tuning of the RX-350. Function buttons allow operation of various receiver controls. Direct frequency entry via keypad. $139
against the common safety of all. Many years ago a close friend, who is now deceased, regaled us with a story that answered questions raised by collectors whose paths were crossing with oddly mangled vintage radios. These were radios that had undergone extensive modifications: some had the shortwave coils carefully removed, while in others the coils were shunted and the band switch wiring removed so only the standard broadcast band could be received. But questions remained: What was the story and purpose behind these strange mutilations?

My friend claimed this was done by government decree: all foreign nationals residing in the United States during World War II were required to have their radios modified to prevent shortwave reception, or to turn the radio into the local police for storage. He further asserted that the removed components, or unmodified radios, were to be stored by the local police until such time they could be returned to their rightful owners without compromising national security. Now, my friend also mused about how many forgotten boxes of shortwave coils were still moldering away in forgotten corners of police stations across the country!

Fine so far, and an interesting tale to share over a beer or two, but who issued the decree, and was the tale based on historic fact or urban legend? The answer came from contributor and collector Dan Bussetti, who was kind enough to provide scans taken from the “Electronics Service” section of the January 1942 issue of the then combined Radio Retailing and Radio Today magazines. Under the heading “Alter Shortwave Sets for Aliens” is the following story:

The Attorney General of the United States, Francis Biddle, has issued a circular letter to local and state police authorities, ordering that all enemy aliens in the United States turn in their radios in the home, and the name and make of the set which was modified, and the circuit employed. The log had to show that the modifications complied with the spirit of the regulations, and if the serviceman had cause to suspect that the alien might possess other unmodified sets.

It would be a fascinating time warp to read through one of those historic radio shop logs. Perhaps some still survive, stored away in dusty boxes of radio coils, in remote forgotten corners, waiting to be reunited with radios and former owners that likely no longer exist.

As Paul Harvey would say, “...and now you know the rest of the story. Good day!”
Don't be a winter-weather shut-in! If you're not into skiing or ice skating, then winter can be pretty boring as far as outdoor activities are concerned. What about indoors? Playing cards or board games and even watching TV can become uninteresting after a while.

Winter, however, is the most opportune time to get on the air. The days are shorter and the weather is colder. You have more time at your home-base station or shack, for either operating or for maintaining your communications equipment in operational readiness. Beside the obvious need for occasional physical inspection and testing of your equipment, actually operating it not only demonstrates the operational condition of your station, it serves to maintain the readiness of the operator, as well.

The World CB Radio Championship

For CB radio operators, one very good way to accomplish this is by contesting. The annual World CB Radio Championship is hailed as the Big CB Radio Event and is the premiere CB radio contest, now in its fifth year. The contest is held each January on a convenient weekend. This year’s Big Event will occur this January 18–19, from 2 p.m. Eastern Standard Time (19:00 GMT/Zulu) on Saturday the 18th, until 2 p.m. (19:00Z) on Sunday the 19th. The contest is the brainchild of the CB radio Yahoogroups forum and its list master, Keith Thews, whose handle is “Astronaut.” The object of the competition is simple: Contact as many other operators as you can in 24 hours. There are four contest categories in which to compete, as follows:

- AM mode within the 40 legal North American CB channels
- Sideband within the 40 legal North American CB channels
- Family Radio Service
- CB Channel 19 only

Keith notes that this contest is not promoting any illegal activity, referring, of course, to the U.S. regulation banning contacts with stations farther than 155 miles away. You can find out more about the contest, as well as view last year’s results at <http://groups.yahoo.com/group/cbradio/>. For general club information, or to join this Internet “virtual” club, go to <http://nicyac.tripod.com/cbyahoogroup.html>.

The CB radio Group uses e-mail and the World Wide Web to stay organized. The group makes itself an emergency service organization in the event of disaster or other major disruptive incident. Whenever something big “breaks,” CB radio group members activate CB Channel 39 (27.395 MHz), Lower Sideband, nationwide. Members maintain a vigil for the duration of the emergency event, making themselves available to pass health-and-welfare traffic and to answer calls for assistance in their respective localities. They then stay connected by Internet backbone, either by e-mail text messaging or by Web voice chat. CB operators on Channel 39 LSB can listen to copy local traffic from other members around the country when skip conditions permit, as well.

Before anyone starts howling that this sort of CB DX is illegal, let me say, “No, not exactly.” You see, in the recent RM Docket 9807 proceedings, the FCC pointed out that CB radio operators could continue to copy emergency communications from other CB stations in excess of the 155-mile distance-communications limit. This means that if a station in Chicago copies a station in New York requesting emergency assistance, then the Chicago station can respond by relaying the message to any appropriate first responder agency or disaster relief agency. In this example, the Chicago station must not answer the New York station’s call on the air, but nothing in the CB Radio Service rules precludes response by means of actual assistance or by relaying the assistance message on other radio services upon receiving distant calls for help from other CB radio operators. Let us then suppose that the Chicago station hearing the emergency call was already engaged in net operations with CB stations local to itself. Out of necessity, our Chicago station would have to advise the net, over the air, of the extraneous traffic reception.

Now, let us suppose that the New York station in distress happened to hear our Chicago station confirming the emergency traffic that it received from that same New York station. At this point, in this example, the New York station has effectively broadcast a distress call that has been copied by a DX station, and has even overheard confirmation that its call has been intercepted. As long as there is no attempt to communicate with a distant station, then such incidental reception of DX stations is considered to be legal. Specifically, the FCC has ruled on this
in the RM-9807 Order on Reconsideration (DA 01-1831, ¶9). Here the FCC has stated,

...We note that there is nothing in the CB Radio Service rules that prevents an individual who receives a message that contains a request for emergency assistance, regardless of how far away the transmitting station is, from using other communications services to inform public safety providers of the need for assistance.

Case closed, quite literally.

Why not put your CB operating skills to good use by joining this fine group at the Web address above? Then get on the air locally on Channel 39 LSB with other local members and CBers when disaster strikes your region. It is devoted and dedicated CBers like those in the CB radio Yahoo Group who define what CB radio is becoming today, long after so many of the channel hogs, jammers, and lame "goodbuddies" have given up the medium. Yes, CB is returning to some semblance of legitimacy and has been doing so over the last couple of years, at least in some parts of the country. Let’s keep it going in that direction.

FCC Publishes Final MURS Rules

The FCC has really been busy cranking out the rules and edicts lately. A couple of these are of immediate interest, so we will take a look at them. Now, I don’t want to take anything away from our own Laura Q.’s great work in putting together her “Washington Beat” column every month. However, some of these latest FCC actions pertain very much to the Personal Radio Services and to telematics. In fact, the couple of new rulings we’ll look at right here are so new that we can only speculate on how they will play out in real life. Just this past October, for instance, the FCC finalized the rules for the newest Citizens Band radio service, the Multi-Use Radio Service (MURS). This service operates on five VHF channels in the 150-MHz range, typically in FM mode.

Let’s quickly refresh everyone’s memory of the Citizens Band Radio Services. Traditional CB is the 27-MHz (11-meter) band, where AM and SSB modes are authorized. It is our AM Citizens Band. (Upper and lower sidebands are variations of amplitude, or “linear” modulation.) Circa 1997, the FCC authorized the Family Radio Service (FRS) with 14 channels at only 1/2 watt of power. This very low power and very local FM two-way radio service at 465 MHz has become known as our UHF-FM Citizens Band. In November 2000, the FCC took five low-power itinerant-use VHF channels from the Part 90 “business band” and created MURS, with 2 watts of transmitter power permitted, MURS has now become our VHF-FM Citizens Band. All three of these CB services have no individual or station licensing requirements.

The original MURS rules were immediately challenged at the FCC. Differing interested parties had different concepts as to exactly what the service should be. Some thought it should be licensed. Some thought it should not be legal to have telephone interconnect available. Still others thought the whole concept should have been scuttled and the channels returned to business use. Well, the Commission has finally waded through all of the reconsideration petitions and related comments and has finalized the slightly revised MURS rules in WT Docket 98-182, FCC 02-139.

The rules now define a service created primarily for short range, two-way voice communications. MURS may not be used as any sort of cordless telephone, but may be used for either personal or business purposes. Unlike FRS, detachable antennas are permitted, and gain-type antennas are quite acceptable, since there is no limit on Effective Radiated Power in the revised rules. There are reasonable antenna height limitations, however. Data transmission is allowed as long as the data does not require “long” or continuous TX duty cycles. Repeaters, including store-and-forward digipeaters as well as signal boosters, are not permitted. Interestingly, the two 154-MHz MURS channels will have an authorized bandwidth of 20 kHz. In the initial MURS rules, all channels were authorized for only 12.5 kHz bandwidth, but the FCC now claims that the narrow bandwidth once specified for the 154-MHz channels was (gasp!) an error in the part of the FCC.

Must FRS Business Users Now Exit FRS And Go To MURS?

Last month in this column we reported on a petition filed by a commercial frequency coordinator, asking that business and commercial users be banned from using FRS. The concept at work here is that FRS was intended for family and personal use, and that the many business FRS users should vacate in favor of proper “business” radio services. As of press time, the FCC was still soliciting comments on that petition (reference WT Docket 95-102), and thus has not yet ruled. However, the latest MURS rules revision was part of a sweeping biennial regulatory review that addressed various aspects of FCC Rules Parts 0.90, and 95. At one point in this revision, the FCC states that it has decided to prohibit the integration of MURS and FRS frequen-
cies into a single radio unit. In explaining its decision, the Commission acknowledged that MURS is probably going to be of greater interest to business users rather than commercial users. The FCC went on to state that, conversely, FRS is a service "intended for private, two-way, very short distance voice communications for facilitating family and group activities."

Then, in a stunning apparent reversal of existing policy, the Commission specifically claimed that, "Small (and other) businesses are currently not eligible to operate on FRS frequencies..." (FCC 02-139 [FR 63279-63290] 21). It is important to note that this statement of record does not move to amend the FRS rules (Part 95, Subpart B). Still, it is conceivable that this could be viewed as an official policy statement for enforcement and adjudication purposes. Please note that this is my admittedly unqualified observation as a journalist. I am not, of course, an attorney, and cannot therefore accurately speculate on the implications of this FCC statement. I expect that we will have to await further FCC clarification on this sticky point. As always, we will carefully watch this matter for future developments here at Pop Comm.

**New Personal Telematic-Type Functionality!**

A couple of months ago we took a look at what we called "pedestrian" telematics—the various pieces of communications, computer, and geo-location equipment that we might carry while on foot, commuting to and from work or on a bus or train. This is not at all as whimsical as "telematics" might seem to be when carried on one's person! As we acknowledged, most of us already carry a cell phone or a handheld two-way radio. Since we last addressed this subject, the FCC has approved yet another specifically personal or "pedestrian" for our frame of reference, telematic-type device. And this is a truly unique safety device that fits into the communications category and the geo-location category. As we went to press, the Commission issued a Report and Order in WT Docket 99-271, authorizing Personal Locator Beacons (PLB).

The Report and Order amends Part 95 of the FCC rules to create a new Subpart H to accommodate these new beacon devices. As it stands, Part 95 rules establish the Personal Radio Services, which include the several Citizens Band Radio Services. The other Personal Radio Services in Part 95 include the commercial-grade General Mobile Radio Service (GMRS), the Medical Implant Communications Service (how personal can you get?), and now PLBs, among still other services. PLBs will operate on the same frequency and in the same mode, as do existing EPIRB devices (Emergency Position Indicating Radio Beacon), small transmitters that operate at 406.025 MHz and 121.500 MHz. They are used in lifeboats, certain emergency floatation devices, and in boats and ships to indicate a distress situation and to direct search and rescue personnel to a distress situation. Marine EPIRBs are intended to activate upon deployment, which includes being switched-on manually, and can withstand contact with water and listing (tilting) heavily to one side. Personal Locator Beacons will be functionally the same things as EPIRBs, but likely in a smaller, more "user-friendly" package that can easily be carried about in a backpack or on a belt clip. Experienced radio monitors will recognize 406.025 and 121.500 MHz, as well as 243.000 MHz as the internationally recognized aircraft Emergency Locator Beacon (ELT) and marine EPIRB distress signal frequencies. ELTs and EPIRBs transmit coded signals that are used by search and rescue personnel in locating downed aircraft or vessels in distress.

These coded distress signals are received and tracked by the COSPAS/SARSAT satellite constellations. This is a joint U.S.-Russian project initiated way back in the American-Soviet Cold War days, incredible as that may seem today, in retrospect. COSPAS is a Russian acronym for Space System for Search and Distress Vessels. The American SARSAT stands for Search and Rescue Satellite-Aided Tracking. Working in concert, these two orbital systems are regularly used to locate sources of ELT, EPIRB, and, soon, PLB transmissions. These signals are relayed by a network of ground stations to the U.S. Mission Control Center (USMCC) in Suitland, Maryland, just outside of Washington, DC. The USMCC, which is operated by NOAA, relays the data to appropriate search and rescue agencies, including the U.S. Coast Guard.

This exciting new development has two unique aspects of interest to radio enthusiasts. The most obvious one here is the availability, very soon, of these new PLB products. Imagine carrying your own personal "man-down" alerting device when in remote areas, whether camping, exploring, or in doing disaster relief work for those of us involved in emergency services! On the completely opposite hand, the new PLB service opens up new monitoring possibilities for scanner operators and for radio DFing trackers.

Here's how it will work: PLBs will transmit a homing beacon on 121.500 MHz, operating a continuous duty cycle interrupted only by the 406-MHz signal. These PLBs will transmit a unique identifier, the Morse code letter "P" (di-dah-dah-dit) on the 121.500-MHz AM swept aural tone beacon signals. Each PLB unit will have its own ID code, issued by NOAA, which is the U.S. Program Manager for the 406.025-MHz COSPAS/SARSAT system. Those who acquire PLBs must be sure to register them with NOAA or face stiff legal penalties. PLBs will transmit their actual distress message on the 406-MHz frequency, as a G1D emission, which is a phase-shift data mode, as short signals. These data signals contain information on the type of emergency.
gency, the country and ID code of the beacon unit, along with other information.

The FCC has decided that these devices will be licensed-by-rule, much the way that CB and FRS radio are. Nonetheless, owners will have to register their PLB's identification numbers with NOAA to be properly recognized by the system in case of distress activation or other emergency. Manufacturers of these products will be required to include postpaid registration cards for this purpose. Two companies, ACR Electronics and McMurdo Limited, have had much to do with the inception of PLB concept that we now have. Without a doubt, we will be seeing PLB transmitters from these two firms and perhaps from any will be seeing PLB transmitters from that we now have. Without a doubt, we will be seeing PLB transmitters from these two firms and perhaps from any number of other manufacturers, as well. Your Pop'Comm staff will be watching for such exciting new products to come onto the market.

What's Next For Telematics?

Bear in mind that automotive communications, entertainment, and navigation electronics have continued to evolve as long as the automobile has existed. Still, with the more recent and ongoing digital revolution of the new millennium, new products and related services are now being designed and enhanced on a seemingly daily basis. Music and entertainment systems are not part of a vehicle's telematics hardware, per se. But excess data capacity turning up in newly developed digital automotive entertainment systems will allow for ancillary data services in many of these digital automotive radio receiver configurations.

The new PLB products now authorized, as discussed above, as well as the new MURS rules, are not the only new ideas the FCC has come up with as we were going to press. The Commission has also taken action on another docket long under consideration and long awaited by audiofiles and broadcast band DXers, alike. After about three years of formal, official consideration, the FCC has finally issued an order authorizing Digital Audio Broadcasting in our old familiar AM and FM bands.

Unlike the digital TV changeover fiasco, the FCC and the broadcasting industry collectively have made wise choices in offering digital radio. Whenever we ultimately change over to ATSC digital broadcast television in the U.S., it will require us to discard our perfectly good existing NTSC TV receivers in order to get the full benefit of ATSC.

Are you among the tens of millions of Americans who are anxious to spend good money after bad? Or is it bad money after good? You may already have spent thousands of dollars on a home theater TV setup in just the last two or three years. For your hard-earned money, you likely have a four, six, or eight-foot wide TV screen with an excellent picture. No matter. With very few exceptions, your TV receiver and monitor or screen will be totally obsolete shortly after 2006, at the present FCC deployment schedule. Yes, you could probably get a converter for your old NTSC TV and video system, but you will not likely enjoy the proper cinema (wide-screen) aspect ratio, and you will never see high-definition.

Ordinary terrestrial broadcast radio will not have this sort of immediate obsolescence problem, however. Newer digital radio transmission technology will be simulcast with standard AM or FM (analog) signals, at least for the foreseeable future. Wow!

We can continue to listen to FM stereo on our existing FM receivers, and we can continue to DX AM stations at night with vintage AM receivers or with standard general coverage communications receivers. The FCC has authorized the iBiquity Digital Corporation's In-Band, On-Channel (IBOC) technology for U.S. broadcasters in the existing AM and FM bands. The real beauty of the IBOC system is its AM/digital and FM/digital simulcast ability. It is important to know that radio broadcasters could ultimately cease the analog simulcast feature, but the FCC says that stations will simulcast AM and FM for an indefinite period. This is really great news!

The Commission did something else that really makes sense in this monumental decision. This digital conversion, among radio broadcasters, is strictly voluntary. As it stands, no one is being forced to abandon their perfectly good radio hardware!

Pop'Comm readers first became aware of IBOC digital radio in the "Washington Beat" column in our March, 2000 issue. The FCC had already taken IBOC under formal consideration at that point. As we become accustomed to terrestrial digital audio broadcasting, we will have to adjust some of our old and familiar terminology. If true AM and FM broadcasting ever actually ceases in any given region, we will have to rethink what we call our two radio broadcast bands. We can't legitimately call it the "AM" band if we are referring only to digital broadcasters there. In that case, we'll have to call the band what it really is: the mediumwave (MW) band. What we know as the AM band has always been known in Europe and in much of the remainder of the world, as mediumwave, that band right below the shortwave and just above the longwave bands. This is the technically correct name for this band, regardless of what transmission mode is being used.

Now, what about the FM band? Here again, as long as analog broadcasters are present, I suppose that we could continue to call it the FM band. But in the realm of digital broadcasters, to be technically correct, we must also call this band what the band actually is: the VHF broadcast band. Now, the FM 100 band is indeed a Very High Frequency spectrum band, one of many. But it is the only VHF broadcast band. So, for the coming golden age of digital broadcasting, "mediumwave" and "VHF" it will be!

What has any of this to do with telematics or any other "On-The-Go" applications? Plenty. One of the carefully engineered aspects of digital transmission systems for both broadcast and telecommunications is the ability to multiplex in various auxiliary data functions and features. We can expect that digital audio broadcasters will specifically target mobile users and provide motorists with encoded, customizable traffic reports, weather conditions, and even specialized advertising messages. These may appear as very short text messages or graphics. We will have to wait and see exactly what features will be offered, and which among those will survive market acceptance and driver safety considerations. Some folks are already questioning whether drivers can drive and safely speak on a telephone simultaneously. These same people will really be howling when dashboard text messaging on car radio dials becomes available! Whatever the final incarnation of digital audio broadcasting, it will certainly be exciting.

Actually, digital mobile radio entertainment is already available from at least one of two competing satellite radio broadcasters. XM satellite radio was early to market and has attracted quite a bit of curiosity, if not a fair number of subscribers. Sirius satellite radio is also up and coming. However, even I must confess I find "XM" to be a perfectly catchy name. It virtually "rhymes" with "AM" and "FM," and seems to be the logical next incarnation for broadcast radio modes, following AM and FM, historically. It's yet another radio band with another nearly familiar two-letter acronym, ending with
an “M.” I wouldn’t be surprised in the future to hear satellite radio broadcasting generically referred to as XM radio, regardless of vendor.

I did mention “subscribers,” though. Satellite radio is not free. One must pay a periodic subscription rate to receive a specified number of channels. With mobile satellite service though, the received signal level fades just as AM radio fades, under bridges and in tunnels, except for those locations where terrestrial repeaters have been installed, just to fill in this sort of “shadow” fading. The main advantage to satellite radio, however, is nationwide coverage of the same programming and entertainment formats. Everything is essentially a “network” feed. There are no local stations.

