Radio–Homeland Security–Computers & Radio–Family & Hobby Comms

45635

POPULAR COMMUNICATIONS

JANUARY 2003

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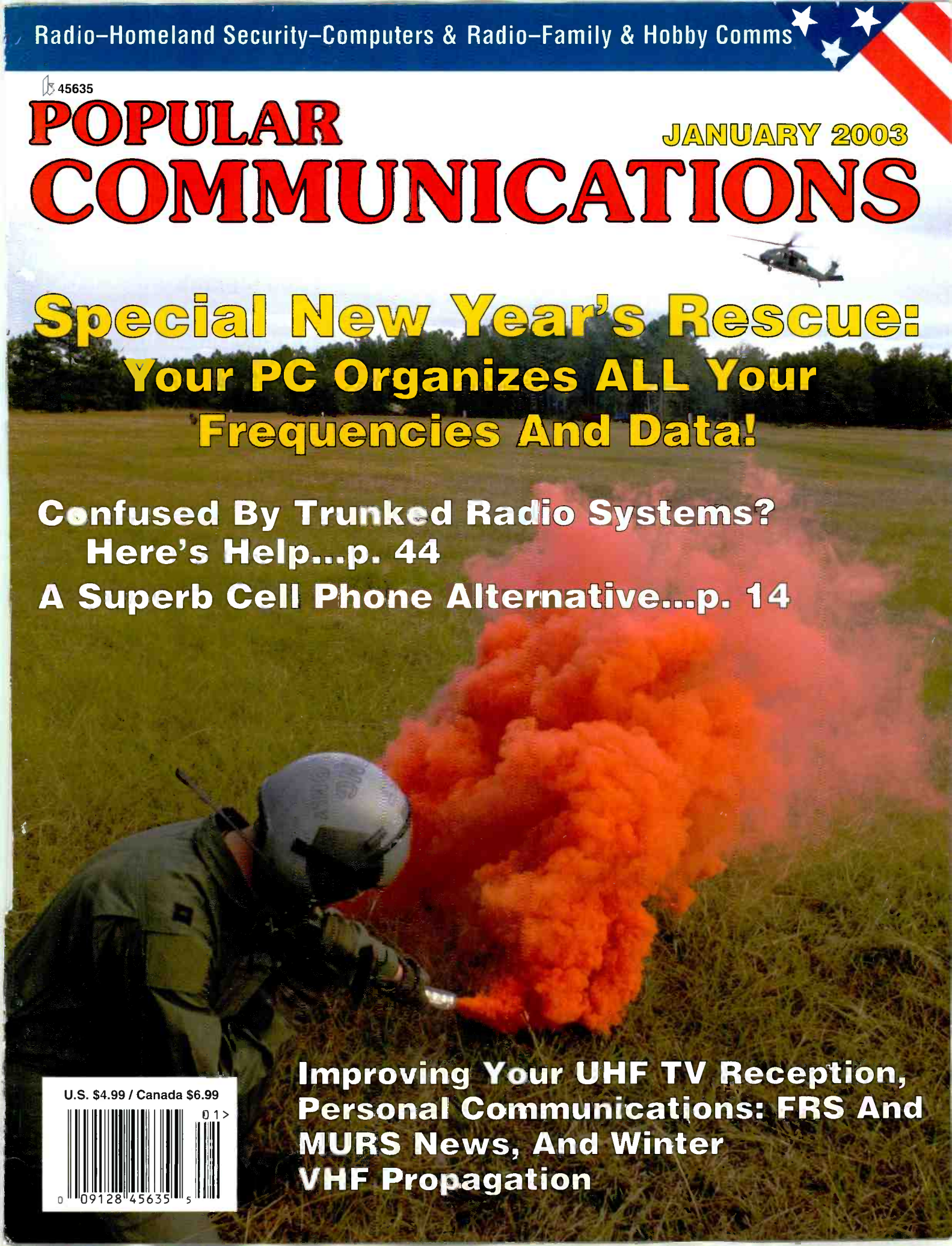
A Superb Cell Phone Alternative...p. 14



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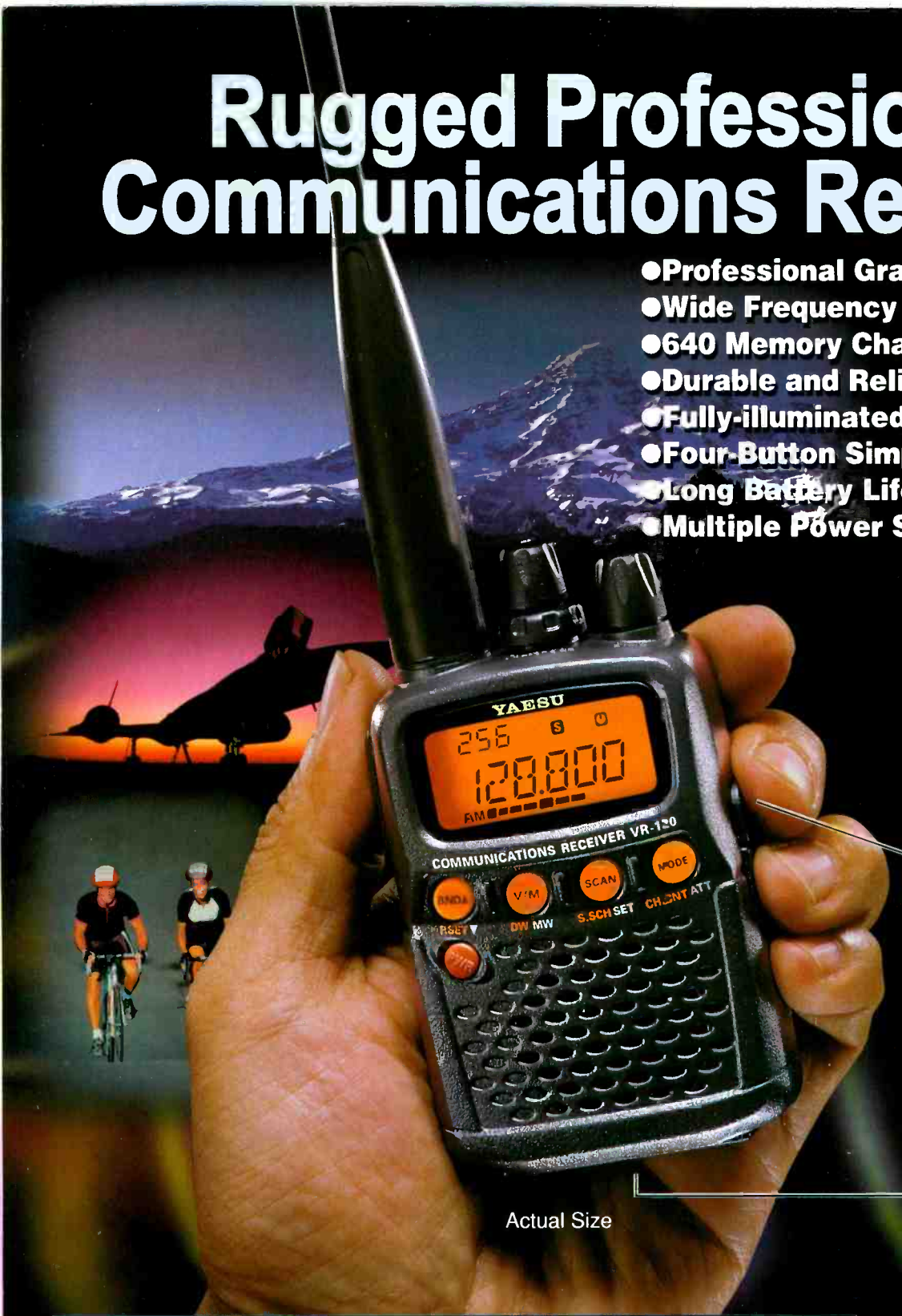

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This device has not been approved by the F.C.C. This device may not be offered for sale or lease or be sold or leased until approval of the F.C.C. has been obtained. The information shown is preliminary and subject to change. For additional details please visit: **www.universal-radio.com**

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Departments

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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"The PCR1000 has something to intrigue and satisfy everyone. This is a fun product." – QST, 7/98

IC-PCR1000 The original black box

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– Passport to World Band Radio, 1998

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– QST, 2/01

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- Weather Alert
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This device has not been approved by the FCC. This device may not be sold or leased, or offered for sale or lease, until approval of the FCC has been granted.

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tuning in

by Harold Ort, N2RLL, SSB-596

an editorial

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

3. In this issue of *Pop'Comm* (October 2002) who is the author of the new "Propagation Corner" column?
A: Tomas Hood

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

6. In this issue of *Pop'Comm* (October 2002) the "Homeland Security" column lists several common public safety interoperability frequencies. What's the National Law Enforcement Interagency frequency?
A: 155.475 MHz

7. In this issue of *Pop'Comm* (October 2002) writer Gerry Dexter mentions that HCJB'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)

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Optoelectronics R11,Optocom,OS456/Lite,OS535,Uniden BC245,BC780

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Scout / IC R10
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- Auto Capture
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Digital Scout / AR8200
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- Control IC PCR1000

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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.

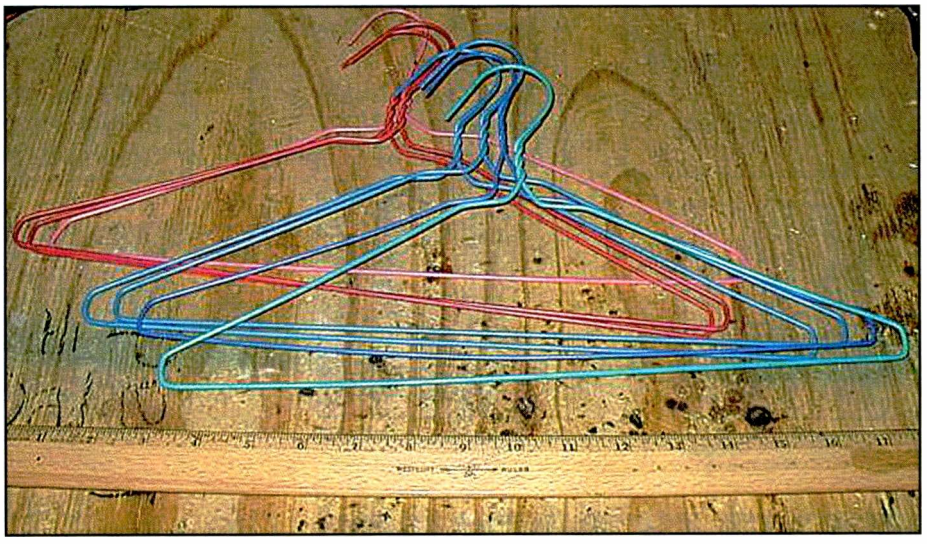
My Rating System

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

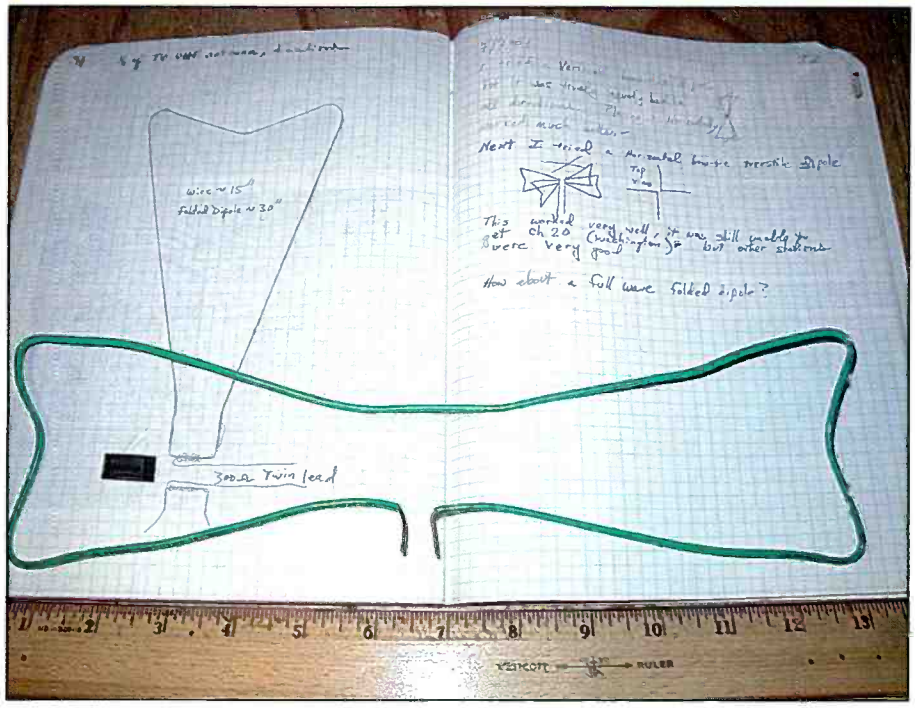
I first tried the bow-tie antenna; I'm sure you've seen it—it's simply a bare-wire antenna that looks like a bow-tie. It has twin-lead feedline coming off it that's about three feet long. The center plastic piece has a grabber that attaches to the largest diameter section of your rabbit ears. This didn't help much so I thought I'd give it some height. I went to the hardware store and they only had the "clear" plastic twin-lead feedline. I bought all they had 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.

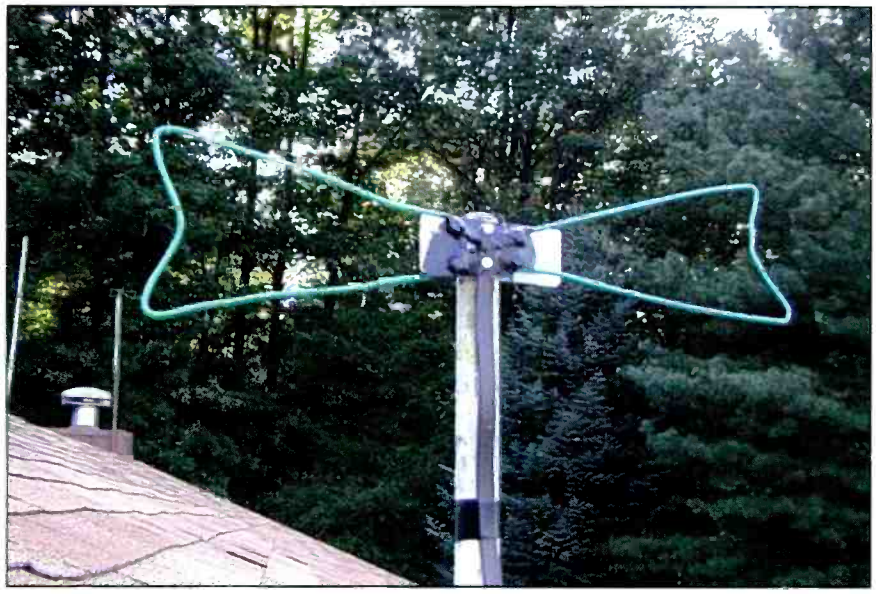
During this time I found an interesting piece of wire that was stiffer than any copper wire. It soldered well, held its shape, and had some spring-back as well. It sure seemed like wonderful stuff to make antennas out of, so I trekked to hardware and electronics stores but no one knew where it came from 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.



Lab book with dimensions and folded bow-tie dipole.



Standard bow-tie dipole antenna (on a stick).

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 broadband 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.

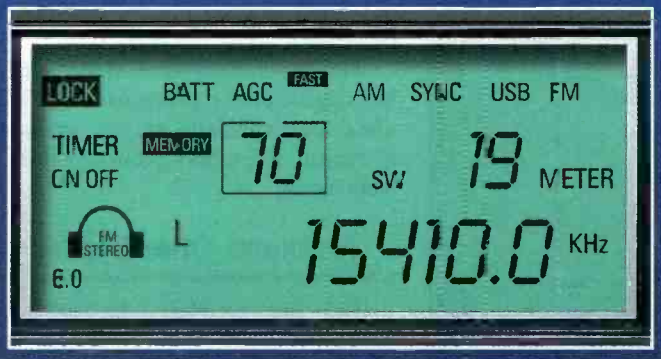
Problem: Directionality

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.)

GRUNDIG The



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Big! Bold! Brightly Illuminated 6" by 3 ½". Liquid Crystal Display shows all important data: Frequency, Meter band, Memory position, Time, LSB/USB, Synchronous Detector and more.

Ultra fine-tuning of 50Hz on LSB/USB, 100Hz in SW, AM and Aircraft Band and 20 KHz in FM.

- For Fixed-step Tuning: Big, responsive Up/Down tuning buttons.
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The Signal Strength Meter

Elegant in its traditional Analog design, like the gauges in the world's finest sports cars. Large. Well Lit. Easy to read.

The Frequency Coverage

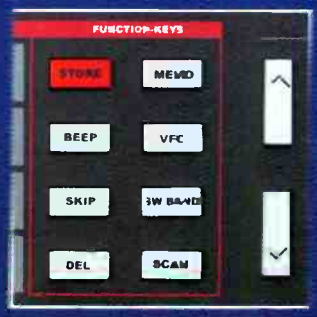
Longwave, AM and shortwave: continuous 100-30,000 KHz. FM: 87-108 MHz VHF Aircraft Band: 118-137 MHz.

The Tuning Controls

- For the traditionalist: a smooth, precise tuning knob, produces no audio muting during use.

THESE ARE THE SATELLIT 800 MILLENNIUM'S MAJOR FEATURES. FOR A DETAILED SPECIFICATION SHEET, CONTACT GRUNDIG.

Ultimate in Digital Technology!



The Operational Controls
Knobs where you want them; Buttons where they make sense. The best combination of traditional and high-tech controls.

The Sound
Legendary Grundig Audio Fidelity with separate bass and treble controls, big sound from its powerful speaker and FM-stereo with the included high quality headphones.

The Technology
Today's latest engineering:
- Dual conversion superheterodyne circuitry.
- PLL synthesized tuner.

The Many Features
- 70 user-programmable memories.
- Two, 24 hour format clocks.
- Two ON/OFF sleep timers.
- 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 × 9" H × 8" W
Weight: 14.50 lbs.

by GRUNDIG

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A 360-degree vertical bow-tie antenna.

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.

"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."

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. ■

A 360-degree horizontally polarized bow-tie dipole antenna.

A 360-degree horizontally polarized folded bow-tie dipole antenna.

by Gordon West, WB6NOA

Flat Microwave Phased Array For TV Satellites

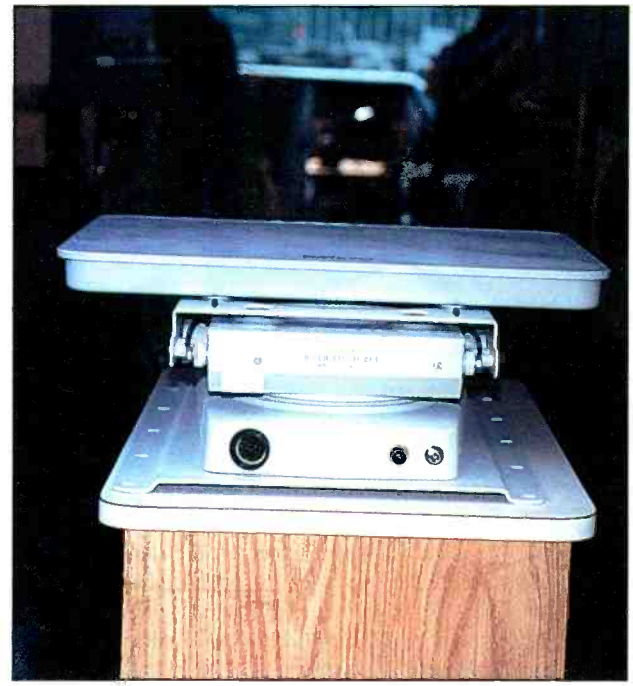
Beaming signals in from a direct-broadcast satellite to watch your favorite TV movie in surround sound may be a fraction of what these geostationary satellites can do in their lofty 22,500-mile orbit above earth. As many as six geostationary satellites might have programming that will go *well beyond* 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.

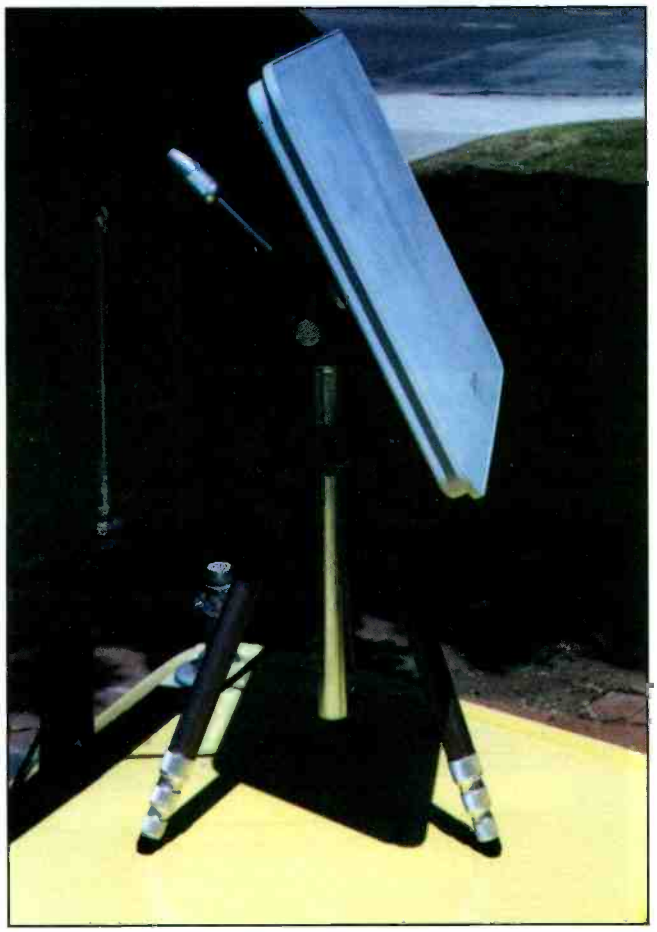
A close up of a phased array circuit board antenna system.

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.

The compact motorized auto-seek flat panel satellite antenna system shown in nested position.



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.

