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MARCH 1995

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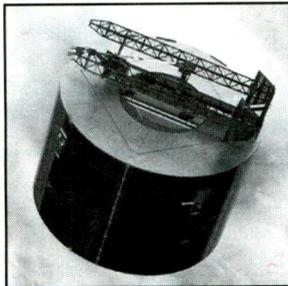
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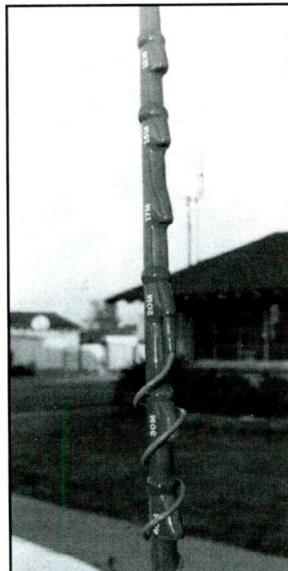
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This month's cover: Leon Cheatom, Director of Natural Resources, Silver Springs, FL, communicates with headquarters by handheld. Photo by Larry Mulvehill, WB2ZPI.

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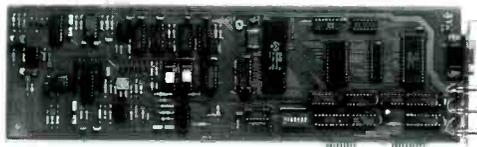
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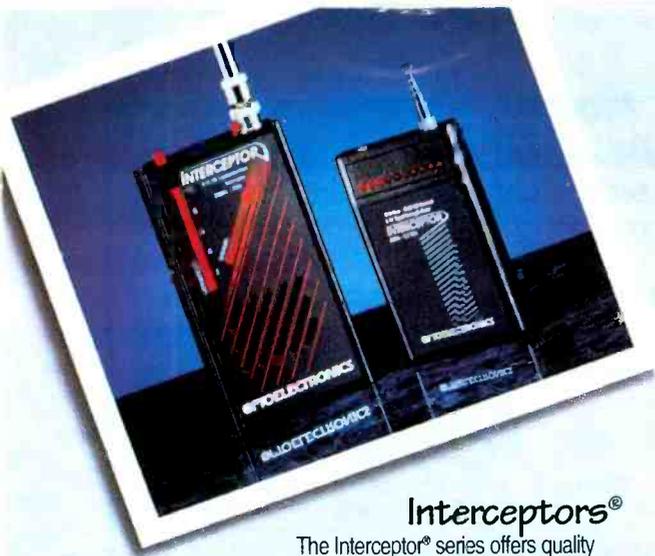
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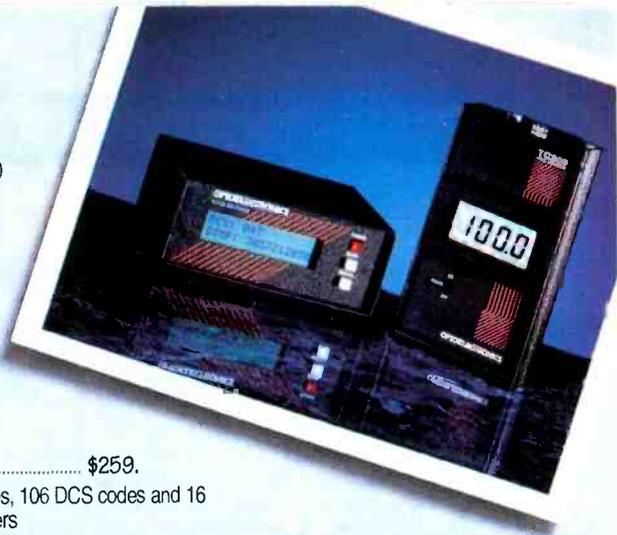
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BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

Save that Ditched Format!

Last October we noted here that because broadcasters have been facing changing audience demographics and other important factors affecting their *status quo*, many have made drastic changes. Stations have changed their call letters. Most dramatic of all, established music or other program formats have been abruptly dropped and replaced by completely different ones, as well as new on-air personnel.

These moves, often a panic attempt to increase listenership (i.e. ratings) sufficiently for the station to survive, are invariably regarded with horror by at least a core segment of those who had truly enjoyed its discarded program format. Those former listeners feel abandoned by an old friend that they had long supported. They miss their favorite format, particularly if it isn't available on any other local stations. It's not their concern that this happens because the music they like is no longer commercially viable as a full-time format for that area's present audiences because of their age, ethnic composition, musical tastes, or whatever.

Our words here brought in some interesting thoughts and suggestions on the topic. Some readers wrote that, until they had read the October *POP'COMM*, they could never understand why stations suddenly ditched one program format for another. At least now they understand the reasons stations take such action.

Perry W. McDaniel, of Mont., dropped me a letter to say that in his case, it was abandonment in reverse. He grew up in North Carolina, where there were a sufficient number of hours of Blues music being played to keep him happy. When Perry moved to Montana, he realized that it's a musical style that's not played in his listening area. Once in a while his brother sends him a Blues tape recorded off the air from an FM station in Raleigh, N.C.

Comment came in from S.W.G., of Ohio. She said music she really liked was featured on only one local station, but they changed their music format last year. Since then, she's had to rely upon her own collection of tapes and CD's when she wants to hear this music. S.W.G. now realizes why they changed formats, but she's still annoyed about being abandoned by a station she had listened to daily for so long. S.W.G. wonders how the station's other former listeners are faring.

Danny O'Day, of Turlock, Calif., wrote to remind us that there are options open

to people who feel they have been abandoned by stations they like. "Unfortunately," writes Danny, "people are more likely to simply complain than they are to take any action." He points out, if a person is really interested in a type of musical format that has been removed from the airwaves in their area, all is not lost. They can actually do something about it. Danny is 100 percent right!

Danny says that many commercial stations have blocks of time for which there are no sponsors (advertisers, that is). It's worth a shot to speak to the Program Directors of stations to see if they will allot any such sustaining blocks to alternative shows. Some stations appear quite willing to produce these kinds of programs on weekend mornings, all based on the suggestions of listeners. One of the more popular AOR stations in Danny's area does a jazz format on Sunday mornings. Until it was sold recently, and became a rock station, an AOR station in my own area had a folk music airing program on Sunday mornings.

In fact, like reader S.W.G., people who enjoy music often have large collections of CD, tape, and vinyl music. In addition, they have an encyclopedic knowledge of that field. Moreover, I believe they love to disseminate this information to anyone willing to listen. If you have met such a person at a social gathering, you know what I mean. I have a neighbor who presented his Ph.D. dissertation on the topic of 17th Century Madrigals. He can discuss them for hours on end, and he has numerous recordings. I'd be pleased to ask him to liven up your next gala event.

What is your pleasure? Maybe your favorite music is Classical, or Ragtime, Western, Gospel, Folk, Blues, Opera, Klezmer, Bluegrass, Cajun, Reggae, Disco, Polka, Musical Comedy, Salsa, Big Band, Blues, or even a particular ethnic or other specialty. Perhaps that special kind of music is no longer (or has never been) available to radio audiences in your area. Your expertise and/or music collection shouldn't go to waste.

Don't forget how well *Dr. Demento* has done with his knowledge and enormous personal collection of Novelty recordings. His radio program, heard nationally, may have started just like this.

Therefore, let's remember that a valid option is to take the time to do a radio

(Continued on page 82)

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MAILBAG

LETTERS TO THE EDITOR

Each month we select representative reader letters for our Mailbag column. We reserve the right to condense lengthy letters for space reasons. All letters submitted must be signed and show a return address. Upon request, we will withhold sender's name should the letter be used in Mailbag. Address letters to Tom Kneitel, Editor, Popular Communications Magazine, 76 N. Broadway, Hicksville NY 11801.

Worth Owning a Scanner

Scanner owners often say they're the first members of the community to hear the news as it unfolds. Some folks like to be on top of the action, and use their scanners to assist law enforcement agencies.

Last summer I was in the hospital a bit between mid-July and early-September. After a heart attack, I required bypass surgery. After I was discharged, I had to be readmitted because I had developed blood clots in my legs. Then I was sent home, only to have yet another reason to go back into the hospital.

That time, after being examined at home, I wasn't told what was wrong with me. While waiting to be told, a voice came over my scanner and dispatched an ambulance to my house. That's when I called my wife and asked what was going on. She said I was having a stroke.

So, here's a case where I was listening to my scanner, and became the focal point of the story. Yet, I was the last to know what was happening in my own home.

I took the scanner along with me to the hospital, and the nurses would come by my room to ask if they were getting any new patients. I'd let them know if ambulances were bringing in any patients that would be admitted to the heart floor.

William H. Norris,
Registered Monitor KSOAEQ,
Topeka, KS

Reaching Out

We are readers of *Popular Communications* living in an isolated Siberian town. There is a children's radio club (RK0SXX) here formerly financed by the Department of People's Education, but today they finance no one. We have struggled and searched for help for two years, but with contemporary market conditions in Russia no one will help our club. Today our club has a fair AM receiver for the 25- and 31-

meter bands, and a fair 160 meter band transmitter. Little by little our young members are losing interest and drifting away from radio. We ask any operators who have old and unused equipment for ham and DX use to send it to us. The children at RK0SXX will be most thankful.

P.G. Chichigina, UA0SIA,
1 Microarea, Home 16, Apt. 71,
Shelekhov 666020, Russia

Listener to the Last

I'm writing in response to Harry Helms dire predictions that eventually SW radio will be on its way out. I hope this is not true because shortwave has provided me with much joy over the years, having started out building my own one-tube receivers. For sure, high tech is taking a lot of the personal pleasure away from the individual. I'll continue to enjoy my shortwave radios so long as there is a single station left to hear. Will keep tuned to my Kenwood 1000, Sony 2010, and Realistic DX-390 with much pleasure, just as I will be enjoying your fine publication.

Robert T. Brown,
Chicago, Ill

Hey DX'ers, Try for This One

I picked up a used baby monitor at a yard sale. That has enabled me to set up my own very low power (3 watt) station on 49.83 MHz. It's called *Radio Clareview 174*, and operates about twice a week. Besides discussing radio topics, sometimes it monitors Cambridge Bay and other aeronautical stations. Wish I could get a better signal for my station.

Trevor Fletcher,
Alberta, Canada

Trevor, what do you think might happen if you could figure out a safe and effective way to feed the feeble output of that baby monitor into a good 6-meter band ham antenna? The output of a wireless baby monitor is designed to be fed into power lines, so it may not be a very practical idea. But it conjures up amazing fantasies, anyway. I'm extremely proud to say that the wonderful readers of POP'COMM are the only people who have a perspective on things that would allow them buy a used baby monitor and immediately see its potential as a broadcasting station.—Editor.

HF 150 IBS★★★★

**REAL RADIO, RUGGED,
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Simplicity makes the HF150 easy to operate, and the synchronous detection produces superb audio which enhances the outstanding performance!

- Frequency: 30kHz - 30MHz
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- Includes FREE AC adaptor
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**New for the
LOWE HF150
Display Back-
Light kit for
LCD readout.**

**The BL150 is easily
installed, instructions
included.**



LOWE



*The SP 150, PR 150 and the HF 150 shown
pictured on the three tier rack system.*

SP150

**New....Just Released!
The Ultimate
Lowe Accessory!**

The latest from Lowe is a combination audio filter, amplifier and speaker. Works well with any SW receiver or transceiver, but designed to compliment the HF150 and PR150.

Features:

- 10W Audio amplifier
- Variable notch filter
- High pass filter
- Low pass filter
- Built-in loudspeaker
- External speaker output
- Headphone output



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While a perfect match to the HF 150, this excellent unit is very effective with other SW receivers. Lowe's recently revamped model obtains wide coverage of 100KHz to 30MHz through the use of seven tunable bandpass filters. Multiple antenna inputs, pre-amp attenuator and much more. Hear what you've been missing by eliminating intermod & image interference.

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Size: 7.3"w x 3.2"H x 6.3"D



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- Built-In Speaker, Ext. Speaker, Rec. Jacks
- 10-15VDC .15A (.3A MAX) AC/Nicads Opt.
- Size 10"W x 4.2"H x 8"D; 4.18 lbs.



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ACARS FROM LOWE.....The Air Master!

The Lowe Air Master is a super combination of hardware and software for the receiving and decoding of ACARS (Aircraft Communications Addressing and Reporting System). This is a new teletype message format used to transmit data between commercial aircraft and airport ground stations. ACARS was developed and implemented to reduce the work load of flight crews by using computers to handle routine communications. This information is transferred via VHF to the ACARS ground station. Generally speaking, if your customer is able to receive VHF voice transmission, then ACARS traffic should be no problem from the same source. When using the Air Master software with your PC and an air-band receiver, you'll be able to view the ACARS messages as they are received. The package includes the MS-DOS software for use with a 386 or higher PC, the computer interface and manual. The interest level in this market is growing rapidly. Be sure to get a demo or evaluation unit for your store. Look for upcoming product reviews and new product releases.

Two or three tier rack mounts, along with a variety of accessories are also available from EDCO. Keypads for the HF150 and HF225, Carrying Cases, Mounting Brackets, and a Computer Control Interface are just a few of the extras which can give you optimum performance of your LOWE product. Contact EDCO for full details.



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Scanning Environmental Conservation Efforts

*They Really Are Trying to Save Natural Resources!
Take a Listen!*

BY RICK MASLAU, KNY2GL

Public agencies and also some private organizations are making major efforts to save, rescue, preserve, and conserve what's left of our corner of the world. Why not turn on your scanner and tune in to the progress?

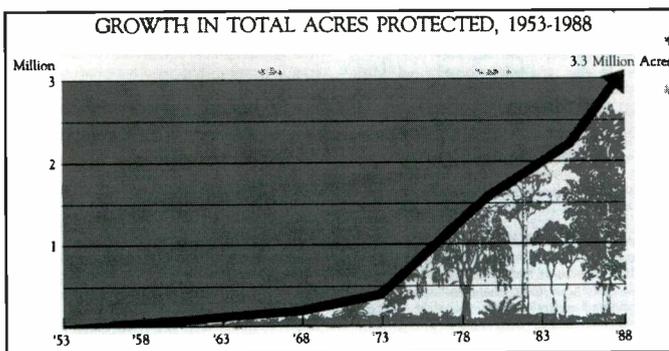
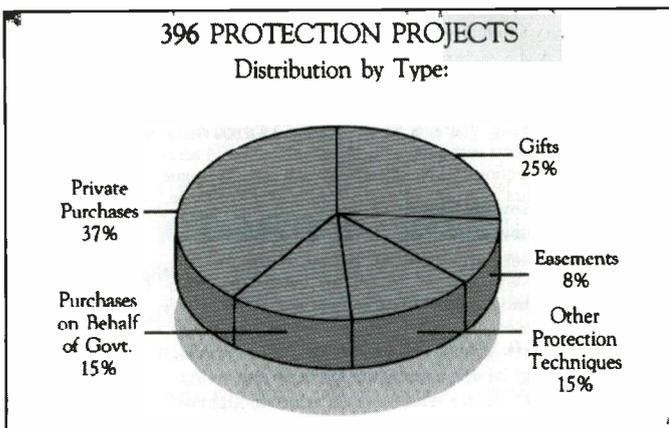
Much of this activity takes place in the Forestry Conservation Radio Service, and you can scan in your area for active frequencies in the bands: 30.86 to 31.98 MHz; 44.64 to 45.04 MHz; 151.145 to 151.475 MHz; 159.225 to 159.265; and 453.05 to 453.95. Note that some of the frequencies in these bands are shared with stations in other radio services.

The United States Department of the Interior operates the U.S. Forest Service, also the Bureau of Land Management. A complete listing of every frequency used would be too extensive to present here, however in the event of major threats to the environment, certain frequencies do come into play.

At such times, monitor the following U.S. Forestry Service frequencies: 168.05, 168.075, 168.10, 168.20, 168.60, and 168.70 MHz. In western states, the Forestry Service coordinated its forest fighting activities with state and other firefighting agencies on 170.425, 170.757, 171.475, 172.275, and 172.375 MHz. In eastern states, this takes place on 170.475, 171.425, and 171.575 MHz. General coordination with involved non-firefighting agencies takes place on 171.475 and 172.275 MHz.

U.S. Forestry Service aircraft operations can be monitored on 118.825, 118.95, 118.975, 119.95, 119.975, 122.75, 122.8, 122.9, 122.925, 123.05, 123.075, 166.675, 167.95, 168.55, 168.625, 168.65, 169.15, 169.20, and 170.00 MHz.

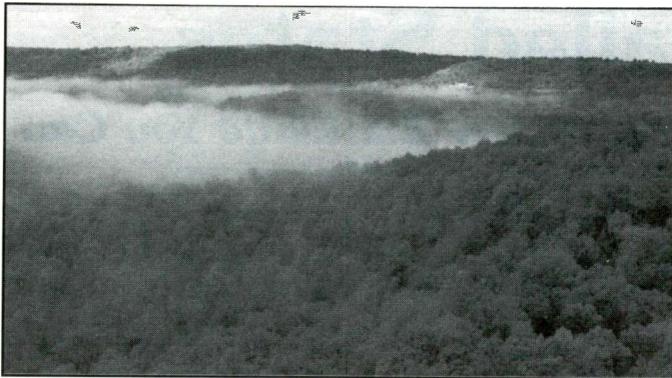
Scan The Bureau of Land Management's special activities on 166.775, 167.10, 167.25, 168.40, 168.45, 168.475, 169.35, 169.40, and 171.725 MHz.



The Nature Conservancy continuously obtains new land areas as a result of purchases and donations from landowners. According to TNC's 1988 Annual Report, these graphs show distribution of protection projects, and growth in areas protected, respectively.



The Patagonia-Sonoita Creek Sanctuary, monitored on 461.625 MHz, harbors terrestrial and aquatic animals, avian life, and during spring and fall migrations, warblers.



Ohio's Edge of Appalachia Preserve System encompasses 6,000 acres, and designated specifically for research and educational use. Visitors can utilize one of the Preserve's many trails while monitoring activity on their portable scanners.

Oil and toxic spills in our waterways are contained and cleaned up with activity on the following channels: 36.25, 41.71, 122.925, 150.98, 154.585, 156.75, 157.075, 157.125, 158.445, 159.48, 163.175, 164.45, 165.3125, 168.50, 454.00, and 459.00 MHz.

Of course, remember that state governments also maintain natural resources agencies dedicated towards preserving the integrity of our forests and waterways. These agencies can be monitored on your scanner. You should be able to learn those channels from local sources. The Environment Protection Agency is most often monitored on 164.45 MHz.

Next, we really should consider the good efforts of The Nature Conservancy, especially since they offer scanner potentials. You may have seen this group listed as a donor to some of the nature programs on television's Public Broadcasting System. Chances are that you never stopped to find out what it is, and you didn't realize that it's a nationwide organization whose activities can be monitored on a scanner.

TNC has been in operation since 1951 and defines itself as "an international non-profit organization." It's a private group that seeks to acquire tracts of ecologically important land so that it can be assured of continued existence in its natural state without threat from real estate and other commercial developers. TNC is constantly acquiring new tracts of land (at a rate of about 1,000 acres



Samuel H. Ordway Prairie is one of TNC's largest prairie preserves. The area is strewn with both short and tall grasses, 400 wetlands, and prairie potholes serving as productive waterfowl habitats and breeding areas.

per day) as a result of purchases and donations of land by concerned landowners.

Whether the land is wetlands, forest, or desert, TNC maintains it as a sanctuary for endangered species of fish, wildlife, and even plants. Through the 436,000 members of TNC and an army of volunteers, there are now more than 1,000 nature preserves and sanctuaries over 3.5 million acres that will never be turned into beach front condos, factory sites, and other enterprises that could endanger wildlife and the land itself. Through the direct efforts of TNC, the habitats of a number of endangered species have been saved from imminent extinction. These efforts often involve multi-million dollar biodiverse conservation projects. One recent project covered four states, cost \$10.30-million, and was intended to save the habitats of crucial species at some one hundred sites along the 407-mile course of the Connecticut River.

TNC does permit some public access to parts of many of its preserves, usually determined by the season of the year as well as considerations for any possible impact upon the natural lifecycles of the specie in individual preserves. There are virtually no visitors' facilities at any of these preserves, although some are quite large. Pine Butte Swamp Preserve in Montana, covers 12,445 acres; Cross Ranch Preserve, North Dakota, and Edge of Appalachia Preserve in Ohio, each cover 6,000 acres; the Samuel H. Ordway, Jr., and Memorial Prairie Preserves, both in South Dakota, are 7,600 acres; while the Virginia Coast Reserve is 35,000 acres in size.

Persons wishing to visit any of TNC's preserves are advised to contact any of TNC's regional and/or field offices in advance regarding their plans. Also, The Nature Conservancy's National Office, 1800 North Kent St., Arlington, VA 22209, may be contacted for advice on the locations of preserves, or regional and field offices.