Terrestrial IBOC digital audio broadcasting will be free, over-the-air just as AM and FM broadcasts have always been. Digital signals will mean no static, of course, but signal fading is likely to remain an occasional problem. For example, standard AM radio fades severely under bridges and overpasses. Digital transmission in the same medium wave band will also experience signal dropout under these same circumstances. This is because this sort of fading is a function of wavelength at these frequencies, and not a function of the transmission technology being used. Likewise, in the VHF 100 band, digital transmission range will be largely limited to line-of-sight, just as conventional FM signals are. Additionally, VHF multipath effects will continue to occur, but in that case, error correction in the digital transmission mode may possibly negate the effects of signal fade due to multipath, depending upon the severity of the interfering signal, of course.

It shouldn’t be very long at all before IBOC broadcasts become common and IBOC receivers become available. It ought to be worth the wait for those who do not wish to pay a recurring subscription rate for digital entertainment radio. As with the PLB products, we here at “On-The-Go Radio” will be watching carefully for the new digital broadcast radio receivers to become available.

I do wish everyone a joyous and prosperous New Year. So much is happening in the world of communications and in the world in general. Collectively, we venture on in uncertain and occasionally hostile times. No matter what you face in the coming year, be sure to carry the gifts of joy and confidence in your heart. These gifts are easy to get hold of—they are yours for the asking. We’ll see you right here in February.

Pop’Comm reader Ernie Rice tells us, "I started listening to an old Zenith radio back in 1958 on my Grandfather’s farm, located in southern Indiana. I would stay up all night to hear those far away places! During the ‘60s I started building radios from kits. The first CB I had was a Heathkit Lunchbox - my call was KPV8914. I joined the Army in 1969 and went to radio school where I got to play with the BIG radios. I served around the world as an 05K20, Teletype Intercept Operator. During the ‘70s CB boom I became very hobby focused. Forty five years later I am an active CBer, SWL, and scanner nut! I collect radios.

The person whose entry is selected will receive a one-year subscription extension to 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>, letting us know if you’re sending photos. Please print your return address on the envelope if using the postal mail system. Not doing so will delay your submission being processed. If you’re e-mailing photos, please send them in a separate e-mail with your name in the “subject” line.

Our January Winner: Ernie Rice of Hamilton, Ohio

"I started listening to an old Zenith radio back in 1958 on my Grandfather’s farm, located in southern Indiana. I would stay up all night to hear those far away places! During the ‘60s I started building radios from kits. The first CB I had was a Heathkit Lunchbox - my call was KPV8914. I joined the Army in 1969 and went to radio school where I got to play with the BIG radios. I served around the world as an 05K20, Teletype Intercept Operator. During the ‘70s CB boom I became very hobby focused. Forty five years later I am an active CBer, SWL, and scanner nut! I collect radios.

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Here's Ernie Rice at his monitoring post in Ohio.
Safety First, Safety Always

As we start off the new year I’d like to touch on an important topic—one that just might help us enjoy many more “new years” to come. As hams we usually focus on the fun and interesting aspects of our hobby and, although that’s human nature, we need to discuss certain sobering topics, such as safety, every now and again.

I’ll try not to drone out a lecture that reminds you of a seventh-grade health class, but I need to communicate a few key ideas that will well serve beginning hams for the duration of their radio careers.

Ham radio can provide lifelong friends, make the world a much smaller place, and provide years of ever-evolving fascination. And it can also kill you (just like skateboarding or ski jumping). Observing common sense safety rules is an integral part of observing “good amateur practice.” Start now and you won’t have to worry later.

A comprehensive treatment of safe amateur radio practices can be found in any ARRL Handbook or Operating Manual. Both of these are excellent references, which should be on your radio bookshelf.

Setting The Safety Stage

Before I get to the safety tips this month, however, I’d like to share a few stories to properly set the stage. The first story is still fresh in my mind despite the fact that 25 years have passed since that exciting day.

Here goes...

When I was a brand new 13-year-old ham, I didn’t have a high-tech rig and a goody-laden shack even by 1975 standards. What I did have was a TCS-6 AM/CW transmitter/receiver combo that was given to me by the hams of the local Civil Air Patrol chapter. It was a WWII relic and, although it was in decent shape and worked okay on 80-meter CW, that old boat anchor almost ended my then-short-lived ham radio career.

No, its clumsy ergonomics and “old-world” technology didn’t dampen my enthusiasm for the hobby—the thing almost killed me outright! To be truthful, I almost killed myself, even though I was being quite careful at the time.

The transmitter needed an adjustment, and I had it open and fired up on a plywood workbench in the basement, near my operating position. As an added safety precaution I had placed a thick rubber insulating mat on the concrete floor (to stand on).

During the adjustment, as careful as I was, my foot edged off the mat and onto the bare floor. Somehow, because the screwdriver I was holding contacted a high-voltage source or because of a grounding fault, a tremendous jolt of electricity slammed through my body.

A loud electric snap punctuated the fact that I had been thrown across the room! I hit the wall and crashed to the ground. The air had been expelled from my lungs and my heartbeat was fluttering and irregular. Braaaap, braaap, it fluttered, bouncing around inside my chest. The room was spinning, and I thought I would soon be dead.

After an endless dozen seconds or so, my heartbeat returned to normal and my head started to clear. That incident, which forged a heightened respect for my own mortality was a lesson I never forgot. Later, in college, I was excruciatingly careful as I homebrewed linear amplifiers and tube-type transmitters. My caution paid off and I had no further “accidents.”

Other Hams Haven’t Been So Lucky

In the mid-’80s an experienced North Dakota ham was killed when a vertical antenna he was installing accidentally touched an overhead power line. In the late ’80s a life-long ham from Texas, with thousands of hours behind the key and test bench, was fatally shocked when he touched a high-voltage line inside his linear amplifier. Had he lived he would have had to adjust to the fact that the powerful jolt had charred his hands completely off his body. While operating from remote locations, hams have electrocuted themselves by running power cords (plugged into gas-operated generators) through standing water. And more than a few hams have been killed by lightning strikes.
Some comments on WRTH 2002:

Thanks for the new WRTH, which is an excellent book
HAROLD ORT, EDITOR, POPULAR COMMUNICATIONS

The 2002 edition is, overall, a beautiful book W.H., USA

WRTH is the best DX book going J.F., UK

WRTH 2002 is my first, you are simply fantastic! M.H., CZECH REPUBLIC

Best of information is available in WRTH S.P., INDIA

The handbook is perfect as it is H.E., GERMANY
Recalling these events, and many others, is a chilling reminder that anyone who works with or around electrical equipment needs to be alert and careful. Voltages do not have to be high to cause death or injury. Lower voltages can be just as deadly, and strong RF fields can cause burns and can damage tissues and organs. Working on rooftops and towers also calls for caution and common sense.

Ham radio isn't an inherently dangerous hobby, especially if you use your head. But by learning and practicing the right safety habits at the start of your ham career you'll hopefully avoid having to learn them the hard way.

**Staying Safe**

Keep the following tips in mind while building, repairing, installing, adjusting, and operating amateur radio and electrical equipment:

**Equipment Safety**

- Use both good quality feedlines and connectors.

- Never touch an antenna with RF power applied.
- Never operate a transmitter or amplifier with its safety shielding removed.
- Make sure antennas can't be powered up while you're working on them. If you're out in the backyard or on top of a tower, put a warning sign in your ham shack, pull out fuses or switch off circuit breakers, and disconnect all feedlines at the transmitter.
- Never look into the open end of a power wavguide and never aim a beam antenna (dish, Yagi, etc) toward yourself or others. Keep VHF/UHF antennas up in the air and away from people.

**Climbing Safety**

- Never climb alone. Always use a helper/spotter.
- When working on a tower, always wear and use an approved, secure safety belt.
- Plan your work before you start. Have the proper tools and materials on hand.
- Take a break every now and then.
- If you're uncomfortable working at heights, stay on the ground and get help from an experienced climber.
- Stay away from, and be alert for, power lines or other overhead wires.
- Don't climb if you're tired or distracted.

**Electrical Safety**

- If possible, personally disconnect equipment from power sources before beginning your work.
- Drain (ground) electrolytic capacitors before touching them.
- Try not to work alone.
- Use tools with insulated handles.

**The MFJ Beacon Monitor**

In a recent column I highlighted the MFJ DX Beacon Monitor and mistakenly reported that it received signals from transmitters in the IARU DX Beacon Network for the purposes of identifying propagation paths to various parts of the world. In my own defense, let me point out that MFJ's press releases and advertising for this product are, in my opinion and those of many others, somewhat confusing. As Wayne Staats, WS8RM, and other Pop'Comm readers pointed out, the device doesn't monitor anything except time station WWV (WWVB) and is essentially a sophisticated, special-purpose clock. Despite the controversy, monitoring the DX propagation beacons is a cool and useful pursuit that can add enjoyment and understanding to our hobby.

“Because life, like ham radio, is often full of surprises, consider attending Red Cross first aid and CPR courses. Why not take your ham club buddies with you?”

---

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Have "U" Ever Heard of Channel 83?

They’ve got this new thing now called listening to the radio,” my dad would joke whenever I whined about the limited capabilities of our old TV. It was an ancient black & white Zenith that literally needed kick starting. Actually, it wasn’t even really a Zenith, but rather an embarrassing generic rectangle wearing a Sears and Roebuck label. The Sears salesman is quoted as having told father that the catalog store’s low-priced products were secretly made by major brands “like, you know, maybe Zenith or some other famous name.” Seems to me that one of its tired old tubes did have a “Z” stenciled around the middle. There’s a slight chance that might have denoted Zenith, but certainly didn’t designate zero warm-up time!

We used to laugh about having to turn it on before noon on Wednesday if we wanted to watch the Friday night movie. Worst of all, though, the darn thing was only equipped to get VHF (Channels 2 through 13) stations. That worked okay in the metropolitan New York area where all the networks and several independents operated “Vees,” but when we moved to Westogue, Connecticut, not long after my 10th birthday, NBC programs there were conspicuously absent from its huge round click-tuning dial.

A kid in my class told me the Peacock’s shows like Little House on the Prairie arrived over New Britain’s WHNB-TV on Channel 30 (now WVIT-TV and coincidentally across the road from Sears), an incredibly high channel number to this ancient faux-Zenith-owning family. Fortunately, Mr. Smuckler, my know-it-all but helpful science teacher, overheard the recommendation and suggested the purchase of a UHF converter for our antediluvian set. Such a device was new to me, too, so Mr. Smuckler seized the opportunity to explain—via intricate blackboard diagrams—how this converter allowed VHF-only televisions to tune ultra-high frequencies (Channels 14 to 83), which the FCC had assigned to the broadcast television spectrum in 1952 in order to relieve the shortage of available TV allocations.

Of course, in retrospect, most broadcast historians understand that the intermixing of VHF and UHF stations in the same market was a mistake. Ideally, had the Commission bitten the bullet nationwide (in the early 1950s) and reallocated the entire television broadcast spectrum to UHF, there would have been room for a channel for just about everybody who wanted one, without the public quickly perceiving that the “high” channels were second class operations. In fact there was no reason why FCC regulators couldn’t have mandated a deleting of VHF channels and then the renumbering—from Channels 1 to 69—the UHF positions. Arguably, rulemakers will be instituting a harsh-
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WHUM-AM
- Serving the Pennsylvania Dutch Country.
- WHUM is the most listened to station in the Reading Metropolitan Area.
- The WHUM audience exceeds the other two Reading stations combined.

WHUM-TV CHANNEL 61
- Serving one of the nation's top 10 television markets with 2.7 million population in the Reading-Allentown-Harrisburg-York-Lancaster-Wilkes-Barre area.
- World's most powerful television station with 250,000 watts.
- Antenna height of 2680 feet above sea level (actual antenna height: 1590 feet), nearly twice the height of the antenna on the Empire State Building.
- Only General Electric Klystron transmitting equipment in the nation.
- On the air February 22, 1953.

During the 1950s, a full-page ad in the Radio Annual and Television Yearbook represented a real broadcast insider status symbol. Here, WHUM officials tout their AM and TV operations for 1954, though the cartoon character seems to primarily be in a listening mode.

First UHF-TV: 1952

It turns out that the first UHF-TV stations officially hit the air in 1952. Among the earliest was Portland, Oregon’s KPTV-TV, telecasting its premier on August 20th of that year. The historic outlet occupied channel 27, but by spring 1957, it combined with a nearby VHF Channel 12 competitor KLOR-TV which KPTV-TV officials purchased so that KPTV-TV could be moved down the dial to the more “normal” 12 spot.

A Reading, Pennsylvania, AM radio station owner had hoped to beat his Oregonian colleagues for the honor of running the first commercial UHF-TV facility via the speedy construction of what did reign—temporarily—as the world’s biggest “U.” In early September 1952, Humboldt Greig secured a Construction Permit for a television sister to his 250-watt WHUM, and began building a 1,050-foot tower that would situate the TV station’s Channel 61 antenna some 2,700 feet above sea level. Running up this stick was coaxial cable connected to a huge General Electric Klystron-type transmitter that, with the antenna gain factored in, yielded just over 260,000 watts, a giant output compared to the 10- and 20-kW effective radiated power ratings of many early UHF-TV facilities. Of course, today’s 5-million watt UHF signals dwarf the pioneer Pennsylvania operation. WHUM-TV officially took to the air on February 22, 1953, but had immediate problems making its super power clearly reach the 2.7 million people living within this massive, but theoretically calculated, proposed coverage area (Reading, Allentown, Harrisburg, York, Lancaster, and Wilkes-Barre).

In a piece about WHUM-TV on Peter George’s enjoyable site (<radiodxer.com>), writer Scott Allen suggests that much of the signal shot too far over the intended target. No doubt the incredibly high-gain antenna flattened much of the pattern into a rifle shot as opposed to a shotgun spray of a lower-gain unit. Allen detected rumblings that HUM-TV engineers tried, unsuccessfully, tilting the antenna element towards Reading. Also arguable is the likelihood that many of the TV homes took a wait-and-see attitude towards the purchase of a UHF converter around 1953. After all, since 1949, most people with roof- or tower-mounted receive antennas had been picking up nice pictures from Philly VHF network affiliated stations, or via Lancaster’s WGAL-TV on VHF channel 8. Conveniently, the latter “Vee” then offered programs from all four of the era’s networks, meaning that viewers could be treated to the best of what ABC, CBS, NBC, or DuMont had to offer over the easier-to-tune Channel 8.

To be fair, the region was home to a growing number of UHF converter buyers, but most of the aforementioned receive antennas were geared solely towards pulling VHF product. In addition to being associated with big power, WHUM-TV’s hefty GE transmitter, tower lights, studio lighting, etc., were producing astronomical utility bills. These expenses and other business costs quickly exceeded advertising revenues, causing Greig to call for the suspension of operation as of September 6, 1956. Early 1960s Broadcasting Yearbooks indicated that the FCC was still hoping WHUM-TV would return to the air, but it never did. Bill Gallagher served as WHUM radio news director around 1980 and, when asking old timers about the television venture, couldn’t elicit much more than faint memories of what one fellow dubbed “the money pit nobody watched.” It was a sad footnote for a very ambitious undertaking of something intended to touch millions of lives and be almost instantly profitable for doing so.

Many Failed UHF Ventures

The fifties broadcast landscape is littered with failed UHF ventures. Ultra High Frequency telecasters that survived were almost always in primarily UHF markets or possessed a strong affiliation with ABC, CBS, or NBC-TV. Starting small and observing conservative fiscal practices (such as not signing on until late afternoon) were also traits of survivors. For broadcast buffs, the seminal UHF-TV genre’s unbridled initial optimism is incredibly interesting. Much of this intrigue surrounds the fact that most of these stations were funded and built by people who had never watched much TV on UHF (especially with a cheap antenna and aftermarket converter), thus didn’t know what annoying fading characteristics the reception would possess. That’s not because these entrepreneurs were careless,
THE STATION THAT BLANKETS THE RIChest BUYING AREA IN THE UNITED STATES!

If you want coverage, full coverage of the richest buying area in the United States — Stamford, Norwalk, New Haven, Bridgeport area — plus neighboring Long Island, WICC-TV is definitely the station to use. See the rich cities, towns and counties WICC-TV covers. Call your nearest Adam J. Young, Jr. representative, Consult your Standard Rate & Data or contact WICC-TV direct.

* Based on a study by Sales Management Magazine

This WICC-TV promotion was correct in saying the station's signal blanketed "the richest buying area in the United States," but didn’t note that most of it was already nicely covered by well-established VHF-TV outlets in New York City and New Haven, Connecticut. The Bridgeport "U" became infamous for it's "prize money for letting us know if you’re watching" promotional broadcast.

rather the mishap was because the ultra-high frequency RF video technology was so new that it was virtually still experimental when the first big wave of UHF's began transmitting around 1952 to 1954.

The few folks who dialed way up to channel 71 noticed some trial and error on WTVU-TV. Built in 1953 as an independent, this Scranton, Pennsylvania, operation was the antithesis of big budget WHUM-TV. "They started out with just one camera," an erstwhile WTVU-TV watcher chuckled. He continued,

For about 15-minutes, it was focused on some guy agonizingly ad-libbing during a very boring, low-budget local talk show. When they finally moved it to his equally uncomfortable studio guest, the first fellow’s image had burned into the primitive TV camera pick-up tube, making for an eerie superimposition. Imagine how stupid the video looked at the program’s conclusion; two superimposed shadows of these people, plus credits which was a jerky list of names on some kind of plastic or cellophane unfurled right in front of that poor camera.

Competing for audience with network affiliates wasn’t easy for that incarnation of WTVU-TV, especially with rival ABC, CBS, or NBC outlets were blessed with good equipment and transmitting components that sent out more than WTVU-TV’s approximately 12,000 watts to bounce around the mountains of northeastern Pennsylvania. Though the FCC mercifully let the little station move from Channel 71 to 44, it too suspended operations (thus freeing the callsign for other video outlets) after losing the good fight to lure enough viewers to attract sufficient advertisers.

Other Scars Of Pioneer UHF TV

Perhaps the most famous story about such a battle is associated with Bridgeport, Connecticut’s WICC-TV, another member of UHF-TV’s circa 1953 freshman class. Though compar-
atively powerful (182 kW) and an ABC television affiliate, this Channel 43 occupant couldn't pull anyone away from dialing the VHF stations in not-too-distant New York City. Such an audience absence assessment was taken literally when, in 1960, exasperated management told the duty control room operator to broadcast a slide that read "the first person to see this message on WICC-TV and call our studios will get $100." The phones remained silent and the transmitter was soon taken dark.

One of my favorite research sources, besides Broadcast Pro-Files (28243 Royal Road, Castaic, CA 91384-3028), is the Broadcasting Yearbook. (By the way, I'm searching for some Broadcasting Yearbooks from the 1950s. Anyone have one for sale or for copying? Thanks.)

Regarding the status of many early UHF-TV outlets, the 1963 Yearbook, for example, often lists them as "FCC authorized to suspend operation," or "Operation suspended, but license has not yet been returned to the FCC." Both euphemistically spoke volumes about the quiet, bear market in the UHF-TV broadcast sector of that time. Through the mid-1970s, it was possible to find a suspended "U" available for $100,000 or less, or to get an FCC Construction Permit to build one—in almost any media market! Of course, such hindsight is, as they say, 20/20. Few anticipated cable's eventual acceptance (which brought weak and powerful stations into cabled homes with equal clarity) or the 1980s to 1990s establishment of more national television networks like FOX, UPN, WB, and PAX.

So, when offered opportunity, even some of the most prescient broadcasters of the mid-1950s to about 1980 vividly recalled seeing the scars of pioneer UHF operators such as those who valiantly tried WHUM-TV and WICC-TV. Few wanted to dabble in such legendary quicksand again. Consumers, too, had developed these early prejudices that spanned through at least 1989 as witnessed by that year's movie hit UHF. It featured comedian Weird Al Yankovic's goofball "U" and silly staff ultimately defeating the owner of an evil but wildly profitable VHF station.