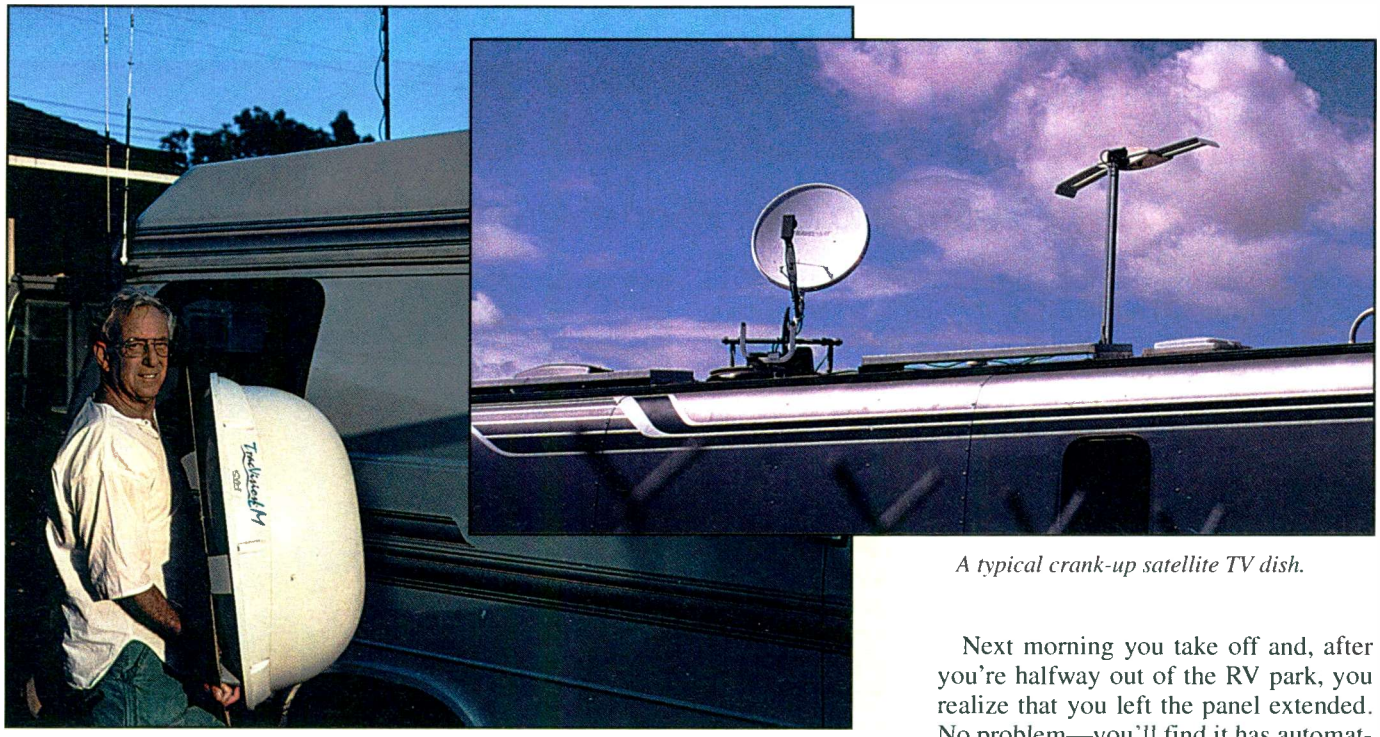
Some motor homes have a mechanical crank dish antenna system which works well and, best of all, has a signal strength meter that you don't need to keep taking out of line to get reception. And for under $1,500, you can purchase an automatic-acquisition satellite dish antenna system which will magically 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



The KVH in-motion satellite TV antenna system ready to be installed on the van's roof.

A typical crank-up satellite TV dish.

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.

Next morning you take off and, after you're halfway out of the RV park, you realize that you left the panel extended. No problem—you'll find it has automatically nested when it loses satellite signal input because you moved the vehicle or turned the receiver off. No input tells it to automatically nest, which is a fail-safe function built into this extra-smart, direct-broadcast antenna system.

What's The Cost?

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! ■

homeland security

power, and products

by Rich Arland, K7SZ

A Superb Cell Phone Alternative

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.

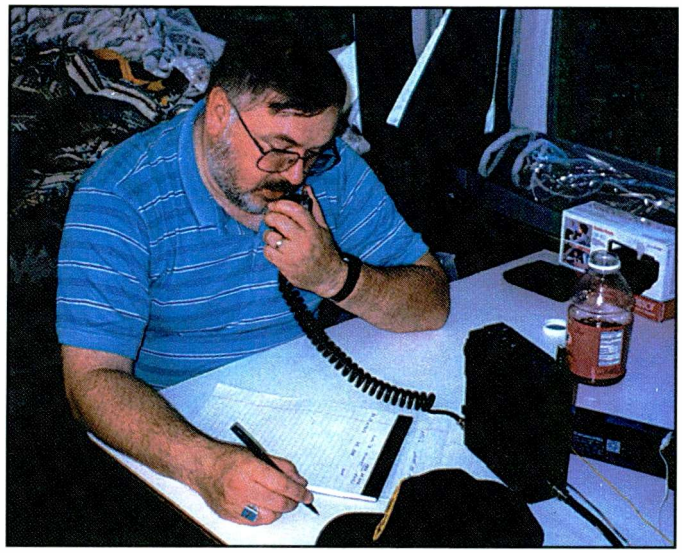
In a recent interview this morning on *Fox & Friends*, a former member of an Israeli counter-terrorism unit publicly stated that the United States was in for the same type of homicide bomber attacks that have plagued Israel for years. While the World Trade Center and Pentagon attacks were terrorist atrocities 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 we know as individuals the quicker we can recognize and report an area of weakness or a threat and move to combat that problem area. Electronic communications is vital in this effort. The more diverse your personal communications system is, the more effective you become in combating terrorism.

Paul Stroud, AA4XX, avid low-power DXer and contester is pulling the "Night Watch" during the annual ARRL Field Day. The tiny 2.5-watt Wilderness Radio Sierra kit CW transceiver sits atop the antenna tuner just to the right of the computer. DC powered computers are essential for amateur radio FD operations as well as emergency com munications scenarios. (K7SZ photo)

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. (K7SZ photo)

tinuously licensed for 40 years. Currently I hold an Amateur Extra license (the "original" one with the 20 wpm CW requirement), and a General Radio Operator's License (GROL) commercial class license.

In addition to my 20 year Air Force career, I spent four years in AM/FM/Television broadcasting as both an on-air personality and a station engineer. My ham radio career has spanned 40 years, during which time I have written four books and many feature articles and columns for magazines including *Popular Communication*, *CQ Amateur Radio*, *QST*, *Monitoring Times*, and *World Radio*. My areas of expertise include RF electronics and QRP (under 5-watt ham radio), satellite communications, along with CB and FRS communications systems, and video and audio surveillance. I bring to *Popular Communic-ations* a broad range of communications and security expertise gained from both the radio hobby and commercial, military and Department of Corrections training.

Understanding Communications Systems

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 attracts 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!

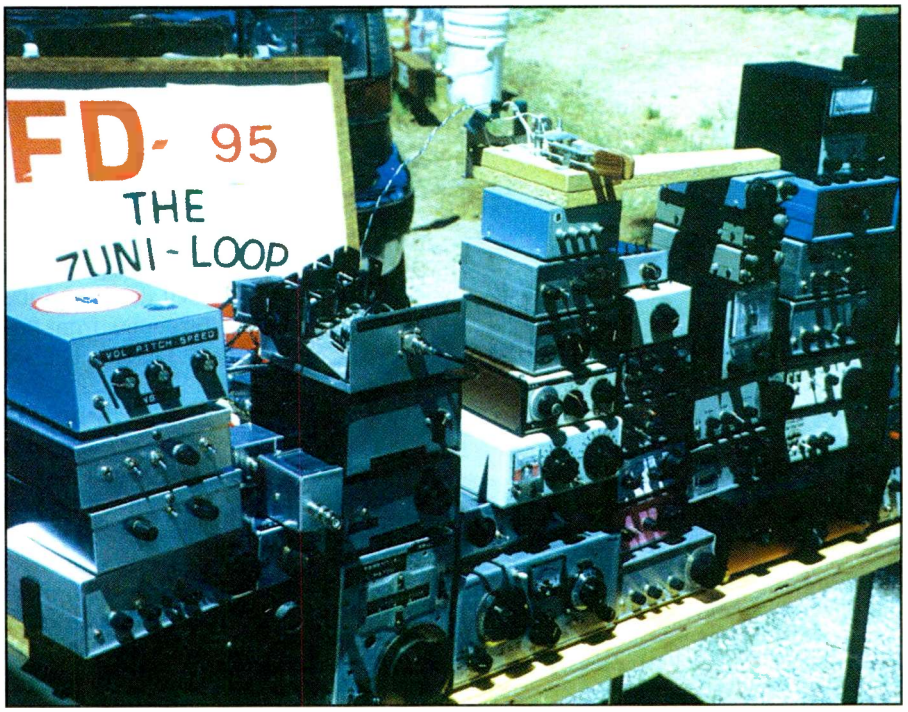
About the only beneficial thing directly relating to communications (or lack there of) that happened on September 11, 2001, was the disruption of cell phone communications in the areas affected by the acts of terrorism. It demonstrated, on a grand scale, just how fragile the cellular telephone communications 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-

An elevated location is essential for solid V/UHF communications. Here several members of an Amateur Radio club have erected their V/UHF beam antennas in preparation for a contest. Ham radio contesting can be a great way to sharpen your operating skills under pressure. Contact a local club and give it a try. (K7SZ photo) →

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 reduces the number of trunk lines in a high call concentration area, which theoretically 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.



Whaddayamean hams don't build gear any more? This is a sampling of the homebuilt equipment available at the Zuni Loop Mountain QRP Expeditionary Force Field Day site in 1995. There are antenna tuners, transceivers, transmitters, receivers, and a host of other "stuff." The Zuni's regularly run a 6 or 7 transmitter classification and turn in some outlandish scores each year. (K7SZ photo)

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, and 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**

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.)

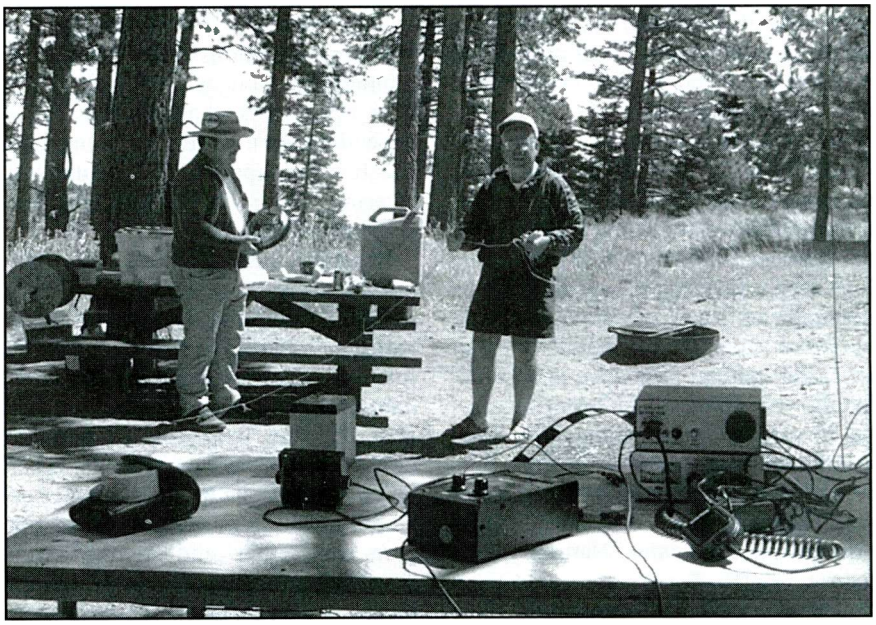
RACES originated in 1952, based upon a potential wartime use during the early days of the Cold War. It as a federally backed program, overseen by the Federal Emergency Management Agency (FEMA) which parallels ARES, but has a much broader scope. RACES members must be officially enrolled (registered) in 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 vise 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 Memorandas 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



Jerry Parker, WA6OWR, and Doug Hendricks, KI6DS, of the Northern California QRP Club (NorCal) are shown busily erecting a wire antenna prior to Field Day. Note the tiny transceiver sitting atop the MFJ antenna tuner (right center). Low power radios and wire antennas typify Field Day. Unless you try them yourself, you have no idea how effective these low-power radios really are. (K7SZ photo)

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 granddaddy of 'em all, ARRL 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 as we QRPers like to refer to them, "The Great Unwashed") using 5 watts or less on the HF bands is crazy. Everyone knows you need at least 100 watts of RF to be competitive. ***WRONG!*** You would be amazed at what can be done with 5 watts or less and wire antennas. There are several large QRP clubs that specialize in FD *and* contesting. Looking over their FD scores, you'd never guess they were running only 5 watts. As a matter of fact, these folks turn in scores that far exceed their 100-watt counterparts! Besides, QRP dovetails nicely with the concept of high-endurance emergency communications stations, since it takes very little DC power to keep these stations on the air for extended periods. As long as a method of recharging batteries is available, these low-power stations can stay on the air indefinitely.

The bottom line on QRP: don't discount the so-called "peanut whistles." QRPers can use all current transmission modes (CW, SSB, AF/FM and data) for communications. This flexibility coupled with the miniscule power requirements for QRP equipment and their extreme portability, makes for a very effective and efficient emergency comms 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. ■

the wireless connection

a look behind the dials

by Peter J. Bertini <radioconnection@juno.com>

A Reader's Ideas, And Looking Back At An Official Government Decree

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 built 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 several 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.

"Wow, things do really come around!"—John, KB7KBL

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, non-descript 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 callsign. 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 sorta jogs 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 Gaubatz, W6GJF."

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.

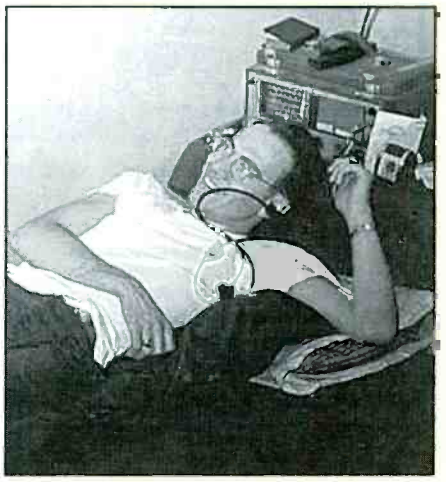
John, KD7KBL, Bothell, WA

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.



"This radio has a very special place in my collection."—John, KB7KBL

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.

The headphone was from the junkbox. It had a metal headband that never really fit very well, so I cut 3/4 inch of it away and folded the rest into a loop. The phone now hangs on the sweatband, and to my surprise it rested comfortably next to my ear without much difficulty.

The battery cable is an old-style cloth-covered three-conductor job. I figure it was used for hearing aids. The battery box holds three 9-volt batteries for the B voltage, and a C cell for the filaments.

I don't believe the schematic specifies the exact capacitance for the tuner, so I just used what was on-hand. In this case, I used a standard 365-pF tuning capacitor—it's one of those Mylar dielectric styles similar to the ones used in transistor radios. The coil form was part of a cross-stitch embroidery hoop. It was the closest thing I could find to a five-inch diameter form. This was then placed into a grooved one-inch dowel, and secured in place with a piece of sheet brass. The dowel also holds a 1/8-inch phone plug. The whole assembly then fits into a jack mounted on the hat. Doing it this way allows rotating the loop for maximum volume.

You might add that Mike Peebles, the guy who made Antique Electronic Supply's kits, helped me out with the coil. Based on the fact that I used a 365-pF cap for tuning, he recommended that I wind 30 turns of 32-gauge wire around the coil form.

Does it play? Well, when it wants to. Some days it will, other days, it won't. It's very cranky, and I'm sure there are many bugs to be worked out. It was made more as a stunt. One thing I can tell you—I wore it at the August IHRS meeting and was met with many questions about it. At the October meet, many people would say, "You're the guy with the radio hat? Did I mention that the wife despises it? So, it's here at work, resting on the monitor as I type." Bill

Urban Legends—Fiction Into Fact

History has a habit of repeating itself. In these trying times, the risks of giving up essential liberties is often weighed 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 to the nearest police station all shortwave sets and cameras in their possession.

Any radio set in the hands of an enemy alien, which is capable receiving radio signals other than those of the standard broadcast band, must by this order be immediately surrendered to the police, "unless the set is so altered or modified" that such signals cannot be received. Police are further instructed by the Attorney General to use every consideration to make this regulation impose as little hardship or inconvenience on well-intentioned aliens as possible.

The magazine article goes on to note that the Department of Justice decree is a good means for radio service men to render a useful service—and get paid for it, at an average of one or two dollars per set. During the War, radio parts were in short supply because tubes and other components were being diverted for the war effort. Radio shops had to improvise repairs by substituting parts or by other innovative means to stay in business! Over one million enemy aliens were residing in the United States at that time, and it was further estimated that two thirds of home radios were capable of shortwave reception! The trade was quick to recognize a lucrative venture when it arose!

Another heading in the magazine reads "Pennsylvania Servicemen Tackle War Jobs." The related story goes on about RSA members meeting in Wilkes-Barre, Pennsylvania, on January 6 to discuss a standardized means to disable shortwave reception in radios owned by aliens residing in the United States.

Here are some more interesting tidbits that shed more light on the questions raised earlier:

Radiomen who perform this service of altering aliens' receivers, should make sure that the changes they make are completely effective, so that under no circumstances can shortwave reception be restored without the addition of new parts, or additional wiring. Vital circuits or parts should be completely removed if possible and retained by the serviceman with his complete record of the job. Where shortwave coils cannot be removed, they should be shorted and the leads to the band switch removed.

The service shop was required to verify the owner of the set and the number of persons in the household. The shop was further required to keep this information in a logbook, along with a list of other 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 posses 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!"

by Alan Dixon, N3HOE / WPUC720 / KST8678

Nationwide On-Air CB Radio Contest This Month, And Telematics Evolves With Even More Services! MURS & FRS News, Too!

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.

SKYFi Vehicle Adaptor Kit works with any AM/FM cassette player. (Photo courtesy of Delphi Systems).

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-of-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.

SKYFi's FM Modulator Kit, professional XM Radio installation. Note the OnStar Telematics control buttons below the XM Receiver. (Photo courtesy of Delphi Systems).

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 an 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 both the communications category and the geo-location category. As we went to press, the Commission issued a Report and Order in WT Docket 99-366 (FCC 02-271), 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 emer-

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 PLBs 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 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 audiophiles 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* radio 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 mediumwave 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. ■

v.i.p. spotlight

Congratulations to Ernie Rice of Ohio!

Popular Communications invites you to submit, in about 150 words, how you got started in the communications hobby. Entries should be typewritten, or otherwise easily readable. If possible, your photo (no Polaroids, please) should be included.

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

The person whose entry is selected will receive a one-year gift subscription (or one-year subscription extension) to *Popular Communications*. Address all entries to: "V.I.P. Spotlight," *Popular Communications*, 25 Newbridge Road, Hicksville, NY 11801 or e-mail your entry to <popularcom@aol.com>, 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.

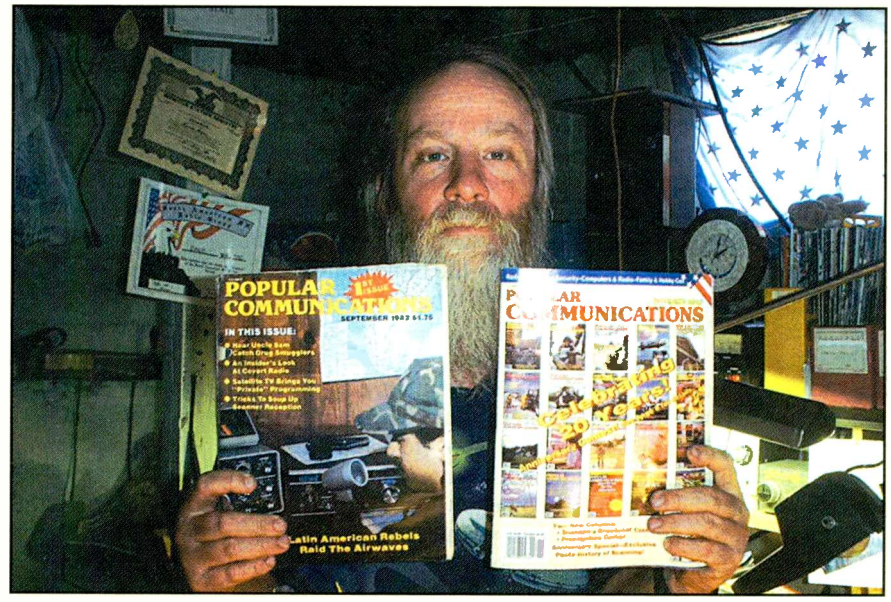
Our January Winner: Ernie Rice of Hamilton, Ohio

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 and restore old 23-channel bases of which I have over 200!! I use Pop'Comm every day as a reference and have every issue from September 1982. Keep up the good work. Love and Peace."



Here's Ernie Rice at his monitoring post in Ohio.

by Kirk Kleinschmidt, NTØZ

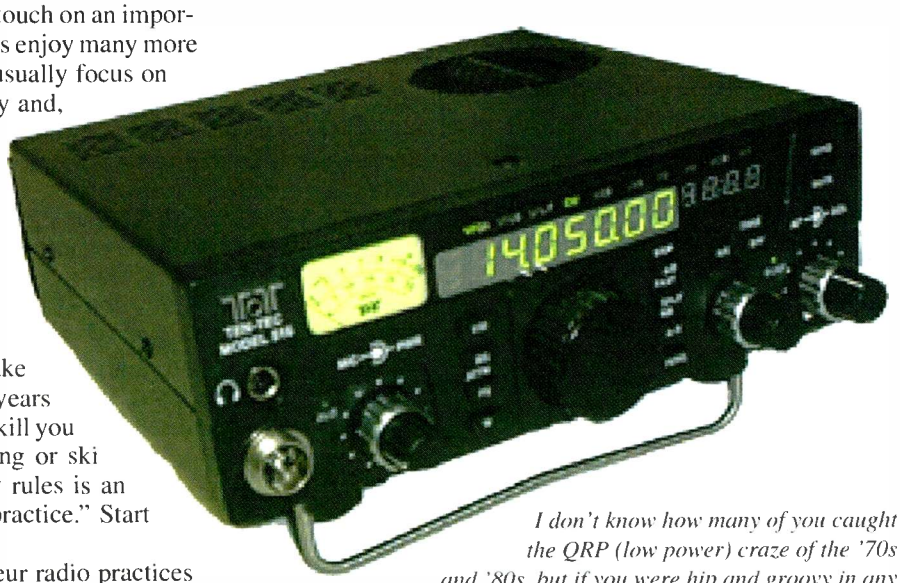
Safety First, Safety Always

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 if you're not careful (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.



I don't know how many of you caught the QRP (low power) craze of the '70s and '80s, but if you were hip and groovy in any way, Ten-Tec's Argonaut transceiver was on your short list of gotta-have goodies. Every now and then Ten-Tec rolled out a new version of the venerable low-power transceiver, but the newest model, the Argonaut V, looks to be the best ever (to compete with Elecraft's low-power transceiver kits, the present-day Argy has to be top notch!). Point your Web browser to <www.tentec.com/TT516.htm> to check it out.

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 faltering 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.