Scanning the TNC

The naturalists and others who work within some of the sanctuaries and preserves are equipped with communications systems licensed in various radio services. For those of us "natural types" who venture forth, scanner equipped, into landscape, these TNC communications activities are a new challenge for they have never before been written about.

The 300-acre Cascade Head Natural Area near Otis, Oregon, has handheld units known to be in 151.625 MHz. This same frequency is in use for a base station and various portables and mobiles at the 113-acre Blowing Rocks Preserve, in Jupiter Island (Tequesta), Florida.

The 2,000-acre Mashomack Preserve on New York's Shelter Island runs its communications on 159.24 MHz in the Forestry Conservation Radio Service. The huge Virginia Coast Reserve, Virginia, operates in the VHF-FM marine band as KYR355 on 156.45 MHz (VHF-FM Channel 9).

Operations in the area of Santa Barbara, California, are on 463.40 and 463.3875 MHz. This may possibly be used in conjunction with operations at the Nipomo Dunes Preserve, presently 567-acres in size, but planned to eventually be 5,700 acres when completed.

In Arizona, TNC operates the Patagonia-Sonoita Creek Sanctuary, southeast of Tucson. This facility operates on 461.625 MHz. Michigan's Grass Valley Preserve, east of Cheboygan, uses 151.625 MHz. Another facility on 151.625 MHz is the 6,000-acre Edge of Appalachia Preserve System, which is located southeast of Cincinnati.

The Cross Ranch Preserve, near Hensler, North Dakota, also covers 6,000 acres. Scan here in 154.57 MHz.

TNC's Kamakou Preserve, on Molokai, Hawaii, covers nearly 3,000 acres. Operations here take place on 151.145 and 159.345 MHz.

TNC handhelds operating from any of their facilities may turn up on 151.625 and 154.57 MHz, and we suspect also 471.7375 and 476.7675 MHz. Would be a good idea to check out these frequencies at any TNC location. ■

DX'ing the Failed States

23 Nations Teetering on the Brink: Catch 'Em While You Can

BY GERRY L. DEXTER

Somalia. Bosnia. Rwanda. Haiti. One by one they've taken their turn making headlines on the nightly news over the past year. They are members of a most unhappy group—the "Failed States."

That's a new buzz-term beginning its way into the public consciousness. People in the U.S. government, the United Nations, and in various think tanks who devote themselves to studying the world situation came up with the term. It's a phrase applied to two dozen or so of the world's nations which seem as good as doomed, or seem to be rapidly heading down the road towards disintegration.

The experts are citing a number of reasons for what they see as the coming fall of these nations. High on the list is the Cold War. The U.S. and the Soviet Union poured billions of dollars into many of these nations and tuned them into client states. Much of the money these countries received went to buy arms—and a good deal of it also went into the pockets of the Number One Guy at the time—instead of being spent on improving health, schools, roads, agriculture techniques, roads, and developing industry. These places aren't getting anything like the big bucks they once did and the ex-dictator may have absconded to live in grand style on the Riviera, taking much of the treasury with him.

Beyond the problems caused by the decades of competition between the world's super powers, there are many other reasons why these countries stand on the precipice. Some of them simply have too many people to support, considering their limited resources. Agricultural methods that don't produce enough. In some countries decades of environmental misuse has left land simply worn out. When famine strikes, great masses of humanity go on the move, searching for food, unconcerned about national borders. Thus, a next-door government may suddenly find itself with several hundred thousand extra people—putting even more strain on its own limited resources.

Ethnic and tribal hostilities lead to civil war, which creates the same result, seen most recently in the heart-breaking tale of Rwanda. Although none in recent decades have matched Rwanda for horror and brutality, several other countries have experienced or are now suffering through civil war. When a nation has serious problems, a civil war can be the final blow.

While some borderline Third World states are making progress, many experts fear that potential internal problems (such as rapid population growth or the religi-

ous/ethnic hatreds threatening to boil over) or those of a country next door will spill over and bring them down, too. A few of the gloomiest predictions even envision such countries as India, China, and Pakistan headed for major problems.

Meantime, the people of Washington, New York, London, and the other great capitals who must worry about the problem haven't found any answers. And they are well aware that if the trend continues or, even worse the chaos spreads, the problems of the have-not nations will present the "haves" with serious consequences.

While the experts try to come up with a policy, and we all wait and wonder which failed state will be the next in the headlines, how about if we turn on our shortwave sets and try tuning them in!

Afghanistan

After the Soviet Union gave up trying to win against the Mujahedin, the latter kept up their campaign against the government and finally took over. But fighting between various factions continued.

Radio Afghanistan was never one of shortwave's big guns and it is much less so today. It uses 9635 from 1430 to 1930, variously in Arabic, Urdu, English, French, German, Russian, and Pushtu/Dari. The Kabul City Service program is relayed on 4773 between 1300 and 1530, so it might be possible to hear that around 1300, but only in the dead of winter.

Angola

Angola has suffered through a protracted civil war, with the leftist government—once a Moscow client—fighting Jonas Savimbi's UNITA guerrillas, once backed by the U.S. Peace accords—even an election, haven't brought the troubles to an end.

Reception of Radio Nacional Angola is a sometime thing in North America. English is scheduled at 2000 to 2100 on 9535, but this is seldom picked up by monitors. Try also 4951, in Portuguese, around 0400-0500. Next summer, when the band is again open that late, check 11955 for the 0500 sign on in Portuguese.

Some years ago, there were many Angolan regional stations on the air, but these have dwindled down to a precious few. Try Benguela on 5041, signing on around 0350, in Portuguese. It seems to be the only one currently active.

Algeria

Islamic fundamentalists won big in elections a couple of years back and the government promptly voided the results. Re-

portedly, the movement is growing and some people, fearing the direction the future may take, are getting out of the country taking their expertise with them. A growing population and economic woes are adding to the worries.

Radio Algeria has English (not for North America, though) at 1800-1900 on 9535 and 17745 and at 2100-2200 on 11715. It's not particularly easy to hear.

Bosnia

You can't have missed hearing about the mess in Bosnia and much of the rest of the former Yugoslavia. Most of us long ago lost count of the number of cease-fires agreed to, only to be tossed aside like a spent match in order to get on with the work of ethnic cleansing.

Radio Bosnia-Hercegovina has a transmitter using 6220 (USB) supposedly on a 24-hour basis, but it is low-power and difficult to pick up very well or very regularly. Bosnian/Serb radio is currently relayed via Radio Yugoslavia on 11870 from 0100-0130.

Burundi

The experts fear that Burundi is a time bomb—one that is ticking. Much of the same ingredients which led to the Rwandan horrors also exist in Burundi, so we could see a similar tragedy in this next-door nation.

Radiodiffusion Nationale de la Republic du Burundi, a.k.a. La Voix de la Revolution, is another tough log. A 100 kW transmitter operates on 6140, sign on at 0300, and sign off at 2100, but it is rarely heard.

Chad

Here is a history of war between Moslem rebels in the north, and animists and Christians in the south. Libya and France have had their hands (and troops) in as well. Chad is a typical example of a country suffering from long term religious/ethnic conflict made worse by an interfering neighbor (Libya), leading to intervention by its former colonial master (France). Not much going for Chad even in the best of times.

Your chances of picking up Radiodiffusion Nationale Tchadienne are fairly good, given a reasonably good receiver and some patience. Check for its sign on at 0430 on 4904.5. Broadcasts are in French. Another station to try for is Radio Moundou, in the town of the same name. It signs on at 0500 on 5286, using just 5 kilowatts.

Eritrea

Once part of Ethiopia, Eritrea gained its independence after a very long civil war



GHANA BROADCASTING CORPORATION
P.O. BOX 1633
ACCRA, GHANA

Dear Sir/Madam,

Thank you for your reception report of our transmission(s)

on 9760 kc/s heard at 2015-2025
 G.M.T. on 24:12:66

We have pleasure in verifying your report which is much appreciated.

Date 9:2:67
PE/W 07/5444



[Signature]
 for Director of Broadcasting

The Ghana Broadcasting Services' international service on 6130 is gone. But you can still hear 'em in 4915.

waged by the Eritrean People's Liberation Front, an effort which pretty much exhausted both its people and those of Ethiopia. Famine, if not immediately present, always lurks in the horizon in both countries.

The Voice of the Broad Masses of Eritrea (once the EPLF's clandestine radio) is best tried for at its 0330 sign on. Check 7020 and 7380 for the program service aired variously in the local languages Afar, Tigre, and Tigrigna.

Ethiopia

Ethiopia has suffered through a long and rather strange dictatorship, wars against its neighbors, multiple famines and civil wars (Tigre Province also fought Addis Ababa for its independence).

The Voice of Ethiopia airs English at 1500 on 9560 but it's a very tough catch. You're better off trying to hear the opening broadcast in the local Amharic language. Try 7110 at 0330 sign on.

Georgia

Independence from the former Soviet Union was not a ticket to overnight peace and prosperity. Georgia, almost immediately, faced an internal struggle between the government and a breakaway rebel group. It continues to be torn by strife and faces an uncertain future.

Georgian Radio has several broadcasts in English, beamed to Europe and North Africa. Try 0530 to 0600 on 9585, 11805 and 11910 (the former frequency may be "dead" at that hour, certainly the latter one will be) at this time of year. Better options these days are 1530 to 1600 on 11910 and 1700 to 1730 on 9565.

Ghana

Ghana is described in one report as being at the edge of disaster. That may also

describe the state of their radio broadcasting, for recently the Ghana Broadcasting Corporation gave up on its international service—on 6130—which was really intended mostly for Africa, anyway). The GBC's local networks are still relayed on shortwave, however. Check 4915 from sign on at 0525 and listen for the news in English at 0600.

Haiti

American Forces are patrolling the streets of Port au Prince, Cap Haitien, and other towns as the U.S. tries to reinstate democracy in this country—the poorest in the entire Western Hemisphere.

Shortwave radio from Haiti has been non-existent for years, though at one time there were several active outlets. The last shortwave station, well known missionary station 4VEH, has been off shortwave for several years now. At this writing, there were a couple of programs being broadcast to Haiti from outside the country, including one by Aristide, but if Aristide has been reinstalled these will probably have gone off the air. The U.S. government is (or was) airing Radio Democracy (on 1035 kHz medium wave) from an airplane. You might try listening on 8560 upper sideband, where U.S. military communications within Haiti are being reported.

Kenya

Like Ghana, Kenya is also described as a nation on the edge. It is surrounded by other countries with overwhelming problems, including Rwanda and Burundi.

Reception of the Kenya Broadcasting Corporation's shortwave signals is anything but a daily occurrence for most North American monitors, although you east coasters will be luckier more frequently. Your most likely opportunities are the General Service on in English on 4935 after 0200. Or, the Central Service, aired in Hindi and local languages from 0300 on 4915.

Liberia

Liberia suffered through a long, brutal civil war that destroyed a lot of the country's infrastructure, including most radio stations (the VOA lost is relay station there, as did the religious broadcaster, ELWA). More than half of the population became refugees. Despite a peace agreement, new fighting broke out earlier this year.

ELWA is back on the air and operates

QSL YOUR REPORT OF March 13, 1984
 OF OUR SIGNAL ON 3255 KHz AT 23.10 GMT
 BROADCASTING ON MW, SW AND FM FROM
 MONROVIA, LIBERIA

TX POWERS: 50 KW (3.255 MHz) SW
 10 KW (6.090 MHz) SW
 10 KW (629 KHz) MW
 2.5 KW (89.9 MHz) FM

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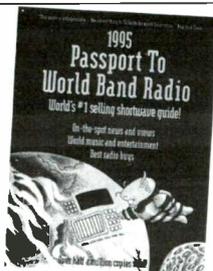
A QSDL from Liberian government radio, before the civil war racked the country.

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VOICE OF NIGERIA

THE EXTERNAL SERVICE OF THE FEDERAL RADIO CORPORATION
OF NIGERIA

BROADCASTING

29 - 4 - 1986

Thank you for your report of 13/3

1986 at 0510 hrs G.M.T.

I have pleasure in confirming that the
transmission was from our Von

transmitter on 7255 KHZ

[Signature]
CHIEF ENGINEER

National Research & Development.



Printed by Eniguese Victorious Enterprises



Murtala Muhammed International Airport, Lagos, at the background.

The only outlet left of The Voice of Nigeria's international service is on 7255.

on 4760, signing on at 0600, in English. There are two stations using the name "Liberian Broadcasting System." One of them, operated by the African peace keeping force in the country, operates from Monrovia on 7275 with sign on at 0650. The other LBS is the voice of the National Patriotic Front, broadcasting from Gbaranga on 3255 with an 0600 sign on. All of these operate at other times as well but the above present the only reasonable change of reception—and they've all been logged in North America at one time or another.

Mozambique

This country on Africa's southeast coast went through many years of civil war, one side backed by the U.S., the other by the Soviet Union. All that accomplished was tremendous damage. A case, again, of losing most of what little the country had before.

Radio Mozambique is a toughie to hear. Most of the channels sign on at 0250 or 0255, in Portuguese or the local Tsonga language. Check 3211, 3281, 3338, 4855, 4865, or 7113. Also 9618 at 0400 sign on, though the summertime offers a better chance to hear that one.

Niger

Niger faces a landscape not conducive to growing crops. There are frequent food shortages and periodic threats of famine.

The government station, La Voz du Sahel, broadcasts from the capital, Niamey, and can be heard quite frequently, especially during good conditions to the African continent. Check 5020 for the 0430 sign on, in French.

Nigeria

The most populous country on the continent, Nigeria has had problems maintaining a stable government. Despite its oil advantage, the economy is in bad shape.

Nigeria's deteriorating shortwave service reflects what's going on in the country. At one time Nigeria had regional shortwave outlets in many of its provinces, and plans for even more. Now only a couple of them continue in operation: Radio Nigeria at Kaduna in 4770, which signs in at 0400 (English at 0430) and from Enugu on 6025, also signing on at 0430. In our wintertime you may hear this around 2300 as well. The only remaining outlet for the Voice of Nigeria—the international service, is 7255, which signs on at 0455 and is fairly easily heard most nights.

Rwanda

The civil war here k.o.'ed both the government's Radio Rwanda and the Deutsche Welle relay, but the rebel's Radio Muhabura, broadcasting from secure territory, stayed on. Now that the RPF controls the government it has begun to reinstate the government radio.

Radio Rwanda has reactivated 6055 but its international service in the higher frequencies—so well heard just before the insanity began—is still silent. As this is written, 6055 is reported at times impossible for reception in North America, but try the former sign on time of 0300, just in case it is active then. It might be a good idea to keep an ear open in the event these former frequencies have been activated—9610 between 1400 and 1800, and 15340 from 1800 to 2100.

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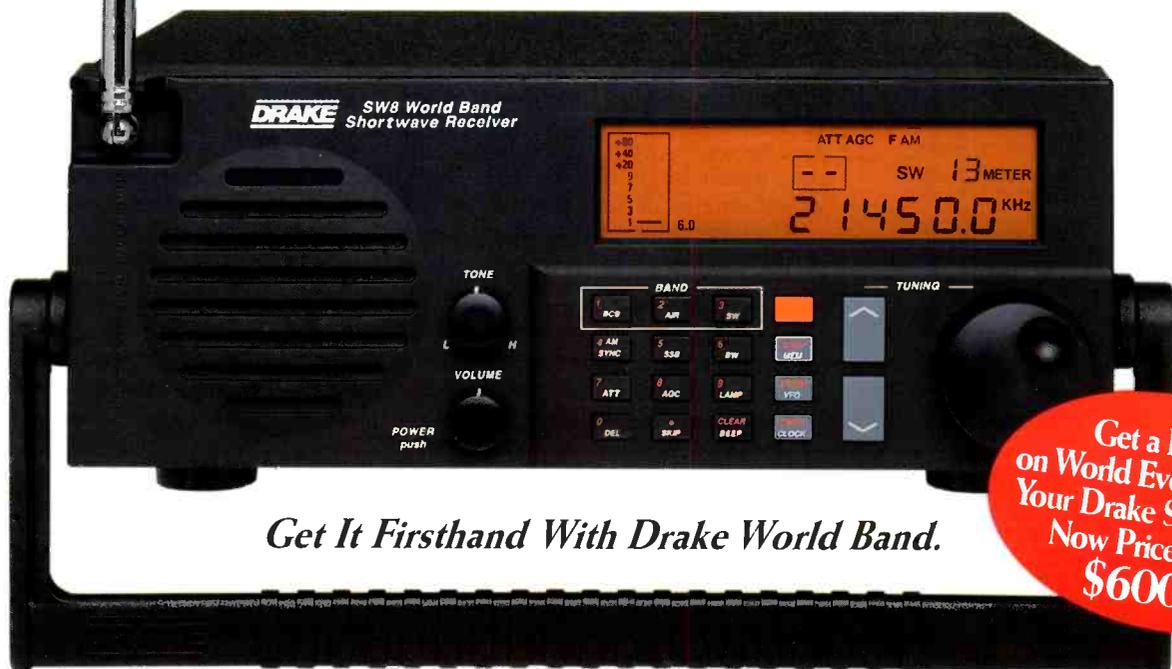
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CIRCLE 53 ON READER SERVICE CARD

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RADIO SANA'A
Technical Department

الجمهورية العربية اليمنية
الدائرة العامة للاذاعة والتلفزيون
إذاعة صنعاء
الإدارة الفنية

Dear sir

With great pleasure we received your reception report for the short wave programme of radio SANA'A.

In the following we are glad to confirm your submitted data -:

RADIO SANA'A

Frequency - : 9780 Khz Date of reception _____

By - : Tom Hartley _____

In - : U.S.A. _____

S I N P O Code reported - : B 5433 to 53333

The programme details mention in your report had been checked and found correct.

Thank you for listening RADIO SANA'A and kind regards from the
YEMEN ARAB REPUBLIC.

Date - : 19/2/87

Yours faithfully
Technical Director Of
RADIO SANA'A

Yemen Republic Radio operates on 9779. It's easier heard than QSL'ed

Sierra Leone

The economy of this West African nation, founded by Britain in the late 1700s as a haven for freed slaves, has been in deep trouble for years. It's classified by the experts as a borderline situation.

The Sierra Leone Broadcasting Service certainly qualifies as a "borderline" catch. Reception is certainly possible, but it will probably require you to make a lot of attempts. You need to monitor 3316 for the sign on, which occurs at 0558.

Somalia

Another civil war, more death and devastation. Despite the U.S. invasion designed to end the conflict and despite the U.S./UN peacekeeping and "nation-building" effort, things pretty much reverted back to square one.

Along with the everything else, much of the radio structure here has also been wrecked. Radio Mogadishu, the "real" gov-

ernment station seems not to have its former 7200 frequency in use—and that was the easiest to hear at its 0300 sign on. "Fer shur" information is hard to come by, but current listed frequencies are 6968 and 9475, both variable at 0400-0500. Radio Manta, which is the voice of the UN peace-keeping forces, operates on 6170 and 9540 from 0415—but with less than 100 watts so you can probably forget that one. The Voice of Free Somalia operated on 7460 at 0400 to 0600, but hasn't been heard in North America as far as is known.

Sudan

This country was racked by years of civil war and plagued by as many or more years of hunger and refugee influx, not to mention the two million people made homeless by torrential rains a few years ago.

Radio Omdurman—the Sudan National Broadcasting Service—is a reasonably easy catch (especially compared to some of the

WRTH
BEST RECEIVER 1992

As changing world events bring us all closer, it's exciting to get the news direct from a foreign station. So tune in and listen – even when you're 12 time zones away. The drama of survival efforts. Crisis monitoring when conventional communications break down. The uncertainty of economic trends. And colorful cultural activities.

Don't wait for someone else to tell you what's happening. The FRG-100 Worldwide Desktop Communications Receiver puts you in the action now! The FRG-100 is a winner, too. It won the prestigious WRTH award for "Best Communications Receiver" in December 1992. No surprise with exclusive features like adjustable SSB carrier offset and selectable tuning steps in 10, 100 and 1000 Hz.

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- Operates on AC or DC
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Specifications subject to change without notice. Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.

FOR YOUR LISTENING PLEASURE . . .

Announcing The New...Tucker SW-500

Portable Shortwave Active Antenna / Tuner

Yours For Only \$79⁹⁵

If you want to expand your range or just want to get better reception from the stations you currently listen to, we have developed the new TUCKER SW-500 Active Antenna. This portable (only 1.75" x 5.5" x 4.6") antenna is perfect for indoor use by itself, in conjunction with an outside antenna or both! Just look at all this great little antenna gives you:

AMPLIFIED RECEPTION OF AM AND ALL SHORTWAVE BANDS:

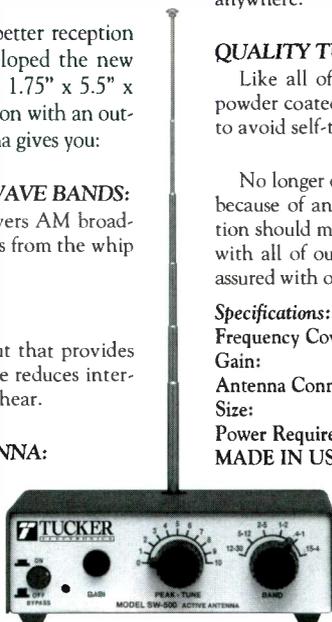
Our antenna tunes from 200 kHz to 30 MHz which covers AM broadcast, all shortwave and all amateur radio bands. The signals from the whip are electronically amplified by as much as 10 dB!