The film's immediately recognizable premise was that UHF stations (especially independents) are benignly bumbling...
underdogs. Frequency spectrum enthusiasts see grounds for the bias. They can rattle off numbers showing that while VHF-TV Channel 2 occupies 54 to 60 MHz, the original UHF-TV extreme, Channel 83, tries sitting in waves of 884 to 890 MHz, a tall order with the unsophisticated tiny wavelength equipment in use around 1953. Though admittedly apples to oranges, when one compares even the mid-position UHF-TV Channel 35 spectrum allocation (596 to 602 MHz) to the early ’50s most popular broadcast band (AM), the latter lived in the area of just a single (thus usefully long-range) megacycle. It’s no wonder that reliable UHF-TV reception was a frustrating mystery to most pioneer television audiences.

In my files is a WSBK-TV Boston pamphlet, dated 1975, that’s dubbed Guide to a Better “U.” It was offered free to viewers hoping to improve reception of that Bean Town Channel 38 signal so that they could enjoy the station’s Boston Bruins hockey and Red Sox baseball play-by-play telecasts. The foldout admitted that “UHF is more difficult to receive because the higher the frequency, the more easily the signal can be blocked by buildings, trees, and hilly terrain.” At least that dispelled a common myth that high winds could blow UHF-TV waves off course. Few folks at this time still had need for UHF converters, as all televisions sold in the U.S. after May 1964 possessed both TV bands. No matter, WSBK-TV urged set owners to invest in a good UHF receive antenna, not rabbit ears or so called “UHF loop.”

About 1986, when FOX began looking for affiliates to carry its proposed network fare, TV home shopping services as well as other specialty programming sources, started seriously seeking access to TV homes. Most markets’ three “regular” VHF downtown-based TV stations and one struggling UHF outlet on the edge of town, plus several UHFs, competing more evenly for ad dollars, morphed into a milieu of the old guard “Vees.” Values of “U”s that had hung on escalated, while vacant FCC channel allocations were snapped up. By the early 1990s, so many TV homes were cable and fed equally crystal clear UHF, VHF, and cable programming services that younger viewers didn’t even get Weird Al’s UHF parody without some background from an elder who painfully recalls struggling with skuzzy Ultra High Frequency video reception.

Getting back to my UHF converter saga, I pestered dad until he took me downtown to one of those now-nearly-vanished mom and pop stores that sold kitchen appliances, records, radios, TVs, and air conditioners. This was in 1979, a decade and a half after all new sets came through with VHF and UHF, so the proprietor had to search his back room for such a contraption, but not before trying hard to sell my father a “modern” television. The guy finally emerged with a small, dusty carton festooned with the Channel Master Master logo. There was some negotiating over its original $53 price tag. “After all,” dad convinced the proprietor, “the darn thing is as old as the hills, so if I don’t take it off your hands, you’ll probably be stuck with something nobody else will ever want and you’ll really be out some dough.”

Truth be told, the coup de grace came when father noted that the UHF converter was really for me, “a poor little girl new to the area who hasn’t made any friends yet and just wants to watch a wholesome show about kids in the prairie but can’t because it’s only on UHF here in Connecticut.” That acting netted us the Channel Master gizmo for only 20 bucks including tax. Still, I never had the heart to admit to dad that the very weekend following this ultra-high-level haggling, our church benefit tag sale included a vintage UHF converter that I bought for 25 cents—and it pulled in Channel 30 better than the Channel Master! I only tried it once, and then hid it in my closet for fear that dad would be insulted.

Of course, neither UHF converter was needed after we’d been in the Nutmeg State for about a year. That’s because the fake Sears-Zenith started smelling like burnt Belgian waffles, so mom decreed that the family needed a “real” TV. She said that with the same tone many early-1950s to mid-1970s viewers might have called VHF “real” television compared to the often second-string reception on pioneer UHF equipment.

Next month we’ll consider the plight of another once highly underrated broadcast service: FM and wide-area FM chain transmission. Until then...And so ends another day of broadcast history at Pop’Comm.
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AA, FF, SS, GG, etc. are abbreviations for languages (Arabic, French, Spanish, German). Times given are in UTC, which is five hours ahead of EST, i.e. 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 4 p.m. PST.

### UTC Freq. Station/Country Notes UTC Freq. Station/Country Notes

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Alinco's new DJ-S40T Pocket HT

Alinco is introducing the new DJ-S40T UHF HT, a pager size transceiver that replaces the very popular Alinco DJ-S41. The new model has several improvements over the original and can transmit with up to 1-watt output with the optional Ni-MH battery or external DC power. Announcement of the new unit was made by Craig Cota of ATOC Amateur Distributing, which distributes Alinco products to dealers in the U.S. and Canada.

The new DJ-S40T has a “normal” output of 500 mW, 100 memories, a call channel, several scan modes and more. It covers the entire U.S. UHF Amateur Radio allocation of 420 – 450 MHz, with receiving capabilities beyond the allocated transmission range. Unique features include a newly designed case that conceals the speaker but provides loud, clear audio. The antenna is now a standard SMA fitting. There are 38 CTCSS encode and decode settings (decode included as a standard feature) and four tone bursts that make the unit usable for repeater operations in many parts of the world. The large illuminated display is easy to read and provides information to the user about a number of useful features. Alinco has added its experimental “mosquito repelling feature” to the unit along with a theft alarm function, the ability to clone units by cable, and an external power port. Many Alinco accessories, such as a wide variety of speaker mics and power cables are cross-compatible with the DJ-S40T.

In addition to normal amateur simplex and repeater operations, a very popular application of the tiny transceiver could be its use through cross-band transceivers, essentially using the DJ-S40 as a “remote mic” through a base or mobile dual-band transceiver.

The MSRP for the DJ-S40 is $109.50, but dealers often set “street prices” below the suggested retail. “The DJ-S40T demonstrates Alinco’s continuing leadership in the development of small-sized, high-performance, low-cost transceivers,” said Cota. “The DJ-S41 proved there is a market for pocket transceivers and that most areas served by repeater systems do not require high power in order to achieve reliable communications. The DJ-S40 is an exciting ‘next step’ in the evolution of small-size, full-featured radios that are fun and affordable.”

For more information on the new DJ-S40 amateur HT, contact Alinco at 23 South High Street, Covington, OH 45318; Phone: 937-473-2840; Web: <alinco.com/usa.html>.

PowerPort DXpedition Pack

At last the folks at Cutting Edge have made a pack big enough for the serious DXpedition crowd. Their WorldPack is great for the shorter trips when all you need is a radio, power supply, and a few accessories. But when you get serious and want to go for the hard stuff, you need a pack that can carry the tuner and cable, the wire and splitters, along with the radio and power supply, to say nothing of snacks and lunch!

The DXpedition Pack is the ticket. It’s a full-sized backpack constructed of heavy-duty nylon, available in either blue or black fabric, with specialized antenna pockets and plenty of tie-downs on the pack to hold antennas and about 20 other things. There are more attachment points on the shoulder straps to hold handheld radios, scanners, a GPS receiver, and even handheld cassette recorders to record contacts. It even comes with one of those Moveable Microphone Clips (the same ones that were featured on the Worldpouch) that can be clipped anywhere to keep the microphone at hand. Big zippered side pockets can hold even more gear!

Inside the pack there’s even a separate, fully detachable padded case that isolates and protects the radio and power supply from all your other gear. There’s a compartment for the radio and its power source with wire pass-through holes between them. The rigid case construc-
tion is firmly secured by wide Velcro, but is easy to remove and carry by its webbing handle. The case can be opened and used as a perfectly serviceable operating platform outside of the pack. It keeps the radio clean and off the ground.

All in all, the DXpedition Pack is just about the most versatile and well-constructed radio pack we’ve seen. For more information, contact Cutting Edge Enterprises, 130 Anacapa Circle, San Luis Obispo, CA 93405; Phone: 800-206-0115; Web: <www.powerportstore.com>. Be sure to tell them you read about the DXpedition Pack in Pop’Comm.

Shortwave With A Difference

Shortwave With A Difference is a brand new CD featuring more than 40 articles on various facets of radio monitoring, including equipment reviews, frequency/callsign lists, station profiles, and historical overviews. It’s a cooperative effort between four radio enthusiasts across Australia and New Zealand, three of whom are licensed amateurs.

The main feature of the Shortwave With A Difference CD is the 565 audio files of military, pirate, utility, broadcast, satellite, and VHF skip communications, arranged in sections and recorded as MP3 files. The CD is organized as a “website on a CD,” and can be used by anyone with a PC, requiring only a Web browser and software to play MP3 files. An Internet connection is not essential; however, if the viewer has an Internet connection, there are many “live links” written into the CD to enable you to follow through to many informative and interesting radio-related sites.

The CD is intended to show the new or prospective shortwave listener, as well as the veteran listener who may be looking for more unusual stations, some of the huge variety of listening possibilities on shortwave/VHF and how to go about finding them on the bands. There’s a supporting Website at <www.shortwave-with-a-difference.com> which carries more audio files and to which more articles are being added on a regular basis. The CD is being marketed by mail-order through Caradoc Enterprises which has been in business since 1993. For more information, contact John Batty, VK4MBK, at Caradoc Enterprises, P.O. Box 703, Nanango, Queensland 4615 Australia; E-mail: <caradoc@caradoc.com>. We’ll be reviewing this exciting product in an upcoming Pop’Comm.

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Do You Really Need A Trunking Scanner?

The most frequent question I get in e-mail and snail mail is "what scanner should I buy?" Lately, a second question has been added that usually goes something like "what's trunking?" or "Do I really NEED a trunking scanner?"

In the last month or two I've been getting more letters about the second question, so I thought we should see if we can answer it here. I'm sure there are many of you who have just recently started scanning and really aren't sure about this trunking stuff or why those scanners cost more. Let's help.

Conventional Scanning

In order to appreciate what trunking is—or does—we need to understand conventional scanning, perhaps in a bit more detail than you've thought about in the past. I'm certain that if you've owned a scanner more than five minutes, you probably have a pretty good handle on conventional scanning. If you've been scanning for any length of time, or if you've ever watched television, you'll have a pretty good idea of how conventional scanning works. "What's television got to do with this?" I hear you cry.

Well, television uses channels, just like conventional scanning. If you want to find the evening news, you turn on Channel 8 or 41 or whatever number it is in your city. When you're finished watching the news, there will no doubt be some mindless program to catch your attention. This is a good time to turn on your scanner and cut your losses. However, tomorrow night, when it's time for the news, or the mindless program that you want to watch (hey, there's nothing wrong with entertainment), it will be on that same channel number. They don't change much except for the occasional reshuffling by the cable company or FCC re-licensing.

Conventional scanning operates the same way. The agency (local police for instance) applies to the FCC (I know, they have to go through frequency coordinators and a whole raft of other paperwork, but let's keep it simple) for a "channel." The FCC assigns, in due time, a frequency to that agency for their use, and except for certain shared channels or the business band where the rules are a bit different, the agency can expect that the frequency will be for their exclusive use in their geographic area. In fact, it's the job of the regional frequency coordinator to make sure that the same frequency does not get reassigned to another agency which is close enough to interfere with it. That's not a small job with today's crowded bands.

So, when we want to listen to that agency, all we need to know is that frequency and punch it into our radio, just like selecting a TV channel. Presto, there's the action. The only difference, of course, is that TV channels broadcast on a continuous basis, whereas our public safety agency will only transmit when there's a need.

That's why we have a scanner in the first place. You fill up a bunch of channels in your scanner with frequencies of various agencies around you and you're scannin'. The radio steps—scans—from channel to channel waiting for something to happen. When something is found, the receiver opens the squelch so you can hear the action. When it stops, the scan resumes where it left off. We can even get sophisticated and have our scanner check certain frequencies more often than others (priority scan) or, using computer software, develop all sorts of routines the scanner might do based on what frequencies are active at any given time. Of course, this requires a computer-controlled scanner and software to make it work, but it's all conventional scanning: one channel per customer, so to speak.

Communications Nightmare

Let's play the role of a communications coordinator of a small, but growing, public safety agency for a few minutes. You've applied for your conventional channel above, and gotten a VHF-High band frequency. You've gotten all the equipment installed in several mobile units and everything's working fine. Well, almost fine. You've had your channel for some time, and you notice that the traffic is getting heavier. There's a lot of waiting for open-air time to dispatch calls. Officers are keying up on top of each other trying to get through. And there's way too much car-to-car chatter.

Wouldn't it be nice if we could maybe get a car-to-car channel and possibly even a second dispatch channel. We'll divide the city in half, North and South (or East and West if you prefer), and have two channels. We were quite smart and installed radios in the mobile units that have extra channel positions in
thing to UHF? Can you get a third frequency on UHF? Have to buy new radios again. Bummer. Maybe we could wait until someone else moves off VHF and grab their frequencies. Perhaps. That could be a very long wait.

**Trunking**

While installing a trunking system will mean that you have to buy new radios, it does give you some long-term options that you can’t get with a conventional system. Part of the rapid move to trunking has been because there weren’t any VHF or UHF frequencies available in certain areas, and the 800-MHz trunking frequencies opened up a lot of new channels. And 800-MHz without trunking was the only way some agencies could get new conventional frequencies, so you will find some conventional channels on this band, but they are not common. Yes, we have to buy new radios, but as long as we’re going to do that, let’s get some with future expandability.

With a trunking system, our communications officer applies to the FCC for a block of frequencies, usually five at a time, although busy systems may need 10, 15, or even up to 30 frequencies. These are frequencies just like you were applying for before, but with a difference.

Now hold it, Dudley. You just said that getting even two more channels was going to be a problem. Now I’m supposed to ask for five to 30? What’s the chance of that? I’ll bet the FCC has official “Gee, that was funny, now get serious” forms to send out for these requests.

Well, not exactly. The 800-MHz band was sectioned off to allow trunking systems exclusively in a certain portion of the band. There are also some frequencies available in certain parts of the country in the 760-MHz range. These higher UHF signals do not travel as far typically as VHF and UHF (450-MHz) signals, and so the frequencies can be reassigned to another agency much closer together.

Combine this with the FCC’s drive toward more efficient spectrum usage and you’ll more than likely get a “Great, here you go” form. The band is filling up, so someday we may see the same problems here as on the lower bands, but it will take some time.

So now the city has its frequencies, what happens next? They’ll need trunking equipment. These are special radios that take advantage of the trunking system to allow for increased efficiency in frequency usage. Remember that we applied for a block of frequencies, just like before. They are assigned for our exclusive use, just like before, but after that, you need to forget all you know about frequencies. They are now almost irrelevant.

**Channels!**

The conventional system locks each channel on a specific frequency. But listen to your scanner and what do you hear most of the time? Silence. Most public safety nets simply don’t transmit a large portion of the time. So the frequency is sitting there unused until someone decides it’s necessary to talk. That’s why we listen to these channels with a scanning receiver. All the cars assigned to Channel 3 stay on Channel 3 and hear a lot of nothing, while our scanner skips over that frequency because it’s not in use until someone transmits.

What a trunking system does is create “virtual channels”: that is, a channel that looks and acts like a channel—everyone listens to Channel 3 and hears nothing most of the time, but the agency is without a designated frequency.

At this point, it’s probably important to note that we’ll be talking specifically about the Motorola type II trunking system, which is used by most public safety agencies throughout the country that are trunked, and that the Uniden TrunkTracker radios will follow. Type I and type III systems operate exactly the same way. The EDACS (made by Ericson/GE) system used by some public safety agencies operates in a very similar manner, except with a different set of codes (protocol) for the control channel and radios.

The block of frequencies that we applied for gets used more like “conference rooms” in a sense. One of the frequencies is dedicated to the trunking control system. This is a computer controller that manages the scheduling of these virtual channels.

Suppose we’re listening to Channel 3 and nothing is happening; we’re listening to silence, so why bother with being on a frequency. We can just monitor the control channel waiting for a command to meet in a conference room. When someone transmits (either the dispatcher or a car), the controller looks for an unused conference room (in this case, again, it is an actual frequency that isn’t busy). Once it locates one, it sends out a command to all radios monitoring Channel 3 to meet

And here’s an older-style handheld from Uniden. These show up on eBay and in other used equipment sale locations from time to time. Check them out if you’re looking to get into trunking for less.
in that conference room right now. Then the radio switches to that frequency and we hear the transmission, just like a regular conventional channel.

All this finding of a conference room and moving all the radios to it takes place in a fraction of a second. On some systems, the radio will emit a beep when the officer pushes the transmit button. That beep is to let them know not to talk until the system is ready and that everyone should be in the “room.”

But the next time you want to talk on Channel 3, that conference room might be busy. No problem, we’ll take any available room. So the next transmission might well take place on an entirely different frequency—any of the block of 30 that we could have. The officers in the car and the dispatcher can’t tell the difference. It sounds just like good ‘ol Channel 3.

All this technology for normal operations sounds like a lot of trouble and expense, but, remember, our communications officer got in trouble when he wanted to expand the number of channels in his system. Here’s where the trunking system shines. You’ve already got the block of frequencies assigned, so you don’t have to bother the folks at the FCC or exchange any fancy forms with them. All we do is create another virtual channel and assign some radios to use it. The controller can wait for that one to become active, just like it did Channel 3.

Listening In

The trouble for us scanner folks comes when we try to listen to a trunking system with a radio that’s not aware of the coding system or the commands taking place on the control channel. Our conventional scanner just goes plodding along from frequency to frequency, catching whatever conversations might be happening in the various conference “rooms” as it goes. So you might hear Channel 3 officers with an exciting pursuit, and then the next conference room could be the dog catcher or some other equally interesting city service. The Channel 3 guys might have had several conversations in various conference rooms by the time you catch up with them again.

The point is that in order to follow the conversations, you need to have a radio that knows how the system works. Here’s where the trunking scanner comes into play: a trunktracking scanner can follow that control channel information just like the radio in the police car. So you can hear only what happens in conference room 3 if that’s what you’re interested in, or you can let it scan the virtual channels that you’re interested in just like a conventional scanner. Once it’s programmed, you won’t be able to tell the difference, but the programming is a bit different.

Blocks

Trunking systems were designed so not only public safety agencies could take advantage of all this high tech, but business users could too. In fact, many business two-way radio systems are migrating to trunking-based systems because it helps the owners of the systems increase capacity. One of the things that’s advantageous to trunking is its ability to have many different types of users sharing the same system, because they don’t know each other is there.

One way the trunking controller handles this problem is to divide the available channel groups into “blocks.” There can be as many as eight blocks (numbered from 0 to 7) in the system, although some configurations might limit this number, or not all blocks may be in use. Within each block, it must be decided if the controller and radios are going to use the type I or type II format of communications.

Type II is the newer one and, therefore, more versatile. Most systems installed in the last several years have been type II, and many systems that started out as type I have been upgraded (particularly for public safety use). But a lot of cities also have type I radios floating around from the “early days” and might like to use those. That’s what is referred to as a type III system. Certain blocks are designated as type I blocks, and others are designated as type II blocks. Of course, the controller has to keep up with who’s on first, so to speak, but it’s a computer with nothing better to do—piece of cake.

Fleets And Subfleets

These terms get bantered about quite a bit, and a lot of confusion exists regarding their use. Technically, fleets and subfleets are the terminology used to describe a type I system’s blocks and channels. The fleet would normally be a cohesive group (water department, police department, fire department, particular company, etc.) and the subfleets would be the individual channels that were available to those radios. Often the radios would designate the channels by letter, and the users would be totally unaware that there were other fleets sharing their same system.

Talkgroups

In type II terminology, a channel is a “talkgroup.” Each talkgroup belongs to a block (you can divide the Uniden decimal number by 8192 to figure out what block a given talkgroup is in, if you care). Each talkgroup represents a channel to the users of the radio. In fact, the user of the radio probably doesn’t have any idea if he or she is using a type I or type II system. It turns out that the type II system is more efficient and flexible, so that’s what we’d prefer, but a lot of type I traffic is still out there and going strong.

No matter which system you have (or a combination of the two), the net result is the same, if everything is working correctly. The user has a channel to go to for
Since most trunking systems are on 800 MHz right now, you may find that a dedicated scanner antenna gives better performance. This antenna from Max Systems is available from Universal Radio and other retailers. It’s not exactly convenient to wear on your belt clip, however.