WORLD RADIO TV HANDBOOK

Some comments on WRTH 2002:

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

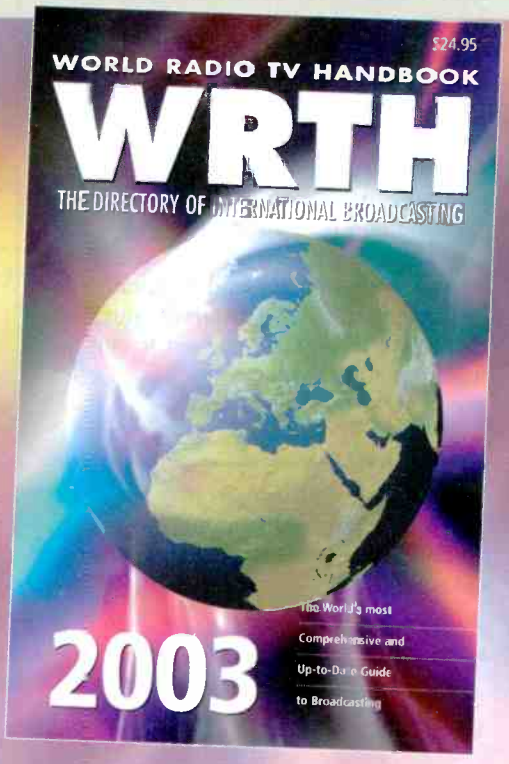
The 2002 edition is, overall, a beautiful book **W.H., USA**

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**



WRTH

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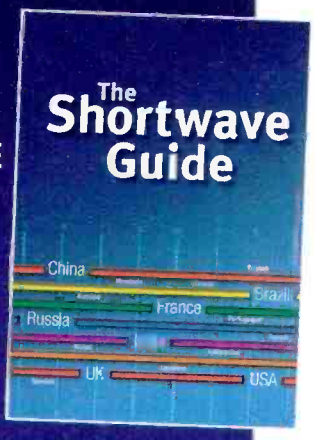

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"This brand new volume s ... very easy to read and you can make quick reference for any and every shortwave frequency ... the 'Shortwave Guide' is outstanding anc a very valuable addition to the current library of every DXer, shortwave listener and international radio monitor. We would ardently hope ... that we will see a new edition every year"
(Adrian Michael Petersen, AWR Wavescan 400)

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www.wrth.com
NEW EDITION JUNE 2003.

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 severe 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 waveguide 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.
- Install a master "power cut-off switch" near your test bench and make sure everyone in your house knows how to use it.
- Work in a well-lighted area.
- If you must service equipment while the power is on, follow the electrician's rule of thumb: Keep one hand in your pocket while you work. That way electrical energy won't have an easy path across your chest should your working hand contact a live source.

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!

One last thing: Don't be afraid to enjoy your new amateur radio hobby. Common sense and clear thinking cover almost every situation. Have fun—and be safe!

Send your questions, comments and QSLs to me at *Popular Communications*, c/o "Ham Discoveries," 25 Newbridge Road, Hicksville, NY 11801. Don't forget to send your shack, antenna, and mobile photos to me at the above address. See you next month! ■

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!"

Shannon's Broadcast Classics

a look back at radio & TV's golden years

by Shannon Huniwell

Have "U" Ever Heard of Channel 83?

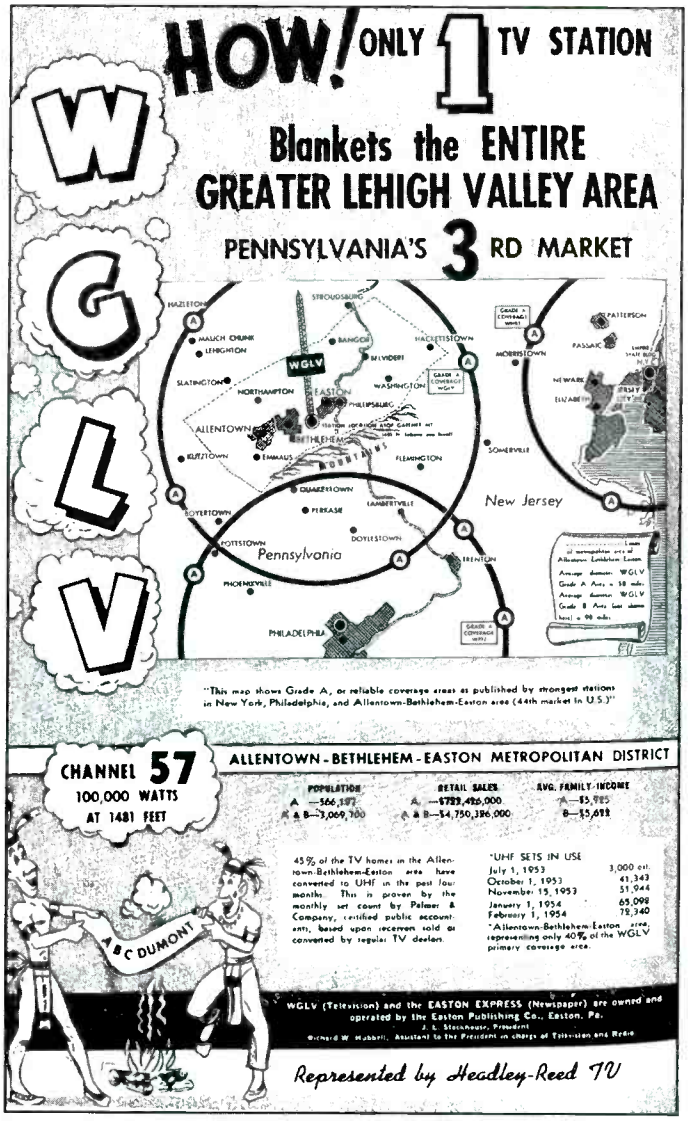
"They've got this new thing now called *listening to the radio*," my dad would joke whenever I whined about the limited capabilities of our old TV. It was an ancient black & white *Zenith* that literally needed kick starting.

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!

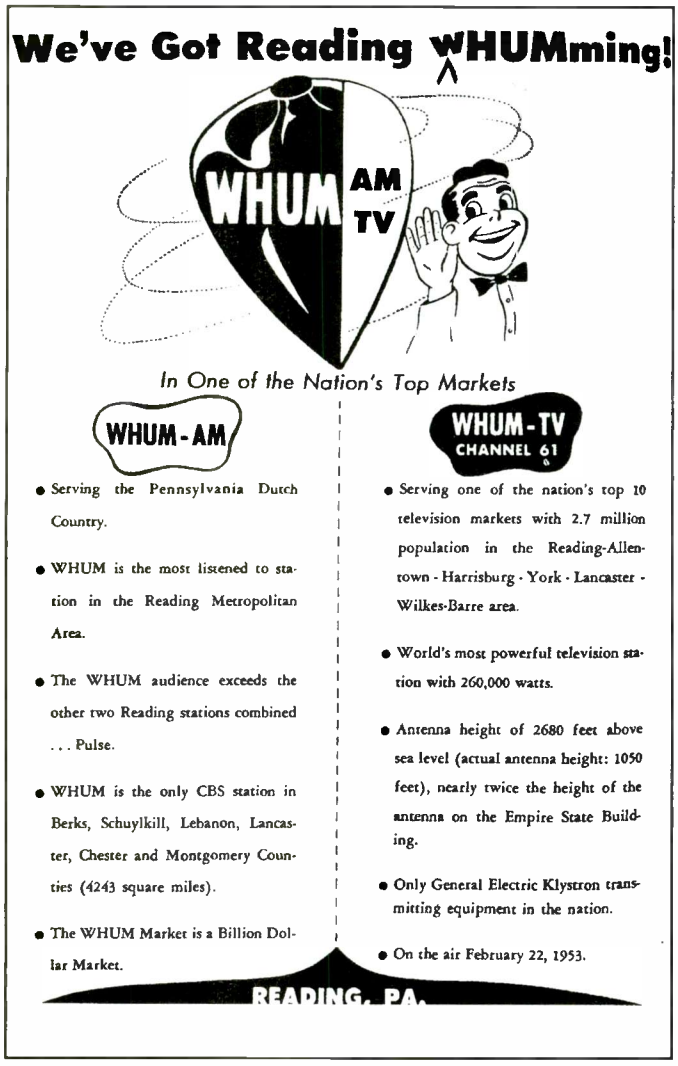
We used to laugh about having to turn it on before noon on Wednesday if we wanted to watch the Friday night movie. Worst of all, though, the darn thing was only equipped to get VHF (Channels 2 through 13) stations. That worked okay in the metropolitan New York area where all the networks and several independents operated "Vees," but when we moved to Weatogue, 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-



The call letters of this early "U" stood for Greater Lehigh (Pennsylvania) Valley. WGLV-TV offered local, ABC, and DuMont programming on Channel 57 and, according to this 1955 informational flyer, operated in a market where 45 percent of the television homes in its coverage area had some UHF-TV conversion equipment. It was owned by the Easton Express *newspaper, so received hefty cross-promotion in a medium that few independent "U"s enjoyed. It still didn't generate sufficient viewership to keep the paper from suspending video operation.*



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.*

er conversion (and affecting millions more TV sets) when High Definition Television (HDTV) is put upon America in the next few years.

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.

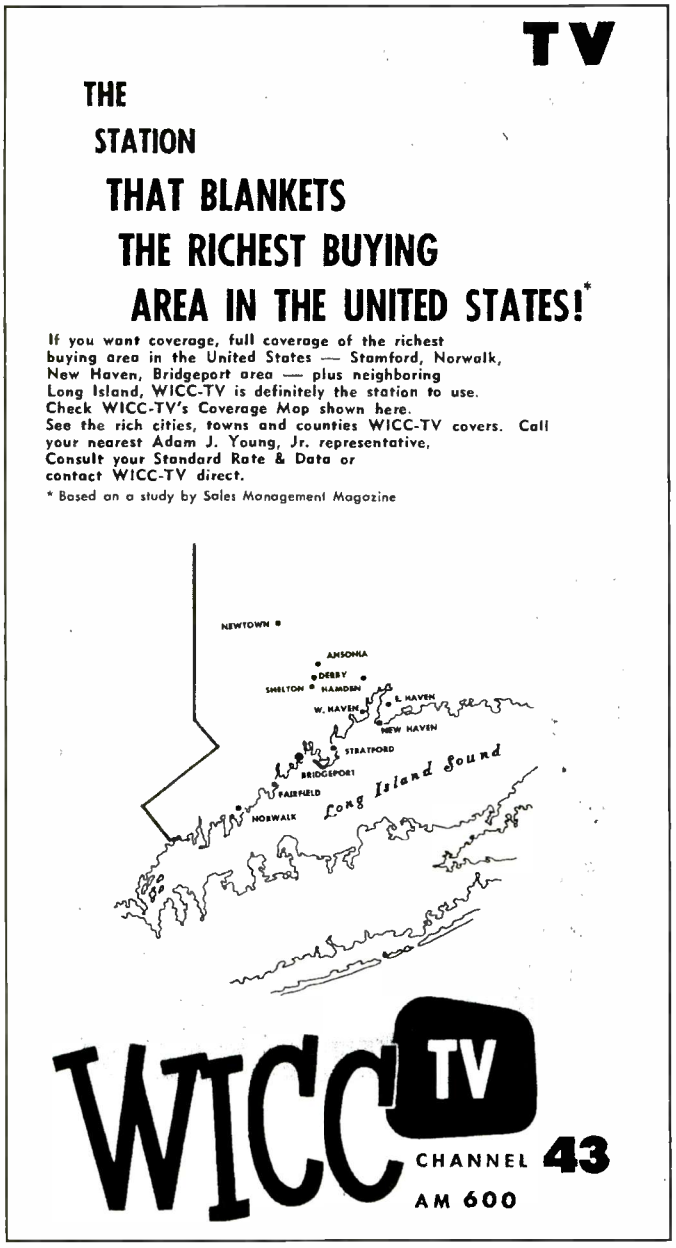
A Reading, Pennsylvania, AM radio station owner had hoped to beat his Oregonian colleagues for the honor of running the first commercial UHF-TV facility via the speedy construction of what did reign—temporarily—as the world's biggest "U." In early September 1952, Humboldt Greig secured a Construction 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 Gallager 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,



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.

Remember my recent WNLC Radio history in a recent Pop'Comm? There was almost a WNLC-TV in the early 1950s, but its proposed coverage was so small that the principal WNLC owner couldn't bring himself to shell out the cash to get this planned channel 26 facility off the drawing board. Decades later, the allocation was activated by others and today is a high-powered PAX-TV network outlet.

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.

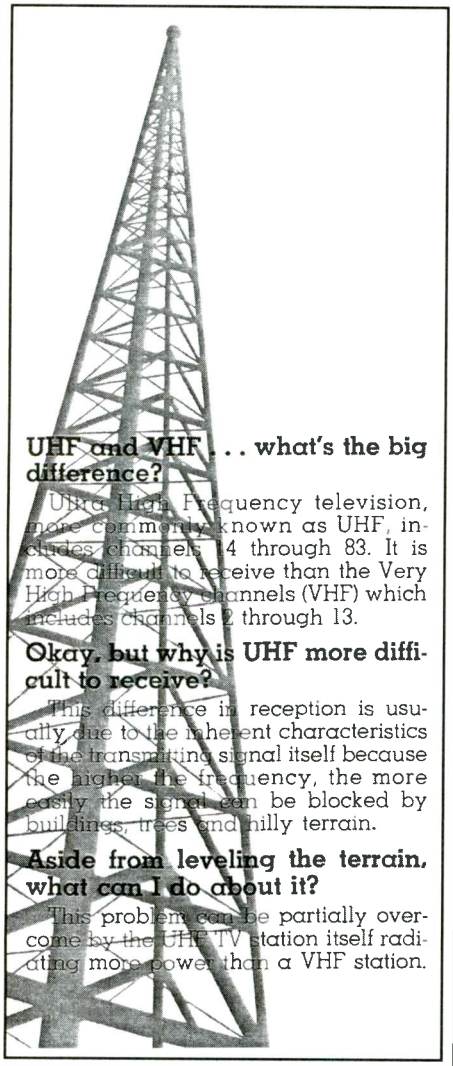
Competing for audience with network affiliates wasn't easy for that incarnation of WTVU-TV, especially with rival ABC, CBS, or NBC outlets were blessed with good equipment and transmitting components that sent out more than WTVU-TV's approximately 12,000 watts to bounce around the mountains of northeastern 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.

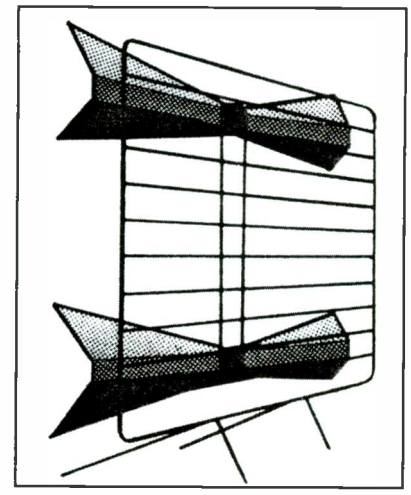
One of my favorite research sources, besides *Broadcast Pro-Files* (28243 Royal Road, Castaic, CA 91384-3028), is the *Broadcasting Yearbook*. (By the way, I'm searching for some *Broadcasting Yearbooks* from the 1950s. Anyone have one for sale or for copying? Thanks.)



Ironically, WSBK-TV Boston's free pamphlet about how to clear up a poor UHF picture was printed with text superimposed over a tower motif. That made the explanation about bright reception difficult to see.

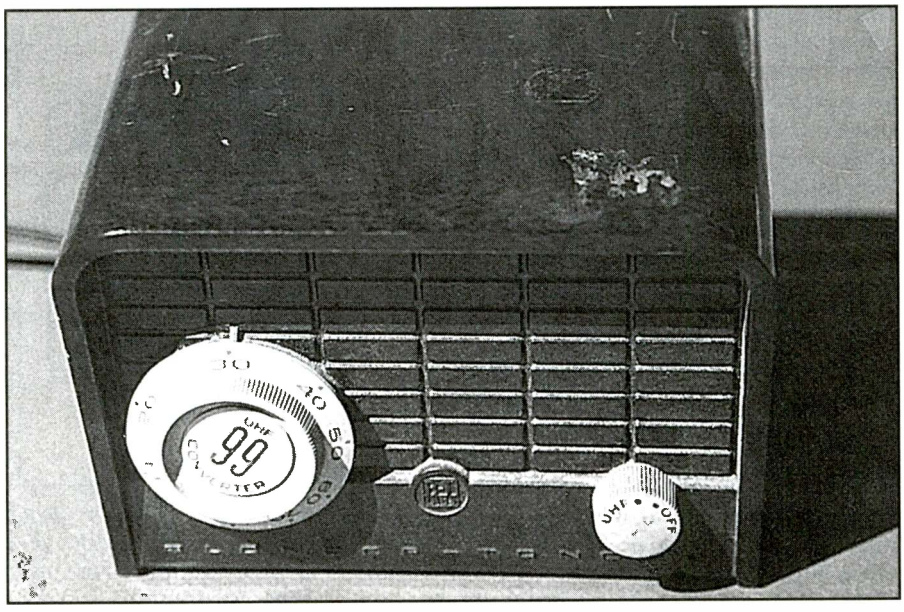
Regarding the status of many early UHF-TV outlets, the 1963 *Yearbook*, for example, often lists them as "FCC authorized to suspend operation," or "Operation suspended, but license has not yet been returned to the FCC." Both euphemistically spoke volumes about the quiet, bear market in the UHF-TV broadcast 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.



An inexpensive, indoor UHF-TV double bow-tie antenna designed to grab a good image from stations up to about 25 to 35 miles from the receiver.

The film's immediately recognizable premise was that UHF stations (especially independents) are benignly bumbling



The notorious 25-cent Blonder-Tongue model 99 UHF-TV Converter! Looks like it's still dialed to Channel 30. By the way, the Blonder-Tongue folks operated a UHF station in Newark, New Jersey. Their Channel 68 hit the air in the fall of 1974 under the WTVG-TV callsign, but since has undergone several name (including WBKB-TV) and ownership changes.

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 '50's 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 cabled and fed equally crystal clear UHF, VHF, and cable programming sources 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 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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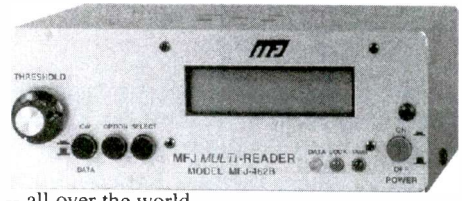
Eavesdrop on the world's press agencies transmitting *unedited* late breaking news in English -- China News in Taiwan, Tanjug Press in Serbia, Iraqui News in Iraq -- all on RTTY.

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

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

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



-- all over the world -- Australia, Russia, Japan, etc.

MFJ-462B **$179.95**

Printer Monitors 24 Hours a Day

MFJ's exclusive *TelePrinterPort*™ lets you monitor any station 24 hours a day by printing transmissions on an Epson compatible printer.

Printer cable, **MFJ-5412**, $9.95.

MFJ *MessageSaver*™

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

High Performance Modem

MFJ's high performance *PhaseLockLoop*™ modem consistently gives you solid copy -- even with weak signals buried in noise. New threshold control minimizes noise interference -- greatly improves copy on CW and other modes.

Easy to use, tune and read

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

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

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

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

Use 12 VDC or use 110 VAC with MFJ-1312B AC adapter, $14.95. 5¼Wx2½Hx5¼D inches.

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You get MFJ's famous one year *No Matter What*™ limited warranty. That means we will repair or replace your MFJ *MultiReader*™ (at our option) *no matter what* for one full year.

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If you're not completely satisfied, simply return it within 30 days for a prompt and courteous refund (less shipping). Customer must retain dated proof-of-purchase direct from MFJ.

Super Active Antenna

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

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

Receives strong, clear signals from all over the world. 20 dB attenuator, gain control, ON LED. Switch two receivers and auxilary or active antenna. 6x3x5 inches. Remote has 54 inch whip, 50 feet coax. 3x2x4 inches. 12 VDC or 110 VAC with MFJ-1312, $14.95.

MFJ-1024 **$139.95**

Indoor Active Antenna

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

MFJ-1020B **$79.95**

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

Compact Active Antenna

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

MFJ-1022 **$49.95**

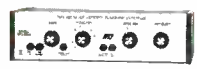
Detachable 20 inch telescoping antenna. 9 volt battery or 110 VAC MFJ-1312B, $14.95. 3⅛x1¼x4 in.

Eliminate power line noise!

MFJ-1026 **$179.95**

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

MFJ Antenna Matcher



MFJ-959B **$99.95**

Matches your antenna to your receiver so you get maximum signal and minimum loss.

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

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

High-Gain Preselector

MFJ-1045C **$99.95**

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

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MFJ-1214PC **$149.95**

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

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

High-Q Passive Preselector

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

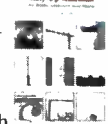
MFJ-956 **$49.95**

Super Passive Preselector

MFJ-1046 **$99.95**

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

Easy-Up Antennas



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

MFJ-38 **$16.95**

MFJ Antenna Switches

MFJ-1704 **$64.95**

MFJ-1702C **$24.95**

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

World Band Radio Kit

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

MFJ-8100K ***kit*** **$69.95**
MFJ-8100W ***wired*** **$89.95**

21 Band World Receiver

MFJ's new 21 Band World Receiver lets you travel the world from your armchair! Listen to BBC news from London, live music from Paris, soccer matches from Germany and more! Covers 21 bands including FM, Medium Wave, Long Wave and Shortwave. *Sony*® integrated circuit from Japan, multicolored tuning dial, built-in telescopic antenna, permanent silkscreened world time zone, frequency charts on back panel. Carrying handle. Operates on four "AA"s. Super compact size!