WE USE TUNED INPUT CIRCUITRY:

Unlike previous designs, our antenna uses a tuned input that provides selectivity (controllable from the front-panel) and therefore reduces interference and noise and increases the signal you DO want to hear.

USE IT BY ITSELF OR WITH YOUR OUTSIDE ANTENNA:

This antenna works great indoors with the supplied whip or connect your outside antenna to it for even greater reception. You can select between the two from a front-panel switch. Your outside antenna can then be tuned and amplified. You can even disconnect both antennas from the circuit and use your radio's antenna.



COMPLETELY PORTABLE... TAKE IT ON YOUR NEXT TRIP:

With its small size and low current requirements (it uses a 9 V battery or AC with supplied AC adapter), the SW-500 is great to pack with your shortwave radio on your next trip for much improved shortwave reception anywhere.

QUALITY TUCKER BRAND CONSTRUCTION:

Like all of our products, construction is first rate with an electronic powder coated painted cover and alodined chassis. We even use pem nuts to avoid self-tapping screws. This antenna is built in the USA to last.

No longer do apartment and condo dwellers have to suffer poor reception because of antenna restrictions! Anyone wanting better shortwave reception should make the new Tucker SW-500 a part of their listening post! As with all of our other Tucker Brand products, your complete satisfaction is assured with our no-risk 30 day SATISFACTION PLUS guarantee.

Specifications:

Frequency Coverage:	200 kHz-30 MHz	Tucker SatisfactionPlus 30 Days - No Questions Asked Guarantee
Gain:	-3 to 10 dB selectable	
Antenna Connections:	RCA jacks (1 input, 1 output)	
Size:	1.75"H x 5.5"W x 4.6"D	
Power Requirements:	9 VDC (9 V battery or supplied 120 VAC adapter)	
MADE IN USA		

FedEx Economy Service available on most orders **for only \$6⁹⁵**

We gladly accept these:



Sigma SE 1300 Only \$89

VHF/UHF Discone Antenna

If you've been looking for a superior wide band omni-directional antenna covering 25 to 1300 MHz, this is it! The SE 1300 is the ultimate wideband omni-directional antenna for hours of listening pleasure. Not only is it a receiving antenna, but it can also transmit on 50 MHz, 144 MHz, 430 MHz, 900 MHz and 1200 MHz with a maximum power rating of 200 watts. The antenna has stainless steel construction and comes complete with low-loss "N" connector, mounting kit and short mast section. The SE 1300 is excellent for indoor installation since it's only 5' 6" and weighs just 2.2 lbs, yet its construction and weather protected feedpoint beg to be out in the elements. This antenna is a must if you want the best possible results! Also available as Diamond D-130 w/PL-259 connector.....\$99



JIM M75

GaAs FET VHF/UHF Scanner Pre-Amp

Only \$99



State of the art surface-mount technology coupled with features not found on other pre-amps makes the M75 simply the best. Wide band (24 to 2150 MHz), variable gain -10 dB (attenuation) to +20 dB gain. Bandwidth selector switch covers 3 bands:

- a) 225 to 1500 MHz-reduces TV, FM and Hi Power VHF pagers for clear UHF Airband, PSB, Cellular etc.;
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- c) wide open 24 to 2150 MHz, low noise figure 2 dB gain. Comes with a BNC connector. Requires 12 VDC or 9V battery.

Sony ICF-SW100S

World Band Receiver

Only \$349



This new receiver gives you outstanding performance in a radio small enough to fit in your shirt pocket. It is the smallest radio available that features synchronous detection. This ultimate travel radio is perfect for taking abroad with its world time clock that is adjustable to any time zone by setting it to the names of major cities around the world. It can also wake you up every morning with its built in dual clock/alarm. Keeping track of each of its 50 memories is a snap because you can store the name of the station on the LCD display. Covers 150 kHz to 30 MHz continuously as well as AM broadcast and FM stereo. Comes complete with AC power adapter, stereo headphones, power supplied active antenna, shortwave guide and carrying case. Measures only 4 1/8" x 1 1/8" x 2 3/8".



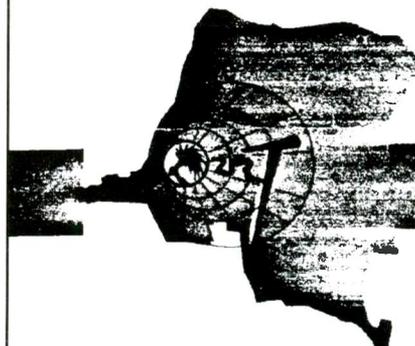
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REPUBLIQUE DU ZAIRE



OFFICE ZAISOIS DE RADIODIFFUSION ET DE TELEVISION

KBANDAKI, le 16.05.1990

DIRECTION REGIONALE DE L'EQUATEUR.-

A QSL from Zaire, back in the days when they were more easily heard.

ETAT DU KATANGA
RADIO - KATANGA
SERVICE TECHNIQUE

Elisabethville le 15/2/61

Q.S.L.

Sir,

6 March

We are thankful for your listening report of the concerning our experimental BROADCAST on 11866Kcs/sec.

Your report was correct and very helpful for our technical service,

We hop reading you again in the near future.

Soon we'l be able to answer by printed Q.S.L.

card. Thanking you again we remain

Yours cordially.

Minister of Information

= L. SAMALANGE =

Radio Katanga was the voice of Zaire's break-away Katanga Province 30-plus years ago. The civil war was the first of the many problems Zaire has faced.

others we've discussed). Try 9200 between 1700 and 1900, with the second half in English. This channel replaces the formerly used 9170; 9165 was used before that and 9370 was recently used briefly. Soit might be wise to tune around the whole area if you don't find anything on 9200.

Tadzhikistan

This ex-USSR republic has been undergoing a civil war almost since it gained its independence from Moscow.

Catching signals from this one is no

mean trick. Check the home service outlet on 4635 in your early winter mornings. There's also a slight chance of hearing the foreign service of Tadjik Radio from Dushambe on 7245 at 1400 sign on.

Yemen

North Yemen (capital San'a) and South Yemen (Aden) fought a long war some years back, then "settled" everything and joined to form the Republic of Yemen. After just four years of unity, though, that arrangement fell apart and they've split

again. The San'a is still operating on 9779, signing on at 0300 and again at 1000 (which is no help), but running through to after 2130, so it's also possible to hear it at that hour.

Zaire

Zaire has had an endless string of problems, almost from the day it gained independence from Belgium. The government has been in various stages of turmoil for the past several years and fighting between ethnic groups is common.

Much of the La Voix du Zaire facilities are off the air or are active only on an intermittent basis. The most likely candidate for activity is probably Lubumbashi on 7202, scheduled for an 0300 sign on. Radio Bukavu was recently reported in Europe on 6552, but at 1830—an impossible time for us. You might check this frequency around 0300 or 0400 just in case it's active then, which would be around a normal sign on time. An educational station, Radio Candip, is occasionally active on 5066 variable, signing on at 0330.

A World of Change

It's probably safe to say that we are living through a period in which there are mire geo-political changes taking place than at any time since the years immediately following World War II or the sweep of independence through Africa in the early 1960's. That means there is just as much change happening ion shortwave—stations disappearing, new ones being born, clandestine and surrogate broadcasters, special broadcasts to peacekeeping forces, unusual relays and whatnot.

Surely this is an exciting time to be monitoring the shortwave broadcasting bands. So get that radio turned on to some serious listening, get involved and report what you're hearing to POP'COMM's Listening Post! Good listening!

Radio: As it Was

The Era When a Homebuilt Ham Station Could Evolve into a Broadcaster

BY ALICE BRANNIGAN

By the late 1940's, Willis Otto, of Rock Island, Ill., still had some passing interest in radio. It was nothing at all like the two years he had much earlier spent putting the small nearby community of Cambridge on the map with his homemade station, WTAP, which later became WHBF (presently known as WKBF), Rock Island, Ill.

Otto began tinkering with wireless in 1909, when he was ten years old. Soon, he had built his first receiver. The workshop in the rear of his family home was the center of interest for visitors. Everybody wanted a demonstration of wireless.

Station WTAP had its beginnings in September, 1915, under the ham callsign 9APK. A spark coil was the transmitter. The receiver was a crystal detector, some telephone parts, plus some pieces of hay wire. He spent every spare minute working with his radio equipment. Once he wrote in his station log, "Couldn't stay long tonight, had to go to band practice." Between April of 1917 and June of 1919, all amateurs were off the air for the duration of the war.



In 1950, WHBF moved into the Telco Building, Rock Island, Ill.

In Cambridge, where his Dad was the Rock Island Lines agent, Willis Otto and a friend made all of the parts they would need to convert 9APK into a 100-watt broadcasting station. They assembled the parts,

and began testing in August. On October 5, 1923, the 1240 kHz station was issued the call letters WTAP, with the licensee being Cambridge Radio and Electric Co.

In February, 1924, Otto offered to

C. L. BEARDSLEY, MGR. PHONE R. I. 1762 J. E. GRAY, OPERATOR

RADIO STATION W H B F

247.8 METERS 1210 KILOCYCLES

OWNED AND OPERATED BY THE
BEARDSLEY RADIO AND SPECIALTY CO.,
ROCK ISLAND, ILL.

December 7th, 1931

Mr. Joseph Leo Hueter
1802 W. Columbia Avenue,
Philadelphia, Pa.

Dear Sir:

We are happy indeed to confirm your communication which acknowledges receipt of a program from this station on Wednesday evening. You are absolutely correct and we did broadcast a "Watch Tower" program as you mention. It pleases us to get your report and trust that you will be able to tune us in some future time. If you are saving the "Kko stamps and wish to send 10¢, we will gladly forward one of them to you as positive proof of reception.

You will note by the enclosed card that we will have a special DX program on the morning of the 10th of December. If you are able to listen in and enjoy our program, it will please us very much to hear from you.

Thanking you for your good letter and awaiting your future reports, we are

Yours very truly,
C. L. BEARDSLEY

C. L. Beardsley

E.P.T.

← This 1931 veri letter from Rock Island's WHBF is signed by owner C.L. Beardsley. It offers to sell the DX'er an EKKO stamp for ten cents. (Collection of the late Joe Hueter.)

A 1932 QSL card from WHBF mentions its monthly DX broadcast. ↓

Transmitter on the Roof Studios on the Second Floor

IN THE HARMS HOTEL
RADIO STATION

OWNED AND OPERATED BY BEARDSLEY SPECIALTY CO.

W H B F

D. X. Program Broadcast the 10th of every Month 2 to 4 A. M. C. S. T. You are invited

**ON THE BANK OF THE MISSISSIPPI
ROCK ISLAND, ILL.**

This card is to verify your report of our program broadcast
Date February 26th 1932-2nd-3rd A. Time C. S. T.

Power 100 Watts Freq. 1210 Kc.



This 1920's EKKO stamp is from WCBZ, a 50 watt station on 1210 kHz in Chicago Heights, Ill.

award a set of top grade headphones to the listener sending a report from the farthest distance. Replies came in from nearly every state. The prize was won by a listener in Drinkwater, Sask., Canada, which is 1,200 miles away.

WTAP had files filled with many DX reports. One came from London, England, and someone wrote that they picked up the station while aboard a ship located 400



This rare special-issue EKKO stamp commemorates the 1928 dedication of WLW's new 50 kW transmitter in Cincinnati, Ohio. These were made for use on WLW's commemoration program guest booklets.

miles from California, on the way to China. A woman in Atlanta, Georgia, wrote, "I can hear your program all over the house. You are the best on the map. Please send me your picture."

Willis Otto was the primary air personality on WTAP, and he often stayed on until 3 a.m. In those days, most people were night owl listeners who stayed up to the wee small hours hunting for new medium-wave DX catches, then triumphantly recording their achievements in a log book. It was a national obsession at that time, not a hobby pursued mostly by a specialized segment of the communications hobby, as (unfortunately) it has become now.

One fan wrote to WTAP, "I don't log a DX station unless I can hear it through the loudspeaker."

Another correspondent advised, "After midnight, I must use headphones so I don't keep my family awake."

"I set my speaker outside and heard your program a mile-and-a-half away," wrote a farmer in South Dakota.

Willis Otto had ambitions to erect a 500-watt station, however in February of 1925 he sold WTAP to Calvin L. Beardsley, owner of the Beardsley Specialty Company, a retail radio dealer in Rock Island.

Beardsley immediately requested the Federal Radio Commission to assign his station new call letters. The agency responded with the sequentially issued call-sign WHBF. Upon seeing the federally selected call letters, he concocted an appropriate station slogan based upon them, *Where Historic Blackhawk Fought*. The 100-watt station went into operation on 1350 kHz. The transmitter and antenna were located in Beardsley's facilities at 217 18th St. In 1928, during a major frequency shakeup, WHBF was forced to shift its operations to 1210 kHz.

The Rock Island Argus, a newspaper, purchased WHBF from Beardsley in October, 1932. The transmitter and two antenna towers were then placed on the roof of the Harms Hotel. In January of 1935, WHBF increased its power to 250 watts.

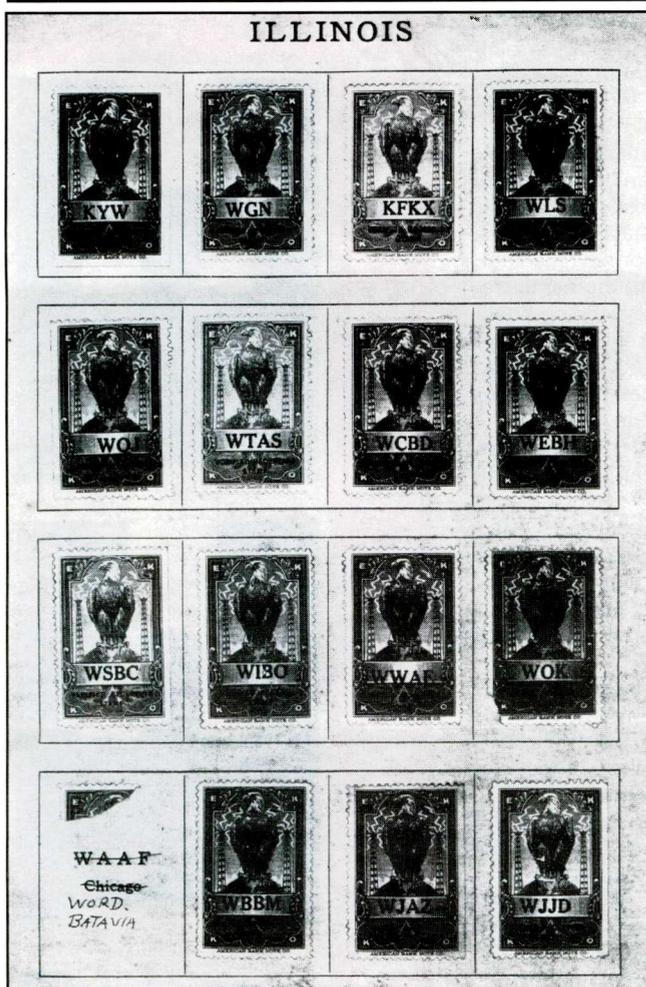
WHBF shifted over to 1240 kHz on January 1, 1939, and upped its power to 1 kW. That's when it moved its transmitting site from the Harms Hotel building to a new \$35,000 facility east of Moline, Ill. A new RCA transmitter and two 350-foot towers were installed at the facility at 52nd St. and 23rd Ave., in Moline.

In March of 1941, WHBF's power was increased to 5 kW, and the frequency was changed to 1270 kHz. Many North American stations changed frequencies at this time, in accordance with the terms of the NARBA treaty, which also extended the high frequency edge of the band from 1505 kHz to 1605 kHz.

In mid-October, 1950, the station's studios were installed in new quarters in the Telco Building, Third Ave. and 18th St., Rock Island. Offices were on the second

IF YOU TURN THIS PAGE, YOU GET SOMETHING

FREE



Dear Radio Friend:

This card, with stamp attached, verifies your reception of KFI....., KECA.....
We are happy to number you in our audience.

You may be interested in the following facts about KFI-KECA:

KFI

6.40 kilocycles—468.5 meters—50,000 watts

Operates daily from 6:45 A. M. (Pacific Standard Time) until midnight. Transmitter (most powerful West of Chicago) located at Buena Park, 21 miles southeast of Los Angeles. Studios at 1000 South Hope St., Los Angeles.

KFI has been in operation since April, 1922. Its daily programs include variety reviews, exclusive news dispatches by leased wire, finance, health and home economic talks, symphony, chamber and popular dance music.

KECA

1.430 kilocycles—210 meters—1000 watts

Operated daily from 9:00 A. M. to 11:00 P. M. (Pacific Standard Time). Transmitter at Eighth and Beacon Streets, studios at 1000 South Hope Street, Los Angeles.

KECA has operated since November, 1929. Its daily programs correspond in quality and character to those of KFI.



BOTH KFI AND KECA ARE OWNED AND OPERATED BY EARLE C. ANTHONY, INC., CALIFORNIA DISTRIBUTOR OF PACKARD MOTOR CARS, AND ARE ASSOCIATE STATIONS OF THE NATIONAL BROADCASTING COMPANY.

↑
KECA/KFI, of Los Angeles, Calif., were co-owned stations that bypassed EKKO by issuing their own verification stamps.

←
A page from an EKKO stamp album filled in the 1920's by Leroy Gove, father of one of our readers, R.A. Gove. Clarksville, Md.

floor, with studios on the third floor. The building was adjacent to the newly constructed WHBF-TV tower, put into operation in July of that year.

A new 5 kW transmitter was installed in 1951. In 1987, the station was acquired by Roth Broadcasting of Quad Cities, Inc. The call letters were changed to WKBF. It remains on 1270 kHz with 5 kW, non-directional during the day, but directional at night. WKBF is presently running a country and western format. The licensee also owns WPXR-FM (ex-WHBF-FM), 98.9 MHz, in Rock Island. It is programmed separately from the AM outlet.

These days, highly successful WKBF is the 15th oldest continuously licensed AM broadcast station. Impressive for a station that started out 80 years ago as a home-brewed ham station on the workbench in a teenager's back room.

Thanks to Jerry Rappel, WWOE, and Bob Ward, K0SVG, of Davenport, Iowa, for supplying information on Willis Otto and the early days at WTAP.

Stamp Out Radio

We continue to get a continuous trickle of inquiries about EKKO and other broadcasting stamps from the early days. Marvin Robinson, of Kentucky, wrote that he re-

members we mentioned them several years ago. Now he'd like a recap since he can't locate that issue. More than that, Marvin collects EKKO and related stamps and would like to hear from readers with similar collections.

Other readers tell us they have seen originals or photos of stamps bearing radio station call letters, but are completely puzzled by them. Some have asked if they were special postage stamps used by broadcasters. A great idea, but no such luck.

So, for all who continue to be dazzled by the beautiful multicolored stamps, here are some basics. In the 1920's, during the height of "radio mania," the EKKO company brought out a line of colorful gummed and perforated stamps showing an eagle between two radio towers. The letters E-K-K-O were in the four corners. These high quality stamps were engraved by the American Bank Note Co., and made up in the complete rainbow of standard postage stamp colors. They were as fine as any actual postage stamp. The EKKO Company made up these stamps without the permission of any broadcasters.

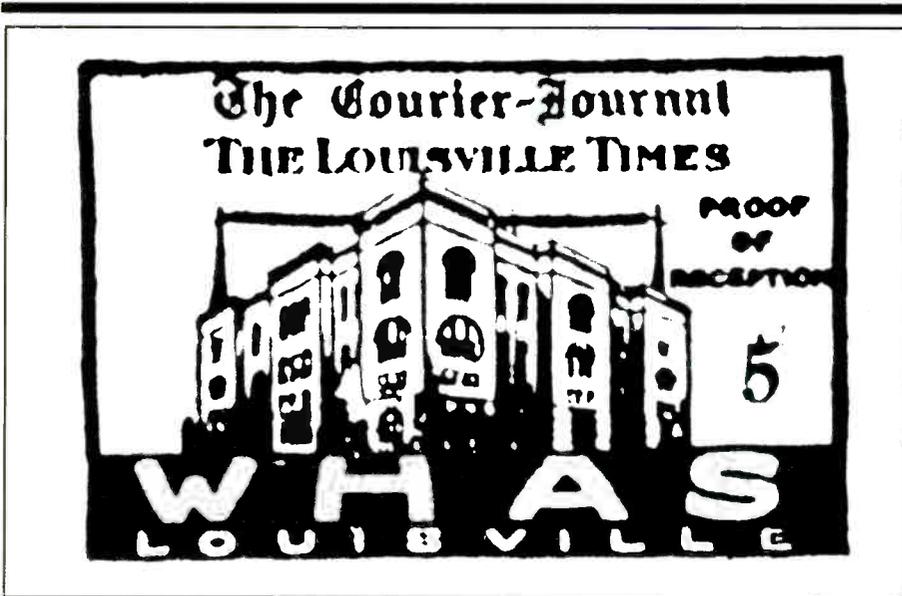
EKKO surprinted these stock design stamps in black or red with the call letters of all U.S. broadcasting stations. A Canadian version showed a beaver flanked by two towers. These were overprinted with

the call letters of Canadian broadcasters. Surprinted below the call letters was the message "Verified Reception Stamp." Several powerful stations in other nations were also known to have had EKKO stamps, for instance PWX, Havana, Cuba.