Unfortunately, if your system runs type I, or type III, then you need a little more information in order to follow the type I traffic, or to lock it out if you don’t want to hear it in the search mode. What you need is information about how each of the blocks we mentioned earlier is configured (type I or II) and, if it’s a type I, how are the subfleets arranged?

It turns out there are only certain ways that they can be arranged, called block sizes, and stored in your scanner as a size code. Put these codes together and you have a “fleet map” for how your system uses the various blocks, fleets, and subfleets, if applicable, and talkgroups. Other systems besides Uniden deal with this information in completely different ways, but the Uniden system is easy to understand and simple to program.

There you have it. Trunking provides great benefits to the communications industry by making better use of the limited frequency space available. You’ll be seeing more and more trunking—and also on other bands besides 800 MHz as time goes on.

Frequency Of The Month

Our frequency this month, in keeping with our trunking theme, will be 856.6875. Have a listen and let me know what you hear. Even if you don’t hear anything, you can still send that in, and we’ll enter your name into the drawing for a one-year subscription to Pop’Comm. What have you got to lose?

Speaking Of Writing

Your input is always welcome. Send your comments, suggestions, photos, frequency of the month entries, and anything else you think might be of interest to fellow scanner listeners to Ken Reiss, 9051 Watson Rd. #309, St. Louis, MO 63126, or e-mail me at <radioken@earthlink.net>.

Until next month, Good Listening!
On December 12, 1901, at a site in Newfoundland, Canada, Guglielmo Marconi received the first transatlantic radio signal in history. The letter “S” in Morse code was sent by a spark gap transmitter from Poldhu, England, and received by Marconi at the top of Signal Hill overlooking St. John’s harbor and the open Atlantic Ocean. Thus Marconi became the first DXer. A group of intrepid DXers returned to Newfoundland for the 100th anniversary of this milestone and, in many ways, repeated Marconi’s initial success.

The Newfoundland DXpeditions

It all began 10 years before this latest event, when three DXers decided to meet in Newfoundland for a DXpedition to honor the 90th anniversary of Marconi’s transatlantic reception. “During the summer of 1991, I started making plans for a DXpedition about which I had long fantasized. The trip would be to a location near the Signal Hill site in Newfoundland,” wrote Mark Connelly in The DXpedition Handbook by Shawn Axelrod. Mark sparked the interest of St. John’s, Newfoundland resident Jean Burnell and Neil Kazaross of California; however, no one anticipated the legendary scope of their groundwork 10 years ago. The first DXpedition in 1991 not only proved and duplicated Marconi’s experiment with transatlantic signals received midday on mediumwave, but subsequent DXpeditions logged as many as 130 countries from five continents on mediumwave, believed to be a world record. Five DXers participated in the Marconi 100th anniversary DXpedition: Jean Burnell, Mark Connelly, John Fisher, Jim Renfrew, and myself. Jean Burnell has been the host of all 10 of the Newfoundland DXpeditions by default since receiving a fateful phone call in 1991 from Mark Connelly inquiring about potential sites. Jean discovered the Lawlor’s Hospitality House in Cappahayden, overlooking the Atlantic Ocean, which has since continued to serve as the “DX Inn.” Curious residents have become used to the unusual radio activity over the years, although some locals still refer to it as the annual visit by “American spies.”

For Mark Connelly of Massachusetts, designer of antenna phasing units and noise reduction techniques implemented at this DXpedition, reception of local British stations was a highlight: “These stations, often 1 kW or less, are seldom heard in Massachusetts. On channels like 1485 and 1584, they’re almost always buried by Spain at sites close to home. The British locals actually had programming that was entertaining—a decided plus, considerably more exciting than Brazilian preacher stations, for instance.” Perhaps it was only fitting that England was well represented at this Marconi DXpedition.

John Fisher from Ontario, a columnist for the Ontario DX Association’s Listening In magazine, has been to a few of these DXpeditions including the record-breaker. He commented: “I think this one probably compares closest to the first one when I was here, on that year we heard 130 countries. This year we’ve been getting good openings to most parts of the world, maybe save southern Africa.”
Jim Renfrew from upstate New York and a columnist for the National Radio Club's DX News magazine compared this to previous DXpeditions, as follows: "The first time I came in 1995, everything I heard was new. This is now the fourth time, and much is stuff that I've already heard. So it takes a lot more digging to find more exotic catches from deep South America and lower-powered stations in Europe." Jim's persistence netted Bolivia and Iceland as local sunrise approached, while the rest of us were sleeping.

Drake was the receiver of choice with all DXers using the original Drake R8, the R8A, or R8B models. The ICOM R71A and Lowe HF-225 Europa were also in use. There were no Marconi balloon antennas, but an impressive array of Beverage wires helped to capture all the action—a 1-km wire aimed into eastern Brazil, a 300-meter wire to Europe, a 150-meter wire to Africa, a K9AY loop, and, at a remote site, a 1-km wire to southern Africa. Industrial Communication Engineers' four-way antenna splitters allowed DXers to share antennas. Antenna phasing reduced interference, especially from radio stations in the Canadian Maritimes.

**A Bit Of Signal Hill Trivia**

By the way, Signal Hill didn't get its name from Marconi. The hill was used as a lookout for ships at sea when Marconi performed his experiment. A light would signal the arrival of ships to St. John’s harbor. The landmark Cabot Tower was under construction to facilitate the light signaling at the time. Eventually, Marconi did build a wireless station on Signal Hill, but his first permanent transatlantic station was established at Glace Bay, Nova Scotia, where on December 5, 1902, he demonstrated two-way communications. About a year later, a third station was constructed at Wellfleet, Massachusetts, and on January 18, 1903, the first wireless telegraph message was sent between the United States and Europe. So expect another couple years of anniversaries to be celebrated by DXers!

**Norway No More**

Norway's public broadcaster NRK has shut down all Radio Norway International operations as of January due to extensive budget cuts. Bernt Erfjord in Norway reported the following via Cumbre DX: "The decision also affects the 1.2-MW medium-wave transmitter at Kvitsoy Island (1314 kHz). This is also planned to be switched off alongside the four shortwave transmitters at Kvitsoy and Sveio. The two sites employ a staff of 18 (13 at Kvitsoy, 5 at Sveio). At the remote Kvitsoy Island, the station is a very vital employer, and a closedown will have great impact on the community."

This is extremely unfortunate for transatlantic DXers. Not only was 1314 kHz the single station from Norway in the logbooks for most, it was a beacon for northern latitude DX conditions in general.

**Special QSLs From Radio Melbourne 1629 AM**

Bob Padula of Radio Melbourne 1629 AM shares some fantastic news for transpacific DXers:

I am pleased to advise that the Electronic DX Press, in association with the Australian Mediumwave Club and the Australian Shortwave Club, has established a non-commercial agreement with the manager of "Radio Promos Australia" for assistance with administrative, technical, studio, programming, and correspondence functions. Radio Promos Australia is based here in Melbourne, and owns 40 medium-frequency narrowcast licenses throughout Australia, some of which have been sub-leased to local organizations, including "Rete Radio—the Italian Radio in Australia."

The key station is in Melbourne, known as "Radio Melbourne 1629 AM." It is part of the "Radio Promos and Radio Salsa Australian Network," operating 24 hours, everyday of the year, on 1629 kHz from a 400-watt narrowband transmitter located in the western coastal suburb of Williamstown.

The term "narrowband" signifies a maximum spectrum bandwidth of 6 kHz (3 kHz sidebands), using DSB AM, as distinct from other in-band services permitted to use the wider 9-kHz bandwidth. Programming is generally "music spanning seven decades," in English, except 0700-0800 UTC when Vietnamese is carried. Spanish music is presented from 0800-1000 UTC. Planning is underway for the introduction of Macedonian and Chinese language programming. The station is licensed as a "narrowcast" service, being of "limited appeal," serving the city of Melbourne and surrounding areas. No other station is permitted to operate on 1629 kHz, unless it is at least 160 km distant. Its official allocated callsign is VMS264. The 1629-kHz frequency is shared with other narrowcast stations: Rete Italia—Adelaide, SA (400 watts), Rete Italia—Shepparton, VIC (400 watts), Rete Italia—Brisbane, QLD (400 watts), and Hospital Radio Network—Newcastle, NSW (100 watts).

The manager has invited us to assist in determining day and night signal coverage, and has authorized us to promote the service across the hobby community worldwide. We have also been appointed on a continuing basis to receive DX reports directly and to issue official Radio Melbourne 1629 AM QSLs on behalf of the manager. These QSLs feature a picture of the station's antenna installations. Reports may be sent via e-mail or postal mail, return postage should be enclosed with postal mailed reports. E-mailed reports will be QSLed over the Internet.

Despite the relatively lower power, it is known that the station is heard rather well, out to at least 200 km during the day, and, at night, anything's possible via skywave propagation! The antenna is a top-loaded vertical radiator, about 20 meters above sea level, located right on the Williamstown foreshore. Please visit this special Website for a signal coverage map and other details, <http://members.tripod.com/~bpadula/salsa.html>.

We have also been invited to run our own un-rehearsed talk-back radio/DX/SWL show on Radio Melbourne 1629 AM—this will depend on reaction from the hobby community over the coming weeks. If we do that, remember that we have a six-second delay to screen out "inappropriate" comments! We look forward to reception reports from DX listeners anywhere! Reports would need to include sufficient detail to establish authenticity—the texts of announcements would be ideal, as no formal record is maintained of actual musical tracks or titles broadcast. Best regards from everyone at Melbourne Radio 1629 AM!

The address is Melbourne Radio 1629 AM, 404 Mont Albert Road, Surrey Hills, Victoria 3127 Australia, or you can contact them via e-mail at <bopadula@bigpond.com>.

**QSL Information**

279 Sakhalin Island, Russia, e-mail letter with logo in 4 days, signed A. Arhipov-Sakhalin, regional broadcasting center chief manager director. E-mail address <radio@adm.sakhalin.ru>. Even though not mediumwave, I am still quite pleased with this as it is my first ever direct QSL from a Siberian station! (Martin, OR)

1010 CBR Calgary, Alberta, full-data letter size QSL, QSL-style promo card with handwritten thank you message, 4 stickers (3 styles), CBC fridge magnet, and business card in 21 days for report and U.S. $1, signed Mike Spear, Senior Producer.
This month’s selected loggings are from the Newfoundland Marconi 100th anniversary DXpedition. All times are UTC.

531 Utvarp Foroya, Akarberg, Faroe Islands 0801–0806 presumed with news in a Scandinavian language. “La Bamba” by Richie Valens at 0805, fading out fast. (Fisher, NF)

549 United Christian Broadcasters, Monaghan, Ireland heard from 0347–0404 with Christian music and ID at 0357 as “United Christian Broadcasters Europe, it’s one of the family.” (Fisher, NF)

570 ZYL261 R. Capital de Minas, Belo Horizonte, Brazil 0110–0130 Brazilian country and western music and U.S. pops, deep-voiced male announcer was difficult to understand but jingle IDs were clear; initially a monosignal but faded out by 0130. (Burnell, NF)

710 R.I.L.202 R. Diez, Buenos Aires, Argentina, at 0302 IDs as “La radio más potente,” the most powerful station in Argentina...I don’t think so! (Burnell, NF)

747 Radio One, Flevo, Netherlands 0422–0452 with oldies pops from the 60s and 70s such as the Beatles, Jay and the Americans, Tony Joe White, and ID at 0452 as “Radio Ein.” (Fisher, NF)

907.81 R. Syd, Banjul, Gambia at 2022 good with African-language talk about Kabul and Ramadan. (Connelly, NF)

909 VOA, Selebi-Phikwe, Botswana at 2030 fair with “Africa World Tonight” in English, parallel 1530 kHz on Africa wire, hot on the low side from Gambia. (Conti, NF)

918 R. Slovenia, Domzale, Slovenia 2301–2308 good with news and sports in Slovenian, ID as “Achnia programna Radio Slovenija estudia radiocoper” at 2306 and music “Ferry Across The Mersey.” (Fisher, NF)

918 R. Intercontinental, Madrid, Spain at 2230 good. “Aqui Radio Intercontinental, Madrid” and “Caliente y Frio” music program over presumed Slovenia. (Conti, NF)

920 ZPI R. Nacional, Asunción, Paraguay at 0257 fair with national anthem parallel 9736 kHz. (Conti, NF)

930 CX20 R. Monte Carlo, Montevideo, Uruguay at 0120, a brief fade in with CQJY-Newfoundland and CFBC-New Brunswick phase nulling on the Brazil and Africa wires; news from Washington and Radio Monte Carlo ID. (Conti, NF)

954 Qatar BS, Al Arish, Qatar at 2349 parallel 7210 kHz with Arabic female vocal, strings, flutes, mixed with Spanish. (Connelly, NF)

1026 R. Salamanca (SER), Salamanca, Spain at 2358 a male with “Radio Salamanca” ID after network split. (Burnell, NF)

1026 R. Vigo (SER), Vigo, Spain at 2358 SER stations split for local news, this one was strongest with a woman announcer and ID “Radio Vigo, Cadena SER,” back to network programming at 0000. (Burnell, NF)

1035 Northsound 2, Aberdeen, Scotland at 2325 weather for Aberdeen, and “Northsound 2 in the morning.” (Renfrew, NF)

1040 ZYK537 R. Capital, São Paulo, Brazil at 2238 excellent with “Radio Capital, mas informação” jingle. (Connelly, NF)

1050 SODRE, Montevideo, Uruguay at 0228 “Montevideo ...una estacion de Grupo Uruguayano,” and at 0230 “CX26, SODRE, Montevideo, Uruguay.” (Renfrew, NF)

1053 Radio Jamahiriyah Home Service, Libya at 0142 parallel 675 kHz, distinctive Big Ben bells at 2000. (Renfrew, NF)

1107 Moray Firth Radio, Inverness, Scotland at 0604 “The Kids are All Right” by the Who, then Moray Firth Radio ID by a Scottish presenter, over Talk Sport and Spain. (Connelly, NF)

1125 ORTN, Niamey, Niger 2157–2202 with Koran chants, brief announcement by a man, anthem at 2159 parallel 5020 kHz, followed by a tone then both frequencies went off the air. (Fisher, NF)

1125 Radio Traffic Plus, Houdeng, Belgium 2212–2306 with an extremely eclectic (to say the least) collection of music including “Anarchy in the UK” by the Sex Pistols, “Harvest Moon” by Neil Young, “Diamonds on the Soles of Her Shoes” by Paul Simon, very few announcements; only a few electronic sounding echoes and jingle ID at 2306 as “Radio Tralee.” (Fisher, NF)

1150 LT9 R. Brigadier Lopez, Santa Fe, Argentina at 0800, “Transmite LT9, Radio Brigadier Lopez...Santa Fe, republica Argentina” with mention of two frequencies, over/under CBN-Brazil. (Conti, NF)

1161 Tay AM, Dundee, Scotland at 0544 “Oh What A Night (December 1963)” by Frankie Valli, then Radio Tay ID. (Connelly, NF)

1197 Family Radio, Lancer’s Gap, Lesotho at 2043 fair, in English with familyradio.com mention and Christian music. (Conti, NF)

1269 ECCA, Las Palmas, Canary Islands at 2018 English language lessons, “I like the sandwiches,” etc. (Connelly, NF)

1385.91 R. Rurale, Labé, Guinea 1955–2003—African music, open carrier for ca. 45 seconds at 1958, nice “Radio Rurale” ID in local language at 2001, indigenous flute that may be an interval signal, then back to African music. (Burnell, NF)

1386 Voice of Russia, Bolshakov, Kaliningrad 1955–2001 end of German language broadcast, old anthem of the USSR, bells interval signal, English ID and news. This was the first time that I have heard this anthem in many years. (Fisher, NF)

1458 Big AM, Ashton Moss, England at 2135 fair, “...on Big AM” and Rod Stewart “Downtown Train,” then “You’re on Big AM, the greatest songs ever, playing now.” (Conti, NF)

1476 Radio Africa International, Austria 2200–2232 a new program consisting of African news items and music, program seemed to be called “Report from Africa,” ID as “Welcome to Radio Africa, broadcasting from Vienna, the capital of Austria.” German program started at 2217 and French program at 2251. (Fisher, NF)

1484.55 EP do Kwanza-Sul, Angola at 2012 “Angola” and “sportive” mentioned, then at 2102 we heard pulsing dance music and announcements with strong reverb (nearly local strength on the truncated Africa wire), “Musica do (voz?)...91.7 FM, 1480 onda media.” A subsequent announcement after the next song repeated the frequencies, and may have shouted “Emissora!” (Renfrew, NF)
1494 France Inter, Corsica(?) 0004–0100+ mixing with R. Bleu was another program in French, later found by Bruce to be parallel France Inter 162 and 1375 kHz. The France Inter program was also weakly and tentatively heard on 1404 kHz. Jean did a Web search which did not indicate any particular late night programming on the Corsica transmitters during this time period, perhaps they relay France-Inter? (Renfrew, NF)

1530 Classic Gold 954/1530, Cotheridge-Worcester, England at 0540 parallel 1521 kHz with “The Love I Lost” by Harold Melvin & the Blue Notes, and at 0200 news headlines, then slogan “Good times, great music for west Yorkshire” into England at 0540 parallel 1521 kHz with “The Love I Lost” by Billy Ocean. (Connelly, NF)

1550 R. Metropolitana, Los Teques, Venezuela at 0856 noted with the Venezuelan anthem, then a state anthem. After the Bolivian faded in and out, a distinct ID was heard on this one. At 0409 I caught the sign-off with national and state anthems. Mark heard announcer mentions of “Los Teques.” (Renfrew, NF)

1556 AIR, Nagpur, India 0027–0034 fading up with subcontinental music, national news in Hindi at 0030, possible English news at 0038 return. (Fisher, NF)

Thanks to Jean Burnell, Mark Connelly, Bernt Erfjord via Cumbre DX, John Fisher, Patrick Griffith, Patrick Martin, Bob Padula, and Jim Renfrew. 73 and good DX!
Winter VHF Propagation

In last month’s column, I touched on mediumwave (MW) propagation during the winter season. This month, let’s take a look at the other end of the High Frequency (shortwave) spectrum, the frequencies right above 30 MHz (known as “low VHF”).

In the last few years, some rather strong and exciting long-range VHF DX openings have occurred during late December and early January. Paging, television picture and audio, and other signals have been received from over 2,000 miles or more via $F_2$-layer refraction. These unexpected openings surprised many DXers, since $F_2$-layer propagation is unusual during the winter season.

Long-range reception of DX VHF signals tends to occur most often by modes such as Sporadic-$E$ ($Es$) or tropospheric propagation. $F_2$-layer propagation is less common at these higher frequencies, being possible only when the Maximum Usable Frequency (MUF) between the station and the receiver is high enough to reliably refract these signals. Having an MUF high enough during the middle of the winter season is rare.

Why VHF Openings Occur

There are several theories about why conditions were perfect for these winter VHF openings. The foundation of each theory is that these $F_2$-layer openings are occurring during the peak years of Solar Cycle 23. During the years of a solar cycle maximum, solar activity is high enough to cause MUFs that would support VHF signal refraction.

One of the theories goes on to explain that these openings were created by a perfectly timed coronal mass ejection (CME). When the energy from such an occurrence reaches our magnetosphere, it creates high MUF spots at locations determined by the relative position between the sun and earth at that particular point in time. If the orientation of the magnetic field lines in the CME’s plasma cloud are such that they combine with the magnetic field lines of earth’s magnetosphere, the plasma penetrates into the atmosphere and ionospheric layers, causing an increase in the ionization. Sometimes this will create so much ionization in the lower levels ($D$ and $E$-layers) that MW and HF signals are absorbed and attenuated. In addition, geomagnetic disturbances increase in magnitude and aurora is observed. At higher frequencies, such as the low VHF range, this increase in ionization can create an $F_2$-layer opening between you and some distant transmitter.

Another theory centers on solar flares and their X-ray and ultraviolet radiation that results in an increase in ionization. If a solar flare occurs at an earth-facing part of the sun, we are hit by the flare’s full radiation. A high level of X-ray radiation arrives at the speed of light, about eight minutes after the flare’s eruption. The ionospheric layers instantly change, becoming charged at a much higher level than from the average ultraviolet of normal daytime exposure. If the ionization occurs at the right time of day, and at a spot that favors the refraction of the VHF signal, DX occurs.