MFJ-8121 **$39.95**

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world band tuning tips

your monthly international radio map

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

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

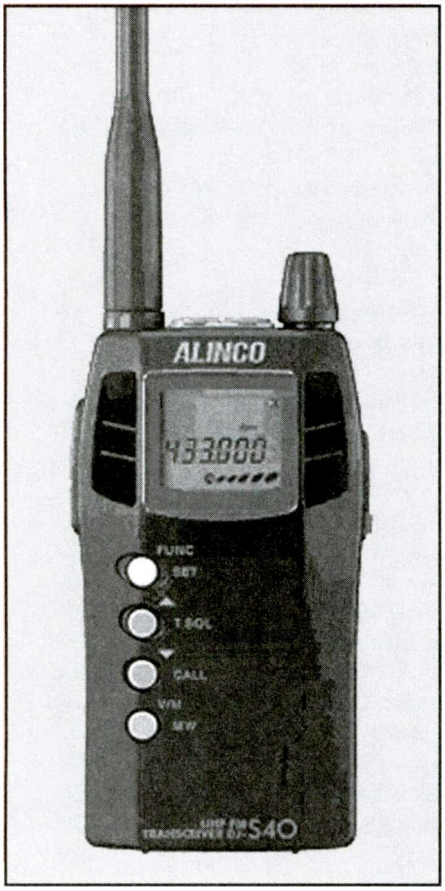
UTC	Freq.	Station/Country	Notes
0000	5770	Radio Miskut, Nicaragua	SS
0000	9645	Radio Bandeirantes, Brazil	PP
0000	11835	BBC via USA	
0000	11955	Radio Nacional, Angola	PP
0000	17615	BBC Relay, Thailand	
0030	4795	Radio Difusora Aquidauana, Brazil	PP
0030	5700	Radio Frecuencia San Ignacio, Peru	SS
0030	6145	Radio Japan/NHK, via Canada	
0030	9770	Radio Sri Lanka	
0030	15385	Radio Exterior de Espana	SS
0030	15485	Radio Pakistan	
0100	5930	Radio Slovakia Int'l	
0100	6215	Radio Baluarte, Argentina	SS
0100	6458	AFRTS/AFN, Puerto Rico	USB
0100	6536	Radio Huancabamba, Peru	SS
0100	7115	VOA Relay, Sri Lanka	
0100	7180	VOIRI, Iran	
0100	13720	Deutsche Welle Relay, Portugal	
0100	15170	Radio Canada Int'l	
0130	4960	Radio Cima/Villa, Dominican Republic	SS
0130	5035	Radio Aparecida, Brazil	PP
0130	6798	Ondas del Rio Mayo, Peru	SS
0130	9737	Radio Nacional, Paraguay	SS
0130	9870	Radio Austria Int'l	
0130	11780	Radio Nacional do Brazil	PP
0130	12050	Egyptian Radio	AA
0200	4819	Voz Evangelica, Honduras	SS
0200	7210	Radio Minsk, Belarus	
0200	11710	RAE, Argentina	
0200	15180	Radio Romania Int'l	
0230	6115	Radio Albania	
0230	6957	Voz del Campesino, Peru	SS
0230	9400	Radio Bulgaria	
0230	9490	Radio Sweden	
0230	9560	Radio Korea Int'l	
0230	9570	Radio Budapest, Hungary	
0245	6265	Zambia Broadcasting Corp.	
0245	7305	Vatican Radio	various
0300	3200	Trans World Radio, Swaziland	unid
0300	3215	Adventist World Radio via Madagascar	
0300	4052.5	Radio Verdad, Guatemala	SS
0300	4820	Radio Botswana	
0300	5010	RTV Malagasy	FF
0300	7240	Trans World Radio, Swaziland	Swahili
0300	7255	Radio Botswana	
0300	9460	Voice of Turkey	TT
0300	9870	Radio Prague, Czech Republic	
0300	9885	Voice of America Relay, Botswana	
0300	11750	Voice of Russia, via Moldova	
0300	12005	RTV Tunisienne, Tunisia	AA
0300	12095	BBC Relay, Cyprus	
0330	3975	Radio Budapest, Hungary	Ukr
0330	6138	Radio Unamsil, Sri Lanka	
0330	7290	Voice of America Relay, Sao Tome	
0330	9640	Radio Fana, Ethiopia	Amharic
0330	9690	China Radio Int'l, via Spain	
0330	11725	ERFE/RL via Germany	RR
0345	15535	Voice of Forgiveness, via FEBA-Seychelles	AA
0400	4845	RTV Cameroon	FF
0400	5025	Radio Rebelde, Cuba	SS
0400	5985	Radio Congo	FF
0400	7235	Adventist World Radio, via South Africa	
0400	9435	Kol Israel	
0400	9510	Radio Romania Int'l	
0430	7120	BBC Relay, South Africa	
0430	9580	Radio Yugoslavia	
0430	11715	Voice of Charity, via Vatican	
0430	15320	Voice of Hope, via Madagascar	
0500	7255	Voice of Nigeria	
0530	4770	Radio Nigeria	
0530	6055	Radio Kuwait	AA
0530	9550	Radio Havana Cuba	
0530	11710	Channel Africa, South Africa	PP
0600	4915	Ghana Broadcasting Corp/Radio Ghana	
0600	5100	Radio Liberia Int'l	
0600	9550	Radio Okapi, Congo	
0600	11820	Radio New Zealand Int'l	EE/Maori
0630	6100	Radio Liberia Int'l	
0630	7125	RTV Guineene, Guinea	FF
0630	9575	Radio Medi Un, Morocco	FF
0700	5996	Radio Melodia, Peru	SS
0730	6185	Radio Educacion, Mexico	SS
0800	9530	Magadan Radio, Russia	RR
0800	9595	Radio Tampa, Japan	JJ
0830	4885	Radio Clube do Para, Brazil	PP

UTC	Freq.	Station/Country	Notes
0830	4991	Radio Apinte, Surinam	local
0900	3290	Voice of Guyana	EE/SS
0930	3325	Radio Maya de Barillas, Guatemala	SS
0930	4815	Radio Difusora Londrina, Brazil	PP
0930	6135	Radio Santa Cruz, Bolivia	SS
1000	3220	HCJB, Ecuador	SS
1000	3300	Radio Cultural, Guatemala	SS
1000	4815	Radio Buen Pastor, Ecuador	SS
1000	4939	Radio Amazonas, Venezuela	SS
1000	12085	Voice of Mongolia	
1030	4775	Radio Tarma, Peru	SS
1030	4919	Radio Quito, Ecuador	SS
1030	4996	Radio Andina, Peru	SS
1030	11560	Adventist World Radio, Guam	CC
1100	2485	ABC No. Terr. Service, Katherine	
1100	3265	Radio Republik Indonesia, Gorontolo	II
1100	5020	Solomon Islands Broadcasting Co.	
1100	7260	Radio Thailand	VV
1100	9430	Trans World Radio, Guam	C
1100	9695	Radio Japan/NHK	
1100	9840	Voice of Vietnam	VV
1100	11815	Radio Exterior de Espana, via Costa Rica	SS
1100	11890	Radio France Int'l, via Japan	FF
1100	15535	Far East Broadcasting Assn., Seychelles	AA
1130	3235	Radio West New Britain	
1130	9650	Radio Korea Int'l, S. Korea via Canada	
1130	9740	BBC Relay, Singapore	
1130	9865	Radio Vlaanderen Int'l, Belgium, via Russia	
1130	9965	KHBN, Palau	CC
1130	15240	Voice of America Relay, No. Marianas	
1200	4890	NBC, Papua New Guinea	
1200	11785	Radio Free Asia	CC
1200	12055	Voice of Russia	unid
1200	15115	HCJB, Ecuador	
1200	15445	Far East Broadcasting Assn. Seychelles	CC
1230	11775	Central Broadcasting System, Taiwan	CC
1230	11565	KWHR, Hawaii	
1230	11710	All India Radio	unid
1230	12040	Voice of America Relay, Philippines	CC
1230	13775	Voice International, Australia	CC
1230	15375	Voz Cristiana, Chile	SS
1230	17670	YLE Radio Finland	
1300	6349	AFRTS/AFN, Hawaii	USB
1300	7295	Radio Malaysia	
1300	9590	Radio Veritas Asia, Philippines	unid
1300	12010	China National Radio	CC
1300	17775	Radio Tashkent, Uzbekistan	Uzbek
1300	17830	Voice of Turkey	
1330	9600	Radio Singapore Int'l	
1330	11940	Radio Afghanistan via Norway	local
1330	12140	RFE/RL, via Sri Lanka	Kazakh
1500	9465	WMLK, PA	
1500	11570	Radio Pakistan	
1500	11690	Radio Jordan	
1500	11710	Voice of Korea, North Korea	
1530	15310	BBC Relay, Oman	
1600	9890	Radio Netherlands Relay, Madagascar	
1600	15395	UAE Radio	
1630	15255	Voice of America Relay, Greece	
1630	15420	BBC Relay, South Africa	
1700	15220	Swiss Radio Int'l, via Germany	AA/EE
1700	17670	All India Radio	
1730	17570	United Nations Radio, via Ascension Is.	
1730	17720	Radio Pilipinas, Philippines	
1800	15230	BSKSA, Saudi Arabia	AA
1800	15235	Radio Rossii, Russia	RR
1830	13640	Radio Telefis Eireann, Ireland, via Canada	
1830	15265	Radio Africa Int'l	
1900	11620	All India Radio	
1900	11900	Radio Bulgaria	
1900	15545	Voice of America Relay, Sri Lanka	AA
1900	17545	Kol Israel	
1930	15445	Voice of America Relay, Morocco	
1930	15705	Radio Denmark, via Norway	DD
1930	21590	Radio Netherlands	
2000	15150	Voice of Indonesia	
2000	15345	RTV Marocaine, Morocco	AA
2030	11645	Bible Voice Broadcasting Network, via England	
2030	11734	Radio Tanzania-Zanzibar	Swahili
2030	17565	Voice of Greece via California	GG
2100	9935	RS Makedonias, Greece	Greek
2100	11955	Radio France Int'l, via Gabon	FF
2100	15120	Voice of Nigeria	various
2100	15195	YLE Radio Finland	unid
2100	15495	Radio Kuwait	AA
2100	17630	Radio France Int'l Relay, French Guiana	FF
2100	17860	Deutsche Welle Relay, Rwanda	GG
2200	9420	Voice of Greece	Greek
2200	11600	Radio Prague, Czech Republic	unid.
2200	11895	Radio Japan/NHK, via French Guiana	JJ
2200	15220	Radio Japan/NHK via Ascension Is	JJ
2200	15315	Radio Netherlands Relay,. Bonaire	DD
2200	15410	Deutsche Welle, via Antigua	GG
2200	15435	Radio Jamahiriya, Libya	AA
2200	21740	Radio Australia	
2230	7210	ORTB, Benin	FF
2230	11640	Far Eastern Broadcasting Assn., Seychelles	AA
2230	11885	Voice of Turkey	TT
2230	11975	China Radio Int'l, via Mali	CC
2230	12055	Central People's BC Stn., China	CC
2230	15565	Radio Vlaanderen Int'l, Belgium, via Bonaire	
2245	12085	Radio Damascus, Syria	AA
2300	5995	RTV Malienne, Mali	FF
2300	6150	Radio Record, Brazil	PP
2300	6937	Yunnan PBS, China	CC
2300	11655	RDP Int'l, Portugal	PP
2300	11800	RAI Int'l, Italy	II
2300	11830	Radio Anhanguera, Brazil	PP
2300	11920	RT Marocaine, Morocco	AA
2300	15440	Radio Taipei Int'l, via WYFR	CC
2330	5030	Radio Burkina, Burkina Faso	FF
2330	9875	Radio Vilnius, Lithuania	
2330	9900	Radio Cairo, Egypt	
2330	11775	Radio Romania Int'l	

power up:
radios & high-tech gear

by Harold Ort, N2RLL

review of new, interesting, and useful communications products



Alinco's new DJ-S40T is a full-featured UHF amateur HT with 100 memories.

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.

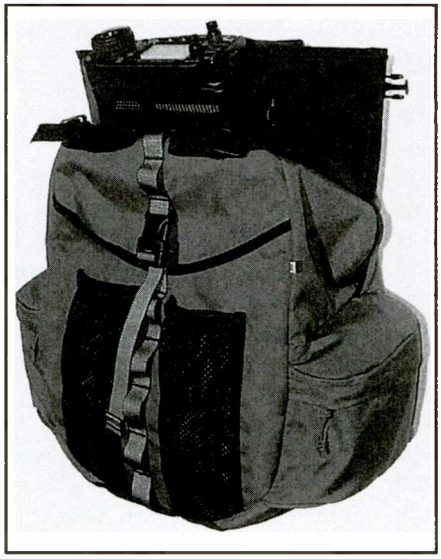
In addition to normal amateur simplex and repeater operations, a very popular application of the tiny transceiver could be its use through cross-band transceivers, essentially using the DJ-S40 as a "remote mic" through a base or mobile dual-band transceiver.

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 serous 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 new Cutting Edge DXpedition Pack carries your radio, power supply, and much more.

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.

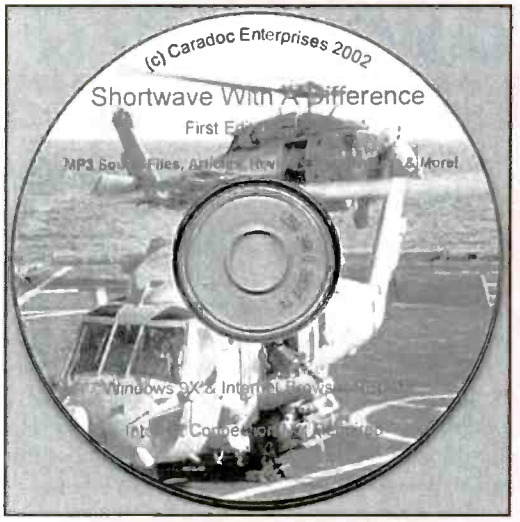
All in all, the DXpedition Pack is just about the most versatile and well-constructed radio pack we've seen. For more information, contact Cutting Edge Enterprises, 130 Anacapa Circle, San Luis Obispo, CA 93405; Phone: 800-206-0115; Web: <www.powerportstore.com>. Be sure to tell them you read about the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



New to shortwave? Interested in finding new, exciting things to hear? The Shortwave With A Difference *CD is for you!*

overheard

by Ken Reiss <radioken@earthlink.net>

strategies and techniques to keep YOU informed

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.

Trunking scanners are available in all shapes and sizes. Here's a base/mobile unit from RadioShack.

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

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.

them, so all we'll need is an extra dispatch console and a couple of frequencies.

So we write to the FCC and say "we'd like a couple more frequencies." (Of course, we can't just write to the FCC and say that, we have to put it on official "we'd like another frequency" forms, and dot the i's and cross the t's, but you get the drift).

The Commisssion writes back and says "Gee, terribly sorry, dude, but we've only got frequencies available in your area on UHF." Well, of course, they don't really say "terribly sorry, dude," but they put it in an official government form letter that says, "no such luck" in FCCese, so to speak.

Now what? Put UHF radios in all the mobiles to accommodate the new channels? That's an expensive proposition; you'll have to buy new radios for every mobile. How about moving the new "North" sector to UHF and leaving the "South" (you can substitute "East" and "West" if you like) on VHF? What if they need to talk to each other? Move everything 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 function 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

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."

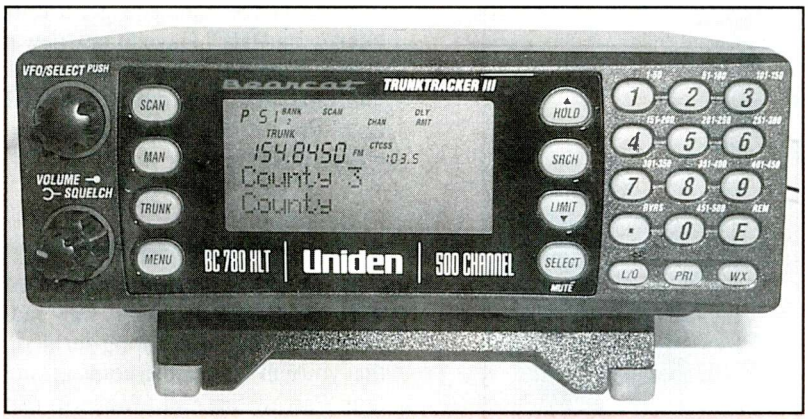
But the next time you want to talk on Channel 3, that conference room might be busy. No problem, we'll take any available room. So the next transmission might well take place on an entirely different frequency—any of the block of 30 that we could have. The officers in the car and the dispatcher can't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



The BC780 base/mobile unit from Uniden is probably the current top-of-the-line TrunkTracker. Uniden is close to releasing an upgrade to this model (which will look very similar) that will include APCO 25 standard digital in its capability list!

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 won'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.

a particular type of traffic (dispatch, records check, car-to-car, etc.) and they can talk to each other. The communications coordinator can create new channels at any time, assuming the maximum capacity of the system has not been exceeded, without exchanging memos with the FCC. Everybody's happy.

Fleet Maps

One of the reasons I mentioned that we'd like to have a type II system (from a purely scanner point of view) is that the software which runs the radio is set up to default to type II operation. If your system runs entirely type II, then you can start trunking right away.

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.

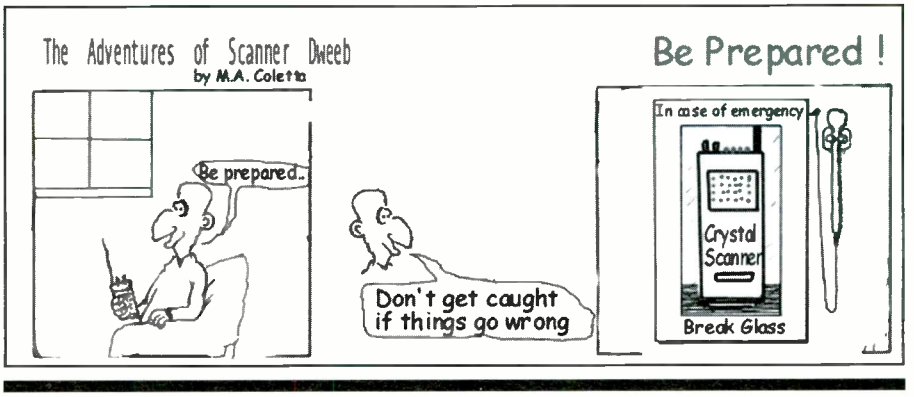
Frequency Of The Month

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! ■



by Bruce Conti <baconti@aol.com>

DXpedition Honors The First DXer

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."

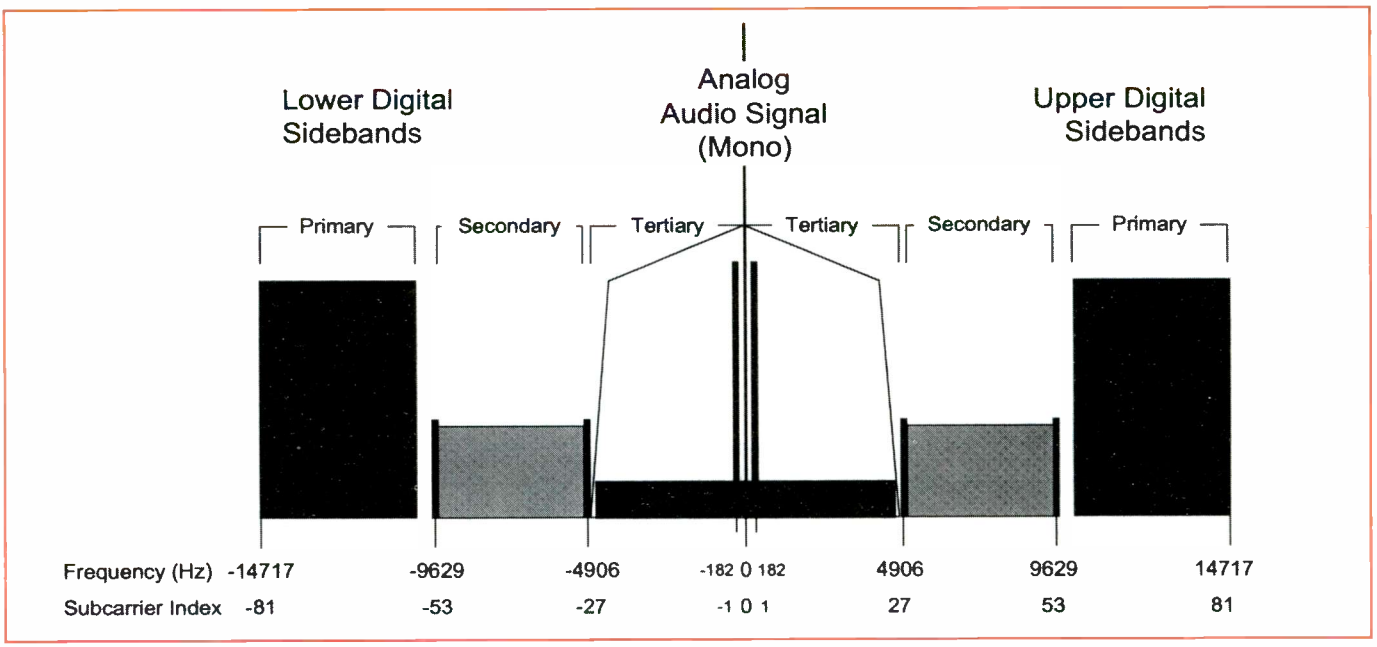


Diagram from iBiquity specifications showing the center analog signal and adjacent channel digital sidebands of an AM IBOC transmission.

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 mediumwave 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 <bobpadula@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.

Address: PO Box 2640, Calgary T2P 2M7. (Griffith, CO)

1143 BEL3 Kaohsiung, Taiwan, QSL certificate in 45 days along with letter, full detail info, beautifully handwritten address and Taiwan stamps on airmail envelope. Address: Taiwan Chu Yeyeh, 5 Yakang No. 2nd Road, Kaohsiung 806, Taiwan. Taiwan MW QSL #14. (Martin, OR)

1557 Family Radio, Taiwan, received QSL card in 55 days for a taped report to Oakland address: Family Radio Stations, Oakland, CA 94621. Taiwan MW QSL #13. (Martin, OR)

1630 WTEL Augusta, Georgia, QSL letter received in 370 days after several follow-ups and over a year of waiting, signed Harley Drew-Op Director. Address: PO Box 211045, Augusta, GA 30917. I only need Louisiana on 1680 to have all the expanded band stations QSLed again. (Martin, OR)

Broadcast Loggings

This month's selected loggings are from the Newfoundland Marconi 100th anniversary DXpedition. All times are UTC.