Between the early-1920's and well on into the 1930's, EKKO's stamps were very popular with listeners. Stations would purchase them and paste them on their verification cards or letters. Some stations would send (or sell them for a dime each) to those who sent in reception reports and wanted unattached ones to mount in their EKKO stamp albums. The albums were sold by the EKKO company.

For a while EKKO had a great thing going, and many listeners were proud of how many EKKO stamps they had earned. Collecting EKKO stamps was very popular with members of the public who liked to brag about how many distant stations they had logged late at night. During the 1920's, everybody with a radio was, more-or-less a casual DX listener. What's wrong with this picture? Many serious DX'ers thought EKKO stamps were meaningless insofar as proving anything.

For one thing, not all stations verified reception reports, and that meant those stations neither purchased nor issued the EKKO stamps that had been prepared with



Another major station that cut EKKO out of the loop was WHAS, Louisville, Kentucky. They offered a series of five numbered stamps listeners were invited to collect. (Courtesy of Marvin Robinson, Kentucky.)

their call letters on them. Others verified reception reports, but didn't send out any stamps with their verifications. Still others resented that EKKO was printing stamps that used their call letters. They told EKKO to keep them, then they retaliated by designing and sending out their own station's customized verification stamps. This prevented collecting EKKO stamps from giants such as WSB, WHAS, KECA/KFI, WDAE, and others.

From an economic point of view, maybe EKKO didn't care. Many stations were using their stamps. Anyway, in the 1920's, every month saw dozens of new stations going on the air. Each new station meant a new stamp to collect. They must have perceived this as an endless and on-going new-revenue source of stamps to produce for stations to use and collectors to covet.

Eventually though, some listeners began to squawk about it being virtually impossible to fill their EKKO albums because of those stations that staunchly refused to send EKKO stamps for one reason or another. At some point, in the 1930's, EKKO therefore decided to allow listeners to send the company a list of the stations they were missing from their albums. For a few cents per stamp, the EKKO company would happily furnish all of the missing stamps required to fill up any EKKO album.

This policy certainly worked against whatever little credibility EKKO had left within the DX hobby community. By the mid-1930's, radio was no longer a novelty that kept the general public up all night tuning for distant stations and collecting these stamps. "Radio mania" had faded out, and EKKO didn't care any longer. EKKO's days in business were numbered and they seemed to know it. They were dumping their inventory. By selling the stamps, the transaction left behind the

stamps' shaky position of having some significance as a measure of DX proficiency, and turned them into an easily-purchased semi-collectible. Whatever credibility and value EKKO stamps might have ever had towards proving DX'ing ability had been completely squashed by the company that had begun the idea.

Curiously, some stations had built up enough of an inventory of EKKO stamps to continue sending them out until the late 1940's, ten years after many people even knew what they were.

Few modern EKKO collectors realize that EKKO turned out several limited edition stamps that, even by EKKO standards, are rarities. We have one such stamp here in our archives. It's on a yellow stamp, overprinted in black, "Dedication New 50 KW WLW Crosley Radio Corp., Cincinnati, Ohio, October 22, 1928." This stamp was made up to be affixed to booklets issued to guests invited to that event.

These are all interesting, important, and beautiful pieces of broadcasting history. EKKO and other similar radio verification stamps are highly collectible items these days. There were so many different stations for which EKKO made up stamps that you could collect for years and never put together a complete collection. Some devoted collector should try to catalog them.

Collectors wishing to communicate with Marvin Robinson are invited to write to him at 154 Robards Ct., Harrodsburg, KY 40330-1348.

Reader participation in this column is greatly appreciated and keeps it supplied with its most interesting material. We are always interested in old time radio and wireless photos, QSL's (good photocopies are OK), station listings, news stories, picture postcards, questions, ideas, suggestions, personal memories, and anecdotes. ■

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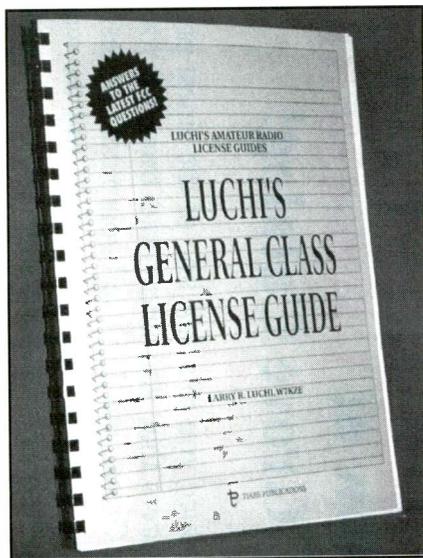
What's the big deal? Well, hear us out. The Grove catalog will introduce you to a full line of the finest products, publications, and technical services. You'll find hundreds of products from manufacturers that you know and trust, all for scanner and shortwave listening enthusiasts. We do not try to be all things to all people. At Grove, we don't sell computers or test equipment, we sell and service what we know. Our volume buying guarantees you great prices. We're a family business and we want to serve you, not just once but from now on. For the best prices, best quality and a full range of reliable and friendly services, call Grove. It is a big deal.

BOOKS YOU'LL LIKE

BY R.L. SLATTERY

Step Right Up

If you're interested in obtaining General Class ham ticket or upgrading to one, here's a course of action. It's *Luchi's General Class License Guide*, by Larry R. Luchi, W7KZE.



The 115-page comb-bound book contains answers to questions in the current FCC question pool for the General Class amateur license. The eight chapters cover rules and regs, operating procedures, signal propagation, ham radio practice, electrical principles, components and practical circuits, signals and emissions, antennas and feedlines.

Each chapter contains the individual questions with their specific FCC multiple choice answer selections. The one correct answer to each question is printed in bold-face. More complicated or unclear questions are explained by the author and discussed as they show up, in order to clarify them. Each chapter ends with a replay of all the questions and multiple-choice answers, but this time the answers aren't shown in bold-face. Your turn to take the test and score yourself to see if you're ready.

The author, Larry Luchi, is accredited as an FCC Volunteer Examiner, and is an ARRL Registered Instructor. He's an accredited teacher in the State of Washington, and in 1992 was nominated as ARRL Professional Instructor of the Year. He's been a ham for 40 years, and has helped thousands of ham-hopefuls secure those FCC tickets-to-talk.

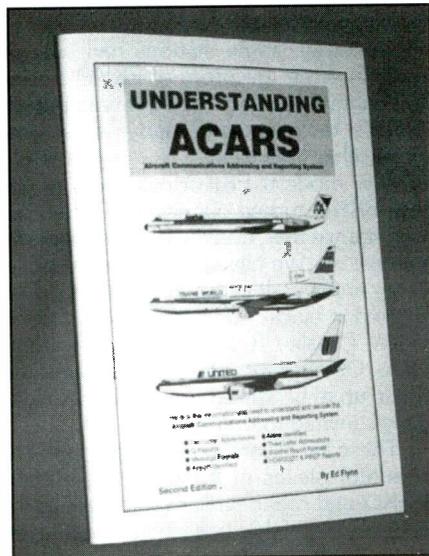
Here's someone providing all the questions and answers in advance. Given that, can success be far behind? We don't think so. Now aren't you sorry you didn't have someone willing to give you the test questions and answers in advance when you

were studying trig, biology, and a foreign language in high school? Not to worry, there's nothing sneaky going on here. The FCC makes these pool questions and answers from their exams available to the public for study purposes. Unlike your Grinchy 11th Grade bio teacher, the FCC is happy when you pass their tests.

Luchi's General Class License Guide is \$19.95. It's from Tiare Publications, P.O. Box 493, Lake Geneva, WI 53147. They accept VISA/MC. Phone orders call 1-800-420-0579, 8 a.m. to 6 p.m. Central Time.

What's an ACARS?

ACARS is the acronym meaning *Aircraft Communications Addressing and Reporting System*. Basically, ACARS is a specialized form of RTTY conducted in the VHF aeronautical band for air/ground communications. It's widely used between airliners and their associated company ground stations for exchanging text messages dealing with weather, skeds, aircraft performance, fuel usage, emergency conditions, company matters, and private messages.



It's easily possible for ACARS messages to be monitored by hobbyists using standard VHF scanners interfaced to certain RTTY decoders. Not all RTTY decoders can demodulate ACARS traffic, however it can readily be dealt with by the Universal M-400, M-1200, and M-8000-V5 RTTY decoder. Using this equipment and an outdoor VHF antenna, it's possible to copy ACARS traffic from some high altitude aircraft from 200 to 300 miles away.

This can be fascinating traffic to monitor, and has caught the imagination of a growing number of devotees. Note that ACARS traffic isn't sent in plaintext. It is

transmitted in an abbreviated format that can be quickly sight-read by flight crews, but looks quite esoteric to an uninitiated hobbyist. Once you get the hang of it, ACARS text doesn't look quite as puzzling.

The revised *Understanding ACARS, 2nd Edition*, by Ed Flynn, is a 79-page book written for the communications hobbyist wishing to get started in ACARS monitoring. The book explains the equipment, and provides all of the information needed to interpret and understand ACARS messages. ACARS message types and formats are defined, as are the abbreviations used. Sample ACARS messages are shown, along with their conversion into plaintext.

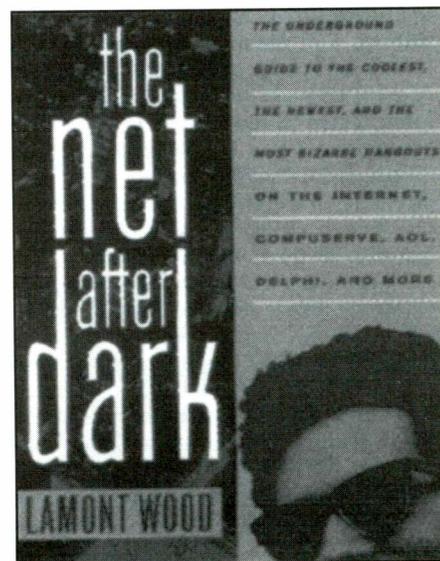
Understanding ACARS, 2nd Edition is \$6.95, from Universal Radio Inc., 6830 Americana Parkway, Reynoldsburg, OH 43068. Phone orders: 1-800-431-3939.

Hanging Out in Cyberspace

For all of the many serious academic, scientific, hobby, and business reasons for getting online, stats show that the primary lure for most Internet users is the sheer entertainment value of satisfying unbounded curiosity roaming the vastest libraries conceivable. It's the fun of locating and talking to people with odd, offbeat, and quirky interests. Or, if you share those interests, you can exchange information and views with them.

The Net After Dark, by Lamont Wood, is a giant 400-page book that describes itself as "the underground guide to the coolest, the newest, and the most bizarre hangouts on the Internet, CompuServe, AOL, Delphi, and more."

It's true! The book is the key to finding and taking part in some of the strangest,



wildest, and most unusual or eerie happenings online. Hang out with beginning as well as advanced hackers in private corners of the Net. Learn about the government's secret role in UFO research. Debate the JFK conspiracy. Find virtual reality software and Monty Python scripts. Or ponder the universe with a group of techno-Zen Buddhists. There are people exchanging bootleg software out there, as well as weird religions, phone phreaks, radical political groups, ghost and vampire hunters, fan clubs, and so much more. We didn't even list the really weird stuff here.

Wood's very useful and well-researched book describes an amazing array of strange, intriguing things out there. Then it shows you how to get there, no matter what online service you use. Also, the book provides basic information on how to navigate the online systems so users can explore on their own.

The Net After Dark is \$16.95, plus \$5 shipping, \$6 to Canada (NY State residents please add \$1.87 tax) from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. VISA/MC welcomed. Phone orders: 1-800-656-0056; Canada/AK/HI orders (516) 543-9169.

In Addition...

A press release advises that the 1995 ARRL Handbook for Radio Amateurs has been published. This is the 72nd Edition, and contains chapters on all aspects of amateur radio theory, communications, and equipment. There are also some projects for the home-constructor. This book is priced at \$30. To order, or for more information, contact the American Radio Relay League, Inc., 225 Main St., Newington, CT 06111. Phone orders: (203) 666-1541, Extension 255.

DataFile, Inc., advises that their latest software release, *Probe*, is designed for and

works exclusively with the new OptoScan 456; the computer interface for the Radio Shack PRO-2005/6 scanners. It needs only a few keystrokes to operate. Menus are user friendly, and commands are easy to remember. Scanning begins immediately, no waiting to load all frequencies. Direct access online tuning from both the frequency and log file. Manual mode provides variable tuning directly from scan screen.

There are many other features. Requires a Radio Shack PRO-2005/6 scanner,

OptoScan 456 interface, PC with DOS 3.0 or higher, 640K RAM, hard disk, serial port (COMM 1, 2, 3, or 4). A printer is optional. Available in either 3.5-in. or 5.25-in. format (specify which wanted). Price \$99.95, plus \$7.50 shipping/handling. Missouri residents please add 5.975 percent tax. VISA/MC accepted. Add \$5 for shipment outside USA. To order, or for further information on this extremely versatile software, contact Perry Joseph, DataFile, Inc., P.O. Box 20111, St. Louis, MO 63123. ■



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Lockheed Corp. Test Shows
**Wilson 1000 CB Antenna Has
58% More Gain Than The
K40 Antenna (on channel 40).**

In tests conducted by Lockheed Corporation, one of the world's largest Aerospace Companies, at their Rye Canyon Laboratory and Antenna Test Range, the Wilson 1000 was found to have 58% more power gain than the K40 Electronics Company, K40 CB Antenna. This means that the Wilson 1000 gives you 58% more gain on both transmit and receive. Now you can instantly increase your operating range by using a Wilson 1000.

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Farther Than Any Other Mobile
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New Design

The Wilson 1000 higher gain performance is a result of new design developments that bring you the most powerful CB base loaded antenna available.

Why Wilson 1000 Performs Better

Many CB antennas lose more than 50% of the power put into them. The power is wasted as heat loss in the plastic inside the coil form and not radiated as radio waves.

We have designed a new coil form which suspends the coil in air and still retains the rigidity needed for support. This new design eliminates 95% of the dielectric losses. We feel that this new design is so unique that we have filed a patent application on it.

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In order to handle higher power for amateur use, we used the more efficient direct coupling method of matching, rather than the lossy capacitor coupling. With this method the Wilson 1000 will handle 3000 watts of power.

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So far you have read about why the Wilson 1000 performs better, but it is also one of the most rugged antennas you can buy. It is made from high impact thermoplastics with ultraviolet protection. The threaded body mount and coil threads are stainless steel; the whip is tapered 177 ph. stainless steel. All of these reasons are why it is the best CB antenna on the market today, and we guarantee to you that it will outperform any CB antenna (K40, Formula 1, you name it) or your money back!

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Aug. 21, 1987

Wilson Antenna Company Inc.
3 Sunset Way Unit A-10
Green Valley Commerce Center
Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #970529

We have completed relative gain measurements of your model 1000 antenna using the K-40 antenna as the reference. The test was conducted with the antennas mounted on a 16" ground plane with a separation of greater than 300" between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

**58%
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POWER GAIN
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K40**

Individual test results may vary upon actual use.

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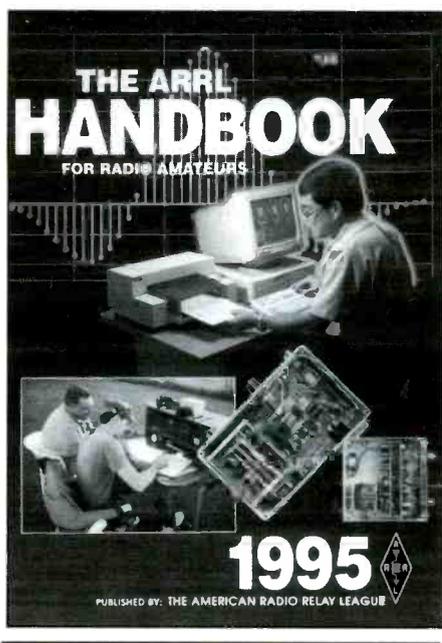
Wilson 1000

DEALERS Exclusive dealer areas still open

Roof Top Mount.....	59 ⁹⁵
Trunk Lip Mount.....	69 ⁹⁵
Magnetic Mount.....	79 ⁹⁵
Little Wil.....	29 ⁹⁵
Wilson 2000 Trucker.....	59 ⁹⁵

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Has the RTTY Bug Bitten? Why Not?

Digital Decoders for Shortwave

BY CURT P. BRAMBLETT

Digital signals are as old as radio. Today's listeners hear buzzsaws, bleeps, chirps, and other inhuman sounds. Marconi's listeners in 1895 heard morse code beeps. Because Morse code signals can be read without special equipment, this article concentrates on those signals requiring special equipment. Today there are two general types of digital signals on the air. Radioteletype, like morse code, sends characters (letters, numbers, punctuation) over the radio. Radio facsimile scans graphics and transmits it a line at a time.

The most common digital signals heard in North America today are radioteletype (RTTY) and telex over radio (TOR). There are numerous means of converting text to radio, and the creators of various modes surely must be running out of letters in the alphabet. There are BAUDOT and ASCII, SITOR (A and B) and AMTOR, and ARQ-

M, -E3, and -E. These account for 99 percent of signals received, according to a publication of Universal Radio Research. Others include ARQ-M2, -M4, SWED-, and -5. FDM and VFT are variations of the same system. FEC has -A and -S. Then there is SITOR RAW and PACTOR and Heilsreiber, Autospec, NAVTEX, Twinplex, and TORG. The good news is that the equipment has to know all this but the listener doesn't. Using the decoders described, a listener can monitor such transmissions and the equipment will take care of the technical details, including determining what system is in use.

Working like a fax machine, a graphic signal consists of a series of lines representing a chart or map or photo. Typically there can be 16 levels of gray in the signal. Some of the decoders can convert the shades of gray to "pseudo-color" on a monitor. This

is like the weather radar color seen on regular television. The colors represent intensity, not actual color. They certainly make some charts more intelligible. *POP'COMM* often has examples of graphic images received from shortwave. In the September issue, Alice Brannigan had a photo of an early radio fax used by the *New York Mirror* tabloid.

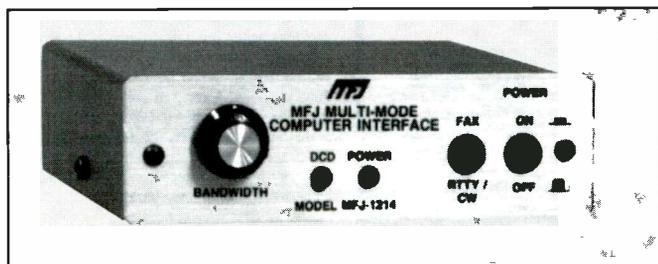
Similar signals are found on upper frequencies and satellites also, but the focus here is the high frequency bands. These include POCSAG, Golay and other pager modes, ACARS aircraft signals, CTCSS and DCS tones for two-way radio channels, and DTMF telephone signals. (Will they never run out of ways to combine the letters of the alphabet?) Information for this article was gathered from the manufacturers' published literature and advertisements. No tests were made.



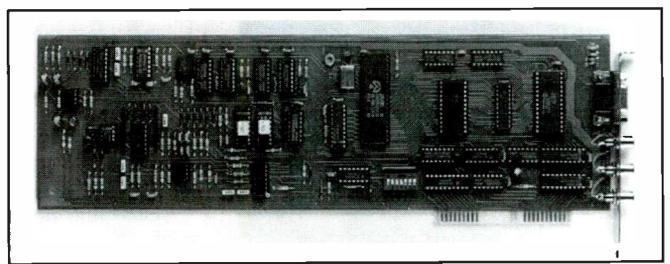
Universal's M-400, used on both VHF/ UHF bands, decodes aircraft traffic, pagers, and CTC/DCS signals.



The MFJ-462 Multi-reader continuously offers solid copy even with signals buried in noise. A precision tuning indicator aids in adjusting the receiver.



MFJ's 1214PC computer-based interface decodes FAX, RTTY, ASCII, and Morse.



An inside look at the technology that makes the Universal M1200 tick.

AR 8000

The New Concept -
AR8000 shocks the market.
AOR made every effort to incorporate the latest technology in to this new scanner.