I tend to think that both of these may have occurred during the past winter VHF $F_2$-layer openings. From the end of December through the beginning of January, it is highly possible, again, for intense CME as well as solar flare activity. Will they happen at the right time, forming the ionization needed for VHF signal DXing?

The CME and solar flare activity has remained very active through the last few months. We are still in the peak of the cycle, although it is clear that the cycle is starting to show a decline in overall activity. Activity is high enough to keep the bands alive, even into the VHF range.

Inside A CME

The atmosphere above the sun’s surface is divided into layers (much like earth’s atmosphere has a troposphere and stratosphere). One of the sun’s layers is called the corona, under which is the heliosphere and the photosphere (the photosphere is where sunspots exist). Using a certain type of instrument called a coronagraph, we can see the corona and features like a CME, coronal holes, and so on. The coronagraph is a man-made eclipse, used both in space aboard space vehicles (satellites and space stations), and at high altitude solar observatories on the earth. They allow us to see the pearly white crown of the corona surrounding the sun at any time we want.

Coronal holes are regions where the corona is dark. It is not a real “hole” as in a dip in some surface. The corona is not part of the sun’s surface. The corona, again, is part of the sun’s atmosphere (like our troposphere or stratosphere). These features were discovered when X-ray telescopes were first flown above the earth’s atmosphere to reveal the structure of the corona across the solar disc. Coronal holes are associated with “open” magnetic field lines and are often found at the sun’s poles. When a bubble of plasma inside a coronal hole bursts, a huge cloud of that plasma spews outward away from the sun (the aforementioned CME). The bursting of the bubble is caused by the magnetic breakdown of the coronal hole. CMEs are often produced by major impulsive solar flares if the geometry and velocity of the flare-ejected material is sufficient to allow the gas to escape the solar gravitational field. However, a somewhat larger number of CMEs is associated with phenomena other than those produced by solar flares.
CMEs can occur at any time during the solar cycle, but their occurrence rate increases with increasing solar activity and peaks around solar maximum. Since the sun completes a full rotation every 27 to 28 days, the same CMEs may recur every month. The exact processes involved in the release of CMEs are not known, but we do know a lot about how they affect the earth. The result of a well-placed CME is a bombardment of plasma into our magnetosphere (the magnetic field force that in part protects us from lethal doses of solar energy), as well as an increase in the density, power level, and speed of the solar wind.

When the solar wind, which contains magnetic field lines, reaches the magnetosphere, one of two things may happen. If the magnetic lines in the solar wind are orientated just right, or in a southerly orientation, they will combine in a way that nullifies the magnetosphere at that point, causing a "window" to open, allowing solar plasma to enter into our atmosphere. If the magnetic lines in the solar wind are not orientated this way, they will combine with the magnetosphere in a way that enhances the magnetosphere, strengthening the force field. When plasma does make it through, the geomagnetic fields, as well as the ionosphere, become highly disturbed (and you will see higher Ap and Kp readings). When the plasma and radiation is blocked, we have more quiet geomagnetic conditions (Kp readings less than 4).

Solar Cycle 23 Progress

The Royal Observatory of Belgium reports that the monthly mean observed sunspot number for September 2002 is 109. The 12-month running smoothed sunspot number centered on March 2002 is 113, two points down from February. The predicted smoothed 10.7-cm solar flux for December 2002 is about 133, and for January 2003 it's 128.

The observed monthly mean planetary A-Index (Ap) for September 2002 is 14, down just a bit from an Ap of 16 for August. The 12-month smoothed Ap index centered on March 2002 remains 12.

HF Propagation

We are in the heart of the winter season, with very short day hours. Average daily MUFs are at their seasonal lowest, but so are noise levels. Since we are still near the solar cycle maximum, the solar flux will continue to have occasional and rather high peaks. Winter peaks will help keep some of the daytime bands hopping with DX signals.

Nineteen meters through 11 meters will close shortly after sunset, to open again just before sunrise. But morning and evening DX openings between some areas in the Northern Hemisphere on these bands are very short, because the band in question closes on one end of the path before it opens on the opposite end. Paths on 31 through 15 meters remain in their seasonal peak, especially between North America and Europe in the morning, and between North America and Asia during the late afternoon hours. Twenty-two and 19 meters continue to be the best daytime DX bands, with 31 and 25 running a close second. Plenty of surprises are possible on 31 meters during the morning and evening hours and well into the hours of darkness. North/south paths on 25 through 15 meters will be reliable and open for most of the day hours, especially where paths terminate in the Southern Hemisphere. Nighttime conditions on these higher frequencies remain short and weak, with mostly north/south path openings since the Southern Hemisphere has longer daylight hours.

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

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

Signals below 120 meters are also greatly improved, unless we experience those intense CME events, where conditions will become degraded. Medium-wave DX is really hot during this season.

Don't forget to monitor the low VHF for DX TV signals (remember, European TV uses AM, not FM, for their audio), as there might be an F2-layer opening once or twice this month. I'd like to hear from you if you catch one.

Drop Me A Line

Be sure to check out the latest conditions, as well as the educational resources about propagation, which I have put together for you at <http://prop.hfradio.org/>. I also provide a WAP/WML resource for wireless devices. If you want the latest propagation information like the solar flux, Ap reading, and so forth, check out <http://wap.hfradio.org/>, the wireless version of my propagation site.

Please don't hesitate to write and let me know of any interesting propagation you have noticed. Do you have questions about propagation? I look forward to hearing from you. Till then, turn on your favorite radio and enjoy the great DX season on the medium and shortwaves.

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January 2003 / POP'COMM / 55
Radio Yugoslavia Back On The Air!

We’ll start off the New Year with some good news. Someone has robbed a piggy bank and come up with the funds necessary to get Radio Yugoslavia back on the air. Even better, the broadcasts are coming from the station’s own site at Bijeljina. We don’t have an operational schedule at this point, but a few people have noted the station on its old 6100 channel late in the North American afternoons. Here’s their full shortwave schedule:

1430–1458 in Arabic on 11800!
1500–1528 in Russian on 11870
1530–1543 in Hungarian on 6100
1545–1558 in Greek on 6100
1600–1628 in French on 9620
1630–1658 in German on 9620
1700–1713 in Albanian on 6100
1715–1728 in Bulgarian on 6100
1730–1758 in Italian on 9620
1800–1828 in Russian on 6100
1830–1858 in English on 6100
1900–1928 in Spanish on 7200
1930–1958 in Serbian on 6100
2000–2028 in Serbian on 6100 (Sun–Fri)
2000–2028 in Serbian on 6100 (Sat)
2030–2058 in French on 6100
2100–2128 in English on 6100
2130–2158 in Serbian on 7230 (Sun–Fri)
2130–2228 in Serbian on 7230 (Sat)
2200–2228 in English on 7230 (Sun–Fri)
2230–2258 in Chinese on 9580
2300–2328 in Spanish on 9680
2330–2358 in Serbian on 9580 (not Sun)
2330–0028 in Serbian on 9580 (Sun)
0000–0028 in English on 9580 (Mon–Sat)
0030–0058 in Serbian on 9580 (Belgrade 1 Home Service)
0430–0458 in English on 9580.

A lack of funding is forcing the closure of Australian time station VNG, effective December 31. If you read this before that date you can probably still catch the station. Try them on 8638, 12984, or 16.000.

Radio Pakistan Upgrades

Radio Pakistan has installed a new shortwave transmission facility at Skardu, located on the Indus River near Jammu and Kashmir, the area over which India and Pakistan have had a number of military skirmishes, a couple of wars, and last year came close to a much more serious conflict. No time or frequency info is available yet.

Radio Okapi, The UN station in Congo-Kinshasha (see the Log Reports) should be a somewhat easier catch now that they’ve upped power to 10 kW. Shortwave frequencies now in use are 6030, 9550, and 11690.

The Bible Voice Broadcasting Network, based in England, has begun shortwave broadcasts via transmitter sites in the former Soviet Union. They’re running 50 kW on 5835 from 0000 to 1800 and 11885 from 1800 to 0000. The mailing address is Bible Voice, P.O. Box 22801, Eastbourne BN21 2EQ, England.

Believe it or not, still more new U.S. religious broadcasters have come on the air! KIMF in Pinon, New Mexico, is operated by IMF World Missions, which, in turn, is owned by the International Fellowship of Churches. They’re running 50 kW on 5835 from 0000 to 1800 and 11885 from 1800 to 0000. The mailing address is 9746 6th St., Rancho Cucamonga, CA 91730.

Another new one is WBOH, Newport, North Carolina, owned by the Fundamental Broadcasting Network (FBN), which also operates WTJC, also in North Carolina. WBOH (Worldwide Beacon of Hope) mostly rebroadcasts the programming of WTJC. Initial operations were on 5920. WBOH
will cover Central and South America and programming will eventually include Spanish and Portuguese, as well as English. Reception reports can probably be sent to the network headquarters at 520 Roberts Rd., Newport NC 28570.

**Good Listening**

This month’s “Good Listening” is from Radio Australia. Although this station doesn't intend to be heard in North America, it can be heard rather well from 1100 to 1600 UTC/GMT on 9580 kHz. With that said, here goes:

1100 M-F Asia Pacific—Regional current affairs
1135 M-F Bush Telegraph—The changing face of rural Australia
1130 Sat Fine Music Australia—Classical music
1130 Sun Business Report—Summary of previous week’s business
1200 M-Th Late Night Live—Various music styles
1200 Fri Sound Quality—Various music styles
1200 Sat The Spirit of Things—On religion & spirituality
1200 Sun Nocturne—Various music
1300 M-F The Plane—Music around the world
1300 Sat The Science Show—Issues relating to science
1300 Sun Nocturne—Various music
1400 M-F The Planet continues
1400 Sat New Dimensions—Views from traditions & cultures
1400 Sun Books & Writing
1500 M-F Asia Pacific—Regional current affairs
1500 Sat Nocturne—Various music
1500 Sun Encounters & Business weekend
1530 M Health Report—Various aspects of health & care
1530 Tu Law Report—On crime & punishment
1530 We Religion Report
1530 Th Media Report
1530 Fri Sports Factor

**African News**

The troubled African nation of Burundi is the next to acquire one of those stations working to promote peace between antagonistic factions. Radio Isanganiro should be on shortwave by now, although when this was written no frequencies had yet been assigned. Chances are it’ll be an extremely tough catch.

Not only are the farms in Zimbabwe a mess thanks to “President” Robert Mugabe’s policies, word also comes that the Zimbabwe Broadcasting Corporation is falling apart as well. Nearby all of the equipment is ancient, the station has a hundred plus million dollars of debt, and hardly anyone listens to it any more. It has been over 20 years since ZBC last turned a profit. It has been assigned. Chances are it’ll be an extremely tough catch.

Several East Coastiers are noting that strange El Salvador outlet, Radio Imperial, again. It’s not what you’d call strong, subject to complete fades and often under-modulated and very distorted. Although it’s been heard in the area of 17833 to 37 as early as 1400 and as late as sign-off around 0050, “GIG” HQ in the Midwest hasn’t found it yet. We still have some doubt as to whether this is a legitimate shortwave outlet rather than some kind of technical fluke.

Another weird one has been showing up (again in the East) on 25775 as early as 1430 and running to past 2100. It has been tentatively identified as Comité Département du Tourisme de la Chanette-Maritime, in France, so it’s apparently some sort of tourism promotion effort. Again, we haven’t been able to snatch this one yet. (Where do you buy those magic wands they use for antennas in EST land?)

Robert Montgomery of Levittown, Pennsylvania, is our book winner for this month. Bob receives a copy of the 2003 edition of Passport to World Band Radio from Universal Radio, along with a copy of Universal’s Godzilla-size catalog of radio goodies. If you aren’t on their mailing list, you certainly should be. All you have to do is let them know you want a catalog! The address is Universal Radio, 6830 Americana Parkway, Reynoldsburg, OH 43068. Or call them at 614-866-4267, or send an e-mail to <dx@universal-radio.com>.

**Loggings And An Appeal**

Now a special word for the camera shy: Once upon a time it was a really big deal to get your shack photo in a national magazine. Now the very idea seems to send people screaming into the night. So this is just to let you know that our hope springs eternal, that we still watch the mails hoping that you will do the

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**Abbreviations Used In This Month’s Column**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>ABC</td>
<td>Australian Broadcasting Corporation</td>
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<td>AFRTS</td>
<td>Armed Forces Radio Television Service</td>
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<td>AFN</td>
<td>Armed Forces Network</td>
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<td>AIR</td>
<td>All India Radio</td>
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<td>amncr</td>
<td>announcer</td>
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<td>amnt(s)</td>
<td>announcement(s)</td>
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<td>BSKSA</td>
<td>Broadcasting Service of the Kingdom of Saudi Arabia</td>
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<td>CNR</td>
<td>China National Radio</td>
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<td>General Overseas Service</td>
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<td>LSB</td>
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<td>Peru, Peruvian</td>
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<td>Solomon Islands Broadcasting Corporation</td>
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<td>Top of the Hour</td>
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<td>vern</td>
<td>vernacular (any local dialect or language)</td>
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<td>VOA</td>
<td>Voice of America</td>
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<td>VOIRI</td>
<td>Voice of the Islamic Republic of Iran</td>
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Colombia’s fairly new La Voz de tu Concencia (Voice of Your Conscience) is expected to move from 6060 to 6010, which would certainly add to the aural jungle on that frequency.
good thing one of these days and let us feature a pic of you and your shack in this column.

As always we also solicit your support in the form of your logs (by country, please, and double-spaced with your last name and state abbreviation after each log). Just be sure to list your logs by country and leave enough space between them so we can navigate scissors easily. Logs are cut into strips and then sorted by country, so be sure to use only one side of the paper, otherwise some of your logs won’t “make the cut.” Also include your last name and state abbreviation after each logging. If you’re not quite sure what works and what doesn’t, ask for a copy of our reporting guide and we’ll be happy to try and leave enough space between them.

Also needed are spare QSL cards we can use for illustration, as well as pen- nants, program schedules and anything else you’d care to lay on us. As always, thanks so much for your continued interest and participation.

Here are this month’s logs. All times are in UTC, which is five hours ahead of EST; i.e., 0000 UTC equals 7 p.m. EST, 6 p.m. CST, 5 p.m. MST and 4 p.m. PST. Double capital letters are language abbreviations (FF = French, AA = Arabic, SS = Spanish, etc.). If no language abbreviation is included, the broadcast is assumed to have been in English.

AFGHANISTAN—Radio Afghanistan, via Norway, 18940 at 1340 in Turk/Mongol languages and AA news. Koran, traditional Afghan music. (Ziegner, MA)

ALASKA—KNLS, 11765 at 0630 with religious talk in presumed RR. (Linonis, PA) 0848 to 0900 close with prayers in EE, closing with “Our broadcast from the top of the world comes to an end.” Then sked and addresses. (Montgomery, PA)

ALBANIA—Radio Tirana, 6115 at 0234 with woman talk, /1760 which had a lot of ham QRM. (MacKenzie, CA) 7160 at 0233 with Albanian news. (Burrow, WA)

ANGOLA—Radio Nacional, 11955.4 at 0207 in PP with guitar and vocals. (Paszkiewicz, WI) 11955.7 at 2345 with occasional music and long PP talks. /4950 but 11955 far better. (Montgomery, PA)

ANGUILLA—Caribbean Beacon, 11775 with religious program at 2100. (Paradis, ME)

ANTIGUA—BBC relay, 15190 at 1330 with soccer. (Paradis, ME) Deutsche Welle relay, 15410 at 2205 in GG. (Brosswell, WI) 2213 in GG. (Becker, WA)

ARGENTINA—Radio Baluarte, 6215 at 0004 in SS with comments, music. Ship traffic in background. (Montgomery, PA) RA E, 11710 at 0240 with DX program and address for reports. (Burrow, WA)

ASCENSION ISLAND—BBC relay, 15390 in PP at 2234. (Becker, WA) United Nations Radio relay, 15750 at 1735 in EE; /17710. (MacKenzie, CA)

AUSTRALIA—Radio Australia, 6020 and 9475 at 1123 with “Asia Pacific.” 15515 at 0254 with “The World Today.” (Jeffery, NY) 15240 at 0626 in EE to Asia and 15415 at 0526. (Becker, WA) 15240/15415/15515 with feature on “roogue doctors.” (Burrow, WA) 15415 at 1220. (Northrup, MO) 17580 with interview at 0420. //15250, 15415, 15515. (MacKenzie, CA) RA E, 21740 at 2200 with news and “AM” program. (Paradis, ME) Voice International, 13755 with talks and hymns in CC at 1230. (Brosswell, WI) ABC Northern Territory Service: 2310, Alice Springs, with news at 1209. Also 2325 Tennant Creek with literary discussion at 1608 on 2485. Katherine, with discussion at 1259. (Miller, WA) 2310 monitored at 1152 just above the noise level. (Strawman, IA) 1353 with Aneth Franklin tune. (Foss, Philippines)

AUSTRIA—Radio Austria Int’l, 9870 in EE at 0132. (Moser, IL) 13730 at 0400-0500 with lively pop program and ecstatic DJs. (Claphaw, WA)

BELARUS—Radio Minsk, 7210 heard at 0200 sign on with IS and multilingual IDs, EE schedule, address, news, music. (Alexander, PA)

BELGIUM—Radio Vlaanderen Int’l, 9865 via Russia in EE at 1134 and 15565 via Bonaire at 2330. (Newbury, NE) 13685 with rock number at 0728. (Foss, Philippines) 15655 at 2232 via Bonaire. (Miller, WA)

BENIN—ORTB, 7210.3 at 2300 with FF talk, local music. Appeared to be live coverage of some sort of event, with speech, crowd noise. Off with national anthem at 0126. (Alexander, PA)

BOLIVIA—Radio Santa Cruz, 6134.8 monitored at 2320 carrying futbol and later some sort of discussion with TCs and IDs that sounded like “Radio Carena Portilla, Santa Cruz.” Name change? Or network program or program name? (D’Angelo, PA)

BOTSWANA—Radio Botswana, 4820 at 0250 with IS and religious program. (Paradis, ME) 0256 with barnyard IS, chorale anthem at 0259, ID and sign on annmts. Into tribal vocals at 0305. (D’Angelo, PA) 7255 at 0246 with IS, NA, and morning devotional. //4820. (Alexander, PA) VO A relay, 9885 at 0321. (Jeffery, NY) 12080 to Central Africa at 0559. (Becker, WA)

The Mobile DXer
by Dave Mangels, AC6WO
An in-depth look at Mobile DXing includes its language, versatility, selecting and installing mobile HF radios, mobile HF antennas and tuners, tuning HF antennas, utilizing tools, tactics, and techniques; and more!
Order No. DXER $12.95

Keys, Keys, Keys
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You'll enjoy nostalgia with this visual celebration of amateur radio's favorite accessory. This book is full of pictures and historical insight.
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W6SAI HF Antenna Handbook
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BULGARIA—Radio Bulgaria, 9400/11700 at 0239 with news. “Get to Know Bulgaria.” (Burrow, WA) 9400 at 0239, 11700 at 2310, 19090 at 1905 all in EE. (MacKenzie, CA) 11700 in EE at 2304 and 19090 in EE at 2152. (Miller, WA) 12000 at 0420 in possible Bulgarian. (Moser, IL)

BURKINA FASO—RTV Burkina, 5030 at 2328 to 0001 sign off. FF phone conversations with listeners and highlife music, instrumental national anthem. (D’Angelo, PA)

CAMEROON—RTV Cameroon, 4845 at 0400 in FF (and some EE) with IS, ID, news, and drums. (Linnonis, PA)

CANADA—Radio Canada Int'l, 9515 with ID, news at 1500. (Northrup, MO) 15170 in SS at 2247 and 13670 at 2255. (Becker, WA) 15170 heard at 0100. (Newbury, NE)

CHILE—Voz Cristiana, 6070 in SS at 1055 mixing with Voice of Korea. (Barton, AZ) 15375 in SS at 1235. (Northrup, MO)

CHINA—China Radio Int'l, 5145 in RR at 1352. Off abruptly at 1355. (Foss, Philippines) 9565 at 1605 with drama about ancient China; 11600 at 1605, //12000. 13680 at 2318 with news. Also tentative on 17670 at 0023 in unid. language. (MacKenzie, CA) 11730 at 1028 in EE. (Montgomery, PA) 1041. (Jeffery, NY) 11765 in CC at 1435 and 15415 at 1220. (Northrup, MO) 11975 via Mali with IS, ID and into CC at 2230. (Brossell, WI) Radio Gannan, presumed, 15195 at 2110 in unid. language. (MacKenzie, CA) 11700 in EE at 2304 and 2310, 11900 at 1905 all in EE. (Montgomery, PA) Voice of Pujiang, 3280 in CC at 2230.