531 Utvarp Foroya, Akraberg, 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 phenomenal signal but degraded by 0130. (Burnell, NF)

710 LRL202 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, het on the low side from Gambia. (Conti, NF)

918 R. Slovenia, Domzale, Slovenia 2301–2308 good with news and sports in Slovenian, ID as "Aichnia programa Radio Slovenia 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 ZP1 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 CJYQ-Newfoundland and CFBC-New Brunswick phase nulled 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 Spain. (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 2258 excellent with "Radio Capital, mas informaçao" jingle. (Connelly, NF)

1050 SODRE, Montevideo, Uruguay at 0228 "Montevideo ...una estación de Grupo Uruguayano," and at 0230 "CX26, SODRE, Montevideo, Uruguay." (Renfrew, NF)

1053 Radio Jamahiriyah Home Service, Libya at 1942 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 station 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 echos and jingle ID at 2306 as "Radio Trafeek." (Fisher, NF)

1150 LT9 R. Brigadier Lopez, Santa Fé, Argentina at 0800, "Transmite LT9, Radio Brigadier Lopez...Santa Fé, 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, Bolshakovo, 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 2231. (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 Bluenotes, and at 0200 news headlines, then slogan "Good times, great music for west Yorkshire" into "Caribbean Queen" by Billy Ocean. (Connelly, NF)

1530 VOA Pinheira, São Tomé e Princípe at 2029 excellent, "...1530 for listeners in West Africa and 909 for listeners in southern Africa. This is Africa World Tonight from the Africa service of the Voice of America," parallel 7415 kHz. (Conti, NF)

1540 AFN Keflavik, Iceland at 0728 excellent with announcements concerning U.S. Naval families in Keflavik, CNN News, and ID as "Radio Newsline Keflavik." (Renfrew, NF)

1550 R. Caranavi, Bolivia at 0918 while trying to dig an ID out of the Venezuelan, I realized that I was listening to this Bolivian with some sort of inspirational morning talk, including two IDs, followed by a chorus of children singing an Andean tune, faded soon after, so in for about eight minutes. It may have been back at 0937 with a children's chorus. The *WRTH* indicates an 0930 sign-on, but this was obviously on earlier. (Renfrew, 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)

1566 IRIB, Bandar Abbas, Iran at 2235 instrumental pop music and talks in Farsi, seemed to play "A Time For Love" a lot, parallel 15084 kHz and mixing with another Asian station, presumably India. (Fisher, NF)

1566 AIR, Nagpur, India 0027–0034 fading up with subcontinental music, national news in Hindi at 0030, possible English news at 0038 retune. (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! ■

PENDING

New Call	Location	Freq.	Old Call
KFAS	Guthrie, OK	1490	KOKC
WMVM	Goodman, WI	91.3	WGAZ

CHANGES

New Call	Location	Freq.	Old Call
WDJC	Birmingham, AL	850	WYDE
WFMH	Cullman, AL	1340	WXXR
WMCJ	Cullman, AL	1460	WFMH
KJAL	Tafuna, AS	580	WDJD
KXTK	Arroyo Grande, CA	1280	KKOM
WCCM	Haverhill, MA	1490	WHAV
WKBK	Keene, NH	1290	WKNE
WCHR	Flemington, NJ	1040	WJHR
WPHY	Trenton, NJ	920	WCHR
KRKE	Milan, NM	1100	KZKL
KDUN	Reedsport, OR	1030	KLLU
WLYE	Johnstown, PA	850	WSPO
KCAF	Farmersville, TX	990	KXXL
KREW	Plainview, TX	1400	KVOP
KVOP	Plainview, TX	1090	KKYN
WVAA	Burlington, VT	1390	WKDR
KYDL	Hot Springs, AR	96.7	KLXQ
KLXQ	Mountain Pine, AR	101.9	KZBR
KWLL	Texarkana, AR	89.3	New
KTEE	Felton, CA	93.7	KHIP
KHIP	Gonzales, CA	104.3	KTEE
KSBX	Santa Barbara, CA	89.5	New
KHCO	Hayden, CO	90.1	New
KLBV	Steamboat Springs, CO	89.3	New
WAVQ	Key West, FL	88.3	New
WTHB-FM	Waynesboro, GA	100.9	WAEJ
KARJ	Kuna, ID	88.3	New
WZRS	Pana, IL	89.3	New
WPJC	Pontiac, IL	88.3	WAVQ
WPRC	Princeton, IL	88.3	New
WSPM	Cloverdale, IN	89.1	New
WJCJ	Lagoda, IN	88.9	New
WFIA-FM	New Albany, IN	94.7	WLSY
WXVW	Oolitic, IN	88.9	New
KLDI	Wapello, IA	88.9	New
KEWM	Williamsburg, IA	88.7	New
WTHX	Bardstown, KY	96.7	WOKH
KSTE-FM	Houma, LA	104.1	KFXN-FM
KXRR	Monroe, LA	106.1	KMYY
KMYY	Rayville, LA	92.3	KXRR
WGLI	Hancock, MI	98.7	New
KUOM-FM	St. Louis Park, MN	106.5	New
KXLJ	Grand Island, NE	88.3	New
KLJV	Scottsbluff, NE	88.3	New
KEVR	Espanola, NM	91.1	New
KNLK	Santa Rosa, NM	91.9	New
WJCA	Albion, NY	102.1	WBJA
WDBY	Patterson, NY	105.5	WAXB
WKRD	Scotia, NY	93.7	WHTR-FM
WAJC	Wilson, NC	90.5	WXJC
KLMF	Klamath Falls, OR	88.5	New
WYDL	Middleton, TN	100.7	WTCK-FM
WTNN	Union City, TN	88.9	New
KJAZ	Amarillo, TX	100.9	KPQZ
KNCE	Baird, TX	95.1	KAGT
KJTV-FM	Brownfield, TX	104.3	KLZK
KBTQ	Harlingen, TX	96.1	KIWW
KRIO-FM	Hondo, TX	105.9	KMFR
KBEY	Mason, TX	102.5	New
KFWR	Mineral Wells, TX	95.9	KYXS-FM
KMFR	Pearsall, TX	104.1	KRIO-FM
KLZK	Plainview, TX	97.3	KHDY
KRIA	Plainview, TX	106.9	KVOP-FM
KLYD	Snyder, TX	97.1	New
WJDV	Bridgewater, VA	105.1	WAMM-FM
WCTG	Chincoteague, VA	96.5	New
WYTT	Emporia, VA	99.5	New
KMWS	Mount Vernon, WA	91.7	KTHY
WGIE	Clarksburg, WV	92.7	WCMX-FM
WMMA	Nekoosa, WI	93.9	WDVM-FM

the propagation corner

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

up-to-the-minute forecasts helping you get the most from the radio spectrum

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.

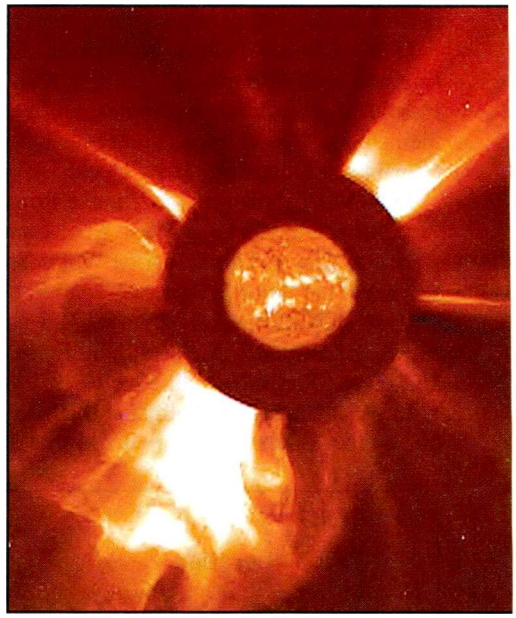
Another theory centers on solar flares and their X-ray and ultraviolet radiation that results in an increase in ionization. If a solar flare occurs at an earth-facing part of the sun, we are hit by the flare's full radiation. A high level of X-ray radiation arrives at the speed of light, about eight 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 so on). One of the sun's layers is called the **corona**, under which is the **chromosphere** 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.



"Halo" Coronal Mass Ejection of August 16, 2002. (Source: SOHO, http://soho.nascom.nasa.gov)

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 force field 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 makes 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 lowest daily sunspot value during September 2002 was recorded on September 30 with a count of 64, down from the lowest point of 73 during August. The highest daily sunspot count for September was 147 on the 3rd, down considerably from the high of 186 occurring on August 17. The Space Environment Center forecasts a smoothed sunspot count of **76** for December 2002 and a count of **69** for January 2003.

The Dominion Radio Astrophysical Observatory at Penticton, BC, Canada, reports a 10.7-cm observed monthly mean solar flux of 176 for September 2002, down from August's 184. The 12-month smoothed 10.7-cm flux centered on March 2002 is 196, down a point 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 daylight 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 daylight hours, especially where paths terminate in the Southern Hemisphere. Nighttime conditions on these higher frequencies remain short and weak, with mostly north/south path openings since the Southern Hemisphere has longer daylight hours.

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 F_2-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. ■

global information guide

listening to what your world says every day

by Gerry L. Dexter

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 (Sun–Fri)
1930–2028 in Serbian on 6100 (Sat)
2000–2028 in German on 6100 (Sun–Fri)
2030–2058 in French on 6100
2100–2128 in English on 6100
2130–2158 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.

News From Liberia and HCJB-Australia

The "not-the-one-in-the-Philippines" **Radio Veritas** has taken to the air from Liberia and is making it to the shacks of at least a few U.S. listeners. They are using 10 kilowatts on **5470** from 1700 to 2300, which should allow most of us a reasonable opportunity to hear it near the later hour, at least at this time of year, although this frequency may be replaced by the traffic-heavy 6090. Another frequency, **3450**, is active from 0600 to 1700. This new religious station broadcasts largely in English.

The new **HCJB-Australia** should be starting operations about now. Two of the frequencies to be used are **15130 and 15135**, both beamed to India. Other target areas are the South Pacific and Asia generally. Frequencies used for the South Pacific will remain as they are; broadcasts to that area from Ecuador will be taken over by the Australian facility. Initially, all broadcasts will be in English, totaling some 15 hours a day.

How'd you like to be parked in this lounge chair, refreshment at your side and portable shortwave in your lap? This was one of HCJB's 2002 QSL card series. (Tnx: Ray Paradis, ME)

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. It's been heard most recently signing on at 2000 on **11645**. Contact 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. Nearly 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. North American monitors almost never report the shortwave service, at least. Still, for what it's worth, here's its info: **4828** from 0300 to 0530 and 1630 to 2200, **5975** from 0530 to 1630 and **6045** 0300 to 0100.

Colombia, El Salvador, And Strangeness (Surprise!) From France

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.

Abbreviations Used In This Month's Column

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

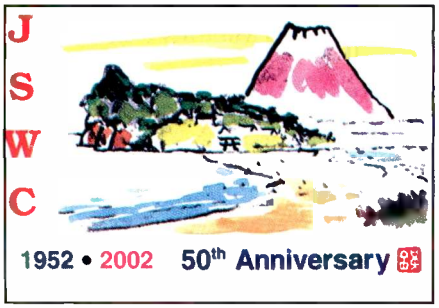
Several East Coasters are noting that strange **El Salvador** outlet, **Radio Imperial**, again. It's not what you'd call strong, subject to complete fades and often under-modulated and very distorted. Although it's been heard in the area of **17833 to 37** as early as 1400 and as late as sign-off around 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 **Comite Department 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 'em 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



The Japanese Shortwave Club celebrated its 50th year of operation with a special shortwave broadcast, confirmed with this card painted by a JSWC member.

Tibet Radio sent a card and letter verification to Rich D'Angelo (PA).

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 loggings (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 send you one.

Also needed are spare QSL cards we can use for illustration, as well as pennants, 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 Turko/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, //7160 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. (Brossell, WI) 2213 in GG. (Becker, WA)

ARGENTINA—Radio Baluarte, **6215** at 0004 in SS with comments, music. Ship traffic in background. (Montgomery, PA) RAE, **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, **17570** 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 "rogue doctors." (Burrow, WA) 15415 at 1220. (Northrup, MO) **17580** with interview at 0420. **//15250**, 15415, 15515. (MacKenzie, CA) **21740** at 2200 with news and "AM" program. (Paradis, ME) Voice International, **13755** with talks and hymns in CC at 1230. (Brossell, 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 Aretha 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. (Clapshaw, 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) **15565** 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 speeches, 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, choral anthem at 0259, ID and sign on anmts. Into tribal vocals at 0305. (D'Angelo, PA) **7255** at 0246 with IS, NA, and morning devotional. //4820. (Alexander, PA) VOA relay, **9885** at 0321. (Jeffery, NY) **12080** to Central Africa at 0559. (Becker, WA)

BRAZIL—Radio Gazeta, **9683.8** at 0000 with PP talks, ads, jingles. **//15324.8**. (Alexander, PA) Radio Tupi, **9565** at 0000 with religious programming, PP talk, **//6060**, **11765**. (Alexander, PA) Radio Bandeirantes, **9645** at 0000 with PP talk, ID, anmts, ads, jingles. **//11925**. (Alexander, PA) Radio Aparecida, **5035.1** at 0140 with PP religious discussion, nice ID at 0159. //9630.2. (D'Angelo, PA) **9630.2**, at 0000 with PP talk, phone talk, ID, anmts, jingles, religious programming. //5035.1, 6134.8. (Alexander, PA) Tentative at 0119 in PP with possible religious program. (Montgomery, PA) Radio Nova Visao, **9530.2** at 0000 with PP talk, ID, religious programming, and mentions of Radio Transmundial. **//5965**. Listed 11735 not heard. (Alexander, PA) Radio Novas de Paz, **9515** at 0000 with light instrumental music, PP talk, ballads, ID, promo, jingles. **//6080**. (Alexander, PA) Radio Cancao Nova, **9675** at 0000 with Brazilpops and ballads, PP phone talk, promos, jingles, ads. **//6104**, **4825**. (Alexander, PA) Radio Ribeirao Preto, **3205** with prayers in PP at 0022. Possible news by woman at 0030. (Montgomery, PA) Radio Difusora Amazonas (tent.) **4805** at 0933 with soft music. No announcements. (Montgomery, PA) Radio Rio Mar, **9695** at 2223 with man/woman hosting "A Voz do Brazil" program. ID afterwards and religious talk. (D'Angelo, PA) Radio Record, **6150** at 2307 with fast PP talk, anmts, ID and vocals. **//9595**. (D'Angelo, PA) Radio Nacional, **11780** at 2214 with cola ad, PP talk and "Musica Onda Corta." (Brossell, WI) **6180** at 0400 and 11780 at 0200. (Clapshaw, WA) 2307 with music from Radiobras. (Miller, WA) 0130 with possible futbol match. Very excited anncr. (Linonis, PA) Radio Difusora Londrina, **4815** at 0928 with PP talk, ID and frequency anmt, music, and religious talk. (D'Angelo, PA) Radio Brazil Central, **4985** at 2347 with PP religious talk, ID at 2355 and vocals. (D'Angelo, PA) 0644 with PP pops. (Miller, WA) Radio Cultura, **4845.2** at 0155 with variety of local ballads, pops, and light instrumentals. Off with NA. (Alexander, PA) Radio Anhanguera, **11830** with PP discussion at 2321. (Miller, WA) Radio Clube do Para, **4885** heard at 0825 with PP conversation. (Miller, WA)

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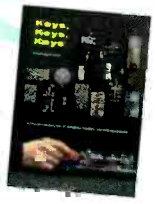

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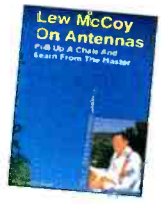

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BULGARIA—Radio Bulgaria, **9400**// **11700** at 0239 with news, "Get to Know Bulgaria." (Burrow, WA) **9400** at 0239, **11700** at 2310, **11900** at 1905 all in EE. (MacKenzie, CA) 11700 in EE at 2304 and 11900 in EE at 2152. (Miller, WA) **12000** 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. (Linonis, PA)

CANADA—Radio Canada Int'l, **9515** with ID, news at 1300. (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 1650 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) **13670** at 2310 and **13680** at 1230. (Newbury, NE) CNR/CPBS—**11800** with "English For You." At 1125. (Barton, AZ) **12010** in CC at 1305. (Northrup, MO) **12055** in CC at 2237. (Brossell, WI) Radio Gannan, presumed, **3990** at 1213. Audio only at noise level. (Strawman, IA) Yunnan PBS, tent., **6936.7** at 2301 in CC. (Montgomery, PA) Voice of Pujiang, **3280** in CC at 1422. (Foss, Philippines)

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 (pres) **9550** monitored at 0600 with talk about the plight of third world people. (Linonis, PA)

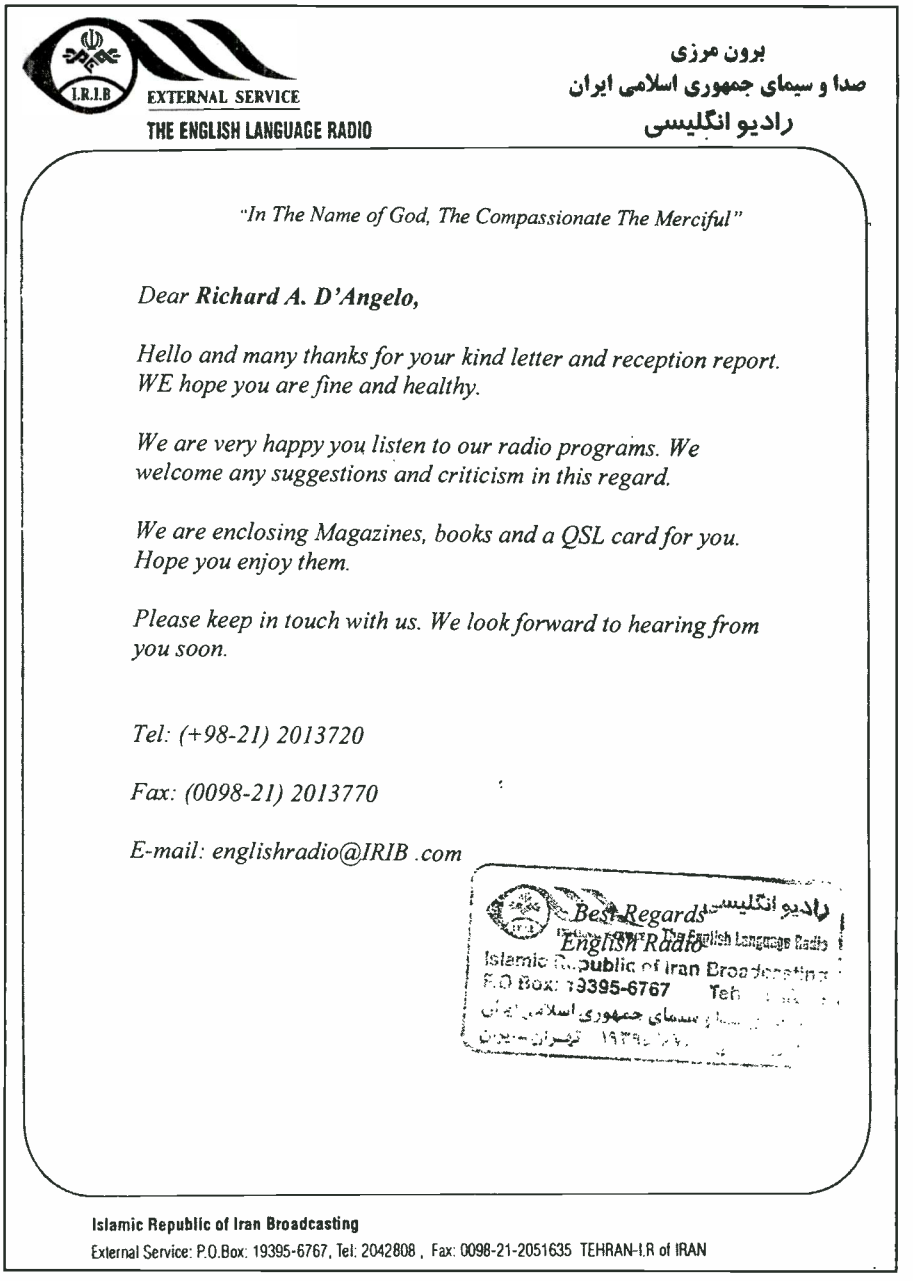
CUBA—Radio Rebelde, **5025** in SS at 0445. (Clapshaw, WA) **9600** in SS at 2115. (Brossell, WI) Radio Havana Cuba, **9550** at 0540 with DX program. //**9820**. (Becker, WA)

CYPRUS—BBC relay, **9410** heard at 0207. (Jeffery, NY) **12095** heard at 0316. (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 anmts. Off abruptly at 0721. (Alexander, PA)



The Iranians come across as oh-so-friendly in their QSL letter. (Tnx: Rich D'Angelo, PA)

ECUADOR—Radio Buen Pastor, **4815** at 1020 with SS religious program, Andean music, ID, TC. (Paszkiewicz, WI) Radio Quito, **4919** with news in SS at 0638. (Miller, WA) HCJB, **9745** at 0545. (Becker, WA) **15115** at 1200 with children's program. (Paradis, ME)

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. (Linonis, PA) 0220 with Koran. (Brossell, WI)

ENGLAND—Bible 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 Department du Tourisme de la Chanente-Maritime) **25775** at 1850 and again at 2010

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 anncrs. 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 to 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 Guineenee, **7125** at 2320 with mostly continuous Afro-pops. Off with NA at 0000. (Alexander, PA) 2339 with highlife to brief news in FF at 2355. ID and sign off anmts, 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 anmts 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)

GUYANA—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-Queda. (Linonis, PA) **13605** with EE ID at 0016 and music. (Montgomery, PA) 0040 in unid. language. (MacKenzie, CA) 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)

IRAN—VOIRI, **7180** with ID by man at 0112, long talks and occasional music, Koran reading. (Montgomery, PA) **9635//11775** at 1530 with anthem, ID, schedule, Koran. (Burrow, WA) **11710** in AA at 2313. (Miller, WA) **11900** at 0600 with call to prayer. (Clapshaw, WA)

IRELAND—RTE **13640** with "Saturday Sports" monitored at 1850. (*via Canada—gld*) (Wood, TN)

ISRAEL—Kol Israel, **9435** in EE at 0400. Time pips, ID, news. (Burrow, WA) 0410 in EE and into FF at 0415, **//15640 and 17600**. (MacKenzie, CA) **11585** in HH at 0313. (Brossell, WI) **17535** in HH at 0415, **//11590**. (MacKenzie, CA) 1226 in HH. (Montgomery, PA) 2010 in HH. (Miller, WA) 2201 in HH. (Becker, WA) **17545** with news and comment at 1900. (Paradis, ME)

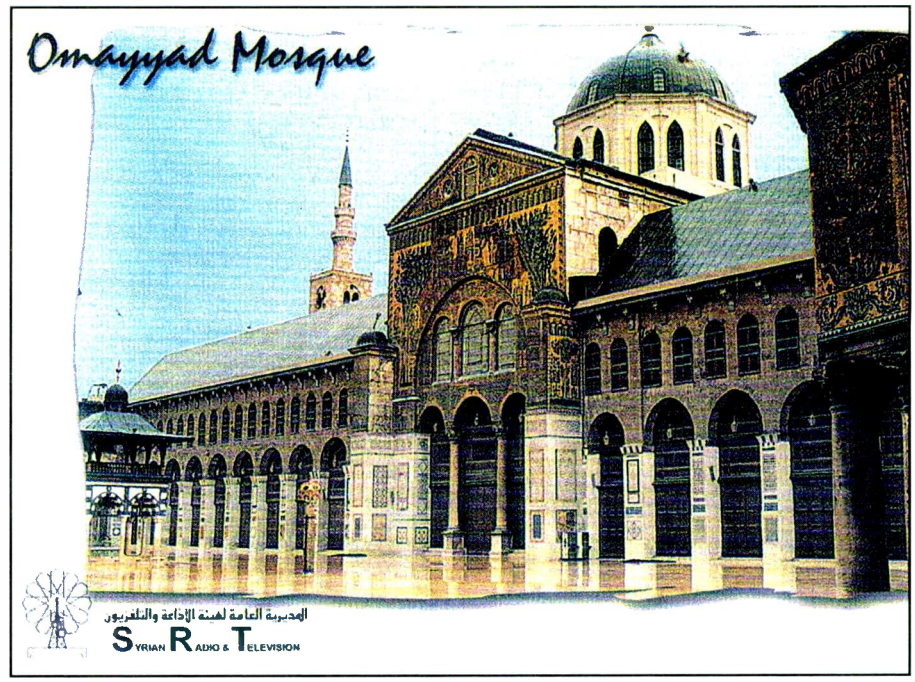
ITALY—RAI Int'l, **11765** via Ascension with II talks at 0210. (Brossell, WI) **11800** in II at 2318. **//12020**. (Miller, WA) **11880** in unid. language at 1510. (Foss, Philippines) **11920** in II via Singapore at 1045. (Barton, AZ)