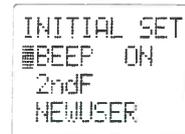
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- Range: .5 - 1900MHz usable to 100kHz
 - Modes: AM/NFM/WFM/USB/LSB/CW
 - Stepsize: 50Mz to 999.995kHz
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SSB .2 AM 1.0 NFM .35 WFM 1.0
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NEW

SDU 5000

The Spectral Display Unit adds a new dimension to the signal interception hobby. Imagine seeing stations above and below your receiving frequency. Usually the transmissions are short, perhaps 1 or 2 seconds. What are the chances of you being tuned to the exact frequency at the instant of transmission? Very slim. With an SDU you can watch for stations to pop up over a 10MHz window, then zero in. The SDU 5000 offers features unheard of only a year ago.



Frequency coverage up to 10MHz Δ Display - 3.1" HQM Simple matrix color LCD Δ Resolution: 5 or 30kHz selectable Δ Input: 10.7MHz Δ 50dB Dynamic range Δ Screen refresh 2/s Δ Composite video out Δ Full computer control Δ Video output NTSC or Pal display, on TV or record on VCR Δ RS232 9600bps Δ Instant receiver set from cursor via RS232 Δ Store image on disc or your video recorder Δ Menu driven system makes SDU5000 simple to operate Δ SDU5000 is designed to work with the AR3000A (modified with a 10.7MHz output) using RS232 link with or without a computer. Other receivers with 10.7MHz IF output but digital linking may not be straight forward.

AR8000 Interface

Computer Interface for the AR8000

- Δ Low Power, powered by your serial port
- Δ No Drain on the batteries in the radio
- Δ Light weight, perfect for Laptop use
- Δ As small as a DB-25 Connector
- Δ Hi-Tech Surface mount design for reliability
- Δ 100% Shielded cable to receiver for reduced interference
- Δ PC Software included for Windows and DOS
- Δ Manual included
- Δ Detailed Programers documentation available
- Δ Designed and Manufactured in the USA
- Δ Optional 100% shield computer cable from AR8000INF to computer for reduced interference

Unlike some of the European devices sold today, this unit is smaller, lighter, and makes no power demands on your receiver. With the extra shielding and smaller size there is less chance of additional interference leaking into your radio. The AR8000INF is also the only interface that is upgradeable for use with the optional Tape recorder controller due first quarter '95.



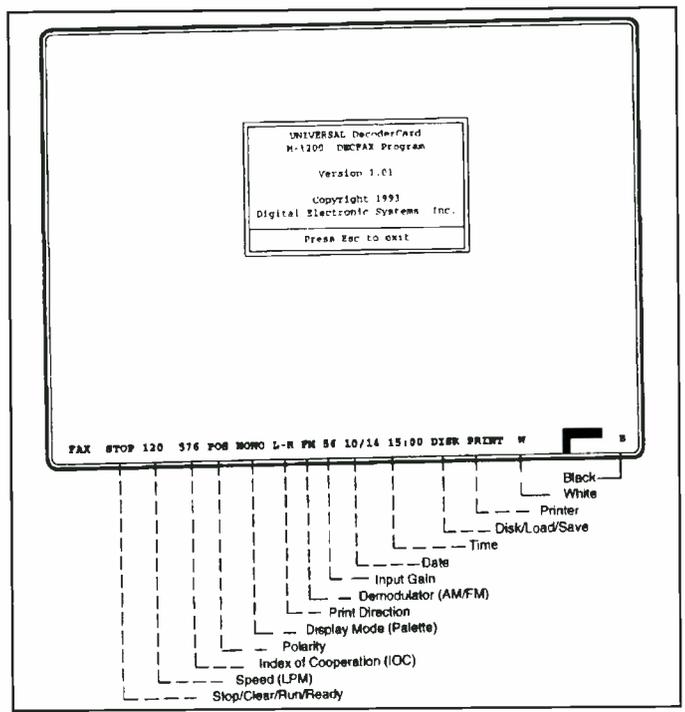
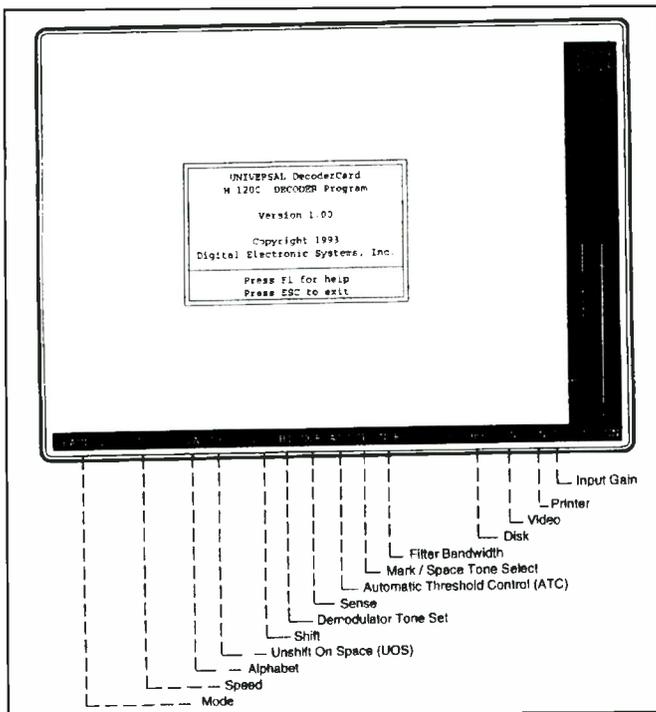
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Two examples of M1200 screens output on computer PC.

Decoders connect to the audio output of a shortwave receiver and decode the audio received into digital signals. Some devices consist of a computer interface and software. Others are self-contained and produce output on a display and to a printer. Computer-based decoders can save the information in a file for later viewing or printing. Most personal computers produce significant RF noise, so using a computer interface doesn't always mean the radio can be directly next to the computer.

Let's Get Started

Since all decoders start with audio from a shortwave receiver, a description of the quality of that audio is our starting point. Regardless of whether a decoder uses a computer or not, it requires a minimum input signal. The receiver output varies from signal to signal and from receiver to receiver. Most digital signals involve shifting the frequency a small amount. This produces the characteristic sound of the signal.

Many manufacturers don't specify what the receiver must be capable of producing to get usable output from the decoder in their published specifications. One company says a "single sideband" receiver is needed, another notes that a "stable" receiver is required for serious monitoring. Radio receiver technical descriptions, however, sometimes mention accessories recommended for improved digital reception.

Very, very good stability is the most important criterion, especially for graphic transmissions. A weather chart or fax can take up to 15 minutes to receive. Fred Os-

terman of Universal Radio notes that the slightest drift can make a signal that is shifting 170 Hz unreadable. He says that selectivity is the second most important characteristic. On the marine and other bands, signals are separated only 500 Hz, so tuning resolution is important.

Finally, the IF bandwidth makes a difference, especially for the various RTTY forms. When signals are so close together, the IF filter can allow several through. Naturally, the decoder cannot separate them. The good news, according to John Hoot of Software Systems Consulting, is that radios with 500 kHz IF filters are more affordable. He mentioned several that sell for under \$700 with the IF filter option. Hoot says that serious listening "does require a radio with better selectivity." (By the way, the 500 or 600 Hz filters are the ones to have. Some manufacturers offer a 250 Hz filter for code reception, but it is too narrow for RTTY.) Fax bandwidth is 1.5 to 2 kHz, so the typical shortwave radio IF of 2.4 or 2.5 kHz is fine for FAX.

Many listeners obtain good results with less selective equipment, of course. Older receivers without direct digital control of the local oscillator and some less expensive modern units will give good results on strong signals. Steven Pan of MFJ just says "It doesn't matter what kind. If your receiver can receive it, then we can decode it." The Sangean 803A is often cited as a good radio. This is a portable unit that Osterman says gives results "better than you might expect, based on the price range." Still, according to Pan, "The cleaner the signal, the better the results."

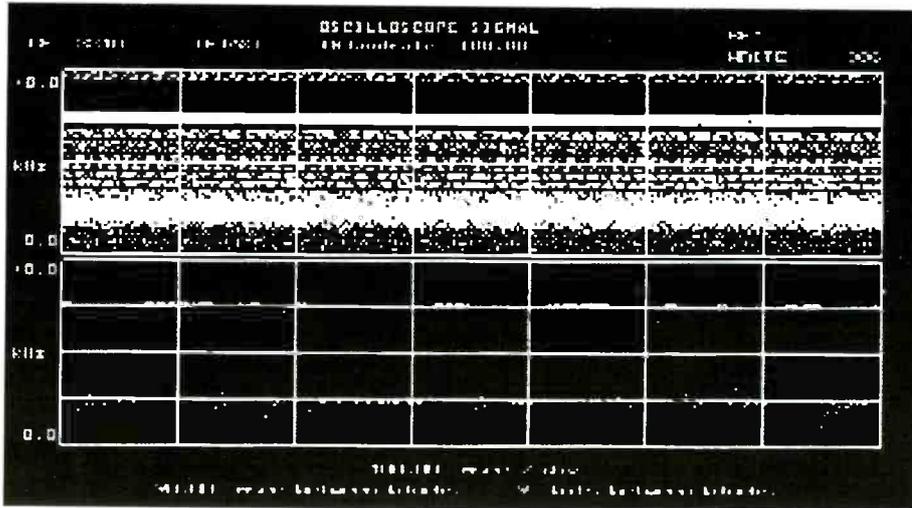
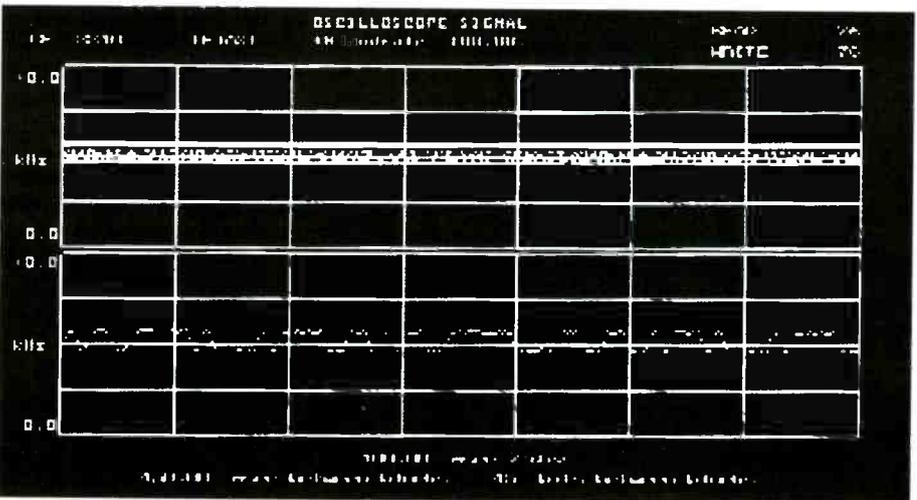
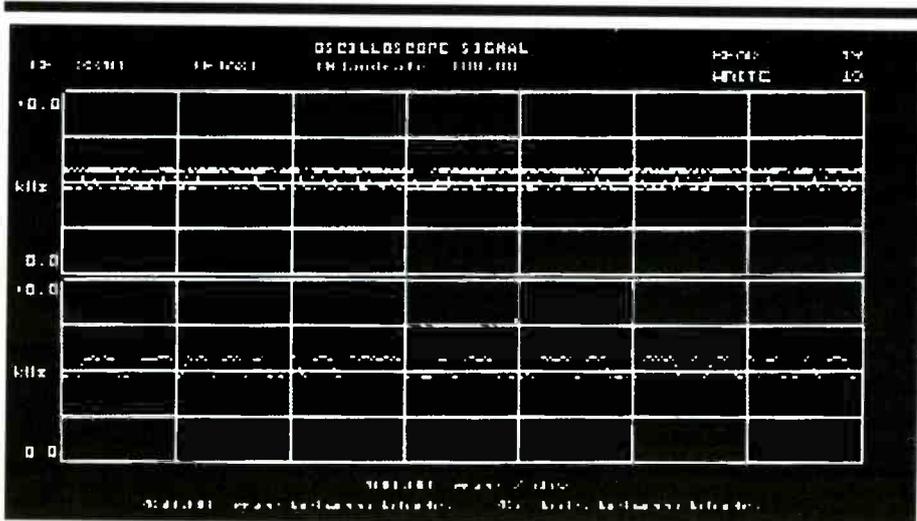
All the units reviewed here decode the common types of signals, including Morse code. Not including the cost of the computer, decoders requiring a computer for part of the work are about the same price or less expensive than stand-alone units. Used equipment, including demonstrators of current models as well as earlier models, is often available from the major dealers.

Decoders That Do Not Require a Computer

Non-computer decoders, or stand-alone units, seem to be less common than the computer-connected ones. Both Universal Radio and MFJ offer them, and Universal's M8000v5 is by far the most expensive unit reviewed. Introduced in 1994 to replace an earlier version, the M8000v5 has a full-function control panel, with LEDs to indicate various functions. It must be connected to a VGA monitor for viewing the output. The M8000v5 does have a bar graph display to assist in receiver tuning. There is also a gain control to adjust the overall gain of the unit. This unit sells for \$1349. A VGA monitor will cost \$150 or more.

Universal's current best seller in this category is the M400, at \$399.95. It has a two-line, 40-character display and printer port. In addition to shortwave monitoring, the M400 also decodes aircraft traffic, pagers, and CTCSS/DCS signals. These are used on the V/UHF bands. Universal sells CI-400 software to control this unit for \$89.95. It requires an eight-bit (short) slot inside your PC.

Universal's M900v2 VF includes fax,



HOKA CODE-3 screens.

with output to a printer or composite mono monitor (not a TV or computer monitor). The company says the receiver used for the source must be stable and selective. This unit is \$489.95, plus the monitor.

Another stand-alone unit is the MFJ Enterprises, Inc. model 462. At \$149.95, this unit includes a two-line, 16-character display,

and a printer output. It does not copy facsimile. The ad says that it consistently gives solid copy even with weak signals buried in noise, and includes a precision tuning indicator to help in adjusting the receiver.

In Table A, V/UHF means the ability to decode digital signals found on the FM busi-

COMMODORE® USERS

SWL

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ness channels in the VHF and UHF bands. All units handle the typical HF signals that are the subject of this article.

Computer-Based Decoders

Though they do not specify the receiver needed, most manufacturers do describe the computer requirements of their equipment, when a PC is part of the system. These are very minimal. A 286 PC with 640K RAM, a hard drive, and CGA or better monitor will work with all systems reviewed. Easier use and possibly better graphics would result from a 386 with VGA

	Fax	V/UHF	Display	Price
MFJ 462	no	no	2 lines, 16 characters	\$ 149.95
Universal M900v2	yes	no	composite monitor	489.95*
Universal M400	yes	yes	2 lines, 40 characters	399.95
Universal M8000v5	yes	yes	VGA monitor	1,349.00*
*monitor not included in price				

monitor. At least one unit also comes in an Amiga computer version. "Good-better-best" printers would be a nine-pin, a 24-pin, or a laser.

Software Systems Consulting only makes computer-based units. They offer separate products for HF fax and telex. PC Radio Telex 4.0 includes a demodulator and software for \$99. With your PC, the unit will read Morse from 1 to 40 wpm, and all the major modes mentioned above. The software includes a tuning oscilloscope, automatic mode recognition, drop-down menus with mouse support, and online help. The PC HF Facsimile 7.0, also \$99, produces multiple shades of gray, which can be displayed in pseudo-color. This unit includes its own demodulator and requires a single sideband receiver. The same demodulator is used for both types of signals, however, and SSC offers a package deal of the demodulator, both software packages, manuals, a tutorial cassette, and database of frequencies to monitor for \$149. The company has a computer bulletin board for technical support, including updating the frequency database.

A European product, the HOKA CODE-3 is now readily available in the U.S. CODE-3 is a sophisticated unit that includes 26 modes in the standard package for \$595. It requires no more than the basic PC described above, although gives better results with SVGA monitors.

MFJ's entry in the field is the 1214PC. It decodes FAX, RTTY, ASCII, and Morse. The 1214PC lists for \$149.95 and requires a 286 PC with a VGA monitor. The software includes a tuning indicator and automatic signal analyzer. It supports a mouse or keyboard entry. The 1214 can also be used in a transmit mode. This unit is also available in an Amiga computer version.

Universal Radio has a decoder on a card that inserts in a full-size slot in your PC. The M1200 has similar features to the M400 stand-alone unit and then some. It provides literal databit reception of RTTY for advanced users interested in protocol identification and decryption at the elemental level. False color on FAX, saving to disk, and automatic removal of blank lines are just some of the advanced features of this \$399.95 unit. Up to three receivers can be connected for signal input and there is an oscilloscope output. This is really only a brief introduction to the subject and I am indebted to the manufacturers and others who provided information for the article. While articles cannot be as complete as the books available on the subject, this one is intended to provide enough information for someone to get started in the hobby. ■



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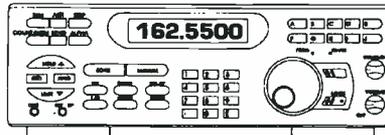
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RUSSIAN MFA
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TIME UTC	RECIPIENT CALLSIGN	LINK DESIGNATOR	BAUD/SHIFT	FREQUENCIES KHZ
1400	YBU	00148	75/500	16226.3/18803.2
1415	WFO	00125	75/500	14736
	MIG	00125	75/500	13382
1515	BPA	00116	75/500	14824/10424
1600	SPK	00168	50/500	21865.3/18844.2
1645	GMN	00119	75/500	20731.3/18126.8
1650	NDO*	00156	50/500	17488.2/_____
1735	KRN	00178	75/500	18446.1/16446.2
1815	WFO	00125	75/500	14736
	MIG	00125	75/500	13382
1845	BPA	00116	75/500	19610.4/14812.4
1905	WNY	00139	75/500	20586.3/16446.2
1925	PSN	00126	75/500	16446.4/_____
2000	HZW	00117	50/500	20091/18196
2005	YBU	00148	75/500	19613/_____
2050	KAC	00128	75/500	18739.4/16891.2
2100	BAR	00135	50/500	18126.2/16135.2
2115	WFO	00125	75/500	14736
	MIG	00125	75/500	10841.7
2200	YBU	00148	75/500	20138.2/17478.2
2230	JMS	00127	75/500	16841.2/13625.3
2250	PSN	00126	75/500	23629.3/19955.3

The NDO schedule is once a week on Wednesdays.

NOTE: It is suspected that these broadcasts are transmitted from Cuba to recipients located in North, Central & South America. It is further suspected that the traffic is passed from Moscow MFA to Cuba via satellite. The link designator is the 2nd group of the message heading.

Various times, callsigns, link designators, baud/shifts, and frequencies are displayed on Network schedules. The information shown is for Russian MFA traffic.

being observed on the HF bands. It was known that in the past the TASS material had been reported as being transmission from Moscow to Cuba via satellite. In fact, during the entire time I monitored these broadcasts, I only detected one occurrence where I believed I was intercepting Moscow, passing MFA traffic to Cuba on HF RTTY. Maybe the satellite was inoperative at that particular time?

One two-way link was detected and through the propagation analysis performed by Jaques D'Avignon, he believed one station was located in New York (probably the Russian UN Legation) and the other end was located in Cuba. Several references have been seen which indicated a GRU communications facility located at

Guineo (approximately 15 miles southwest of Havana), so possibly this is the location of the transmitters for these broadcasts.

During the coverage of the network which continued up into 1994, many operator boo-boos were observed. One was of particular interest. On March 20, 1993, at 2113 UTC, I set up a receiver on 14735 kHz for the upcoming 2115 WFO schedule. However, what I heard was "824 TTTTT 824 TTTTT 824 TT," and then it was immediately discontinued. (This type of transmission has been reportedly identified in SWL publications as sponsored by the KGB.) A brief moment later the transmitter was keyed with the WFO callup. I have to suspect that the operator on duty had patched the Russian agent broadcast

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Unlike some of the European devices sold today, this unit is smaller, lighter, and makes no power demands on your receiver. With the extra shielding and smaller size there is less chance of additional interference leaking into your radio. The AR8000INF is also the only interface that is upgradeable for use with the optional Tape recorder controller due first quarter '95.



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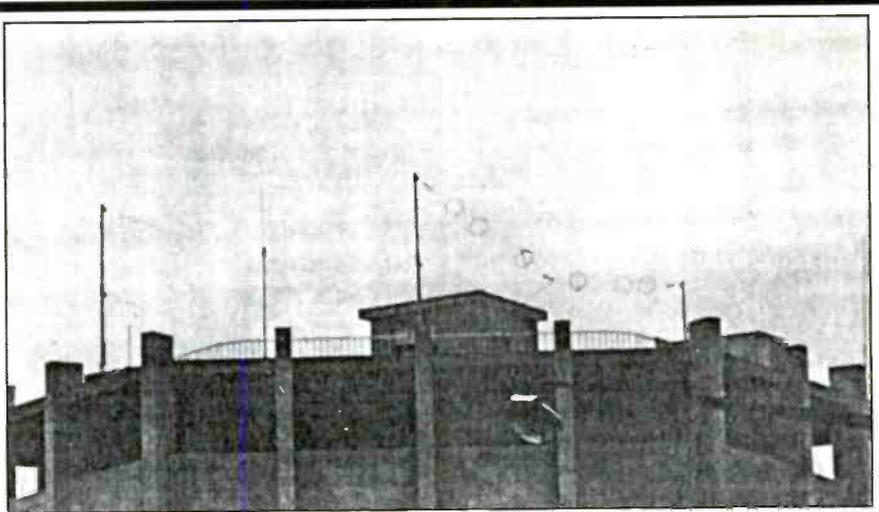
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CIRCLE 64 ON READER SERVICE CARD

34 / POPULAR COMMUNICATIONS / March 1995



The "bird-cage" type antenna is seen on many of the Soviet/Russian Embassies.

tape to the wrong transmitter.