CONGO—RTV Congolaise, 5985 at 0422 with FF dance music, mentions of Africa and Gabon. (Paszkiewicz, WI) 2254 with African numbers, long FF talk by woman. (Montgomery, PA)

CONGO (Kinshasha)—Radio Okapi (press) 9550 monitored at 0600 with talk about the plight of third world people. (Linnonis, PA)

CUBA—Radio Rebelde, 5025 in SS at 0445. (Clapshaw, WA) 9600 in SS at 2115. (Brossell, WI) Radio Havana Cuba, 9550 at 0540 with DX program. //9820. (Becker, WA)

CYPRUS—BBC relay, 9410 heard at 0207. (Jeffery, NY) 12095 heard at 0314. (Brossell, WI)

CZECH REPUBLIC—Radio Prague Int'l, 5696 in SS at 0215 on this U.S. Coast Guard frequency. Off after IS at 0227. A feeder or some kind of foul-up at the station? (Montgomery, PA) 9870 at 0300 with news, ID. (Burrow, WA) 11600 at 2256, off 2257. 15255 at 2220 in Czech. (Miller, WA)

DENMARK—Radio Denmark via Norway, 15705 in DD heard at 1948 with news, ID. (Miller, WA) 17505 via Norway at 1730 coming on after Radio Norway segment. (Watts, KY)

DOMINICAN REPUBLIC—Radio Villa, 4959.9 at 0700 with meringue. SS pops, ID, SS annims. Off abruptly at 0721. (Alexander, PA)

ECUADOR—Radio Buen Pastor, 4815 at 1020 with SS religious program, Andean music, ID, TC. (Paszkiewicz, WI) Radio Quiito, 4919 with news in SS at 0638. (Miller, WA) 15180 in FF at 1816, 15565 in EE at 1132. (Jeffery, NY) 11835 via U.S. at 0000. (Newbury, NE) 15420 via South Africa at 1805. (Miller, WA)

EGYPT—Radio Cairo, 9475 at 0303 with music, news at 0314, anthem at 0325. (Burrow, WA) 9900 in AA at 2202. (Miller, WA) 2335 in AA with music. (MacKenzie, CA) 12050 at 0130 with Koran. (Linnonis, PA) 0220 with Koran. (Brossell, WI)

ENGLAND—Bbc Voice Broadcast-ing Network, 11645 at 2034 with canned EE religious program until a similar package at 2100. Closing ID with address at 2159. (D’Angelo, PA) BBC, 6195 at 0428. 15180 in FF at 1816, 15225 in RR at 1821, 15565 in EE at 1132. (Jeffery, NY) 11835 via U.S. at 0000. (Newbury, NE) 15420 via South Africa at 1805. (Miller, WA)

ETHIOPIA—Radio Fana, 6940 at 0328 with IS, woman with opening ID, news, //6210 was poor. (D’Angelo, PA) 0339 with music and talk, brief talk in possible Arabic, back to more music. (Montgomery, PA)

FINLAND—YLE Radio Finland, presumed, 15195 at 2110 in unid. language. (Miller, WA) 17670 at 1242 with talks in Finnish. (Brossell, WI)

FRANCE—Unidentified (possibly Comite Departement du Tourisme de La Chante-Maritime) 25775 at 1850 and again at 2000.

The Iranians come across as oh-so-friendly in their QSL letter. (Tnx: Rich D’Angelo, PA)
with FF features and pop songs along with EE segments “Weekend Adventures,” also various rock numbers before returning to FF. Hosted by someone named Eric with some narration help from a Peggy Thompson. Noted again at 2105 and 1430. (D’Angelo, PA) 1517 in FF with possible ID at 1513. EE at 1517 with same male and female announcers. Very weak and could not get an ID. (Montgomery, PA)

Radio France Int’l, 11700 in FF heard at 0320. (Brossell, WI) 11955 via Gabon at 2158. (Miller, WA) 15300 at 0520 in FF. (Becker, WA) 17605 with news in EE at 1600. (Barton, AZ)

FRENCH GUIANA—RFI relay, 17630 in FF at 2100. (Clapshaw, WA)

GERMANY—Deutsche Welle, 6075 at 0400 with program on Wagner. (Newbury, NE) 15135 via Rwanda at 2104 and 17485 with PP news at 2050 sign off. (Miller, WA) Radio Africa Int’l, 15265 with music, “Welcome to America” and religious segment. (Jeffery, NY)

GHANA—GBC, 4915 at 0400 in presumed EE. Weak, but heard mentions of Ghana. (Linonis, PA)

GREECE—Voice of Greece, 9422 in Greek with all music at 2200 via Delano at 2033 with Greek music. (Miller, WA) VOA relay, 15255 heard at 1645. (MacKenzie, CA)

GUAM—Adventist World Radio, 11560 with religious program in CC at 1058. (Paradis, ME) Trans World Radio, 9430 in CC at 1113. (Jeffery, NY) 15330 heard at 1447 with gospel pigmy in EE. (Foss, Philippines)

GUINEA—RTV Guineene, 7120 in JJ at 2200 with mostly continuous Afro-pops. Off with NA at 0000. (Alexander, PA) 2339 with high-life to brief news in FF at 2355. ID and sign off anmns, anthem and off at 0003. (D’Angelo, PA) 0630 in FF with discussion of African politics. (Linonis, PA)

GUATEMALA—Radio Maya de Barillas, 3325 at 0909 with SS vocals, man anncr in unid. language with ID as “Radio Mayo” at 0909. (D’Angelo, PA) Radio Verdad, 44052.5 at 0307 with instrumental music to ID and anmns in SS at 0311. (D’Angelo, PA) 0205 with call-in show, SS religious content. Off at 0500. (Montgomery, PA) Radio Cultural, 3300 in SS with religion at 1100. (Miller, WA)

GUAYANA—Radio Guyana, 3291.3 heard monitored at 0858 with Indian music, man anncr with coming event, American pop. (Montgomery, PA)

HAWAII—KWHR, 11565 with hymns and sermon at 1240. (Brossell, WI) AFRTS/AFN—6349 at 1321. (Miller, WA) 10320 with computer tips at 0454. (Newbury, NE)

HONDURAS—La Voz Evangelica, 4819 in SS at 1344. (Miller, WA)

HUNGARY—Radio Budapest, 3975 at 0329 with multi-lingual IDs and into Ukrainian. (Montgomery, PA) 9570 ending news at 0235. (Burrow, WA)

INDIA—AIR-Mumbai, 3315, very weak audio heard at 0037 to 0100. (Montgomery, PA) AIR-Chennai, 4790 at 0041 with Tamil vocals. (Strawman, IA) AIR-Thiruvananthapuram, tentative, at 0024 with sub-continental music and man anncr. (Montgomery, PA) AIR-Delhi, 9595 with Urdu vocals at 0117. (Strawman, IA) 10330 in unid. language at 1507. (Foss, Philippines) 11710 in unid. language at 1235. (Brossell, WI) 17670 with Indian music and woman anncr in EE at 1746, //11620. (MacKenzie, CA) AIR-Bangalore, 11620 at 1403 with news and sports. (Miller, WA) 1900 with EE talk about Pakistan and al-Qaeda. (Linonis, PA) 13605 with EE ID at 0016 and music. (Montgomery, PA) 0040 in unid. language. (MacKenzie, PA) 2305 with music and ID. (Becker, WA)

INDONESIA—Voice of Indonesia, 15150 at 2000 with EE news, comment, local music, IDs. (Alexander, PA) 2016 with comments about Malaysia and “Getting to Know Indonesia.” (Burrow, WA) 2042 with EE talk and music. Closed with news at 2057, sked and final ID “Now we say goodbye to all our listeners from the Voice of Indonesia, Jakarta.” Then “Love Ambon” and off at 2102. (D’Angelo, PA) 2054 with ID and schedule. (Strawman, IA) RRI-Jakarta, (presumed) 15125 at 0238 in unid. language with singing then talk. Barely audible under static. (Jeffery, NY) RRI-Palangkaraya, 3325 with news in Indonesian at 1336. (Miller, WA) RRI-Gorontolo, 3265 at 1050 with music. (Miller, WA) 3266.4 (presumed) with pop ballads at 1154. (Strawman, IA) RRI-Makassar, 4753.4 at 1036 weak but audible with music. (Montgomery, PA)

IRELAND—Radio 2, 15135 via Rwanda at 2104 and 17485. Also 17825 in EE at 0330, //9685 and 11785. Also 17825 in EE at 0330, //21610. (MacKenzie, CA) 15215 in FF at 1118. (Jeffery, NY) 15220 via Ascension in JJ at 2202. (Brossell, WI) 11970 in FF to 1800, then ID, JS and news in EE. //9685 and 11785. (Miller, WA) 11585 in HH at 0313. (Barton, AZ) 11590 in HH at 0758. (Becker, WA)

ITALY—RAI Int’l, 11765 via Ascension with IL talks at 0210. (Brossell, WI) 11800 in IL at 2318, //12020. (Miller, WA) 11880 in unid. language at 1510. (Foss, Philippines) 11920 in IL via Singapore at 1045. (Barton, AZ)

JORDAN—Radio Jordan, 11690 at 1523 with call-in program. (Burrow, WA)

LIBERIA—Radio Liberia Int’l, 5100 heard at 2213 with female singer, non-EE

Digging a reply out of Syria can be tough, but there may be a nice card in it for you if you succeed.
tunes. Better by 2240. (Montgomery, PA) 2352 with EE religious talk and sign off, which included a list of the station employees. (Strawman, IA)


LITHUANIA—Radio Vilnius, 9875 at 2346 discussing the effect of the Internet on entertainment. (Miller, WA)

MADAGASCAR—Voice of Hope relay, 12060/15320 at 0427 with ID and introductions in EE and AA (?). (Burrow, WA) 15320 at 0440 on emergency room services in Africa. (MacKenzie, CA) RTV Malagasy—5010 with open carrier at 0259, choral national anthem, opening ID and sign on, then mix of tribal vocals and brief talk. (D'Angelo, PA) Adventist World Radio relay, 3215 from 0258 with music. Off at 0330. Weak but audible. (Montgomery, PA)

MALAYSIA—Radio Malaysia/Radio Four, 7295 with ID and phone-in music requests. (Burrow, WA)

MALI—RTV Malienne, 5995 at 2246 with FF talks, highlife music. ID at 2359, off anmits and orchestral anthem. (D'Angelo, PA) 2345 with African pops, local folk music, FF anmits. Off with anthem at 0001. //4782.4 and 2345 with African pops, local folk music, FF anmts and orchestral anthem. (D'Angelo, PA)

NETHERLANDS—Radio Netherlands, 8980 heard at 1615 with EE interview, news and off at 1625. //11835 (Madagascar), 12075 (Tashkent) and 15220 (Canada) (MacKenzie, CA)

NETHERLANDS ANTILLES—Radio Netherlands Bonaire relay, 9845 at 0016. (Newbury, NE) 15315 in DD at 2205. (Brossell, WI) in SS at 2338. (Burrow, WA) 21590 in EE at 1837 (Miller, WA) 1930. (Paradis, ME)

NEW ZEALAND—Radio New Zealand Int'l, 11675 with ID, national news. (Becker, WA) 11820 with “Kiwi Hit” program in Maori. (Burrow, WA) 15340 with “World Watch.” (Becker, WA) 17675 with “Cadenza” at 0132. (Jeffery, NY) 0325 with sports news. (Brossell, WI) 0441. (Newbury, NE)

NICARAGUA—Radio Miskut, 5770 at 0010. Very weak and first time heard in months. Full ID including mention of FM sta-

tion at 0029. Cut off and on several times. (Montgomery, PA)

NIGERIA—Voice of Nigeria, 7255 with pops ID, news into AA at 0415. VOA QRM. (Newbury, NE) To 2300 close with world news at 2250, ID, off with anthem. (Alexander, PA) 15120 at 0505 with interview, comments. //7255. (MacKenzie, CA) 0510 EE to Europe. (Becker, WA) 1930 with news, ID, book review. (Alexander, PA) 2101 in unid. language. (Miller, WA)

NORTH KOREA—Voice of Korea, 3560 with EE commentary at 1649. (Foss, Philippines) 9395/11710/13760 heard in EE at 1518. (Burrow, WA) KCBS, 2850 in KK with mixed chorus. (Foss, Philippines)

NORTHERN MARIANAS—VOA relay, 11990 in CC at 1235. (Brossell, WI) 15240 at 1140. (Paradis, ME)

NORWAY—Norwegian Radio, 13800 in NN at 0721. (Foss, Philippines)

OMAN—BBC relay, 15225 in AA at 0453. (MacKenzie, CA) 15320 at 1530. (Paradis, ME) 15575 heard at 0300. (Jeffery, NY)

PAKISTAN—Radio Pakistan, 11570 //15100 at 1457 with IS, time pips, ID and news at 1500. (Burrow, WA) 15100 in unid. language at 1759. (Miller, WA) 15485, tentative, at 0050 in presumed Urdu and mentions of Kashmir and India. (Limonis, PA) 17520 in Urdu at 0410. (MacKenzie, CA)

PALAU—KHBN, 9965 heard at 1130 with hymn singing in CC. (Newbury, NE) Also at 1345 with Voice of Hope broadcast in CC. (Foss, Philippines)

PAPUA NEW GUINEA—Radio Madang, Madang, 3260 with pops. (Miller, WA) NBC, 4890 with pops at 1220 to 1400 close with anthem (two hours after local sun-

rise!). (Barton, AZ) 9675 at 0958 with several full EE IDs, news on the hour, and religious program at 1010. Good to past 1130. 4890 not noted. (Montgomery, PA)

PARAGUAY—Radio Nacional, 9735 with sports in SS monitored at 0130. (Mike Miller, WA) 97372.2 with live futbol coverage. (D'Angelo, PA)

PERU—Radio Ancash, 45992.5 in SS at 1010 with ranchero music. IDs at 1902 and 1026. (Montgomery, PA) Radio Andina. 4995.5 at 1015 with long SS talk. (Montgomery, PA) Radio Huarmaca (tentative) 5384.4 at 0056 with music and occasional female anmer. Gone at 0100. (Montgomery, PA) Radio San Miguel, Palaques. 5500 at 0106 with nice OA music. ID at 0109. ranchero music. (Montgomery, PA) Radio Huarmaca, 5678 at 0131 with nice OA tunes. ID at 0135. (Montgomery, PA) Radio Frecuencia San Ignacio, tentative, 5697 very weak at 0020 with man in long SS talks. (Montgomery, PA) Radio Bethel, tentative, 5940.1 at 0056 weak SS talk by man and OA music. (Montgomery, PA) Radio Media, 5996.7 at 0710 with SS, IDs, OA music. (Alexander, PA) Radio Huancabamba, 6536 with SS talk at 0040, tentative canned ID at 0044. (Montgomery, PA) Ondas del Rio Mayo, 6797.5 at 0129 with OA music, male SS anmer. IDs as “Radio del Mayo” and at one point, “You have heard the best sta-

tion by Mike Clapshaw (WA) on 9363 kcs.

This QSL from Radio Nacional de Espana (REE now) dates back to 1957. It confirms reception by Mike Clapshaw (WA) on 9363 kcs.
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Third Prize comes from the great folks at Optoelectronics, Inc., and is their new Digital Scout, which captures digital and analog frequencies from 10 MHz to 2.6 GHz. It also interfaces to a compatible receiver and tunes the captured frequency! How’s that for monitoring excitement? The winner of our Third Prize is William Miner of Sacramento, CA.

Fourth Prize is from Universal Radio, Inc., which has provided a super package of excellent books: Receivers Past & Present and Buying A Used Shortwave Receiver. As we said in October, these books are the source of information that just can’t be found anywhere else!

CQ Communications, Inc. also includes a complete set of seven amateur radio videos and a book package that includes the new Mobile DXer, New Shortwave Propagation Handbook, and both of our CQ Amateur Radio calendars! The Fourth Prize winner is Thomas P. Rose of Providence, RI.

A special thanks to each of you for participating in our 20th Anniversary Contest and for your kind comments and suggestions about Pop’Comm. Congratulations to our four lucky winners, Dave Cameron, John Cackowski, William Miner, and Thomas P. Rose.

(Brossell, WI) 0430 with Network Africa. (Jeffery, NY) 15420 with “Sports World” at 1646. (Paradis, ME) Adventist World Radio, 7235 at 0405 with sermon. (MacKenzie, CA) 15105 at 0529 with ID in several languages, IS and into EE program. (Becer, WA)

SOUTH KOREA—Radio KoreaIntl’, 9520 with “Seoul Calling” at 1315. (Foss, Philippines) 9560 with pops at 0230, ID at 0237. (Brossell, WI) 9650 via Canada at 1138. (Newbury, NE)

SPAIN—REE, 11815 via Costa Rica in SS at 1115, mixing with co-channel Radio Japan. (Barton, AZ) 15110 in SS at 2250. (Becer, WA) 15385 in EE at 0042. (Newbury, NE)

SRI LANKA—SLBC/Radio Sri Lanka, 9770 at 1455 with news, time signal. ID, more news. (Burrrow, WA) 11905 at 1516 with local songs. (Foss, Philippines) 15425 at 0300 sign on with 5 plus 1 pops, ID, and opening anmt in EE. /9770. (D’Angelo, PA) VOYA relay, 7115 at 0127 with ID and news. (Montgomery, PA) 15545 in AA at 1914. (Jeffery, NY)

SURINAM—Radio Apinete, 4991 at 0837 with continuous music and some talks in local language. Female anmt with possible ID at 0917. (Montgomery, PA)

SWAZILAND—Trans World Radio, 3200 heard at 0313 with man anmt in unid. language, then chants of same sort. Off at 0330. (Montgomery, PA) 7240 at 0300 sign on with “This is Trans World Radio in Swaziland.” Into Swahili. (Linonis, PA)

SWEDEN—Radio Sweden, 9490 at 0251 with “60 Degrees North.” (Millar, WA) 0320 with Swedish news and features. (Brossell, WI; Burrrow, WA)

SWITZERLAND—Swiss Radio Intl’, 15220 (via Germany) at 1725 in AA/EE. /17735 via Germany and 21720 via Germany. (MacKenzie, CA)

SYRIA—12085 in AA at 2245. (Brossell, WI) 12085/13610 at 2008 beginning EE with schedule, Mid East and int’l news, ID, music. (Burrrow, WA)

TAIWAN—Radio Taipei Intl’, 11550 in EE/CC at 1635. (MacKenzie, CA) 11605 in CC at 1228. (Brossell, WI) JJ at 1433. (Newbury, NE) 15440 (via WYFR—gld) in CC at 2300 sign on. (Newbury, NE) Central Broadcasting System, 11625 in CC heard at 1225. (Becer, WA)

TAJIKISTAN—Radio Tajikistan, 7245 at 0220 in unid. Language (possibly Tajik) talking about Afghanistan and Pakistan. (Linonis, PA)

TANZANIA—Radio Tanzania-Zanzibar, 11734.1 at 0400 with Afro-pops and Mid East music, talk in Swahili. Short anmt at 2059 and off at 2100. (Alexander, PA)

THAILAND—Radio Thailand, 7260 from 1059 with open carrier, gongs into “This is Radio Thailand world service from Bangkok” and into VV. (D’Angelo, PA) 11905 at 1646 in Thai. (Miller, WA) BBC relay, 11955 at 0032 with ID, program on terrorism. (D’Angelo, PA) 17615 at 0002. (Jeffery, NY)

TUNISIA—ERTT Tunisienne, 12005 at 0210 in AA. Heavy QRM from Voice of Russia on 12000. (Clapshaw, WA) 0220 in AA. /9720, (Brossell, WI) 0300 sign on in AA. “Huna Tunis” ID. (Linonis, PA)

TURKEY—Voice of Turkey, 9460 in TT at 0249. (Miller, WA) 11655 at 0320 with EE features. At 0348 ID, schedule and sign off. (Burrrow, WA) 0346 with woman anmt and Turkish vocals. (MacKenzie, CA) 11885 at 2220 with songs and anmt in TT. (Brossell, WI) 2250 in TT with music. (Ziegner, MA) 15350 at 1225. (Northrup, MO) 17830 at 1245 with music, local news in EE. Closes at 1325. (Montgomery, PA)

UNITED ARAB EMIRATES—UAE Radio, Dubai, 13675 at 0328 in EE with contest promo, news, ID. (Burrrow, WA) 15395 at 1600 with “Wide World of Arabic Music.” (Paradis, ME)

URUGUAY—Radio Oriental, 11735 in SS at 1755 when it faded up for about 20 minutes. (Clapshaw, WA)

UGANDA—Voice of Uganda, 11955 at 0032 in SS at 0320. (Jeffery, NY)

VIETNAM—Voice of Vietnam, 5034.7 with Hmong service at 1229. (Strawman, IA) 9840 in unid. language at 1047. (Jeffery, NY) 11640 in EE at 1630. (Miller, WA)

ZAMBIA—ZBC, 6265 at 0245 with fish eagle IS, several IDs, and sign on at 0300. (Linonis, PA)

And that’s it! A great collection for these not-so-great propagation times. A thousand thanks to the following who came through for you:

Brian Alexander, Mechanicsburg, PA; Ray Paradis, Pittsfield, ME; Robert Montgomery, Levittown, PA; Jerry Strawman, Des Moines, IA; Rick Barton, Phoenix, AZ; Mike Miller, Issaquah, WA; Mark Northrup, Gladstone, MO; Robert Brossell, Pewaukee, WI; Stewart MacKenzie, Huntington Beach, CA; R.C. Watts, Louisville, KY; Rich D’Angelo, Wyomissing, PA; Ed Newbury, Kimball, NE; Sheryl Paszkiewicz, Manitowoc, WI; Jack Linonis, Hermitage, PA; Bruce Burrow, Snoqualmie, WA; Pete Becker, Clarkson, WA; Howard Moser, Lincolnshire, IL; Marty Foss, Guinayangan, Philippines; Tricia Ziegner, Westford, MA; Michael Clapshaw, Port Angeles, WA; David Jeffery, Niagara Falls, NY and Joe Kenneth Wood, Gray, TN. Thanks to each of you!