KUWAIT—Radio Kuwait, **6055** at 0545, non-stop Mid East music. (Clapshaw, WA) **15505** at 0436 in AA, **//15495**. (MacKenzie, CA) 2004 in AA. (Miller, WA)

JAPAN—Radio Japan/NHK, **6145** via Canada at 0042 with JSWC 50th anniversary program. (D'Angelo, PA) **9695** at 1120 with news. (Newbury, NE) **11895** via French Guiana in JJ at 2220. (Brossell, WI) **11970** in FF to 1800, then ID, IS and news in EE. **//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) Radio Tampa, **9595** in JJ at 0758. (Becker, WA)

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 anmt, which included a list of the station employees. (Strawman, IA)

LIBYA—Radio Jamahiriya, **15435** in AA at 1700. (Paradis, ME) 2210 in AA. (Brossell, WI) Voice of Africa program with ID, news at 0024–0028, 0146–0156, 0224–0228, 0324–0328 with news in FF following each time. Closes at 0350. (Alexander, PA)

LITHUANIA—Radio Vilnius, **9875** at 2348 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 anmts, 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, s/off anmts and orchestral anthem. (D'Angelo, PA) 2345 with African pops, local folk music, FF anmts. Off with anthem at 0001. //**4782.4 and 4835** weak. **5995** covered by VOA sign on at 0000. (Alexander, PA)

MEXICO—Radio Educacion, **6185** at 0400 with SS programming. (Clapshaw, WA) 0730 with music and QRM from SS speaker on **6180**. (Becker, WA)

MONGOLIA—Voice of Mongolia, **12085** at 1018 with EE talks about Mongolians moving to Russia. (Montgomery, PA)

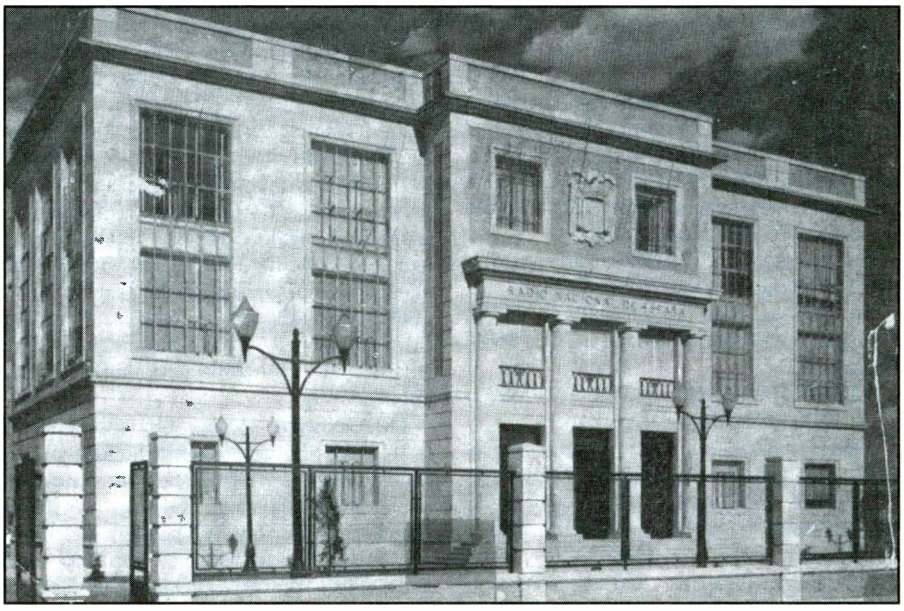
MOROCCO—RTV Marocaine, **11920** at 0300 to 0400 in AA. (Clapshaw, WA) **15345** in AA at 2006. (Miller, WA) Radio Medi Un, **9575** in FF at 0645. (Miller, WA) VOA relay, **11720** with EE lesson. (Paradis, ME) **15410//15445** at 1934. (Jeffery, NY)

NETHERLANDS—Radio Netherlands, **9890** 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. (Becker, 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 station at 0029. Cut off and on several times. (Montgomery, PA)



This QSL from Radio Nacional de Espana (REE now) dates back to 1957. It confirms reception by Mike Clapshaw (WA) on 9363 kcs.

NIGERIA—Voice of Nigeria, **7255** with pops ID, news into AA at 0503. 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) **9335/11710//13760** heard in EE at 1518. (Burrow, WA) KCBS, **2850** in KK heard at 1403 with large 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. (Linonis, 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 sunrise!). (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) **9737.2** 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 anncr. Gone at 0100. (Montgomery, PA) Radio San Miguel, Pallaques, **5500** at 0106 with nice OA music, ID at 0109, ranchero music. (Montgomery, PA) Radio Illucan, **5678** at 0131 with nice OA tunes, ID at 0135. (Montgomery, PA) Radio Frecuencia San Ignacio, tentative, **5699** 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 Melodia, **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 anncr, IDs as "Radio del Mayo" and at one point, "You have heard the best station in Latin America." Very poor by 0157. (Montgomery, PA) Voz del Campesino, **6956.7** at 0247 with SS talk and lots of ranchero music. Excellent level. (Montgomery, PA)

PHILIPPINES—VOA relay, **9760** at 1136. Also **15160** at 1421. (Jeffery, NY) **12040** in CC at 1242. (Brossell, WI) **15160** at 1400. (Paradis, ME) **15185** at 2232. (D'Angelo, PA) FEBC, **15465** in CC at 1235. (Northrup, MO) Radio Veritas Asia, **9590** at 1328 with announcement of upcoming Hindi broadcast. (Foss, Philippines) Radio Pilipinas, **15190** in Tagalog at 1808. //**11720**, **17720**.

(Miller, WA) 17720 in EE at 1740. (MacKenzie, CA)

PORTUGAL—RDP Int'l, **11655** monitored with news and discussion in PP at 2304. (Miller, WA)

PUERTO RICO—AFRTS/AFN on **6458 USB** at 0112 with news review. (Jeffery, NY)

ROMANIA—Radio Romania Int'l, **9510//11940** at 0400 with IS, ID, schedule and news. (Burrow, WA) **11775** at 2320 with news. Severe QRM from China Radio Int'l. (Wood, TN) **11940** with pops at 0245. (Brossell, WI) 0415 on privatization of telecommunications. (Moser, IL) **15180** at 0202 with news, ID, music, and features. Also **15365** at 1703 with news and features. (Jeffery, NY)

RUSSIA—Voice of Russia, **9665** at 0150. (Moser, IL) **9480** in CC at 1315. Also **12055** at 1145 with VV to SEA. (Barton, AZ) **15455** in RR at 1950. Into EE at 2000. (Jeffery, NY) **15460** at 1210. (Northrup, MO) **17690** at 0450, //**11750**. (Newbury, NE) Radio Rossii, **15235** with RR talk program at 1826. (Jeffery, NY) Magadan Radio, **9530** in RR at 0755. (Becker, WA)

RWANDA—Deutsche Welle relay, **15275** in GG to South America at 2240. (Becker, WA) **15390** at 1901 with EE news. (Jeffery, NY) **17860** in GG at 2110. (Clapshaw, WA)

SAO TOME—VOA Relay, **7290** at 0345. (Linonis, PA) **11825** in African dialect at 0331. (Brossell, WI)

SAUDI ARABIA—BSKSA, **11820** with Holy Korean at 2218. (Brossell, WI) **15230** with news in AA at 1810. (Miller, WA) **15275** with music at 0443. (MacKenzie, CA) **15345** in AA at 1225. (Northrup, MO)

SEYCHELLES—BBC relay, **11730** with quiz program at 0319. (Brossell, WI) FEBA—**11600** at 1513 in unid. language. Later an EE ID and into religious program. (Burrow, WA) 1519 in EE. (Foss, Philippines) **11640** at 2223 in AA, mailing address in Rawalpindi, IS and into Pashto programming, then into Dari at 0245. Also **15345** with "Voice of Forgiveness" program in AA from 0345. (D'Angelo, PA) AA talk at 1124, into EE at 1245. (Ziegner, MA) **15445** in CC at 1215. (Northrup, MO)

SIERRA LEONE—Radio UNASIL, **6137.8** at 0241 with variety of music styles and brief talk between each, including some EE. (D'Angelo, PA) 0154 with reggae. (Strawman, IA)

SINGAPORE—Radio Corp. of Singapore, **6000** at 1456 with pops in unid. language. (Foss, Philippines) **6150** at 1536 with simulcast of domestic 98.7 FM. (Burrow, WA) **9600** at 1358 with schedule and ID. (Strawman, IA) **9665** at 1030 with pops. (Barton, AZ) BBC relay, **9740** at 1139 and **15285** in CC at 1500. (Jeffery, NY)

SLOVAKIA—Radio Slovakia, **5930** at 0125 with various news features. (Moser, IL)

SOUTH AFRICA—Channel Africa, **9525** at 1555 in EE and PP. IS and ID. (Burrow, WA) **11710** in PP at 0550. (Becker, WA) BBC relay, **7120** at 0341 with questions and answers concerning children's behavior.

Tuning In *(from page 4)*

Tec's RX-320 is a hot "black box" HF receiver covering 100 kHz to 30 MHz which connects to your PC with one serial port.

MFJ Enterprises, Inc. has provided their **MFJ-1026, Deluxe Noise Canceling Signal Enhancer and MFJ-1704, Heavy Duty Coax Antenna Switch**.

Dave also receives a two-year gift subscription to *Popular Communications*!

Second Prize is a brand new **CCRadio** from the folks at **C. Crane Company**. This is perhaps the hottest receiver for broadcast band listening and a pleasure to own and operate! Included in the Second Prize also from C. Crane Company is the **Justice AM Antenna**, **VersaCorder**, and **FM Transmitter**. Talk about an outstanding package! The winner is John Cackowski of Wilmington, DE. He also receives a one-year gift subscription to *Popular Communications*!

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. (Becker, WA)

SOUTH KOREA—Radio Korea Int'l, **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. (Becker, WA) **15385** in EE at 0042. (Newbury, NE)

SRI LANKA—SLBC/Radio Sri Lanka, **9770** at 1455 with news, time signal, ID, more news. (Burrow, WA) **11905** at 1516 with local songs. (Foss, Philippines) **15425** at 0030 sign on with 5 plus 1 pips, ID, and opening anmts in EE. **//9770**. (D'Angelo, PA) VOA relay, **7115** at 0127 with ID and news. (Montgomery, PA) **15545** in AA at 1914. (Jeffery, NY)

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

SWAZILAND—Trans World Radio, **3200** heard at 0313 with man annor in unid. language, then chants of some 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." (Miller, WA) 0332 with Swedish news and features. (Brossell, WI; Burrow, WA)

SWITZERLAND—Swiss Radio Int'l, **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. (Burrow, WA)

TAIWAN—Radio Taipei int'l, **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. (Brossell, WI)

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 2040 with Afro-pops and Mid East music, talk in Swahili. Short anthem 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—RTT 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. (Burrow, WA) 0346 with woman annor and Turkish vocals. (MacKenzie, CA) **11885** at 2220 with songs and anmts 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. (Burrow, 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)

UZBEKISTAN—Radio Tashkent, presumed, **9540** in EE at 2140 talking about the Internet. (Jeffery, NY) **9715** beginning EE at 1330. (Barton, AZ) **11905** in EE at 2030 with IS, ID, news. (Burrow, WA) **17775** in Uzbek at 1310. Into EE at 1330. (Ziegner, MA)

VATICAN—Vatican Radio, **7305** at 0245. Into EE at 0249 and SS at 0315. **//9605**. (MacKenzie, CA)

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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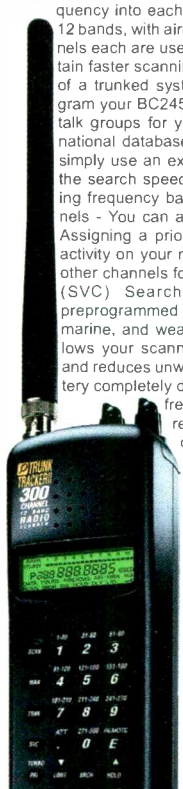

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computer-assisted radio monitoring

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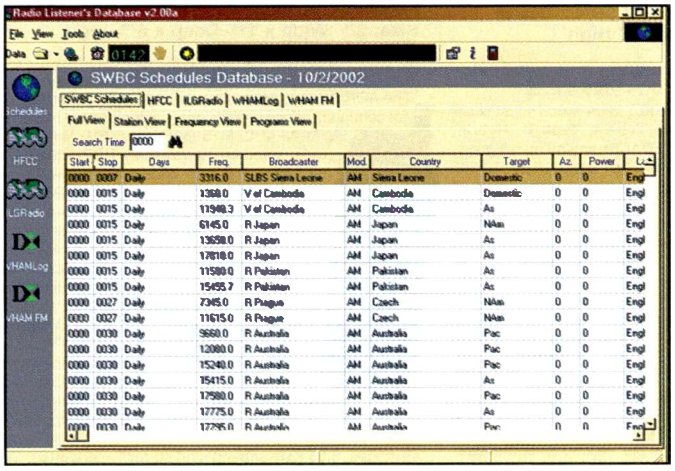
Frequency Database and Logging—Part I



This is Fineware's Radio Listener's Data Base (RLDB) program. It uses a database file to display information about shortwave broadcast schedules. Those broadcasting at a specific time are displayed; then the data can be used to tune a compatible radio. This month's column will show you how database files are created and used with computer software like this one.

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 simply 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 sets," 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.

Table

Callsign	Frequency	Location	Type	Mode	Time	Target
A	339 kHz	Havana Cuba	LF beacon	MCW	24 hr	Omni directional
WSM	650 kHz	Nashville TN	AM broadcast	AM	24 hr	Clear channel
Radio Prague	7.345 MHz	Czech Republic	SW broadcast	AM	0000 hr	North America

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:

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

That's much better, because now we clearly know what we are looking at. We can improve it even more by adding additional information, like this:

Callsign	Frequency	Location	Type
A	339 kHz	Havana Cuba	LF beacon
WSM	650 kHz	Nashville TN	AM broadcast
Radio Prague	7.345 MHz	Czech Republic	SW broadcast

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.

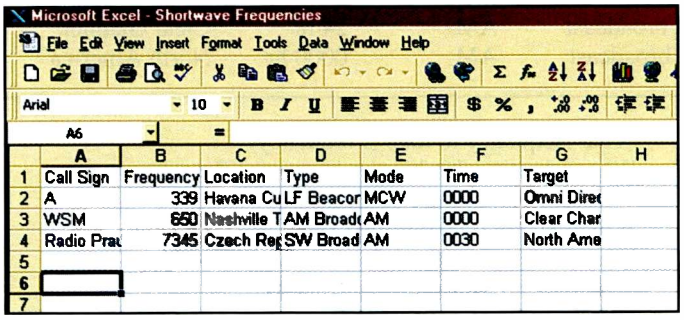
Both the spreadsheets and the database files contain data. The main difference between spreadsheets and databases is how they organize their information.

Databases contain large amounts of information and are designed to help the software access it quickly. Examples of such a 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.


Microsoft Excel - Shortwave Frequencies

File Edit View Insert Format Tools Data Window Help

Arial 10 B I U

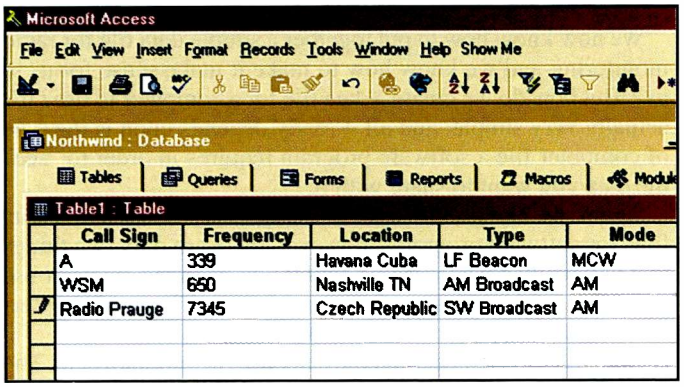
A6 =

	A	B	C	D	E	F	G	H
1	Call Sign	Frequency	Location	Type	Mode	Time	Target	
2	A	339	Havana Cu	LF Beacor	MCW	0000	Omni Direc	
3	WSM	650	Nashville T	AM Broad	AM	0000	Clear Char	
4	Radio Prat	7345	Czech Rep	SW Broad	AM	0030	North Ame	
5								
6								
7								

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 callsigns. 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.


Microsoft Access

File Edit View Insert Format Records Tools Window Help Show Me

Northwind : Database

Tables | Queries | Forms | Reports | Macros | Modul

Table1 : Table

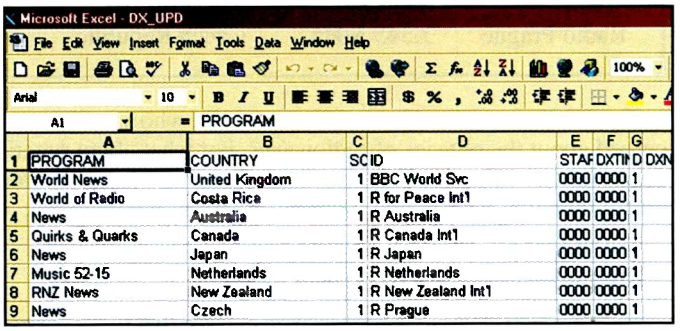
Call Sign	Frequency	Location	Type	Mode
A	339	Havana Cuba	LF Beacon	MCW
WSM	650	Nashville TN	AM Broadcast	AM
Radio Prauge	7345	Czech Republic	SW Broadcast	AM

This is the same data that was created earlier in the spreadsheet, but this time it's in a database table. You can see that it uses the same row, column, and cell format to store information.

How is a spreadsheet file different from a database file? They aren't really very different. If you look at a database it appears identical to a spreadsheet. As you can see in the photo, which shows our original data in a database file, it is made up of rows, tables, and cells, just like a database. What makes it different is that rather than being called a spreadsheet, it is called a table.

A database is made up of one or more tables, much like having multiple spreadsheets, and a database program can find and re-organize the information contained there very quickly. So let's say that you wanted to find a specific broadcaster on a specific frequency at a particular time. With a database program you can make what is know as a query, which is a special way of finding specific information in a database. Once the query is made, the information is quickly displayed.

Putting It All Together


Microsoft Excel - DX_UPD

File Edit View Insert Format Tools Data Window Help

Arial 10 B I U

A1 = PROGRAM

	A	B	C	D	E	F	G
1	PROGRAM	COUNTRY	SC	ID	STAF	DXTI	D DXN
2	World News	United Kingdom	1	BBC World Svc	0000	0000	1
3	World of Radio	Costa Rica	1	R for Peace Int'l	0000	0000	1
4	News	Australia	1	R Australia	0000	0000	1
5	Quirks & Quarks	Canada	1	R Canada Int'l	0000	0000	1
6	News	Japan	1	R Japan	0000	0000	1
7	Music 52-15	Netherlands	1	R Netherlands	0000	0000	1
8	RNZ News	New Zealand	1	R New Zealand Int'l	0000	0000	1
9	News	Czech	1	R Prague	0000	0000	1

Here is the database file used by Fineware's RLDB program shown at the beginning of the column. You can now see how the row and column structure of the database file is used by the software program to display information about shortwave radio stations.

If you go back to the picture at the beginning, you can now see the rows, columns, and cells that make up a either 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. ■

washington beat

Capitol Hill and FCC actions affecting communications

by Laura Quarantiello <lauraq@cts.com>

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. ■

by Joe Cooper <ur-review@provcomm.net>

Al Stern's HF Reports And Monitoring Tips

An American Airlines Boeing 777-200 prepares to depart from San Jose, California, to Tokyo's Narita Airport. (Photo by Craig Rose)

This month we have yet another new assistant editor, Al Stern from Florida. Al has been heavily involved in monitoring utility services for many years now. He specializes in Patrick AFB (KCOF), NASA-KSC Shuttle Landing Facility (KX68), Avon Park Bombing Range (KAGR), Cape Canaveral Air Force Station (KXMR), JSTARS E-8 Acft Integration Facility, Melbourne IAP (KMLB), and worldwide military HF communications.

Al will be providing us with regular reports of interesting monitoring events that he has encountered, along with some good tips and advice on how to capture some interesting monitoring action. No matter what your interests, I'm sure you will find his information to be of value.

Craig Rose continues with his aviation reports and also sends along some great aviation based photos that he has taken. I certainly hope that his contributions help to inspire others to do the same.

I've been in contact with a number of other people who have shown similar interest in sending in monthly reports like Craig and Al are doing, and there is certainly room for more contributors. Again, don't worry about your writing being perfect, as I'll be more than happy to work with you to make it presentable.

Likewise, please send along pictures, FAX charts, QSL cards (scanned images, please, because we can't return originals), news stories, or anything related to utility radio. Don't forget that the original point of this column is to provide you with a place where you can share your logs, information, and stories with your fellow readers.

Speaking of logs, we continue to have a good selection this month, including a good number of digital mode logs. I would be very interested in having someone contribute more information on the state of digital monitoring these days, particularly which stations are still sending out un-encrypted messages. It is a pity that now that decoding digital signals is easier than ever, thanks to personal computers, we have lost most of the RTTY news services.

So on to the contributions of our assistant editors, so please welcome Allan and Craig.

HF Highlights

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 acft, 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) acft 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.