I think readers will be interested in the following summary of Russian cryptographic procedures based on information in *Tower of Secrets*, by Victor Sheymov, published by the Naval Institute Press.

Mr. Sheymov indicated that in a machine system the plain text was typed on the keyboard and the enciphered text then combined with a tape of random characters thus forming a super-enciphered text for transmission.

In a manual system, a plain text message is encoded by using a code book and the resulting text then enciphered by using a gamma (one-time pad).

It goes without saying, these are not simple systems!

A comprehensive report was prepared based on the monitoring results and the complete text appears as one of the chapters in the third edition of the *Underground Frequency Guide*, published by HighText Publications, Inc.

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PIRATES DEN

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

Delighted that you've found your way into "The Den" this month! It's an unusual month because we have several reporters not only checking in for the first time, but doing so with their first pirate logging!

Altered States Radio was heard by Bob Murray, in Pennsylvania, running to sign off at 2240. Bob forgot to mention on what frequency he heard the station.

Dick Pearce, in Vermont, had He Man Radio on 7464.8 at 0105, saying he hoped he could get a 55555 SINPO report. Dick says the operator turned his beam away after a few seconds and the signal was lost. George Roberts, in Pennsylvania, had this one, too, at about 0110.

New York's Robert Smith picked up a friend operating an FM pirate—WJQR ("Nasty Radio") on 91.9 from 0215 to 0400. The operator referred to himself as "Dr. X" and announced a phone number of (718) 752-1042.

Roberts had Radio Doomsday on 7470 at 0202 with talk and rock. Pearce had it with IDs at 0156 and 0227, the first time the ID sounded more like "Radio New Day." Some months ago this one announced its own demise, but I guess it is back. Dick heard it a second time—7420 on this occasion—at 0227 with spoofs on various things and what sounded like a tribute to Gulf War vets.

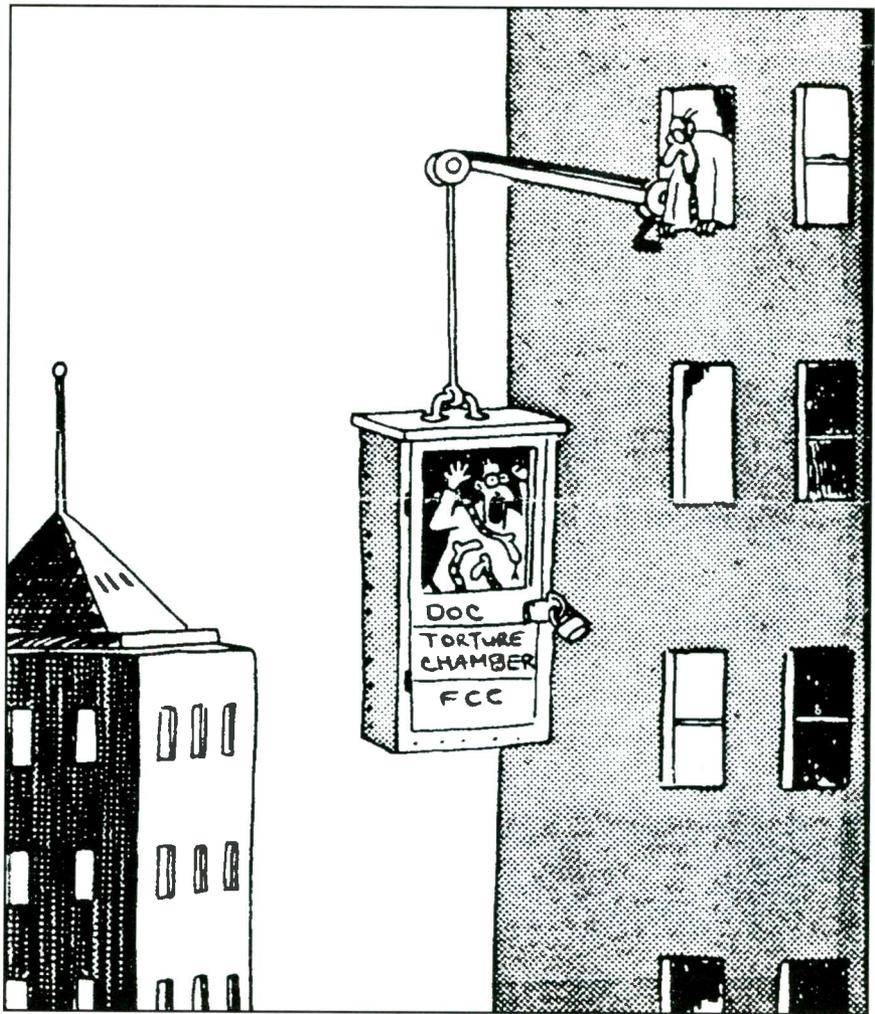
Brian Owsley, in California, heard KDED—Deadhead Radio on 7470.2 upper sideband at 2345 with very good signals. They announced themselves as an all Deadhead station, and played nothing but Grateful Dead. They gave P.O. Box 452, Wellsville, NY 14895 for reports and said they require \$1 and three stamps. They were off the air by 0010.

Jack Sheldon, in Michigan, had Radio Azteca on 7415 USB at 2335 with host Bram Stoker, and a parody of a shortwave DXer's program and rather "spicy" remarks. This one uses the Wellsville address.

K-2000 was another Pearce log, on 7472 at 0000 having some trouble getting the transmitter going. The op finally cleared the tech problems up at 0008 and remained on. They had spoofs on various radio hobby subjects and personalities, as well as a rap song by "Alvin and the Chipmunks." (Not really, I'd guess!) This one can be reached through P.O. Box 146, Stoneham, MA 02180.

Up Against the Wall Radio was heard by Pearce on 7470 at 0110 with commentary and songs, most of which, says Dick, were drug related. They say that reports must include views and comments on the program or they won't send a QSL!

Pearce noted WISL on 7415 (what time, OM??) announced as "broadcasting from America's railroads" and played several



Thanks to Dave Vandenburg, of Wisconsin, for this QSL sheet from the pirate station CSIC.

Grateful Dead railroad songs plus Casey Jones. Dick says the signal was very good but there was lots of QRM.

Dave Kapinus, in Illinois, heard the North American Pirate Relay Service (NAPRS) with their second anniversary show on 7415 at 2315. They broadcast tape relays of several European pirate stations, including Radio Stella International, Radio Titanic International, Romantic Space Radio, Radio Free Euphoria, Radio Lollipop, Radio Magic, Radio Peace in Action, Sunshine Radio International, Southern Music Radio, and Radio Dr. Tim.

Pearce heard WRFW on 7376 at 2204 with a mix of songs and comedy skits. They claimed they were broadcasting from Wisconsin, running 10,000 watts. They announced the Wellsville address and an address in Minnesota.

Another new reporter, Jesse Rose in Virginia, heard Solid Rock Radio on 7470 at 1430 to 1508 sign off. The station played a hard rock CD by a Chicago-based

band, and gave the Wellsville address for reports. Jesse notes that this was in sideband, but the radio in use doesn't indicate whether upper or lower.

Hip-Hop Radio was logged by Pearce on 7415 lower sideband at 0041 playing a mix of rap and soul. Dick says he didn't hear any mention of an address.

Sheldon caught Bob Yonus Radio at 0105 on 7374.5 upper sideband with rock and talk. They said they were transmitting on 600 kHz medium wave, mentioned FM, but made no mention of a shortwave frequency. Jack's wondering if maybe this was a relay and not actually Yonus' own transmitter. I think so. (Ed)

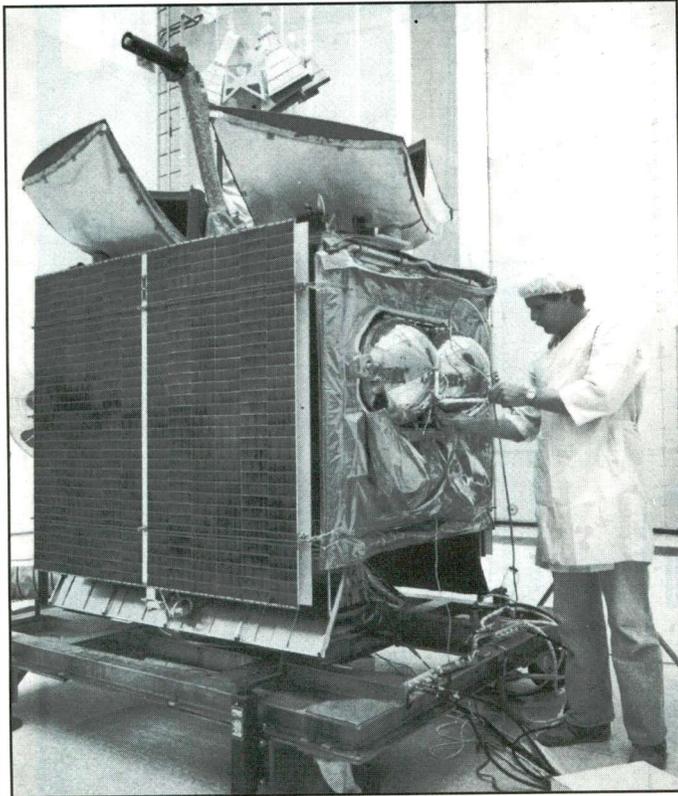
Well, that does the deed for this time! I really appreciate hearing from each of you and extend a special welcome to all the first-timers who dropped a line this time. Please keep the info coming—feed me lotsa loggings and copies of pirate QSLs I can use for illustrations. Thanks! I'll catch you again next month!

SATELLITE VIEW

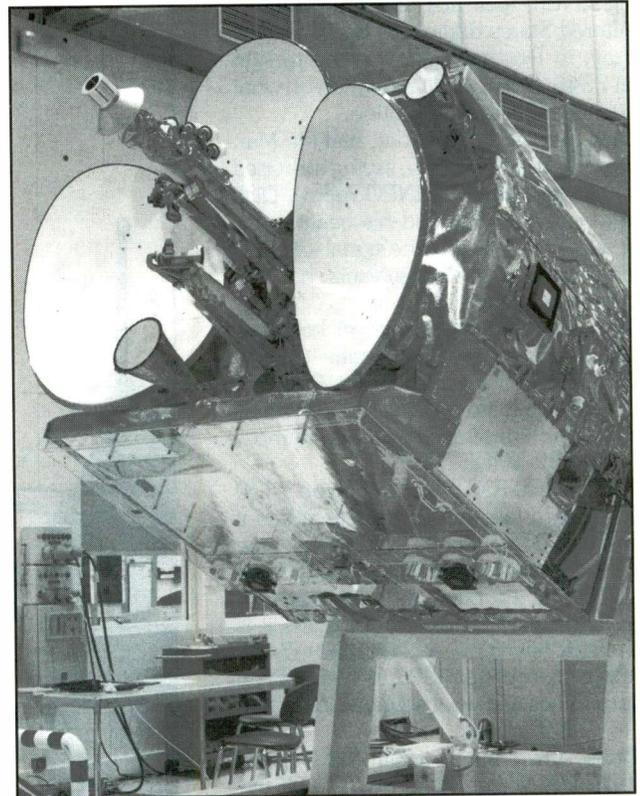
BY DONALD E. DICKERSON, N9CUE

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

There are times when the serious satellite sleuth needs a handy reference for specific satellite frequencies. That is why I have put together this space log, a list of operational satellites listed by frequency. You will also find what I hope will be useful information on each satellite. Including its name, orbit, location, use, etc. Who knows, this could become a yearly tradition here at Satellite View.



SATCOM III being readied for launch.



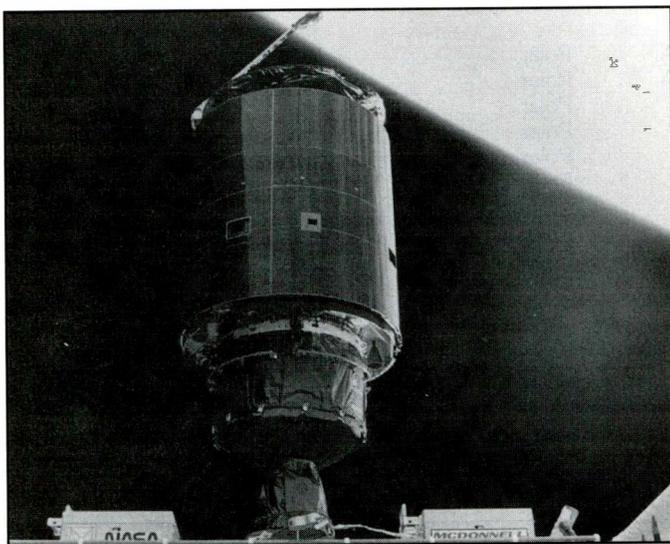
Telecom 1: The French direct broadcast television satellite

Frequency	Satellite	Type	Orbit/Loc	Incline	Mode
29.357 MHz	RS-10	Amateur	Polar	83°	CW
29.360-400 MHz	RS-10	Amateur	Polar	83°	SSB/CW
29.403 MHz	RS-10	Amateur	Polar	83°	CW
29.407 MHz	RS-11	Amateur	Polar	83°	CW
29.408 MHz	RS-12	Amateur	Polar	83°	CW
29.410-450 MHz	RS-11/12	Amateur	Polar	83°	CW
29.453 MHz	RS-11	Amateur	Polar	83°	CW
29.454 MHz	RS-12	Amateur	Polar	83°	CW
29.458 MHz	RS-13	Amateur	Polar	83°	CW
29.460-500 MHz	RS-13	Amateur	Polar	83°	CW
29.504 MHz	RS-13	Amateur	Polar	83°	CW
121.750 MHz	SOYUZ-TM	Manned	Eccentric		FM/Voice
136.110 MHz	MOS-1/2	Wxsat	SUN-SYNC	99°	FAX
136.370 MHz	ATS-3	NASA-EXP	Geo 105°W	12°	Various
136.380 MHz	GOES-1/2/3	Wxsat	Geo 81/68/175°W		APT
136.650 MHz	Transit	NAVSAT	Polar	89.7°	Data
136.770 MHz	NOAA-11	Wxsat	SUN-SUNC	99°	APT
136.860 MHz	IUE	EXP	Leo	33°	
137.050 MHz	METEOSAT 1	Wxsat	SUN-SYNC	72°	APT
137.076 MHz	METEOSAT 2	Wxsat	SUN-SYNC	72.5°	APT
137.080 MHz	METEOSAT 3	Wxsat	SUN-SYNC	72.8°	APT
137.170 MHz	MARECS A/B	COMSAT	Geo 228°W	5.7°	Voice/Data
137.300 MHz	METEOR 3-4	Wxsat	SUNC-SYNC	72.8°	APT
137.170 MHz	MARECS A/B	COMSAT	Geo 228°W	5.7°	Voice/Data
137.300 MHz	METEOR 3-4	Wxsat	Polar	82°	APT
137.400 MHz	OKEAN	Observation		82°	
137.450 MHz	Intercosmos				

137.500 MHz	NOAA 10/12	Wxsat	SUN-SYNC	98.5°	APT
137.626 MHz	NOAA 9/11	Wxsat	SUN-SYNC	99.5°	APT
137.795 MHz	Fengyun		Polar	99°	
137.850 MHz	METEOR 2-10	Wxsat	SUN-SYNC	82°	APT
142.417 MHz	SOYUZ	Manned	Eccentric		FM/Voice
143.625 MHz	MIR	Manned	Leo	51°	FM/Voice
145.550 MHz	Shuttle/MIR	Manned	Leo		FM/Voice
145.825 MHz	Oscar 13	Amateur	Elliptical	56.8°	CW
145.825 MHz	UOSAT 11	Amateur	Polar	97°	Data
145.825-975 MHz	Oscar 13	Amateur	Elliptical		SSB/CW
145.825 MHz	Dove	Amateur	Leo		FM
145.837 MHz	RS-14	Amateur	Leo		FM/Package
145.852-932 MHz	RS-14	Amateur	Polar	82°	FM/PACSAT
145.857 MHz	RS-10	Amateur	Polar	82°	CW
145.860-900 MHz	RS-10	Amateur	Polar	82°	SSB/CW
145.862 MHz	Oscar-13	Amateur	Polar	56.8°	CW
145.866-946 MHz	RS-14	Amateur	Polar	82°	Packet
145.903 MHz	RS-10	Amateur	Polar	82°	CW
145.907 MHz	RS-11	Amateur	Polar	82°	CW
145.908 MHz	RS-13	Amateur	Polar	82°	CW
145.910-950 MHz	RS-10/12	Amateur	Polar	82°	SSB/CW
145.912 MHz	RS-12/13	Amateur	Polar	82°	CW
145.948 MHz	RS-14	Amateur	Leo		FM/Package
145.953 MHz	RS-11	Amateur	Polar	82°	CW
145.958 MHz	RS-11	Amateur	Polar	82°	CW
145.958 MHz	RS-12	Amateur	Polar	82°	CW
145.960-999 MHz	RS-13	Amateur	Polar	82°	CW
145.987 MHz	RS-14	Amateur	Polar	82°	SSB/CW
149.900-150 MHz	NAVSATS	US/Russian	Leo		FM/Voice
153.4-153.7 MHz	Spysats	Russian	Leo		CW
165.000 MHz	SOYUZ	Manned	ECC		TLM
166.000 MHz	Progress	Supplyship	Eccentric		TLM
180.000 MHz	COSMOS 1870	Science			TLM
192.000 MHz	MIR	Manned	ECC		TLM
225-265 MHz	DSCS	DOD	Geo		FM/Data
231.500 MHz	RESURS	Science			TLM
243.1-243.9 MHz	SDS	SPYSAT	Elliptical		Relay
243-244.0 MHz	FLTSAT	NAVY/AF	Geo	Various	FM & Data
248-250.0 MHz	Lesat	Military	Geo	Various	FM & Data
251-269.0 MHz	FLTSAT	NAVY/AF	Geo		FM & Data
259.700 MHz	Shuttle	NASA	Eccentric		Voice/FM
279.000 MHz	Shuttle	NASA	Eccentric		Voice/Data
282.800 MHz	Shuttle	Manned	ECC		FM/PM/Data
292-317.0 MHz	FLTSAT	NAVY/AF	Geo		Uplink
296.800 MHz	Shuttle	NASA	Eccentric		Voice/FM
324-345.0 MHz	NAVY	EXP	Various		Various
360-370.0 MHz	NASA	EXP	Various		Various
370-375.0 MHz	AF	EW	Various		Various
375-400.0 MHz	SKYNET	NATO	Geo		Voice/Data
400.0 MHz	NAVSAT	US/Russian	Polar	90°	TLM
400-401.0 MHz	Various	Exp			
401-401.5 MHz	DOD	Wxsat	Polar	90°	Data
401.5-403 MHz	DCS	COMSAT	Geo		Uplink
406-425 MHz	Various	DOD/EXP			
428.010 MHz	UO-22	COMM/AMA	Polar	90°	Data
429.985 MHz	UO-22	COMM/AMA	Polar	90°	Data
435.022-102 MHz	RS-14	Amateur	Polar	90°	Data
435.025 MHz	UO-11	Medical	Polar	90°	Data
435.070 MHz	UO-14	Medical	Polar	90°	Data
435.175 MHz	KO-23	Amateur	Polar	90°	Data
435.651 MHz	Oscar-13	Amateur	Elliptical	56°	CW/Package
435.675 MHz	RS-14	Amateur	Polar	82°	
435.677 MHz	RS-14	Amateur	Polar	82°	Rudak
435.715-999 MHz	Oscar-13	Amateur	Elliptical	56°	CW/SSB
435.795 MHz	FO-20	Amateur	Polar		CW
435.800-900 MHz	FO-20	Amateur	Polar		CW/SSB
435.940-990 MHz	Oscar-13	Amateur	Elliptical	56°	CW/SSB/PAC
437.025 MHz	Oscar-16	Amateur	Polar		PSK/SSB
437.075 MHz	Oscar-18	Amateur	Polar		PSK/SSB
437.153 MHz	Oscar-19	Amateur	Polar		PSK/SSB
468-469 MHz	Various	Wxsat	Geo		FAX/APT
480.015 MHz	Fengyun		Geo		Data
702-716 MHz	Ekran	TV/Russian	Geo		TV/Telecom