Until next month, good listening!
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Frequency Database and Logging—Part I

Since starting this column, the one topic that I have received the greatest number of questions about has been how to create and use a database file of radio frequencies. The main reason why so many people have asked these questions is due to the simple fact that they do not have the proper background knowledge about the subject.

This lack of knowledge is not surprising. Most of the time when one goes looking for information on the subject it is unnecessarily complicated. Worse, you often have to wade through far too much theory in order to get to the practical techniques that you need to create and use database files.

So in this and next month’s columns I will provide you with the necessary information to properly understand what a database file is and how it is used with a variety of radio monitoring software programs. I’ll try to do so in the simplest terms.

What I hope by the time you have finished reading you’ll understand how files of radio frequencies are created and stored, and how to use them in a variety of software programs, particularly CAT (Computer Assisted Tuning) and logging programs.

Some of the software programs we’ll mention here are ones that we have looked at in some of the earlier columns. They include Computer Aided Technologies’ Scancat-Gold and Fineware’s Radio Listener’s Data Base (RLDB). Each of these programs (and several others) is able to make use of files of radio frequencies in different ways.

Some, like Scancat-Gold, use the files to scan groups of frequencies. The scanning can be done one frequency after another, which is called sequential order scanning, or over a range of different frequencies, or random order scanning. We will take a look at how these files of frequencies are made up and how they are used.

Other programs, such as RLDB, do not perform scanning. Rather, they sort and order the information found in the data file so that specific information is found quickly. Say, for example, you want to find out all of the shortwave broadcast stations that were on the air at 0100 hours UTE. You could “ask” the software program to do that, and it would quickly show you a list of all of those stations that were broadcasting at that time. Likewise, you could also sort out additional information, such as all of the stations that broadcast on one particular frequency or in a particular language.

There are other programs that create these database files, many of which come already installed on your computer. Some of these may actually surprise you because they are very simple text editors and word processors. Others are actually very powerful, and you can create your own database files for use in some of the software mentioned, as well as in other programs.

This month I’m going to start with a bit of theory and simple applications to help you understand the “innards” of a database file and how it is created and used. Next month’s column will look at more advanced (but still easy to understand) topics, such as the importing and exporting of database files, editing files, and fixing damaged files.

Let’s begin by looking at the different ways that data can be stored in a file.

The Data File

You can go into a lot of unnecessary details when writing about computer files. There are many different kinds of files, some of which contain computer programs and their components, while others contain various types of data.

Data can be any kind of information that is suitable for a computer to use. Generally speaking, data is organized information that can be analyzed or used to make decisions. Data can also be defined as a collection of facts. Lists of frequencies are certainly facts. However, in their simplest form they are still simple numbers and could stand for anything.

For example, take a look at the following list of numbers:

339, 650, 7345

What do you make of them? Not very much, I would think. There is not enough information there to make any real decisions about the numbers and what they really represent.

In most situations, you need to have two or more pieces of information to create a “data set,” that is, a group of data that allow you to make sense of something. Let’s add something to our previous numbers in order to show what I mean.

339 kHz, 650 kHz, 7.345 MHz

By adding the labels kHz (kiloHertz) and MHz (MegaHertz) we now know that the numbers represent a specific frequency in the radio spectrum. We know from the labels that 339 kHz is 339,000 cycles of radio frequency energy. Likewise 7.345 is 7,345,000 cycles.
That's all very nice if you are a scientist who is only concerned about the physics of radiowaves, but what about practical people who like to monitor radio stations? To make the data useful then you have to add more information. For example,

A 339 kHz Havana Cuba, WSM 650 kHz Nashville TN, Radio Prague 7.345 MHz Czech Republic

Now it’s starting to make sense. You can see that these appear to be radio stations, and that the letters or name in front of the numbers are some sort of callsign, and the name behind them could be the location of the station. You can see the problem though. We are simply making a guess as to what each thing is, based upon our previous experiences. What we really need is some way to be certain that each part of that list is what it really is (or should be).

The most common way to ensure that someone really knows what each bit of data represents is to give it a clear title and then organize the data around that title. This will put the information into a precise order so that when you look at it, you will know exactly what it is. Using the information that we have been looking at already, let’s organize it so that it makes more sense.

A 339 kHz Havana Cuba
WSM 650 kHz Nashville TN
Radio Prague 7.345 MHz Czech Republic

That’s a start, but now let’s fix it up some more, this time giving each bit of data its own title or label:

<table>
<thead>
<tr>
<th>Callsign</th>
<th>Frequency</th>
<th>Location</th>
<th>Type</th>
<th>Mode</th>
<th>Time</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>339 kHz</td>
<td>Havana</td>
<td>LF beacon</td>
<td>MCW</td>
<td>24 hr</td>
<td>Omni directional</td>
</tr>
<tr>
<td>WSM</td>
<td>650 kHz</td>
<td>Nashville</td>
<td>AM broadcast</td>
<td>AM</td>
<td>24 hr</td>
<td>Clear channel</td>
</tr>
<tr>
<td>Radio Prague</td>
<td>7.345 MHz</td>
<td>Czech Republic</td>
<td>SW broadcast</td>
<td>AM</td>
<td>0000 hr</td>
<td>North America</td>
</tr>
</tbody>
</table>

So, what we have now is real data because it is organized (in a clearly understandable form); it can be analyzed (we know each part of the data and see how it relates to the other parts); and we can make decisions from it (we know that it will be easier to monitor Radio Prague than the other two stations, unless we live close to them).

Still, do we have enough information to really make the best decisions about the data? Not really, because we do not know important things, such as time of broadcast, the mode that they transmit in, and possibly other important details that are needed to properly understand the information we are seeing. For example, we can add more information to make things even clearer. With the additional information outlined in the Table we now know how to listen because we now know:

- What frequency to tune (Frequency)
- Where the signal is being transmitted (Location)
- Who is transmitting (Callsign)
- Why they are transmitting (Type)
- When they are transmitting (Time)
- Why they are transmitting (Target)
- How to listen to them (Mode)

You can add additional information as needed or required under a new heading, “Miscellaneous.” For example, you could add in the type of programming being offered by the AM and SW broadcast station. That information would not be needed for the beacon because it is a navigation aid that only transmits the same message over and over again. However, you could put down the fact that it is the letter “A” being transmitted in Morse code so that those people who wanted to listen to it would know that they are listening to the correct station.

So, when you put together a data file you simply follow the same process as we did here. Data is put together in an organized form that allows people to understand and make decisions with it. The only real difference between text data, like we used, and computer data, is the type of file that is used. We will look at how that is done next.

### Computer Data Files

We now know how to put together a simple data file for radio monitoring and we know how to make it make sense for us to use. But how do we create a data file for a computer to use? It’s actually very simple, and all it really depends upon is the type of computer file a software program requires in order to “see” the data you want to share with it.

Again, we can go into a lot of unnecessary detail about data files for software programs; however, there are only two things that you really need to know about if you intend to create or use data files for computer software programs. That is the difference between a spreadsheet file and a database file.

Both the spreadsheets and the database files contain data. The main difference between spreadsheets and databases is how they organize their information.

Databases contain large amounts of information and are designed to help the software access it quickly. Examples of such databases include the list of driver’s licenses for a state, the mailing list for this magazine, or a list of all of the radio frequencies used by shortwave broadcasters.

Spreadsheets were first used in accounting programs, and were primarily designed to perform mathematical calculations on data. As we’ll see, the way in which spreadsheets store data is still very useful for many software programs. Even if no calculations are performed, the organization of the data is still a very important function.

Looking at spreadsheet files first, what makes this type of file very useful is the way in which data is organized—according to rows and columns of information.
Rows contain the actual information that makes up the data, while columns represent a particular type of data. Where each row and column meet is called a cell, which is where your information is placed.

Here is a popular spreadsheet program displaying the contents of a simple data file. You can see the rows (right to left) and columns (up and down) intersecting at cells. Each cell contains data that may be utilized by the radio monitoring software program you are using.

To illustrate this, let’s take a look at our earlier data, which has been placed into a spreadsheet. As you can see, the information now appears in a cell that is defined by a row and a column. If you take a look at column A, you will see it contains all of the call-signs. Row 1 contains all of the information for the LF beacon located in Havana Cuba. If you go down to the next row, you will see that it follows the same pattern across and down.

Where Column A and Row 1 meet is a cell is called A1. The cell beneath that one is called A2, and so on. You may notice that you cannot see all of the information. That doesn’t matter as the cell can be resized. It’s also not important to a software program that is using it because any and all information in each cell is “seen” and used by the computer.

If you go back to the picture at the beginning, you can now see the rows, columns, and cells that make up a spreadsheet or a database file. If you take a look at the last photo, you can see the exact layout of the file that we are viewing in Fineware’s RLDB.

Notice how the original data found in the file is formatted differently from how it is displayed on the computer screen. That’s because the RLDB software is doing more than simply displaying the raw data. Rather it is taking that information and reorganizing it according to certain criteria.

Next month I’ll show you how these criteria are set up and how they are used to find and display the data found in the data file. By knowing how this is done will you better understand how such data files and database software actually works.

I will also show you how databases and spreadsheets containing radio-monitoring information can be created or modified. There are many different software programs available that will create or modify these files, and many are pre-packaged with a personal computer.

I will also look at the issue of importing and exporting spreadsheet and database files into and out of different radio monitoring software packages—not all data files are universally compatible and sometimes need special modifications to work properly. Likewise, I will also be looking at how to create special files of frequencies for use in scanning software, particularly when you wish to set up custom groups of frequencies to monitor. The basic techniques that I have outlined this month will assist you in setting up custom frequency files.

So by the end of the next column, you will be able to use the basic functions in some of the most common spreadsheet and database files to create custom data files for popular scanning and CAT software, such as Scancat-Gold.

Don’t forget that you can e-mail or write to me with ideas, comments, and suggestions. The e-mail is <joe@provcomm.net>, and my mailing address is “Computer-Assisted Radio Monitoring,” C/O Joe Cooper, PMB 121, 1623 Military Rd, Niagara Falls, NY 14304-1745.

Don’t forget that I cannot answer general questions about computers, software, or operating systems, but I will do my best for any questions about the content of the columns or computer-assisted radio in general.
Cell Phone Lawsuit Thrown Out

A U.S. District Court Judge has thrown out a lawsuit alleging that cell phone use was the cause of a Maryland man's brain cancer. Judge Catherine Blake, who stated that Dr. Christopher Newman's attorneys had provided "no sufficiently reliable and relevant scientific evidence in support of either general causation or specific causation," dismissed the $800 million suit against the wireless industry. The decision is the result of an evidentiary hearing held in February 2002 to determine whether the opinions offered by the plaintiff's expert witnesses could meet the Daubert standard established by the United States Supreme Court in 1993. Daubert sets the type of scientific evidence allowed in federal courts. Gratified by the judge's decision, the Cellular Telecommunications & Internet Association said:

The theories put forth by the plaintiffs are at odds with the repeated conclusions of the worldwide scientific community. This is not the first time a judge has been confronted with similar claims and found them not to meet the legal tests regarding the admissibility of the scientific evidence. Today's decision is consistent with the overall judgment of the international scientific community that the use of mobile phones does not play any role in brain cancer or any other known health disease.

Newman's attorney, Joanne Suder, said she will file another lawsuit when new evidence becomes available.

Ham Appointed To House Subcommittee

Oregon Republican Congressman Greg Walden, WB7OCE, has been appointed to fill a vacancy on the House Subcommittee on Telecommunications and the Internet. Walden is one of only two amateur radio operators in the U.S. House of Representatives. His appointment was announced by House Energy and Commerce Committee Chairman Billy Tauzin (R-LA), as follows:

With his extensive background in broadcasting, Greg has a world of experience and expertise in telecommunications issues. His knowledge of the issues will help the Subcommittee address digital television, spectrum management, broadband deployment and other telecommunications matters.

Walden is perhaps best known among hams as one of the original cosponsors of HR 4720, a pending bill that will provide relief to amateurs faced with private deed covenants, conditions, and restrictions in erecting antennas. Prior to his current appointment, Walden worked on the Energy and Commerce Committee in 2000 and the Subcommittee on Commerce, Trade, and Consumer Protection dealing with issues of consumer privacy, accounting standards, and electronic commerce.

Flippo Sentenced

Bad boy William Flippo, who was arrested and convicted on eight criminal counts, including unlicensed operation and causing intentional interference to amateur radio communications, has been sentenced to 15 months in prison. Flippo, of Jupiter, Florida, was arrested in July of 2000 after an investigation revealed that he was interfering with the communications of the Jupiter-Tequesta Florida Repeater Group. He went to trial on June 10, 2002, and after nine days of testimony was convicted and remanded into custody pending sentencing. In addition to the 15-month sentence handed down, Flippo must also pay a $25,000 fine and serve one year of probation following his release from prison.

ITA Asks For FRS Business Use Prohibition

The Industrial Telecommunications Association has filed a Petition for Rulemaking with the FCC asking that business communications be specifically prohibited on Family Radio Services (FRS) frequencies. ITA, a frequency advisory committee that coordinates more than 6,000 applications per year on behalf of applicants seeking FCC authority to operate business and land mobile radio stations, is asking for changes to Section 95.401(b) of the Commission's rules. According to the ITA:

We are filing this Petition in order to educate the Commission on the growing use of FRS by traditional business users and are seeking prohibition of this use as it was not the type of use originally envisioned by the Commission in the FRS band. Moreover, we believe the public interest benefit of restricting traditional business use on FRS channels outweighs the Commission's objective of minimal regulation.

Section 95.401(b) specifically allows business use of the Citizen's Band Radio Service, of which FRS is considered a part, but "ITA believes that the Commission did not intend to overrun these channels with daily business communications." ITA's request would make it clear that FRS channels are for personal use only. The Association has had complaints from members about FRS use in business settings. (Thanks to Alan Dixon for alerting us to this story.)

RadioShack Denied Radar Detector Waiver

The FCC has denied a request by RadioShack to grant a waiver extending the marketing deadline for radar detectors that don't comply with the new FCC rules. ET Docket No. 01-278 imposed new emission limits and certification requirements for radar detectors in order to prevent interference to very small aperture satellite terminals (VSATs) operating on downlink frequencies in the 11.7- to 12.2-GHz band. The ruling modified Part 15 and stated that all radar detectors marketed in the U.S. must meet the new rules within 60 days. RadioShack's Emergency Petition for Waiver requested an extension of the marketing deadline from October 27, 2002, to November 30, 2002, stating that the company would have to "substantially discount its radar detectors to sell them by the October 27, 2002 marketing deadline." The FCC found that RadioShack's petition repeated an earlier plea on the same topic that was denied.
Al Stern's HF Reports And Monitoring Tips

By Al Stern, Satellite Beach, FL
AllanStern@aol.com

Palmer Station in Antarctica was heard in several sites in the U.S., including Michigan, Massachusetts, Virginia, and Florida on 14.243. Jack Painter, in Virginia, received them loudly, though not super-clear, and he noticed some signal drift.

Omega 70 was heard using 13.927, a USAF MARS freq, for a phone patch. This is not a military aircraft in the true sense; it is one of the Boeing 707s owned by Omega Air Inc. (Washington, DC) and converted to a tanker to provide refueling service to U.S. Navy and RAF aircraft. It has been heard recently on USAF GHFS frequencies, but this is the first report of it using a MARS freq.

Hurricane Hunter aircraft were also heard on the 13.927 MARS frequency, as well as on the GHFS mainstay 11175. The 13.927 communications was a phone patch providing a live interview with CNN as the aircraft was approaching the eye of Hurricane Isadora. Other calls were made to the Hurricane Hunters' forward operating base in the U.S. Virgin Islands. Hurricane Hunters TEAL 22, TEAL 27, TEAL 28, TEAL 51, and TEAL 75, all WC-130H aircraft from Keesler AFB, were among those heard. Although Keesler’s 53WRS Hurricane Hunters Squadron has taken delivery of new C-130J models, those aircraft are not being used yet for the Hurricane Hunter missions.

Some eyebrows were raised when a ham aboard USAF Special Air Mission actf, SAM 60206 (a Gulfstream III VIP flight out of Andrews AFB MD) was heard on 21.233 using the SAM 206 callsign. That created quite a discussion on the HF radio e-mail groups. The SAM c/s has some sanctity as the c/s of aircraft on official U.S. VIP missions.

A very unusual HF reception was my monitoring of San Francisco Radio on 11282.0 kHz USB working a Navy aircraft. It is rare to hear SF radio at my Florida QTH, but propagation...
was just right for me to hear them working PD 339, a U.S. Navy P-3C (Update III) acct from Hawaii’s Kaneohe Bay MCAF’s VP-9 “Golden Eagles” Sqdn. PD 339 passed his position coordinates as 22-11 North, 158-35 West, near Oahu in Hawaii. Quite a haul to hear so well in Florida.

By Craig A. Rose
hfaerocomms@hotmail.com

HF Aero Communications

Have you ever wondered exactly what kind of aircraft you are hearing when a position report or request for altitude change is made on the HF aeronautical frequencies? Then there’s the question of where that plane came from and where in the world it’s going. In this section we will take a look at some ways you can conduct your own sleuthing to determine the answers to these questions. So get your receiver fired up and boot that PC because we’re going to move seamlessly between the HF aero bands and the Internet to figure this stuff out!

Now that you have some working frequencies from previous installments of “Utility Radio Review,” and you’re hearing things like American Airlines Flight 247 making required position reports to San Francisco ARINC, it’s time to find out a bit more about the key players in this global communications system—the aircraft!