HF Aero Communications

By Craig A. Rose
hfaerocomms@hotmail.com

An American Airlines Boeing 757 taxis for takeoff from San Jose, California. (Photo by Craig Rose)

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 operator. 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 and with new ID. (DW)
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)

3830: UNID, UNID SITOR/A//100/ E/170 Poor copy. Appears fishing vessel i/ship. In EE. References to "freezers" "350 bsks" (baskets) "steaming here" and s/off. (DW)
3830: UNID SIOTR/A//100/E/170 Exchange (i/ship) of sigs re fishing, etc. Reference to "scanmar (Fishfinder/ sounder?) green." Posn 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)
4042: UNID, UNID CW Tfc in offline encrypt. 5 fig groups. Ends "=203." (DW)
4210.5: IAR, ROME RADIO CW Chan free marker "IAR." (DW)
4214: IDR, IN ROME RTTY//75/N/850 CARB. (DW)
4372: 1ES,I3U,4EI,H,M,T in Link 11 coord net establishing link with GIANTKILLER in VACAPES OPAREA at 0010Z. (MC)
4583: DDK2, HAMBURG MET RTTY// 50/N/450 SHIP OBS. (DW)
4666: Dynasty 018 (B747-409, reg. B-18205, RCTP to RJAA to HNL) working San Francisco ARINC (MWARA CWP-2) with check-in followed by SELCAL check on BC-MP in USB at 1357Z. (CR)
4666: AIREVAC 079 working San Francisco ARINC (MWARA CWP-2) with 27N, 170W position report. Advised to call Honolulu Center on 119.900 when in range in USB at 1318Z. (CR)
4721: USAF ALE sounding monitored at 0105Z. (MC)
4739: TUDOR 47 wkg FIDDLE (TSC Jacksonville) in a surveillance exercise at 0037Z. (MC)
4739: PELICAN 712 reporting on station to FIDDLE (TSC Jacksonville) at 0142Z. (MC)
5250: BMF TAIPEI MET FAX//120/576/ N/800 Vague outlines in noise. (DW)
5275: A1A,US SHARES? MIL.STD 188-141A ALE on USB. Clng B6D twice/no own ID. [DATA]UDOTI? 1948 B6D A1A. (DW)
5320: USCG Group Mobile, AL passing lat/long position to UNID USCG cutter at 2354Z. (MC)
5378: UNID, UNID CW Slow. Long string of letters inc accentuated. (DW)
5399: GANTSEC wkg CG 1713 and cutter *SHARK* 02 tracking drug runner along north coast of Puerto Rico at 0419Z. (MC)
5547: Southern Air 8100 (B747-200 RKSI to ANC to LAX) working San Francisco ARINC (MWARA CEP-2) with position report and SELCAL check in USB at 1217Z. (CR)
5547: FedEx 5151 (MD-11 SFO to PANC to RJAA) working San Francisco ARINC (MWARA CEP-2) with position report and is advised to contact Vancouver Center on 133.400 in USB at 1235Z. (CR)
5547: Korean Air 208 (B747-400 en route LAX to RKSI) working San Francisco ARINC (MWARA CEP-2) with position report and is advised to call Anchorage Center on 118.500 when crossing 56 north in USB at 1311Z. (CR)
5547: Southern Air 8100 (B747-200 RKSI to ANC to LAX) working San Francisco ARINC (MWARA CEP-2) with position report and SELCAL check in USB at 1217Z. (CR)
5547: FedEx 5151 (MD-11 SFO to PANC to RJAA) working San Francisco ARINC (MWARA CEP-2) with position report and is advised to contact Vancouver Center on 133.400 in USB at 1235Z. (CR)
5547: Korean Air 208 (B747-400 en route LAX to RKSI) working San Francisco ARINC (MWARA CEP-2) with position report and is advised to call Anchorage Center on 118.500 when crossing 56 north in USB at 1311Z. (CR)
5547: REACH P5G (Polar Air DoD contract flight) working San Francisco ARINC (MWARA CEP-2) to relay position report for N421TM (Cessna 421C, Avant Aire Ltd.) and advise that aircraft is level at 150 in USB at 1333Z. (CR)
5547: Japan Air 6085 (B747-200 LAX to SFO to PANC to RJAA) working San Francisco ARINC (MWARA CEP-2) with position report and SELCAL check on CD-HJ in USB at 1225Z. (CR)
5574: Qantas 25 (B747-438, reg. VH-OJJ, NZAA to LAX) working San Francisco ARINC (MWARA CEP-1) to request ATC clearance to deviate 25 nautical miles right of flight track due to weather followed by clearance in USB at 1319Z. (CR)
5574: N50309 (Hawker 800XP, Raytheon) working San Francisco ARINC (MWARA CEP-1) to advise of strong winds aloft that may require termination of flight and a return to the mainland in USB at 1256Z. (CR)
5574: Lufthansa 8400 (MD-11 EDDF to ORD to PHNL to NZAA) working San Francisco ARINC (CEP-1) with position report in USB at 1403Z. (CR)
5628: Varig 8837 (MD-11 RJAA to LAX to SBGR) working San Francisco ARINC (MWARA NP-1) with position report and SELCAL check on AM-FP followed by request for clearance to climb and maintain flight level 350 in USB at 1304Z. (CR)
5628: Dynasty 032 (B747-400 YVR to TPE) working San Francisco ARINC (MWARA NP-1) for SELCAL check then was advised to call San Francisco on 6673 crossing 150 west in USB at 1324Z. (CR)
5628: Philippine 113 (A343 LAX to RPLL) working San Francisco ARINC (MWARA NP-1) to accept ATC clearance to climb and maintain flight level 380 in USB at 1258Z. (CR)
5628: Cathay 888 (B747-400 VHHH to YVR to JFK) working San Francisco ARINC (MWARA NP-1) with position report and SELCAL check then advised to contact Anchorage Center on 119.100 in USB at 1302Z. (CR)
5628: Varig 8837 (MD-11 RJAA to LAX to SBGR) working San Francisco ARINC (MWARA NP-1) in USB at 1304Z with aircraft position report and SELCAL check on AM-FP followed by request for clearance to climb and maintain flight level 350. (CR)
5628: Philippine Flight 113 (A343 LAX to RPLL) working San Francisco ARINC (MWARA NP-1) to accept ATC clearance to climb and maintain flight level 380 in USB at 1258Z. (CR)
5628: Cathay 888 (B747-400 VHHH to YVR to JFK) working San Francisco ARINC (MWARA NP-1) with position report and SELCAL check then advised to contact Anchorage Center on 119.100 in USB at 1302Z. (CR)
5643: N504QS (Gulfstream V, NJI Sales Inc.) working San Francisco ARINC (SP) to accept ATC clearance to climb and maintain flight level 470 in USB at 1321Z. (CR)
5667: RATS 69 (KC-135R, 336th ARS, March ARB) working San Francisco ARINC (MWARA NP-3) to provide revised estimate for 44N, 180W position per ATC request in USB at 1330Z. (CR)
5667: Japan Air 12 (B747-300 RJAA to YVR to MEX) working San Francisco ARINC (MWARA NP-3) with 49N, 180W position report and request for clearance to climb and maintain flight level 370 in USB heard at 1243Z. (CR)
5696: REACH 1419 with rdo chk to CAMSLANT Chesepeake. (DS2)
5696: CAMSLANT Chesapeake wrking CG Cutter Petrol(?) rpt. CAMSLANT forwarding tfc to CAMSPAC.
5696: CAMSLANT Chesapeake calling CG Rescue 6018 for abt 15 mins before 6018 answers. (DS2)
5696: CAMSLANT wkg CG 2113 en route from Guantanamo Bay to Miami heard at 0054Z. (MC)
5696: CAMSLANT wrking and accepting radio guard for CG 1708. (DS2)
5708: USAF ALE sounding at 0109Z. (MC)
6234: USCG ANDVT encrypted comms 0135Z. (MC)
6577: American 951 (B777 JFK to GRU) working New York ARINC (MWARA CAR-A) to accept ATC clearance to deviate up to 20 miles either side of course for weather in USB at 0502Z. (CR)
6655: Dynasty 006 (B747-400 TPE to LAX) working Tokyo Radio (MWARA NP-2) to report line of thunderstorms through flight level 350 on track 3 in USB at 1224Z. (CR)
6655: Dynasty 006 (B747-400 TPE to LAX) working Tokyo Radio (MWARA NP-2) to report line of thunderstorms through flight level 350 on track 3 in USB at 1224Z. (CR)
6655: Varig 8839 (MD-11 RJNN to LAX to SBGR) working Tokyo Radio (MWARA NP-2) with 42N, 160E position report in USB at 1235Z. (CR)
6655: Lufthansa 8383 (MD-11 RJBB to FAI to EDDF) working Tokyo Radio (MWARA NP-2) with position report and SELCAL check on MS-GK in USB at 1352Z. (CR)
6676: Bangkok Radio VOLMET (THA) with automated aeronautical weather observations at 1213Z in USB. (CR)
6679: Aukland Radio VOLMET (ZKAK) with automated aeronautical weather observations at 1153Z in USB. (CR)
6679: Tokyo Radio VOLMET (JIA) with automated aeronautical weather observations at 1243Z in USB. (CR)
6779: PCN6, UNID CW Calls "9Q8P de PCN6 k," then "?YIL de PCN6 k." (DW)

6784.5: UNID, GAF ?LOC ARQ/E//85.7 /I/170 4rc. Betas. (DW)
6784.5: UNID, GAF ?LOC ARQ/E//85.7 /I/170 4rc. Betas. No tfc thru 1448z. (DW)
6817.5: FDI8, FAF NICE CW Marker "vvv de FDI8 ar." (DW)
6817.5: GYA, RN NORTHWOOD FAX// 120/576/N/800 Arabian Gulf svc. New freq (was 6834). Sfc prog chart. (DW)
6834: GYA, RN NORTHWOOD FAX// 120/576/N/800 Arabian Gulf svc. Clear deteriorating with m/path. In // 8652 (DW)
6834: GYA, RN NORTHWOOD FAX// 120/576/N/800 Sea and swell chart vt 14/0000Z for MidEast/Arabian Gulf sea areas. (DW)
6834: GYA, RN NORTHWOOD FAX// 120/576/N/800 Mid East svc. 120hr sfc prog. (DW)
6840: NYZ, UNID CW Marker "vvv q2m de nyz." (DW)
7275.5: FDC, FAF METEZ RTTY//50/N/850 Marker "~est de FDC voyez le brick figs ry's." (DW)
7527: U.S. Customs ALE sounding at 0128Z. (MC)
7646: DDH7, HAMBURG MET RTTY// 50/N/450 Met tfc—SYNOPs. (DW)
7657: PANTHER (DEA, Nassau) wkg 24C and 60A on anti-drug mission at 2332Z. (MC)
7657: PANTHER wkg 61A on anti-drug patrol position 110T 102 miles from "F1" at 0133. (MC)
7725: UNID, UNID MIL.STD 188-141A ALE monitored on USB. Var bursts, no dec on PC-ALE, Code30A tnds give alt/trple char runs, no dec. Stn using Link protection. (DW)
7880: DDK3, HAMBURG MET FAX// 120/576/N/800 N/Sea sea sfc temp. (DW)
7880: SPD, UNID MIL.STD 188-141A ALE monitored on USB. Clng MHQ. Also heard at 1347. (DW)
7880: MHQ, UNID MIL.STD 188-141A ALE monitored on USB. Responds to SPD then exchanges in Mil.Std 188-110A 39tone. (DW)
7880: WAT, UNID MIL.STD 188-141A ALE on USB. Clng MHQ then exchanges in Mil.Std 188-110A 39 tone. (DW)
7880: 27R, UNID MIL.STD 188-141A ALE monitored on USB. Clng MHQ. Also heard at 1457. (DW)
7913.5: UNID, UNID RUSSIAN CW CIS AF(?) time sig pattern? eg "101299056345510 = ..." Too weak for solid copy. (DW)
8387.5: UEHY TR Finskij Zaliv 1115 ARQ w/KYPS SELCAL, UEHY log on & msg to Vladivostok. (ML)
8415: UCJC, Ship *Dimitri Pojarskii II* DSC//100/E/170 MMSI 273134200 clng cstn 002733744/UNID. Psn 59.24N 4.20E. (DW)
8415: UCKC, Ship *Emel Pougatchev* DSC//100/E/170 MMSI 273133500 i/ship clng Volgograd/UDAI/ 2734366810 proposing RT on 8294/ USB. (DW)
8415: UHYD, Ship *Ikar* DSC//100/E/170 MMSI 273132600 clng cstn 002733744/ UNID. Posn 66.26N 8.55E. (DW)
8415: UWJQ, Ship *Kapitan Bitko* DSC// 100/E/170 MMSI 272246000 i/ship clng Kinburnsky/UWOL/MMSI 272871100. Proposes RT on 8297 USB. (DW)
8415: UGPH, Ship *Novilsk* DSC// 100/E/170 MMSI 273528400 clng cstn 002733744/ UNID. (DW)
8415: UIRT, Ship *Sibirsk II* 3053 DSC//100/ E/170 MMSI 273329500 clng cstn 002733756/UNID. (DW)
8415: UNID, Ship UNID GREEK DSC//100/ E/170 MMSI 239707000 clng Olympia Radio. (DW)
8415: UCBR, Ship *Vovzhsk II*-8 DSC//100/ E/170 MMSI 273310200 clng cstn 002733756/UNID. (DW)
8415: 4XFN, Ship *Zim Europa* DSC// 100/ E/170 MMSI 428000107 clng 428000111/ Zim Iberia/4XFP. (DW)
8415: 4XFP, Ship *Zim Iberia* DSC//100/ E/170 MMSI 428000111 responds to 428000107/*Zim Europa*/ 4XFN then accepts 8297. (DW)
8436.5: UNID, UNID Russian C/STN DSC// 100/E/170 MMSI 002733114. (Corrupt) response to Russian ship MMSI 273000000(?). (DW)
8508: NMN USCG Portsmouth with SITOR-B broadcast at 2010Z. (MC)
8652: GYA, RN NORTHWOOD FAX// 120/576/N/800 Arabian Gulf svc. Very weak, in // 6834. (DW)
8764: NMN CAMSLANT wkg NQSP (cutter Vigorous) at 2357Z. (MC)
8834: LH8297: LH D-ALCM 1524 HFDL Acars up/down with JNB-8. (RH2)
8834: CO0954 N-14520 1526 HFDL Acars up/down with JNB-8. (RH2)
8843: N604WB (CL-600-2B16, Wells Fargo Bank Trustee) working San Francisco ARINC (CEP-1) with position report and advises of 2240Z ETA to Kona in USB at 1827Z. (CR)
8843: N5GV (Gulfstream V 1159D, Gulfstream Aerospace) working San Francisco ARINC (MWARA CEP-1) to accept ATC clearance to maintain mach .85 in USB at 1723Z. (CR)
8843: N489QS (Gulfstream IV, John Hancock Financial Services) working San Francisco ARINC (MWARA CEP-1) with position report in USB at 1724Z. (CR)
8843: N48GL (Dassault-Breguet Falcon 50, Royal Jet) working San Francisco ARINC (MWARA CEP-1) with position report in USB at 0313Z. (CR)
8867: Air Canada 033 (B767-300 YVR to PHNL to SYD) working San Francisco ARINC (MWARA SP) to accept ATC clearance to climb and maintain flight level 320 in USB at 1208Z. (CR)
8912: 19C reporting to PANTHER about people on a Go-Fast hiding faces at 2157Z. (MC)
8915: Varig 8837 (MD-11 RJAA to LAX to SBGR) working San Francisco ARINC (MWARA NP-3) with position report and SELCAL check followed by request for clearance to climb and maintain flight level 350 in USB at 1255Z. (CR)
8971: FIGHTING TIGER 21 hailing GOLDENHAWK (TSC Brunswick) at 0151Z. (MC)
8971: UNIROYAL 01 with ops report to BLUESTAR (TSC Roosevelt Roads) at 0047Z. (MC)
8971: BLUESTAR wkg ATHENA 04 at 2327 and ORION 565 at 0211Z. (MC)
8971: 9MJ requesting DOGFISH (TSC Keflavik) inform homeplate they are on deck in Scotland at 0238Z. (MC)
8980: CG 1713 in p/p to District 7 Miami Ops reporting progress in search for small plane missing near Nassau at 2150Z. (MC)
8983: COMSTA Kodiak wrking CG cutter *Polar Star*. (DS2)
8983: CG 1501 wrking CAMSLANT w/pos rpt and flt ops. (DS2)
8983: CAMSLANT wkg CG 1708 en route from Great Inagua to Clearwater at 2058Z. (MC)
8983: CG 2114 on NOBLE EAGLE patrol from Mobile at 2149Z. (MC)
8983: CAMSLANT wkg CG 1713 in search for two migrant rafts in Key West area at 1757Z. (MC)
8983: CAMSLANT wkg ARMY 26593 at 1329Z. (MC)
8992: OFFUTT with SKYKING EAM simulcast on 11175, 15016, 13200 at 2220Z. (MC)
9004: HAGAR 72 with position report to UNIDentified station. (DS2)
9023: TADIL A Link 11 data transmission at 2226Z. (MC)
9135: FDG, FAF BORDEAUX RTTY// 50/R/850 Marker "Test de FDG voyez le brick figs ry's" then offair after first pass rcvd. (DW)
9373: RMP, CISN KALININGRAD CW "P98R de RMP qsa3 QSA?" (DW)
9907.7: UNID, FF PARIS ? ARQ/ 342//200/E/400 8rc. 2 chan tdm. Chan A: B: rq's. Brief breaks in txmsn 1551, 1554, 1600. No app tfc thru 1726z. (DW)
9945: P5O UNID Indonesian stn 0750 CW w/VVV P5O 1/2/3/4 mkr 0800 msg in Indonesian to 7CB & 7CJ & 5LG msg to activate c/signs, //12235 18980. (ML)
10033: American Airlines Flight 854 departing Port-au-Prince wkg Miami Ops LDOC at 0103Z. (MC)
10057: China Eastern Flight 586 (MD-11 LAX to ZSPD) working San Francisco ARINC (MWARA CEP-3) with position report and SELCAL check on FG-EQ in USB at 2211Z. (CR)
10152.5: 33F, UNID MIL.STD 188-141A ALE on USB. Clng MHQ. Alos Mil.std 188-110A 39 tone modem. Msg bursts. 1330 clng MHQ. (DW)
10152.5: 10T, UNID MIL.STD 188-141A ALE on USB. Clng 16A. (DW)
10152.5: 16A, UNID MIL.STD 188-141A ALE on USB. Responds to 10T. 1430Z clng WAT. (DW)
10152.5: SPD, UNID MIL.STD 188-141A ALE on USB. Clng 27R. (DW)
10152.5: 27R, UNID MIL.STD 188-141A ALE on USB. Responds to SPD. 1400Z clng 9SR. (DW)
10152.5: 9R, UNID MIL.STD 188-141A ALE on USB. Responding to 27R. (DW)
10152.5: MHQ, UNID MIL.STD 188-141A Clng FWD. Also monitored at 1421 and 1428Z. (DW)
10152.5: FWD, UNID MIL.STD 188-141A ALE on USB. Responding to MHQ. Also 1421Z. Followed by msgs in Mil.std 188-110A 39 tone modem. (DW)

List Of Abbreviations

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
Diplo: 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 refers 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.
MET: 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.
Navtext: 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. Spur? (DW)
10334.7: UNID, EGYPTIAN DIPLO SITOR/A//100/E/170 In irs then into opchat in AA(ATU80). S/of 1521Z. (DW)
10404.6: HEC95, BERN RADIO 100/-/200 Continuous marker. CW ID every 3 mins. (DW)
10406: KN2A, SVEIO BEACON on USB, at 2210Hz F1b 850Hz F1b bursts. At 2635Hz CW ID. Offair 1840Z. (DW)
10536: CFH, CF HALIFAX RTTY// 75/N/850 Met tfc. (DW)
10536: CFH, CF HALIFAX FAX//120/ 576/N/800 5 day sfc prog. Grainy. (DW)
10536: CFH, CF HALIFAX RTTY//75/ N/850 Met tfc. (DW)
10606.3: UNID, MOSCOW MET FAX// 120/576/N/800 Synoptic chart w/OBS. Grainy. 1400. Second chart as previous. Spur of 10610.9. (DW)
10715: AMC5, CHINESE DIPLO MIL.STD 188-110A Voices (simplex) in Chinese then msg in 188-110A. Offline encrypted. (DW)
10715: YT362A, CHINESE DIPLO MIL.STD 188-141A ALE on USB. Clng ZT201A. (DW)
10715: YT201A, CHINESE DIPLO MIL.STD 188-141A ALE on USB. Responds to YT362A. (DW)
10715: UNID, CHINESE DIPLO MIL.STD 188-110A Tfc but undecodable. (DW)
10715: BXT78, CHINESE DIPLO MIL.STD 188-110A 600bps, lng intlv. Tfc acknowledged "003/7fc003 imd 330 ok znn gb sk." (DW)
10871.9: S, CISN ARKHANGELSK CW Single letter [S] HF beacon. (DW)
10875: PBMLV2, AUSTRIAN MOD VIENNA MIL.STD 188-141A ALE on USB. Clng 21111. Also at 1100Z followed by brief encrypted RT (Rptd Harris AVS). Similar at 1330Z. (DW)
10917.7: RFTJ, FF DAKAR ARQ/

E3//48/E/400 8rc. Betas. 1930Z cct [TJF] C de v svc RFTJ de RFTJ. 1949Z tfc in offline encrypt. (DW)

10945: CFH, CF HALIFAX RTTY// 75/N/850 Marker "NAWS de CFH zkr f1 2822 3287 4161 6251 8315 12392 16552 22212 ar." (DW)

10945: X8V, UNID MIL.STD 188-141A ALE on USB. Clng E8P. (DW)

10945: UNID, UNID MIL.STD 188-141A ALE on USB. Clng D0O. (DW)

10945: UNID, UNID MIL.STD 188-141A ALE on USB. Clng X8V. Also 1507Z. (DW)

10945: B4I, UNID MIL.STD 188-141A ALE on USB. Clng X8V. Also 1721 1726 1731 1738 1743 1752. (DW)

10945: I0W, UNID MIL.STD 188-141A ALE on USB. Clng X8V. (DW)

10945: E8P, UNID MIL.STD 188-141A ALE heard in USB. Clng X8V. 1801Z clng L3I followed by Mil.std 188-110A 39 tone parallel modem. (DW)

11039: DDH9, HAMBURG MET RTTY// 50/N/450 Met tfc. Forecasts for Mediterranian Sea in German, and SYNOPS. (DW)

11076: PANTHER (DEA, Nassau) wkg UNID USCG helo at 2232Z. (MC)

11086.5: GYA RN, NORTHWOOD FAX// 120/576/N/800 Spot winds prog 500hPa, 400hPa. (DW)

11110.5: UNID, FF UNID ARQ/E3// 192/ E/400 8rc. Betas. No app tfc thru 1136Z. (DW)

11175: REACH 3011 with p/p via GHFS Anderson to Anderson AMCC to request customs and ag services meet aircraft upon arrival followed by transfer to Anderson Metro for 1500Z arrival forecast in USB at 1212Z. (CR)

11175: REACH 0446 (C-17 self IDed) with p/p via GHFS Elmendorf to Travis CP to advise of 0345Z ETA fld by complete offload info inc mention of 72 pax with 1 DV being a retired Brig. General requiring DV quarters for the night then p/p to Travis Metro for arrival weather in USB at 0208Z. (CR)