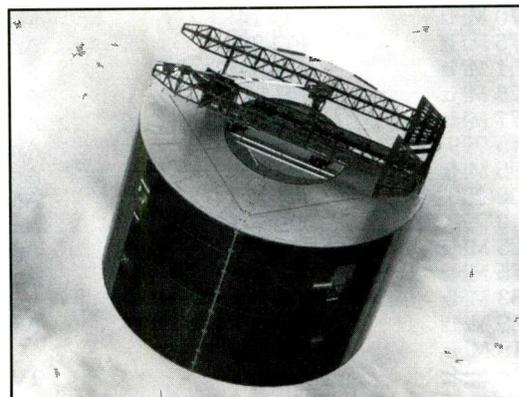
800-1000 MHz	Molniya	MIL/Russian	Elliptical	Voice/Data
920-975 MHz	Various	Deep Space Probes	Eccentric	Data
922.700 MHz	MIR	Manned	ECC	TLM
1225.0-1270.0 MHz		Glonass	NAVSAT	Data
1227.6 MHz (1.2 GHz)	GPS	NAVSAT		Data
1575.4 MHz (1.5 GHz)	GPS	NAVSAT		Data
1544.5 MHz	SARSAT	Search & Rescue		Data
1535-1559 MHz	Intelsat	Marine	Geo	Voice/Data
1545-1559 MHz	Msat	Mobile	Geo	Voice/Data
1603-1636 MHz	Glonass	NAVSAT		Data
1614 MHz (1.614 GHz)	GOES	Wxsat	Geo	TLM
1675.92 MHz	Meteor	Wxsat	Geo	FAX
1691.0 MHz	Goes	Wxsat	Geo	FAX
1694.0 MHz	Meteosat	Wxsat	Geo	FAX
1698.0 MHz	NOAA 8	Wxsat	SUN-SYNC	APT
1695.5 MHz	Fengyun			
1702.5 MHz	NOAA 9	Wxsat	SUN-SYNC	APT
2035.9 MHz	Shuttle	Manned	Leo	TLM
2060.3 MHz	Shuttle	Manned	Leo	TLM
2106.4 MHz	Shuttle	Manned	Leo	
2201.4 MHz	Shuttle	Manned	Leo	
2205.0 MHz	Shuttle	Manned	Leo	
2206.0 MHz	Spot	Recon	Leo	FAX
2209.0 MHz	Goes	Wxsat	SUN-SYNC	
2211.0 MHz	TDRS	Relay	Geo	
2214.0 MHz	Shuttle	Manned	Leo	TV
2215.5 MHz	Shuttle	Manned	Leo	
2217.5 MHz	Shuttle	Manned	Leo	
2250.0 MHz	Shuttle	Manned	Leo	
2287.5 MHz	Shuttle	Manned	Leo	
2280-2304.0 MHz	Early Warning	Russian		
2204.0-2400.0 MHz	Deep Space	Probes		
2560-3700 MHz	European/Russian			TV
3700-4195 MHz	Television	C-Band		TV
7200.0-7500.0 MHz	NATO III	Military	Geo	Voice/Data
7.2-7.7 GHz	DSCS III	Military	Geo	Voice/Data
7.2-7.9 GHz	Skyнет	UK/Military	Geo	Voice/Data
7.250-7.750 GHz	Raduga	Russian/MIL	Geo	Voice/Data
8.400 GHz	Spot	Recon	Leo	FAX
8.430 GHz	JERS	Wxsat	Geo	FAX
11.000-11.500 GHz	SDRN	REALY	Geo	Russian TDRS
12.2-12.7 GHz	DBS		Geo	TV
16.6-17.1 GHz	Deep Space Probes			
17.3-21.2 GHz	Fixed and Mobile Sat Service			
22.5-23.0 GHz	Broadcasting allocations			
23.0-23.55 GHz	Inter-satellite/Crosslink			
24.0-24.5 GHz	Amateur Allocation/Satellite			
31.0-33.0 GHz	Radiationavigation			

Well, I hope this abbreviated list of frequencies meets with your approval and provides you with some interesting listening. For a comprehensive list of frequencies, I suggest a book by Anthony Curtis, K3RXK, *The Outer Space Frequency Directory*. Be sure to forward me any additions, changes or intercepts you get from outer space. See ya' next month!



The Intelsat VI F-3 communications satellite slowly spins out ← of Endeavour's cargo bay to begin its new life.

Intelsat (also known as Syncom) are leased military satellites using the 240 to 300 MHz band. ↓



27 MHz COMMUNICATIONS ACTIVITIES

These are exciting times for CB'ers. Not long ago, CNN reported that CB sales are up 40 percent, driven by people discovering anew the power of CB for local communications. Last year just one local CB-based assistance network (it uses ham radio and cellphones too) in upstate New York handled over 3,000 incidents, and there are lots of other CB assistance networks operating throughout the country. In Chicago, teenagers are using CB to stay in touch and do "power shopping," and their parents are discovering that CB is just as much fun as it was 20 years ago. And throughout the country, CB is at the heart of crime-fighting neighborhood patrols.

Even better, manufacturers are taking notice and rolling out innovative new gear. A case in point: Cobra recently produced a new and improved version of the truckers favorite, the Cobra 29 LTD Classic. This AM mobile unit features the usual 40 channel rotary selector, volume and squelch knobs, plus additional knobs for microphone gain, RF gain control, and SWR calibration. Also on board are switches to change the meter from S/RF to SWR for antenna tuning, to activate the noise blander and automatic noise limiter, to switch from CB to public address function, and to instantly access Ch. 9.

But what really makes the new 29 LTD Classic interesting is that it receives all seven channels of NOAA weather broadcasts with instant Weather Alert function. You don't have to have the car radio turned on or even the CB, so long as there is power to the rig, you'll hear the National Weather Service's special alert tone whenever it is transmitted. That will prompt you to tune to the local weather channel to find out what's going on. In addition, the ability to hear weather information whenever you want it, just by flipping a switch, is especially handy. To make sure the Weather Alert works when you're traveling out of your local area, you'll have to occasionally flip on the weather radio and turn the knob to see which of the seven weather channels comes in best.

The name of this new Cobra is the 29 LTD WX Classic. I tried one out in my Jeep and received good audio and signal strength reports from the local gang on Ch. 9 and Ch. 28. The noise-fighting circuitry of the 29 LTD WX Classic does a very good job of cancelling out ignition and atmospheric noise. As a result, it makes a good traveling companion, sitting there quietly, background noise squelched out, until I am ready to use it or somebody wants to reach me. Average selling price of the 29 LTD WX Classic is \$179.95. For the name of your local dealer or for more information,



Cobra's 29 LTD WX Classic: The trucker's favorite—improved with Weather Alert.

call 1-800-COBRA 22, and tell 'em you read about it in *POP'COMM*.

Readers Write

I've been getting lots of good mail from the most important people in the world—our readers.

Cornbinder from Edmonton, Alberta, writes to say that a small sign between Cache Creek and Kamloops, B.C., lets motorists know that "CB Ch. 9 monitored 'emergencies only.'" He also was kind enough to send in a photograph (printed above) taken between Revelstoke, British Columbia, and Golden, B.C. It's good to know that folks in Canada are manning CB to provide assistance.

Finally, Cornbinder sent along some

photos of a creature that is proving as elusive in Western Canada as Big Foot—the CB repair shop! The folks from CB City and Stereo, just west of Edmonton, will actually crawl right into your car, truck, or RV and perform "a healing" on the spot. Boy, there's nothing like local service when you need it.

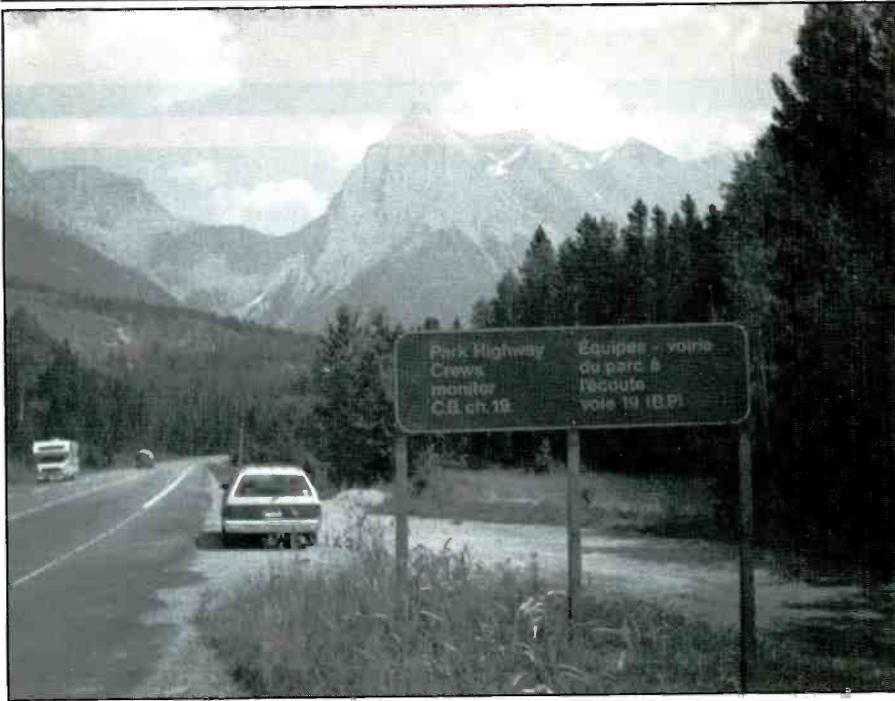
SSB-90M—Nine Zero Mike—wrote to say that having his QSL card printed in this column resulted in making a new radio friend in the Seattle area. Good deal! He's interested in swapping QSLs. Anybody interested can reach him at 814 Columbia #1, Seattle, WA 98104.

Power Games

Another reader, who had better remain



Arie Shoep, the CB City manager, installs a rig in a camper.



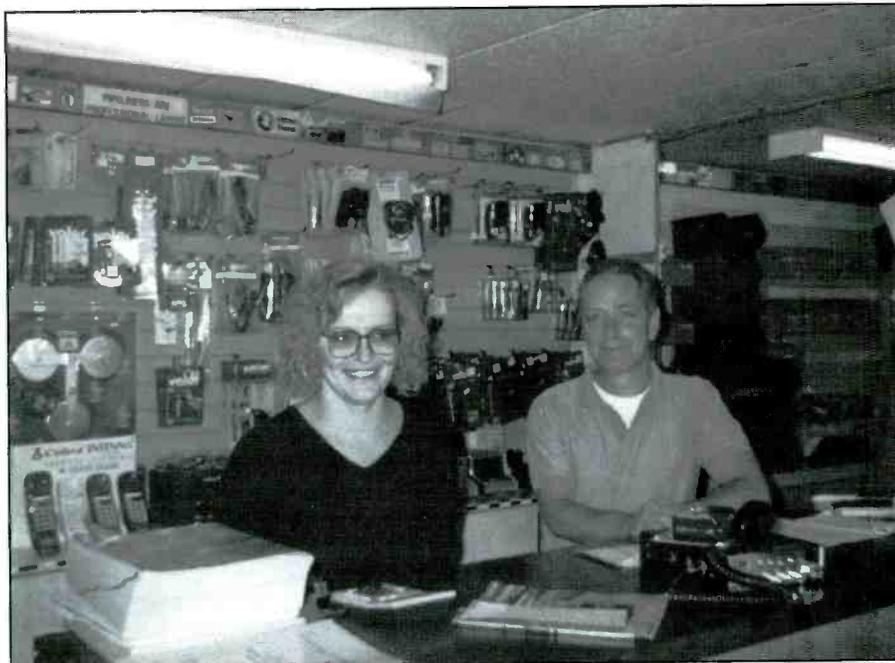
CB help is available amid gorgeous scenery.

anonymous, wrote to ask, "How will the FCC get someone if I use a linear amplifier? Does the FCC monitor all the time?" And in a related matter, a reader from Modesto, Calif., wrote to see if I would publicize the idea of starting a club for the owners of RCI 2950 radios.

These two inquiries are linked to the question of transmitter power, so I'll deal with them together. First, the FCC probably does not monitor all the time in your area, but in all likelihood they do monitor

some of the time, and you're never going to know when that is. If you get caught running a linear, the fine can be as high as \$2,000 for a first-time offense. That's two thousand good reasons not to run a linear.

Second, running high power usually creates problems for CB'ers on adjacent channels. In my area, there is a station running big watts on Ch. 10. When he keys up, he wipes out the ability to receive signals on Ch. 9, the emergency and traveler assistance channel. Now, if your wife or friend



Sandra Sims and Don Philp, CB technicians at CB City, with POP'COMM on the counter.

were out there and needed help but couldn't get through because of somebody running excessive power, how would you feel?

That's precisely why I am a fan of legal power (4 watts AM and 12 watts SSB) and type-accepted radios for CB operations. The term "type-accepted" means that a particular radio has been accepted and approved by the FCC for operation in a particular radio service, like CB or amateur radio. The RCI 2950 has been type-accepted for operation in the ham radio 10-meter band, but not for CB. The proper place to publicize a club for RCI 2950 owners would be in *POP'COMM's* Ham Column, not here. (Don't think that the FCC is taking special delight in picking on CB'ers. Even though many of the 2-meter handi-talkies hams use can be modified to operate on the marine VHF frequencies, the 2-meter handi-talkies have not been type accepted for use there.)

The problem with non-type-accepted radios on the CB frequencies is that it is simply too easy to crank up the power way beyond the legal limits and cause problems for others. Of course I understand why folks want more power—they want to be able to get through when conditions are lousy because of skip or noise or what-have-you. Who hasn't felt the urge for more *oomph* to get the signal through? I certainly have!

Fortunately, there is a solution, and it can be achieved while running legal power. The answer is to put up a better antenna. That's right, a better antenna—a beam, for example—will not only help you get your signal through, but it will also help you receive faint signals in the direction you point the beam. An added benefit is that the directionality of a beam also helps to reject unwanted signals. As Dr. Rigormortis (editor of the now defunct *Eleven Meter Times and Journal*) put it: "If I were going to spend \$100 on a radio station, I'd put \$90 in the antenna and \$10 in the radio." Now *that's* real wisdom!

There's one other reason to run type-accepted gear: sometimes it just plain works better. At my personal station I have two antennas, a omni-directional vertical and a three-element beam mounted on a rotator. My CB base station is a Cobra 2000 GTL. I also have a very powerful and very expensive ham rig (yes, I have a ham license) that I could run on CB if I choose (I don't!). But here's a real surprise—the noise blanker on the Cobra base station works *better* than the noise blanker on my two kilobuck ham rig! And, as a practical matter, I find it a lot easier to switch channels when I have a channel indicator than if I only have a frequency read-out.

Okay, so I've said my piece. Run legal power and use better antennas—it's a simple matter of treating others the way you would want to be treated. Now it's your turn—what do you think?

That's it for this time. Please write to me here at *Popular Communications*. ■

HOW I GOT STARTED

Popular Communications invites readers to submit, in approximately 150 words (more or less), how they got started in the communications hobby. They should preferably be typewritten, or otherwise easily readable. If possible, a photo of the submitter should be included.

Each month we will select one entry and run it here. You need submit your entry only once, we'll keep it on file. All submissions become the property of Popular Communications, and none can be acknowledged or returned. Entries will be selected for use taking into consideration if the story they relate is especially interesting, unusual, or even humorous. We reserve the right to edit all material for length and grammar, and to improve 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: How I Got Started, Popular Communications, 76 No. Broadway, Hicksville, NY 11801.



Duane VanDenburgh, of Beaver Dam, WI, is a newcomer to the shortwave listening hobby. In just over a year he has collected a total of 20 QSLs and three pirate QSLs. Keep up the good work, Duane!

Our March Winner

This month our winner Duane VanDenburgh writes in from Beaver Dam, WI. Duane is a newcomer to the shortwave listening hobby:

"I got started in shortwave by accident. I bought a DX-380 just for the AM and FM radio. When I got listening to shortwave a little, I found it very interesting. The first station I heard was Radio Netherlands, and I could not believe what I was actually hearing was in reality so far away from my listening post!

"After being a shortwave listener for just over a year, to date I have 20 QSL's, and my goal is to have 60 by early 1995. I have listened to five pirate stations and received three QSL cards, which is part of my other goal of 60 pirate QSL cards by early 1995. I continuously use a friend's shortwave radio for pirate frequencies because my DX-370 cannot tune the pirate stations.

"Shortwave is the best hobby in the world, and I encourage everyone to get involved!"

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INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Repeaters and How They Work

Repeaters repeat. That certainly sounds simple enough, doesn't it? To say that an article on understanding communications repeaters could fill a book is certainly an understatement. There are many different kinds of repeaters, and the ways they are used is almost as varied.

The repeater is nothing more than a remote base station placed in a prime location. The basic components are a receiver, a transmitter, an antenna, and a duplexer. Repeaters are normally used to extend the working range of a communication system. Let's take a look at the repeater system shown in figure 1.

In this basic picture, you see the repeater located on top of the mountain. Normally, these locations, called "sites," offer housing and protection for many different repeaters, operating on many different frequencies. As you will note, the site is high enough to offer excellent reception from many locations in the surrounding area. The man on the walkie talkie could never reach the person in the vehicle directly, however, by using the repeater, clear communication is possible.

Repeaters normally operate by using two frequencies, or a pair as they are often called, on the same band. You will find the most common repeaters being used by police and fire departments on the 453 MHz and 460 MHz UHF band. Some of the most complex and interesting repeaters can be heard on the amateur bands.

Let's use some examples to explain just how a repeater works. The local police department is licensed to use a repeater pair of 460.100 MHz and 465.100 MHz. The lower of the two frequencies is used by the repeater for sending or transmitting. In this case, 460.100 MHz is the frequency the repeater transmits or repeats on. This is often known as the "repeater output frequency." The higher frequency, in this case 465.100 MHz, is the frequency of the repeater's receiver, or the "repeater input frequency." Mobile units are programmed in reverse. In this case, the patrol car would receive on 460.100 MHz, so the officer can listen to the repeater's transmissions. The patrol car radio is programmed to transmit on 465.100 MHz, the frequency of the repeater's receiver.

The repeater normally has only one antenna, used for both transmitting and receiving. How can this happen? How can a repeater receive and transmit at the same time using the same antenna? This is done by the use of a duplexer. The duplexer is an interesting electronic component that we will cover in a future article, but for now just accept the fact that a repeater can receive on 465.100 MHz and transmit the received signal out on 460.100 MHz at the same time.

In a simple repeater radio system for a public safety department, the patrol car would have two channels. Channel one would allow the car to transmit on 465.100 MHz and receive the repeater's output signal on 460.100 MHz. If you were monitoring this

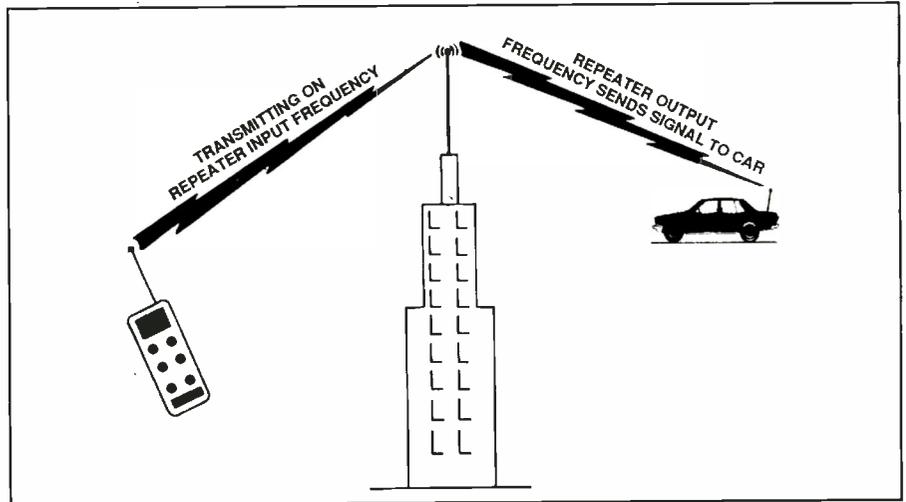


Figure 1.