One of the first things that struck me about monitoring aeronautical communications was the lack of information regarding aircraft type. After pondering how one might find this information I began to surf the World Wide Web, specifically searching each airline’s website. In fact, many airline sites will allow you to type in a flight number to determine flight status and gate information. Although this method frequently works for determining the departure and arrival points for a flight, it does not always indicate the aircraft type. In addition, this can become a tedious practice if you have many flights to look up.

Another method for finding flight information is to simply point your Web browser to www.flytecomm.com/cgi-bin/trackflight and choose the air carrier from a drop-down menu and type in the flight number. If the flight is coming to or has departed from the United States, FlyteComm will generally provide departure and arrival locations, arrival time, aircraft type, altitude, and groundspeed. Once you have this data you may want to type it out or jot it down for inclusion in the logs you send in to Joe.

There are some instances when you may not have a commercial flight number to use as a basis for your search. A good example of this is a logging I made on October 3, 2002, in which an aircraft transmitted a position report, but only identified itself as N889NC. In this situation there are a couple of other Internet tools that you can use to figure out aircraft type and owner. This aircraft has identified itself using what is referred to as the ‘N’ number, which is the actual FAA registration for this airplane. Conveniently, the FAA offers a searchable online database at http://162.58.35.241/acdatabase/Nnum_inquiry.asp that can be used to confirm the aircraft type and ownership. In this case the aircraft turned out to be a Boeing 737-7AV.

Unfortunately, the FAA website did not provide clear information on ownership of this aircraft. However, there is another trick that you can use to possibly learn more about an aircraft. At www.airliners.net it is possible to search another online database by typing in either the aircraft type or registration. Often times, but not always, this site will return multiple photos and additional information on a specific aircraft. It turns out that the Boeing 737 that I heard belongs to News Corp. CEO Rupert Murdoch, best known as the man behind the FOX television network!

Now you have a few tools in your detective kit to track down those aircraft making their way to and from the United States! I hope this information will be helpful to you, and as always, if you should have questions, suggestions, comments, or would like assistance in tracking down a particularly mysterious aircraft, drop me an e-mail.

Reader's Logs

The contributions have been very good this month, thanks to the efforts of new and continuing contributors. I would like to ask each of you to think about how you would prefer to see the information displayed. The practice has been to lay out the logs from lowest frequency to highest, but is this really the most efficient way to do it?

As you know I’m in the process of trying to improve the column, so I am open to suggestions as to how you would like to see the logs displayed. For example, how about laying them out according to mode or type of service? This would allow people who like to target their listening according to a particular service to see what the most recent hot frequencies are.

Likewise, for many months I have been putting the information down without very much comment or interpretation. Are there readers out there who would like to have more background information on the short forms used, the modes listened to, and some other details that you might be uncertain of. Please tell me and I’ll make the appropriate changes.

So think about that while you are reading over the logs, and be sure to send me along some ideas that may help to make them more interesting and useful. This month I’m including the list of abbreviations. I would appreciate hearing if these guides are helpful, especially to those of you who are new to the UTE monitoring hobby. Remember that all frequencies are in kiloHertz and times are Universal (Z).

0000: STATION, Anytown, USA, summary of traffic heard in MODE at 0000Z (Z), personal comments here. (JC)
518: ENITON SITOR/B/100/E170 Navtex. Warnings at new time slot at 0000Z (Z), personal comments here. (JC)
3413: N50309 ( Hawker 800XP, Raytheon) working San Francisco ARINC (MWARA CEP-1) for radio check then is advised to call San Francisco on 5.574.0 in USB at 1234Z. (CR)

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4210.5: IAR, ROME RADIO CW Chan free encrypt. 5 fig groups. Ends "=203." (DW) Offair 2158Z. (DW)

4022: FDG, FAF BORDEAUX RTTY//6135N Long corrupt starts 012. (DW) Offair 2158Z. (DW)

3830: UNID SITOR/A//100/E/170 Poor copy. Appears fishing vessel i/ship. In EE. References to "freezers" "350 bskts" (baskets) "steaming here" and off/ft. (DW)

3830: UNID SITOR/A//100/E/170 Exchange of sigs re fishing, etc. Reference to "scannary (Fishfinder/ sounder?) green." Pso 6135N Long corrupt starts 012. (DW)

4022: FDG, FAF BORDEAUX RTTY/ 50/R/850 Marker "Test de FDG voyez le brick figs ry's." Offair 2158Z. (DW)

4022: FDG, FAF BORDEAUX RTTY//50/R/850 Marker "Test de FDG voyez le brick figs ry's." Offair 2158Z. (DW)

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4210.5: IAR, ROME RADIO CW Chan free encrypt. 5 fig groups. Ends "=203." (DW) Offair 2158Z. (DW)
The following is a list of useful abbreviations that often appear in the logging reports of utility radio stations provided by our readers. This is by no means an exhaustive list, and updates will be provided in the months to come. Please forward suggestions for new abbreviations or Q codes.

**ARQ**: Abbreviation for Automatic Repeat Request. An ARQ is sent back to the transmitting station by the receiving station to request retransmission of missing or corrupted portions.

**Calling frequency**: An agreed-upon frequency where stations attempt to contact each other; once contact is made, stations move to a working frequency.

**CH**: Radio Channel

**Chan free marker**: To ensure that unauthorized radio use does not take place on a critical frequency, a UTE station may place a “marker” on it. That means that a continuous signal, generally an Identifier, is transmitted to make certain that the frequency remains occupied and unusable.

**CLNG**: Calling a specific radio station and expecting an answer.

**Crypto**: The message (generally text) has been encrypted to prevent it being read by unauthorized people.

**CQ**: A general call sent by a station to any other station that may receive it.

**CW**: Abbreviation for continuous wave.

**de**: Morse code abbreviation meaning “From” as in “de AA123” or from station AA123.

**Diplom**: Diplomatic, generally an embassy or diplomatic mission.

**DX**: Any station that is hard to hear or contact on a particular frequency or is rarely heard or contacted on a particular frequency.

**EE**: English speaking person

**EMB**: Embassy

**FAX**: Radio Facsimile, generally of weather maps that are broadcast for public use, particularly by ships and aircraft.

**FEC**: Abbreviation for forward error correction, a FSK mode that transmits each character twice to avoid errors. If the first character is received correctly, retransmission is ignored.

**FF**: French Speaking Person

**Fixed station**: A station that always operates from a constant, specified land location.

**Frequency Shift Keying**: A mode of text based radio transmission that shifts the station’s carrier between two fixed frequencies to form characters.

**FSK**: Abbreviation for frequency shift keying.

**HF (High Frequencies)**: Frequencies from 3 to 30 MHz, although often referred to all frequencies from 1.7 to 30 MHz.

**KW**: Abbreviation for kiloWatt.

**Machine**: An automated device used to create a CW signal, generally constantly repeated, such as a beacon or a marker.

**Maritime station**: A two-way radio unit aboard a ship or a station on land that communicates with ships.

**MFT**: Meteorological (weather maps and information)

**MCW**: Abbreviation for modulated CW.

**Mil**: Military

**Mobile station**: A two-way radio unit installed in a car, boat, plane, etc., and used while in motion or at various stops.

**Modulated CW**: Sending Morse code over an AM transmitter using an audio tone.

**msg**: Message, or what was said.

**Nativ**: Simple text based broadcast system.

**OM**: Man operating the radio (as in Old Man, traditional term for a radioman).

**Opchat**: Two or more radio operators talking to each other on the radio.

**p/p**: Phone patch, which allows a person on a regular telephone to be able to talk to someone at a remote location through a radio transceiver.

**RTTY (radio teletype)**: A mode that uses FSK to form letters, numbers, and special characters for display on a printer or video monitor.

**RY**: A string of the characters RY are sent out to help the operator tune and to help other stations tune in to their frequency and signal.

**SS**: Spanish Speaking Person

**SSB (Single Sideband)**: A modulation technique that suppresses one sideband and the carrier and transmits only the remaining sideband.

**stn**: Radio station

**tfc**: Traffic, which is the information being sent back and forth between stations, generally formal messages.

**UNID**: An unidentified radio station or the location of a radio station.

**USB**: Abbreviation for upper sideband.

**UTC**: Abbreviation for coordinated universal time.

**Working frequency**: Once contact is made, stations move to a working frequency, where information or messages are exchanged.

**wkg**: Working, e.g. talking to or communicating with.

**WX**: Weather

---

10242: US Customs ALE sounding heard at 0316Z. (MC)
10248: 8BY, FRENCH INTEL PARIS CW “vvv 8by 017/116/429/381/228/ 973.” (DW)
10257: PBC, DN GOEREE ISLAND RTTY//75/N/850 CARB. Very weak signal. (DW)
10304: UNID, EGYPTIAN DIPLO SITOR// Spur? (DW)
10316: AMCS, CHINESE DIPLO MIL STD 188-110A Voices (simplex) in Chinese then msg in 188-110A. Offline encrypted. (DW)
10356: CFH, CF HALIFAX RTTY//75/N/850 Met tcf. (DW)
10406: KN2A, SVEIO BEACON on USB, at 2210Hz Flh 850Hz Flh bursts. At 2635Hz CW ID. Offair 1840Z. (DW)
10536: CFH, CF HALIFAX FAX//120/576/N/800 5 day sfc prog. Grainy. (DW)
10606: UNID, MOSCOW MET FAX//120/576/N/800 Synoptic chart w/OBS. Grainy. Second chart as previous. Spur of 10611.9. (DW)
10715: YT362A, CHINESE DIPLO MIL STD 188-141A ALE on USB. Responds to YT362A. (DW)
10715: UNID, CHINESE DIPLO MIL STD 188-110A Tfc but indecipherable. (DW)
10715: BXT78, CHINESE DIPLO MIL STD 188-110A 600bps, lng intiv. Tfc acknowledged. (DW)
During the month of January, the REACT team was busy providing assistance and support in various locations around the world. Here are some highlights from the month:

**TRENTON MILITARY to RAYMOND 24, Tinker AFB at 2254Z. (MC)**

**11236: PLA, USAF LAJES MIL.STD 188-141A ALE on USB. (MC)**

**11244: OFFUTT w/ EAM for MAURICE CHARLIE simulcast on 11175, 13200, 8992, 15016 at 2243Z. (MC)**

**11282: Southern Air 541 (B747-200 LAX to PANC to RKSJ) working San Francisco ARINC (MWARA CEP-2) with position report and SELCAL check on DK-CL in USB at 0306Z. (CR)**

**11342: Northwest 2 (B747-200 RJA A to LAX) working San Francisco LDLOC to accept re-release and weather for LAX and ONT via Minneapolis Dispatch in USB at 1427Z. (CR)**

**11384: Air Mic 964 (B737-800 RJA to PGUM) working San Francisco, CA ARINC (MWARA CWP-2) with position report and request for routing change in USB at 1346Z. (CR)**

**11384: Asiana 601 (B777-28E/R KSJ to Sydney) working San Francisco ARINC (CWP-2) with position report and SELCAL check in USB at 1347Z. (CR)**

**11384: Korean Air 811 (B747 ICN to SYD) working San Francisco, CA ARINC (MWARA CWP-2) with position report and SELCAL check on CM-LR then cleared for deviation up to 15 miles left of course for weather in USB at 1453Z. (CR)**

**11410: TADIL A Link 11 data transmission at 2223Z. (MC)**

**11484: LY921 and PUERTO RICO radio QSY’d from 11175 to run pp w/ BLUESTAR Duty ops. (DS2)**

**11494: U.S. Customs ALE sounding at 0319Z. (MC)**

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Moscow. (ML)
log on/off. (ML)
at 0814 ARQ msg to Novorossiysk, UHXZ
2322Z. (CG)
Mexico near Cuba in QSO with another sta-
12290: WB05884, a vessel in the Gulf of
s/off 1457Z. (DW)
Algiers PACT//200/-/200 Pactor-I, ASCII,
12161.7: opchat in AA(ATU80) and s/off. (DW)
SITOR/A//100/E/170 In irs mode then brief
12113.7: UNID, EGYPTIAN MIL LOC
12577.5: UFZP, Ship
34.01E. (DW)
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w/UFQA log on & msg to Vladivostok. (ML)
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Chris Grey (CG)
Craig Rose (CR)
Day Watson (DW)
Dwight Simpson (DS)
Mark Cleary (MC)
Murray Lehman (ML)
Robert Hall (RH2)

But thanks again to each of you for your contributions. Those of you out there who have not contributed before, or those who got out of the habit of sending them in, please remember that new logs are always welcome.

Next Month

Over the next four months I’m going to be continuing my revamp of the column, so it’s going to be a while before I can start posting a solid schedule again. As I’ve outlined, my plan is to get as many of you involved in this revamp as possible, with the plan being to have a group come on board as assistant editors.

Don’t forget that you can write to me at “Utility Radio Review,” PMB 121, 1623 Military Rd. Niagara Falls, NY 14304-1745. So until next month, may all of your monitoring sessions be enjoyable and productive.
**A Totally Whacked-Out DJ—Imagine That?**

- **Psycho Radio, 6955 US** at 0042 with heavy metal and a "totally whacked-out DJ." Also at 0120 with grunge music. (Hassig, IL) 0401 with mention of an earlier broadcast, defunct e-mail address, "Old MacDonald Had a Farm." No mention of a mail drop or other way of contacting the station. (Wood, TN) 0355 with "We want Psycho" repeated, circus music. Mayberry theme, and promo called "Mr. Psycho Will Blow You Away. (Taylor, PA)

- **Oxycontin Radio, 6950 US** at 0140 with pop music. Strong signal. (Hassig, IL)

- **Voice of the New World Order, 6955 US** at 0312 with pop music and news. (Hassig, IL) 0620 with drama, strange songs and astrology readings for Scorpio. Another date on 6950 at 0138 sign-on with "Ride of the Valkyries" and song "Duck and Cover." (Hassig, IL) 0349 with several bits about 1950s-60s civil defense precautions and drills, audio clips from Dr. Strangelove, expressions of thanks to veterans. Also mentioned their e-mail address was no longer operating and gave the Blue Ridge Summit address for reports. Off with a quote from the Slim Pickens character in Dr. Strangelove. This same sign-off routine was also heard another time at 0233. (Wood, TN)

- **Alpha Lima International, 15069.7 at 0221 with nice ID, address, announcing a test on several frequencies. Usual fare with "Alf" talking over lively music. (D'Angelo, PA) 2119 with "Feel Like a Woman" and some dance music, talks about his e-mails and Web pages, "Genie in a Bottle." (Bill Finn)

- **World Parody Network, 6955 at 0340 with Captain Squirtlog and bits on Osama Bin Laden, ID, Huntsville, AL mail drop, request for reports and off at 0405. (Taylor, PA)

- **KRMI, 6955 US** heard at 0155 with song about a bunny, ID, Yahoo e-mail address, "73s," into a song and sign off. (Taylor, PA)

- **Radio Uranchia, 6925 at 0535 airing a phonetic message over and over: "Woodbury P Arr—We know who you are." At 0547 "Loser" by Beck, IDs at 0552 and 0556. Off at 0609. Also on 6950 at 0225 with "Loser." A repeat of the earlier program and may have been relayed by KIPM as it ended with KIPM's "End of Transmission" sign off at 0303. (Taylor, PA)

- **Radio Nonsense, 6950 heard at 0040 by Joe Mama. ID, comedy bit about income tax, "Money" by Pink Floyd, "Tax Referral" segment. Off at 0118. (Taylor, PA)

- **WBZO (presumed) on 6950 at 0207, but weak in lots of static. (Lee Silvi, OH)

**UNIDENTIFIEDS**—Several were reported this time; I'll include those which had enough detail to be meaningful: 6950 USB at 2254 with talk about the U.N., Netanyahu, and Cops theme. (Taylor) 6950 at 0315 with lots of Billy Joel music; also Twilight Zone theme. (Taylor) 6950 US at 0349 with a Cheech & Chong comedy bit. (Taylor) 6955 at 0526 with what sounded like a whistled interval signal and a song "Don't Leave Me Out There." (Wood, TN)

Thanks, everyone, for the really nice reporting. Let's try to keep it going, shall we?

I'll catch you all again next month!
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Reach this dynamic audience with your advertising message, contact Arnie Sposato at 516-681-2922, FAX 516-681-2926, or e-mail: PCAdvertising@aol.com.
I have finally found Norm again after over a year's absence. He's never been much of a fan of television, but the new reality shows have gotten to him, particularly the ones about self-sufficiency in an environment of few modern conveniences.

He dropped in for a long overdue visit and allowed me to put him up on the couch, feed him a few square meals ("and don't put any of that awful mayonnaise on my sandwich—you know how I hate that!") and we swapped things from our respective junk-boxes (he keeps one in the trunk of his car).

We spent the entire visit swapping stories, but his new ventures into 19th century self-sufficiency had mine beat.

"First was his water wheel. Norm was fortunate enough to find a property with a small hydro-electric power plant attached—and smart enough not to try to get the thing running after years of idleness (that's the dam that was idle, not Norm). The remains of this thing lent themselves to a pretty decent waterwheel, so Norm built one. Never got it connected to his DC generator in time for last year's Amateur Radio Field Day, but has been heating one room of his house with a big piece of nichrome wire. If he had a lever on the outside wall, his den would be like a pop-up toaster.

So the idea came to him to build a radio without going to the store for parts. He knew that anyone could get a 1N34 diode, some wire, an earphone, and make a modern version of a crystal radio. But could he do it using ONLY those things available to a true pioneer?

Norm spent some time getting the dates right and learning what was and was not available to the radio pioneers of those days. The main thing he needed was a Galena crystal. Galena crystals are lead sulfide, the symbol of which is PbS. This made Norm wonder if his local PBS station might have any, but only for a moment. When he found that it was most common near Joplin, Missouri, he knew he was in trouble. He couldn't use the lath, which was as springy as any could be. There were no old razor blades in the wall, where some former owner might have dropped them through the slot in the back of the medicine cabinet.

A bit of quick research told Norm that there were no "Gillette blue blades" in the time period he was trying to duplicate. He left an old carbon steel kitchen knife outside for three days. It rusted nicely.

He hadn't even gotten the knife into the workshop when he cut his thumb seriously enough to require stitches. He thought of Marshall Dillon and Chester going to doc to get "stitched up" with boiled thread and no anesthetic. He decided that medical emergencies didn't require true adherence to the authenticity of the time period and went to the Emergency Room. Three stitches. Two-hundred forty-two dollars. A year's pay for some in the period he was trying to emulate. By this time, Norm had confided in me that he was ready to quit the project, but it seemed to him like such a noble cause.

He was able to use the sharp edge of the rusty steel blade in place of a Galena crystal. Now he needed wire. He'd have had to send away and wait a long time for copper wire of the type available to him in the late 1800s. For a short time (a very short time) he thought of "drawing" wire by stretching copper through a hole, or rolling pennies or pouring melted copper into a long slot. Eventually, bell wire was deemed to be similar enough to the enamel coated wire of the time. He would use his tuning coil and cut a strip of tin-can for a tuning slider.

Earlier, he had been ready to wind the coil for his earphone from his hand-drawn wire, hummer and cut a steel diaphragm for the earphone, and make a cover of wood (no Bakelite for this project!). After the better part of a day, he used a 99-cent RadioShack earphone.

"By the time I got the #5%&* thing to work," he told me, "there was nothing original or old in the whole thing. The kitchen knife I used was from a Dollar Store and was made in China. The wire and the earphone were from RadioShack. I used an electric soldering iron to put everything together and it still didn't work anyway. So I said the hell with it and decided to cook a meal 'off the land' the way the pioneers did.

"But not right away. I was pretty hungry that night and went to the restaurant across the street. I ordered something traditional, at least," he told me.

So Norm celebrated "olden days" by eating a pot roast dinner, which was likely heated in a microwave oven. He got salt in his freshly stitched wound, but the salt was iodized. He paid by credit card and drove his car across the street to his house, where he spent the night online with his computer. All thoughts of living off the land were safely removed from his mind for at least a few more months.

Ed. Note: If you would like to write to Norm, you can reach him c/o Bill—with no guarantees he'll write back—after all, he may be observing a time gone by when there was no e-mail...or no ink! Write Bill at <chrdoc@earthlink.net> and he'll see that Norm gets your message.
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