11175: ANDREWS w/ All Stations call for BILLYBOY. Reads short EAM. (DS2)

11175: JW510 (Navy C-130T) in p/p via Puerto Rico GHFS to NAS Jacksonville passes ETA and requests quick turnaround to NAS Brunswick at 0001Z. (MC)

11181: 200171, USAF AIRCRAFT C17 00-0171 MIL.STD 188-141A ALE on USB. Sounding. (DW)

11181: CRONPR, USAF CROUGHTON MIL.STD 188-141A ALE on USB. Sounding. Also 1224. (DW)

11202: CAMSLANT passes intel to 24C on suspected drug vessel that departed Jamaica at 1419Z. (MC)

11226: USAF ALE sounding at 2229Z. (MC)

11232: DarkStar Quebec via Trenton Military with consecutive pp's to Bedfield, Williston 08, and Piano P. Exchanging authentications and traffic. DarkStar told to contact Huntress NE. (DS2)

11232: HALIFAX wkg CANFORCE 2416 requesting they come up on 9007 kHz at 2100Z. (MC)

11232: SENTRY 01, E-3 AWACS, in p/p via TRENTON MILITARY to RAYMOND 24, Tinker AFB at 2254Z. (MC)

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

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

11282: Southern Air 541 (B747-200 LAX to PANC to RKSI) 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 RJAA to LAX) working San Francisco LDOC to accept re-release and weather for LAX and ONT via Minneapolis Dispatch in USB at 1427Z. (CR)

11384: Air Mic 964 (B737-800 RJAA 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/ER RKSI 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'ed frm 11175 to run pp w/ BLUESTAR Duty ops. (DS2)

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

12113.7: UNID, EGYPTIAN DIPLO ? SITOR/A//100/E/170 In irs mode then brief opchat in AA(ATU80) and s/off. (DW)
12161.7: UNID, ALGERIAN Customs Algiers PACT//200/-/200 Pactor-I, ASCII, Std option. Tfc (exchange rates) in FF, then s/off 1457Z. (DW)
12290: WBO5884, a vessel in the Gulf of Mexico near Cuba in QSO with another station. Reported position, and information about fuel/lubricant used. Said would miss the hurricane by over 200 miles. USB from 2308-2322Z. (CG)
12490: YDMY M/V P.8003 1016 QSL & op chat to Jakarta R. (ML)
12495: UHXZ TK Khirurg Vishnevskij heard at 0814 ARQ msg to Novorossiysk, UHXZ log on/off. (ML)
12497: UELO UPS Sedov 0822 ARQ msgs to Moscow. (ML)
12510: UCYP GS Nikolaj Kolomejtsev 1043 ARQ w/KYPS SELCAL, UCYP log on & crew msg to Vladivostok. (ML)
12510: UDGW RTM Maundo 1135 ARQ KYPS SELCAL & tfc to Vladivostok, UDGW log on/off. (ML)
12510: UHGW STR Kazansk 0942 ARQ w/KYPS SELCAL, 55837 UHGW log on & tfc to Vladivostok. (ML)
12510: UHQP LSS Suvoronets 1147 ARQ KYPS SELCAL, 54414 log on & msg to Vladivostok. (ML)
12520: VIC AMSA Wiluna/Charleville AUS 0838 FEC op msgs to ZLM Taupo R. (ML)
12520: VMW828 TAFE Maritime College Fremantle AUS 0842 FEC test msg. (ML)
12570: UFQA TK Ust'-Izhima 1030 ARQ w/UFQA log on & msg to Vladivostok. (ML)
12570: UHFU TR Dapkor-02 1038 ARQ tfc to Vladivostok, UHFU log on/off. (ML)
12577.5: UITJ, Ship *Petr Veliky* DSC// 100/E/170 MMSI 2731322200 clng UNID cstn MMSI 002733756 for RT. Posn 70.20N 34.01E. (DW)
12577.5: UFZP, Ship *Volgo-Don* 5034 DSC//100/E/170 MMSI 273343300 clng UNID cstn 002733756 for RT on freq 12341/(12)765 khz. (DW)
12581.5: WLO, Mobile, Alabama with SITOR and CW beacon (also on 12584.5 and 12586.5) at 2300Z. (CG)
12587: LZW, Varna, Bulgaria with CW beacon at 2257Z. (CG)
12592.5: PKX2 Jakarta R 1013 ARQ msg to YDMY M/V P.8003. (ML)
12593.5: UDB2 Kholmsk R heard at 0800 FEC tfc list. (ML)
12594.5: A9M, Hamala, Bahrain with SITOR and CW beacon "A9M TLX" at 2255Z. (CG)
12598: SPA, Gdynia, Poland with beacon in CW at 2250Z. (CG)
12600.5: HEC, Berne, Switzerland with SITOR and CW beacon at 2252Z. (CG)
12602.5: IAR, Rome, Italy with SITOR and CW beacon at 2254Z. (CG)
12603: "Lincolnshire Poacher" numbers station. 10 minutes of musical tune and "16451" many times, then YL/EE with British accent with five-figure groups. Each group read twice. Ended with tune again. Heavy QRM from SVO CW beacon. USB from 2200Z-2245Z. (CG)
12603.5: SVO, Athens, Greece with beacon in CW, 2200Z. (CG)
12606.3: "UIW KLD" (not in any of my references) with SITOR and CW beacon at 2250Z. (CG)
12634.5: TAH, Istanbul, Turkey with SITOR and CW beacon at 2330Z. (CG)
12657: UNID, SHIP UNID IRISH, DSC//100/E/170 MMSI 250418000 clng UNID Irish ship MMSI 250116400 for simplex RT on 3800 kHz. (DW)
12902.6: VTH1/5/7 IN Bombay 1609 RTTY 50/800 RBSL/BNR/RY/ID/SG + 4LG. (RH2)
12916.5: HLF: Seoul R. 1540 CW ID Marker. (RH2)
12947.6: SD/ZSJ: SA Navrad 0955 MFSK 54.5bd \\86040 kHz. (RH2)
13089: NMN USCG Portsmouth with high seas Wx forecast at 2224Z. (MC)
13282: Tokyo Radio VOLMET (JIA) with automated aeronautical weather observation broadcast in USB heard at 1341Z. (CR)
13282: Aukland Radio VOLMET (ZKAK) with automated aeronautical weather observations in USB heard at 1421Z. (CR)
13907: U.S. Customs ALE sounding at 0054Z. (MC)
13927: CODY 01 wkg USAF MARS with morale p/p at 2305Z. (MC)
13927: TEAL 54, Hurricane Hunter WC-130, in p/p via USAF MARS to CNN in Atlanta. Report they are 150 miles south of Louisiana in the hurricane and available for a live feed at 2022Z. (MC)
14325: Ham stn K3CWH, NCS for amateur radio Hurricane Watch Net in USB heard at 2203Z. (CG)
14403: 11111, AUSTRIAN MIL ?LOC MIL.STD 188-141A ALE on USB. Clng BMLV1/Vienna. (DW)
14404: S00, MFA STOCKHOLM MIL.STD 188-141A ALE on USB. Clng S72/Kinshasa. Also heard at 1944, 1952 and 2011Z. (DW)
14467.3: DDH8, HAMBURG MET RTTY//50/N/400 Met tfc. Forecasts in German. (DW)
14927.6: UNID, FF UNID ARQ/ E3//192/E /400 8rc. Betas. Nil tfc thru 1615Z. (DW)
15016: SNOW CLOUD calling MAINSAIL with a "request," no joy. USB at 2227Z. (CG).
15016: Andrews with six-character coded message "3IG67N" in USB at 2233Z. (CG)
15016: CW033 calling for Offutt Radio. No joy. (DS2)
15898: RFGW, MFA PARIS FEC/A// 192/E/400 Tfc in offline encrypt. 1536Z "Z4D/Nouakchott de P6Z/Paris imi". Further tfc on cct [NKT]. (DW)
16085.7: FVI: FF Le Port 1635 Arq-E3 100/400 Betas—for 30 mins! (RH2)
16256.7: NID: MFA Cairo 1648 arq IRS mode—several acks. (RH2)
16627.7: FTPA: FF N'Djamena 1556 Arq-E3 200/400 Betas. (RH2)
16805: SZYX, Ship *Eastwind* DSC//100/ E/170MMSI237974000 clng another UNID ship (Cypriot/MMSI 210166000). Proposes 16531 simplex RT. Three calls in all—no response hrd. (DW)
16805: SVQL, Ship *Island Skipper* DSC//100/E/170 MMSI237933000 clng Olympia Radio requesting chan 1640 (16477/17359). (DW)
17430: 5YE, NAIROBI MET RTTY// 100/N/850 Met tfc—SYNOPs. (DW)
17451.7: UNID, EGYPTIAN EMB ?LOC SITOR/A//100/E/170 irs, opchat in AA(ATU80), irs, betas, opchat, SELCALs SSBT(MFA Cairo) mix, and s/off at 1531Z. (DW)
17468.7: UNID, Egyptian EMB Tripoli SITOR/A//100/E/170 Tfc in AA (ATU80), opchat and sign/off 1322Z. (DW)
17551: RFTJ: FN Dakar 1601 ARQ-E3 192/400 Betas. (RH2)
17904: Korean Air 818 (A330 Saipan to RKSI) working San Francisco ARINC (MWARA CWP) with position report and SELCAL check on LM-JS in USB at 1755Z. (CR)

17925: Air Canada 029 (B767-300 YVR to PEK) with p/p via San Francisco LDOC to Toronto Dispatch to discuss situation with ailing passenger and possible divert locations if necessary in USB at 0038Z. (CR)
17946: Cathay 880 (B747-467, reg. B-HOO, VHHH to LAX) working San Francisco ARINC (MWARA NP) with position report and SELCAL check on HJ-CG in USB at 212Z. (CR)
17946: Alitalia 606 (B767-300 LIMC to EWR) working New York ARINC (MWARA NAT) in USB at 1827Z to accept ATC clearance to climb and maintain flight level 370 when crossing 50 West. (CR)
17946: United 853 (B747-422, N118UA, SFO to RJAA) working San Francisco ARINC (MWARA NP) with 150 west progress report and SELCAL check on BQ-CE in USB at 2302Z. (CR)
18183.4: 7RQ20: MAE Algiers 1635 Coq8 26.67 Msg\FF to Ambalg Le Caire, info Addis Abeba, Khartoum, Dar-es-Salaam, Kampala. (RH2)
18261: GYA, RN NORTHWOOD FAX// 120/576/N/800 Schedule—Mid East/Arabian Gulf svc. 1506Z Sfc analysis. (DW)
18261: GYA, RN NORTHWOOD FAX// 120/576/N/800 Arabian Gulf service. Grainy chart of Mid East with m/path. (DW)
18940: BDF2, SHANGHAI MET FAX// 120/576/N/800 Typhoon wng (NE of Taiwan). (DW)
19216.7: RFLI, FT DE FRANCE, ARQ/ E3//96/E/400 8rc. Betas. 1107z cct [LIH] controle de v svc Antilles de Antiles. Also heard at 1207Z. (DW)
19346.7: UNID, MFA CAIRO ?SITOR/ A//100/E/170 Tfc in AA (ATU80) (Nx bulletin?). Opchat and s/off 0952. (DW)
19777: ASI: Brit Mil Ascension 1446 ALE/USB SND. Five repeats within one minute!! (RH2)
19850: V5G, MFA BUCHAREST FEC/ ROU//164.5/R/400 Bit Inv=24. Tfc in online encrypt. 1014 in CW—"V5G op U53 tks = nw hr qru = qrx qpn = 73/88 pup ar sk." (DW)
19862: MGJ, RN FASLANE RTTY// 75/N/340 CARB. (DW)
20716.7: UNID, FF PARIS ? ARQ/E3// 192/E/400 8rc. Betas. Variable sync. No app tfc thru 1115Z. (DW)
20976.7: Pakistani Emb Pyongyang 0720 ARQ QSL & op chat to Islamabad. (ML)
21852.6: UNID, EGYPTIAN EMB ?LOC SITOR/A//100/E/170 irs, reg bks then s/c QEMP(Cairo). 1033 chng to fec calls w/o qsx freq AA(ATU80). Rvrt s/c QEMP. 1039 qso estb, opchat in AA, then in EE "Please repeat you again. I am hearing you excellent over." (DW)
21858.5: UNID 0730 RTTY VFT 16 ch w/ch 1 idle & foxes 0-9 & RYs only on ch's 2-16. (ML)
22126: P3LL7 RTMS *Kapitan G Koval* 0740 RTTY 50/170 tfc to unkwn prob Kaliningrad. (ML)
22145.7: UNID 0900 ARQ-M2 144 bd single tone idling w/alphas, betas & RQs both ch's. (ML)
22356: 1003, UNID MIL.STD 188-141A ALE on USB. Sounding. (DW)
22356: 50001, UNID MIL.STD 188-141A ALE on USB. Sounding. Also 1854. (DW)
22356: 1002, UNID MIL.STD 188-141A ALE on USB. Sounding. (DW)
22356: 50003, UNID MIL.STD 188-141A ALE on USB.Sounding. Also 1929. (DW)
22356: 1001, UNID MIL.STD 188-141A ALE on USB. Sounding. Also 1954. (DW)
22356: 100, UNID MIL.STD 188-141A ALE on USB. Sounding. (DW)
22356: 50002, UNID MIL.STD 188-141A ALE on USB. Sounding. Flagging both 50002 and 500. Also heard at 1433 1634. (DW)
22356: 50001, UNID MIL.STD 188-141A ALE on USB. Sounding. Also 1704. (DW)
22356: 1002, UNID MIL.STD 188-141A ALE on USB. Sounding. Also 1132 1333 1734. (DW)
22356: 100, UNID MIL.STD 188-141A ALE on USB. Sounding. Also 1533. (DW)
22356: 50003, UNID MIL.STD 188-141A ALE on USB. Sounding. Also 1740Z. (DW)
22356: 1001, UNID MIL.STD 188-141A ALE on USB. Sounding. (DW)
22356: 1003, UNID MIL.STD 188-141A ALE on USB. Sounding. (DW)
22356.5: J8QH2, SHIP DVUNO WARRIER 3SC//50/R/170 Clng Kaliningrad/ UIW, then tfc in 3sc. S/off. (DW)
22356.5: V3FF, SHIP RTMS GALATIS 3SC//50/R/170 Clng Kaliningrad/UIW. Tfc in 3sc. (DW)
22356.5: LYOU, SHIP UNID 3SC//50/ R/170 Clng Kaliningrad/UIW. QRM from V3FF. (DW)
22380.5: CBV, VALPARAISO RADIO CW Chan free marker "CBV." (DW)
22857.7: RFVI, LE PORT, FF, ARQ/ E3//100/E/400 8rc. Betas then RQ's. 1640Z cct [VII] C de V svc RFVI de RFVI—very slow transfer. (DW)
22928.6: S00, MFA STOCKHOLM MIL. STD 188-141A ALE on USB. Clng S97/ Abidjan. (DW)
22928.6: S97, SWEDISH EMB ABIDJAN MIL.STD 188-141A ALE on USB. Responds to S00/Stockholm then exchanges in MIL. STD 188-110A. s/tone, psk. 75bps Long intlv. (DW)
23165.5: UNID 0650 RTTY VFT 16 cg w/ch 1 idle & foxes 0-9 & RYs only on ch's 2-16. (ML)
23190: FRGW, MFA PARIS FEC/ A//192/ E/400 Calling sequence "N2G [Sanaa] de P6Z re ja qtc 2 qsp la 7 aug de 6 /dd/". 0926Z Tfc in offline encrypt, also using "c" subsituation. (DW)
23265.5: HGX21: MFA Budapest 1604 Dup-Arq 125/170 Msg/HH to HGX44/ Baghdad. (RH2)
23370: HZN50, JEDDAH MET RTTY// 100/R/850 Met tfc—METARs, SYNOPS. 100 Hz high. (DW)
23522.9: JMH6, TOKYO MET FAX// 120/576/N/800 VRI weak, vague outlines till broke thru 0907Z to become weak w/slight m/path. Prog chart shows typhoon hdng to pass N Taiwan. 0920Z sfc analog but sig deteriorating agn. (DW)
25186: British Mil, Ascension Is. 1301 ALE/ USB five repeats within one minute! (RH2)
25186: CYP: Brit Mil Cyprus 1343 12 rpts until 1535Z. (RH2)

This month's contributors are:

Chris Grey (CG)
Craig Rose (CR)
Day Watson (DW)
Dwight Simpson (DS)
Mark Cleary (MC)
Murray Lehman (ML)
Robert Hall (RH2)

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. ■

Useful Aeronautical Web Sites

FlyteComm Corporation
http://www.flytecomm.com/cgi-bin/trackflight

Federal Aviation Administration
http://162.58.35.241/acdatabase/Nnum_inquiry.asp

AIRLINERS.NET
http://www.airliners.net/

ARINC, Incorporated
http://www.arinc.com/

pirate & alternative radio

free radio broadcasting

by Edward Teach

A Totally Whacked-Out DJ—Imagine That?

It's a pretty good set of logs this month, so here we go. Can you help ID those four pirates at the end of the column? If so, please drop us a line.

WHYP, 6925 at 0205 with Regis Brownyard hosting rap and a game called "Hot Chair." (William T. Hassig, IL) **6950** at 0234 with mention of Captain Ganja's Top Ten List and pictures of Bozo. Sign off at 0244 with "Bozo Rules." (Joe Kenneth Wood, TN) **6951** at 0216 with James Brownyard. (Richard D'Angelo, PA) **6925** at 2317 with James Brownyard with various comments and features about this year's Winterfest. Also at 0330 including P.O. Box 228413, Providence, RI, 02908 for reports. "Secret Agent Man" theme at 0338. (Tim Taylor, PA)

Psycho Radio, 6955 USB 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, 6950.3 at 0140 with pop music. Strong signal. (Hassig, IL)

Voice of the New World Order, 6955 USB at 0312 with pop music and news. (Hassig, IL) **6950** at 0229 talking about listeners and giving e-mail address for QSLs. Poor conditions made for nearly intelligible copy. (Wood, TN) **6955** at 0344 with "Can You Hear Me?" song. Mentioned they were in New York. Off at 0346. (Taylor, PA)

United Patriot Militia Bingo, 6925 at 0210 with country-western music, "Man on the Run" song. Off with the Hendrix/Woodstock interpretation of the National Anthem. (Hassig, IL) **6951** at 0229 apparently following WHYOP with usual ID, Steve Anderson spoofs, etc. (D'Angelo, PA) **6925** at 0211 with "From My Cold Dead Hands," "Happiness Is a Warm Gun," "I Shot the Sheriff," clips from Steve Anderson comments. Mailing address given as U.P.M.B, 293, Merlin, ON NOP 1WO, Canada. Off at 0307. (Taylor, PA)

WBNY, 6950.4 at 0149 with "Bunny Radio." Another day at 2340 but very poor reception. (Hassig, IL)

WFMQ, 6954.8 heard at 0120 with many Beatle-like song spoofs and Providence, RI, address. (Hassig, IL)

Ground Zero Radio, 6950 USB at 0620 with drama, strange songs and astrology readings for Scorpio. Another date on **6950** at 0138 signing 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 Pickins character in *Dr. Strangelove*. This same sign-off routine was also heard another time at 0233. (Wood, TN)

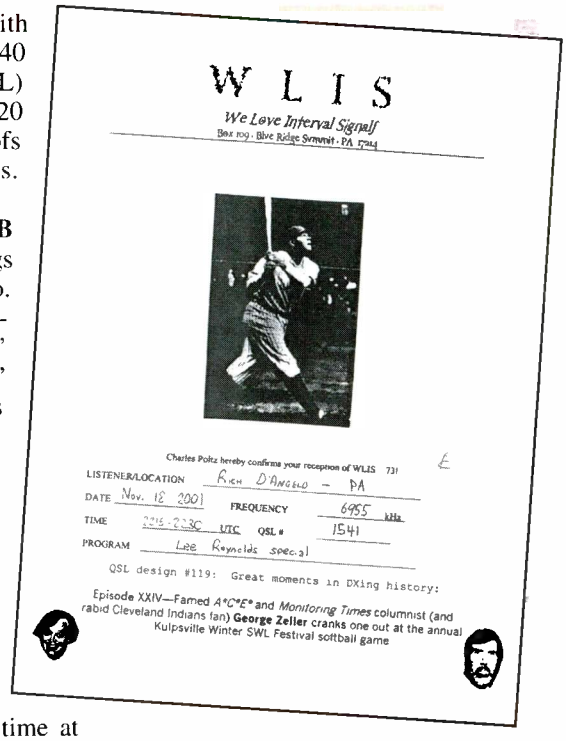
Alpha Lima International, 15069.7 at 0221 with nice ID, address, announcing a test on several frequencies. Usual fare with "Alf" talking over lively music. (D'Angelo, PA) 2119 with "Feel Like a Woman" and some dance music, talks about his e-mails and Web pages, "Genie in a Bottle." (Bill Finn)

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 USB 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)


W L I S

We Love Interval Signals

Box 109 · Blue Ridge Summit · PA 17214

Charles Poltz hereby confirms your reception of WLIS 731

LISTENER/LOCATION Rich D'Angelo - PA

DATE Nov. 18 2001 FREQUENCY 6955 kHz

TIME 0215-0230 UTC QSL # 1541

PROGRAM Lee Reynolds spec. 31

QSL design #119: Great moments in DXing history:

Episode XXIV—Famed A*C*E* and *Monitoring Times* columnist (and rabid Cleveland Indians fan) **George Zeller** cranks one out at the annual Kulpsville Winter SWL Festival softball game

Long-running WLIS (We Love Interval Signals) confirmed Rich D'Angelo's reception with this full-size form, turning Babe Ruth into pirate expert George Zeller.

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) **6955 USB** 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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loose connection

radio communications humor

by Bill Price, N3AVY <chrodoc@earthlink.net>

Norm Improvises...Again

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 mail order, phone, fax, or the Internet to buy some.

"How hard could it be," he asked himself, "to *make* some lead sulfide?" That would be lead and sulphur, right? I've got some lead in the garage, and these matches are loaded with sulphur. Oh, can't use the matches—they're modern matches.

Norm went to the pharmacist. Yes, he could buy some sulphur, but whatever for? He wasn't going to make explosives or gunpowder, was he?

Norm convinced the pharmacist that he was indeed sane (more than he's ever done with me) and the sulphur arrived in a few days. Melting the lead and sprinkling the sulphur into it didn't work. Boiling the sulphur in water and soaking the lead in it didn't work. Finally, he remembered that a rusty razor blade would work as a substitute for a crystal. His own were fancy injector types, with triple edges and Teflon coating.

Crowbar in hand, Norm headed up toward the wall that had held the medicine cabinet. One good whack and the plaster gave way. Another hundred or so good whacks broke through 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, hammer 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 #$%&* 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 <chrodoc@earthlink.net> and he'll see that Norm gets your message.

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