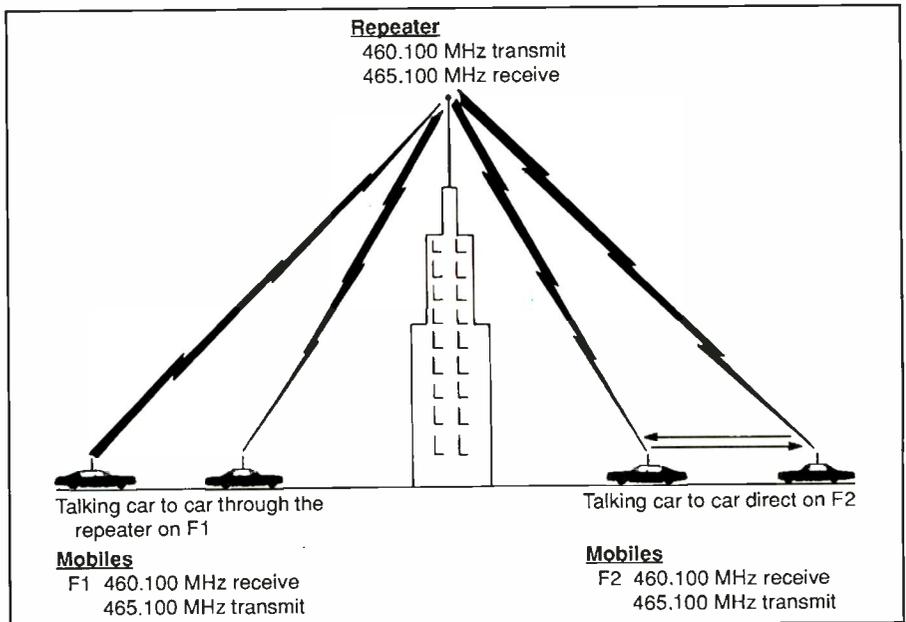


Figure 2.

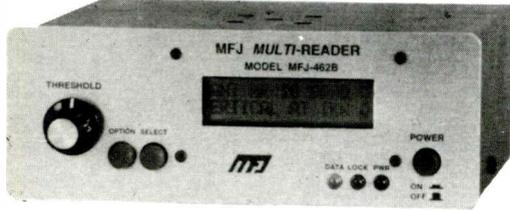
system with your scanner, you would want to listen to the "repeater output channel" or 460.100 MHz. Of course, you could also listen to the patrol car's transmissions directly on 465.100 MHz, but there is no need to do this since the repeater has a better antenna and will hear the car better than you can, and it will be repeated on the "repeater output channel" of 460.100 MHz. What about channel two on the patrol car radio? In most cases, this is the "talk-around" channel. When selected to F2 or channel two, the patrol car radio still uses 460.100 MHz for reception, however, the transmitter is changed so the car now transmits on the same frequency as the repeater's output. In this position, the officer can transmit directly from his car on 460.100 MHz to the receiver on the next patrol car, which is monitoring either F1 or F2. The cars

will have to be fairly close to use direct communications without going through the repeater, but it is done when there is a desire for car-to-car communication. If the cars are not in close range of each other, the repeater's stronger transmitter can override or cover the car transmission since they are both on the same frequency. Take a look at illustration 2 for a graphic picture of how the system works. The officer in car #2 would have to select F2 on his radio to talk car-to-car with the officer in car #1, otherwise his response would go through the repeater and broadcast to all cars on the system.

When looking at a frequency directory, you can find the base and mobile frequencies licensed to a user by looking for the base call sign and the mobile call sign. Mobile call signs normally have two letters and four numbers.

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Preamp with gain control boosts weak stations 10 times. 20 dB attenuator prevents overload. Pushbuttons let you select 2 antennas and 2 receivers. Cover 1.6-30 MHz. 9x2x6 inches. Use 9-18 VDC or 110 VAC with MFJ-1312, \$12.95.

High-Gain Preselector

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\$69⁹⁵



High-gain, high-Q receiver preselector covers 1.8-54 MHz. Boost weak signals 10 times with low noise dual gate MOSFET. Reject out-of-band signals and images with high-Q tuned circuits. Pushbuttons let you select 2 antennas and 2 receivers. Dual coax and phono connectors. Use 9-18 VDC or 110 VAC with MFJ-1312, \$12.95.

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

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MFJ-108B

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MFJ-105B

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MFJ-108B, dual clock displays

24 UTC and 12 hour local time

simultaneously. MFJ-107B, single

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Band Radio!

MFJ-105B, accurate 24 hour

UTC quartz wall clock with large 10

inch face.

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MFJ-1702B

\$21⁹⁵

MFJ-1704 heavy duty antenna

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ground them for static and lightning

protection. Unused antennas automa-

tically grounded. Replaceable light-

ning surge protection device. Good to

500 MHz. 60 dB isolation at 30 MHz.

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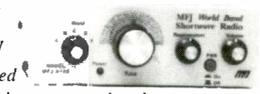
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MFJ-8100W

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POP'COMM's World Band Tuning Tips

March—1995

Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
2460	R. Alvorada, Brazil	0900	PP	6120	R. Canada Int'l	0200	
2485	VL8K, Australia	1100		6125	Spanish National Radio	0230	
3200	TWR, Swaziland	0430		6150	AWR, Costa Rica	0600	
3220	HCJB, Ecuador	0430		6155	R. Sweden	0230	
3220	R. Madang, Papua New Guinea	1100		6155	R. Austria Int'l	0700	
3240	TWR, Swaziland	0300		6165	R. Netherlands, Bonaire relay	0100	
3255	BBC Lesotho relay	0300		6165	Swiss Radio Int'l	0530	
3289	R. Centro, Ecuador	1000	SS	6185	R. Educacion, Mexico	0600	SS
3290	Namibia Broadcasting Co.	0300		6190	BBC relay, Lesotho	0300	
3300	CHU, Canada (time station)	0200		6200	R. Sweden	2300	untd
3300	R. Cultural, Guatemala	0300		6245	Vatican Radio	0640	
3310	Channel Africa, S. Africa	0357		6250	R. Nac. Malabo, Eq. Guinea	0500	SS
3325	R. Liberal, Brazil	0400	PP	6280	King of Hope, Lebanon	0400	AA
3360	La Voz de Nahuala, Guatemala	0300	SS	6299	Sani Radio, Honduras	0200	SS
3366	GBC, Ghana	0600		6560	Rep. of Iraq Radio	0157	s/on, AA
3375	R. Clube Dourados, Brazil	0100	PP	7110	TWR, Monaco	0740	
3810	HI2IOA, Ecuador (time stn)	0400		7125	RTV Guineenne, Guinea	0530	FF
3955	Channel Africa, S. Africa	0324	s/on	7150	R. Vilnius, Lithuania	0000	Sat/Su
3980	VOA relay, Germany	0400		7180	BBC relay, Hong Kong	1300	s/on
4460	R. Norandina, Peru	0300	SS	7185	Channel Africa, S. Africa	0430	FF
4600	R. Perla del Acre, Bolivia	1000	SS	7190	R. Moldova Int'l, Moldavia	0200	
4753	RRI Ujung Pandang, Indonesia	1200	II	7200	Rep. of Sudan Radio	0300	AA
4755v	Rdf. Maranhao, Brazil	0200	PP	7255	V of Nigeria	0500	
4760	ELWA, Liberia	0600		7265	VOA, Botswana	0430	
4765	RTVC, Congo	0355	s/on, FF	7270	R. Oranje, S. Africa	0500	
4770	Centinela del Sur, Ecuador	0200	SS	7305	Vatican Radio	0250	
4785	Super Radio, Colombia	0330	SS	7310	R. Slovakia Int'l	0100	
4790	R. Atlantida, Peru	0200	SS	7345	R. Prague, Czech Rep.	0700	
4800	R. Cultural, Guatemala	0100	vern	7365	KNLS, Alaska	1300	
4805	Rdf. do Amazonas, Brazil	0100	PP	7465	Kol Israel	0500	
4810	R. 2000, S. Africa	0230	EE/Afr	7475	RTT, Tunisia	0500	AA
4825	R. Cancao Nova, Brazil	0100	PP	7670	Horizont Radio, Bulgaria	0400	Bulg
4832	R. Reloj, Costa Rica	0100	SS	9200	R. Omdurman, Sudan	1800	
4835	R. Tezulutlan, Guatemala	1100	SS	9370	KSDA, Guam	1400	
4840	R. Valera, Venezuela	0300	SS	9400	RFPI, Costa Rica	0300	
4865	La Voz del Cinaruco, Colombia	0600	SS	9400	FEBC, Philippines	1430	CC
4870	ORTB, Benin	0500	FF	9420	Voice of Greece	0130	GG/EE
4885	Ondas del Meta, Colombia	1000	SS	9445	Voice of Turkey	2300	TT
4890	NBC, Papua New Guinea	1200		9475	R. Cairo, Egypt	0200	
4895	La Voz del Rio Arauca, Colombia	0200	SS	9480	TWR, Monaco	0730	
4904	RN Tchadienne, Chad	0500	FF	9485	R. Prague, Czech Republic	2100	
4905	R. Relogio Federal, Brazil	1000	PP	9515	R. Romania Int'l	0400	
4915	R. Anhanguera, Brazil	0200	PP	9525	R. Singapore Int'l	1300	
4920	R. Quito, Ecuador	0100	SS	9535	Swiss R. Int'l	1000	
4950	V of Pujiang, China	1100	CC	9535	R. Japan	1400	
4955	R. Marajoara, Brazil	0900	PP	9540	R. Nacional Espana, Spain	0100	
4970	R. Rumbos, Venezuela	0300	SS	9560	R. Ethiopia	1300	Afar
4990	R. Nigeria	0500		9560	R. Jordan	1400	
5010	R. Garoua, Cameroon	0500	FF	9570	R. Portugal	0230	
5025	R. Parakou, Benin	0500	s/on, FF	9570	R. Romania Int'l	0230	
5030	AWR, Costa Rica	0300	SS	9575	Radio Medi Un, Morocco	0730	FF
5045	R. Clube do Para, Brazil	0100	PP	9580	R. Yugoslavia	0000	
5047	R. Togolaise, Togo	0500	FF	9580	R. Tirana, Albania	0330	
5055	TIFC, Costa Rica	0400		9580	Africa No. One, Gabon	2200	FF
5056	RFO, Fr. Guiana	0400	FF	9605	Vatican Radio	0330	SS
5060	R. Nac. Progreso, Ecuador	0300	SS	9605	V of UAE	2200	
5075	Caracol, Colombia	0300	SS	9615	R. Cultural, Brazil	0900	PP
5810	V of Free China, Taiwan, via WYFR	2200		9620	R. Dnestr Intl, Moldova	2130	
5955	Channel Africa, S. Africa	0400		9645v	Faro del Caribe, Costa Rica	0300	
5960	R. Japan via Canada	0100		9650	R. Korea, S. Korea, via Canada	1130	
5970	R. Budapest, Hungary	0230		9665	R. Marumby, Brazil	2300	PP
5975	BBC via Antigua	0100		9675	NBC, Papua New Guinea	1130	
6005	R. Reloj, Costa Rica	1030	SS	9690	China Radio Int'l, via Spain	0300	
6005	CFCX, Canada, relay CKOI	1100	FF	9695	R. Rio Mar, Brazil	1100	PP
6010	R. Havana Cuba	0030		9700	R. Bulgaria	0000	
6015	R. Austria Int'l, via Canada	0530		9700	R. New Zealand Int'l	0800	
6030	R. Marti, USA	0600	SS	9705	R. Portugal	0200	
6030	R. Globo, Brazil	0900	PP	9725	R. Japan, via Canada	0500	
6050	R. Liberty via Portugal	0100	RR	9725	AWR, Costa Rica	1330	SS
6070	CFRB/CFRX, Canda	1200		9745	HCJB, Ecuador	0730	
6085	Deutsche Welle, Germany, via Canada	0300		9750	V of Malaysia	1200	Malay
6090	R. Bandeirantes, Brazil	0100		9755	Radio Canada Int'l	0000	
6095	Vatican Radio	0250		9770	R. Australia	1400	
6100	R. Union, Peru	0030	SS	9770	V of UAE, Abu Dhabi	2300	

Freq.	Station/Country	UTC	Notes	Freq.	Station/Country	UTC	Notes
9780	China Radio Int'l, via Mali	0300		13860	INBS, Iceland	1215	Icelandc
9790	R. Amahoro - to Rwanda via Gabon	1700	s/on, FF	15020	All India Radio	1400	
9810	R. Sweden	0030		15030	RFPI, Costa Rica	2300	
9820	Radio Havana Cuba	0200	USB	15084	VOIRI, Iran	2200	Farsi
9830	R. Jordan	2100	AA	15095	R. Damascus, Syria	2030	
9835	R. Budapest, Hungary	0100		15105	R. Moscow, Russia	1500	
9840	R. Kuwait	2100	AA	15120	R. Sweden	1130	
9860	Swiss R. Int'l, via Fr. Guiana	0400		15139	R. Nacional, Chile	2200	SS
9870	R. Austria Int'l	0000	GG	15140	R. Veritas, Philippines	1530	
9870	Monitor Radio, USA	0600		15160	VOA, Philippines	1400	
9885	Swiss R. Int'l	0100		15168	R. Tahiti	0300	FF/TT
9900	R. Cairo, Egypt	2230		15175	FEBA, Seychelles	1100	AA
9910	All India Radio	1530		15180	R. Ukraine	0130	
9955	WRMI, Miami	0100		15200	Uzbek Radio	1200	
9965	KHBN, Palau	1200		15200	R. Nacional Amazonas, Brazil	2300	PP
9977	R. Pyongyang, N. Korea	1100		15235	V of Great Homeland, Libya	0200	AA
10060	V of Vietnam	0000	VV	15240	R. Sweden	1330	
10621	Australian Defense Forces Radio	1530	USB	15240	Channel Africa, S. Africa	1600	
11335	R. Pyongyang, N. Korea	1100	s/on	15265	Radiobras, Brazil	1800	
11550	RTV Tunisienne, Tunisia	1600	AA	15270	HCJB, Ecuador	1930	
11570	R. Pakistan	1700		15290	R. Dniester Int'l, Pridnestrovye	2030	
11603	Kol Israel	0400		15325	R. Canada Int'l	2100	
11615	R. France Int'l	1600		15340	R. Rwanda	1400	FF
11620	All India Radio	1100		15345	RAE, Argentina	0200	SS
11655	R. Netherlands	1730		15345	RTV Moroccan, Morocco	1800	AA
11665	R. Cairo, Egypt	1800	AA	15365	R. Thailand	0030	
11680	China Radio Int'l via Fr. Guiana	0400		15390	RAI, Italy via Ascension	0200	
11690	FEBC, Philippines	1200	VV	15395	UAE Radio, Dubai	1330	
11700	R. France Int'l	1500		15400	R. Finland Int'l	1330	
11705	R. Japan, via Canada	1400		15415	Libyan Jamahiriyah Broadcasting	1430	AA
11710	RAE, Argentina	0700		15430	Radio Japan	2300	
11715	China R. Int'l, via Mali	0300		15445	Radiobras, Brazil	1200	
11715	R. Korea, S. Korea, via Canada	1030		15445	R. Vlanderen Int'l	1300	
11720	R. Bulgaria	2100		15475	R. Atlantika, Russia	1300	RR, Tu-Fr
11750	BBC relay, Singapore	1600		15475	Africa Number One, Gabon	2100	FF
11755	R. Finland Int'l	0130		15510	R. Australia	0500	
11765	R. Universo, Brazil	2200	PP	15530	R. Australia	2200	II
11780	BSKSA, Saudi Arabia	1730	AA	15555	R. Pakistan	1600	
11780	R. Nacional Amazonia, Brazil	2200	PP	15565	R. Australia	1200	
11790	VOIRI, Iran	0030		15570	Vatican Radio	2030	
11790	R. Intercontinental, Armenia	2100		15575	R. Korea, S. Korea	0030	
11800	R. Australia	1300		15610	KTWR, Guam	1500	
11805	VOA relay, Thailand	1230		15615	Reshet Bet, Israel	2300	HH
11810	R. Romania Int'l	1400		15630	V of Greece	1430	GG/EE
11815	Spanish Ntl Radio, via Costa Rica	0100	SS	15670	V of Human Rts & Freedom for Iran	1800	cland
11825	R. Tirana, Albania	2200		15675	R. Pakistan	1430	Urdu
11827	R. Tahiti	0300		15675	R. Copan Int'l, Honduras	2300	SS
11830	R. Romania Int'l	0400		15770	ISBS, Iceland	1230	Icelandc
11830	Vatican Radio	2250		17490	HCJB, Ecuador	1000	
11845	R. Canada Int'l	2200		17500	RTT, Tunisia	1330	AA
11850	R. Norway Int'l	1200	Sun	17510	KWHR, Hawaii	2300	
11870	Bosnian-Serb Radio, via Yugoslavia	0100		17520	V of Greece	1430	GG/EE
11870	FEBA, Seychelles	1500		17590	R. Finland	1430	
11880	R. Japan via Fr. Guiana	0300		17595	RTM, Morocco	1430	AA
11885	UAE Radio, Abu Dhabi	2300		17620	R. France Int'l	1600	
11890	R. Oman	1430	AA	17625	R. Bulgaria	1230	
11905	R. Thailand	0030		17630	Africa No. One, Gabon	1430	FF
11905	R. Universo, Brazil	2330	PP	17655	R. Netherlands via Bonaire	1830	
11925	HCJB, Ecuador	0600		17670	Swiss Radio Int'l	1500	
11925	R. Mediterranean, Malta	1400		17725	R. Ukraine Int'l	2030	
11945	R. Canada Int'l	2100		17740	R. Finland Int'l	1430	
11990	R. Kuwait	1800		17745	R. Tashkent, Uzbekistan	1200	
11995	FEBC, Philippines	1400		17745	R. Algiers, Algeria	1930	
12050	R. Cairo, Egypt	2100	AA	17755	R. Nacional Espana, Spain	1900	SS
12085	R. Damascus, Syria	2000		17775	R. Romania Int'l	1300	
12085	R. Damascus, Syria	2030		17790	HCJB, Ecuador	2130	
12095	BBC, England	1200		17805	R. Romania Int'l	1730	
12095	BBC, England	1300		17810	R. Japan	2300	
13590	R. Pakistan	1600		17820	R. Canada Int'l	1300	
13605	R. Australia	1100		17845	Spanish National Radio	1500	SS
13615	R. Bangladesh	1230		17860	Deutsche Welle via Rwanda	1000	FF
13625	R. France Int'l	1200		17870	R. Sweden	1500	
13635	Swiss R. Int'l, via Fr. Guiana	0030		17870	RAI, Italy	1730	II
13660	R. Havana Cuba	0200	USB	17895	Qatar Broadcasting Service	1400	AA
13670v	R. Iraq Int'l	2130	AA	17900	R. Portugal	2000	PP
13675	R. Vlanderen Int'l, Belgium	1330		21455	R. Canada Int'l	1330	
13675	UAE Radio, Dubai	1630		21455	HCJB, Ecuador	1330	
13715	R. Havana Cuba	2200	SS, USB	21515	R. Portugal	1500	PP
13720	AWR Asia, Guam	1300		21520	R. Pakistan	1100	
13750	AWR, Costa Rica	1200	s/on	21590	R. Netherlands, Bonaire	1800	
13760	R. Pyongyang, N. Korea	0000	s/on	21605	UAE Radio, Dubai	1430	AA
13770	Monitor Radio	2000					

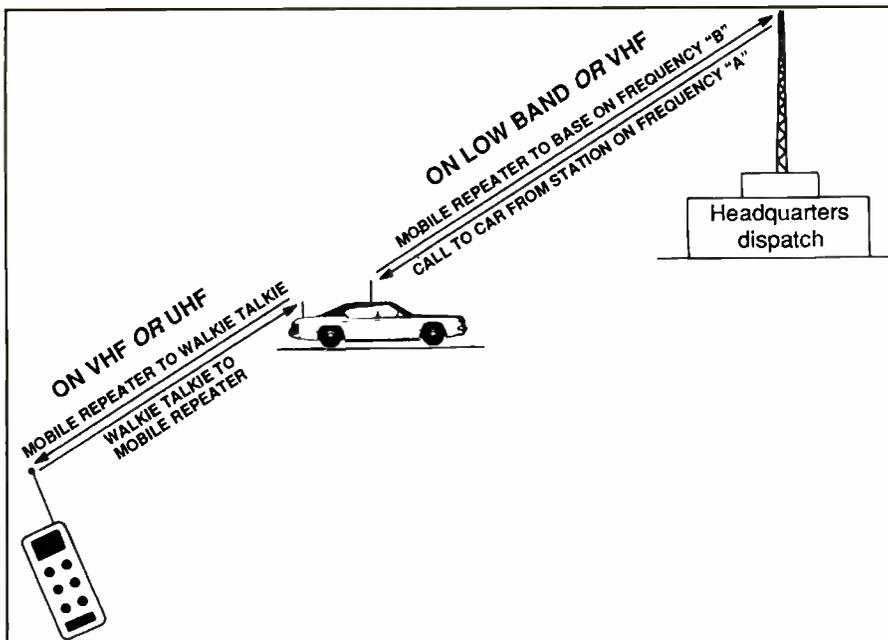


Figure 3.

For example, our sample department might show a call sign such as KID223 on the repeater output channel of 460.100 MHz, and a mobile call sign of KA1234 on the mobile transmitter channel of 465.100 MHz. On UHF systems, the repeater output is normally 5 MHz below the repeater input or mobile unit transmit frequency. Most other bands have a formal repeater output and input pattern, except for the VHF or 150 MHz to 174 MHz band. On this band, the repeater input channel can be more difficult to find.

Amateur radio operators make good use of repeaters. The "Two-Meter band" which is

the ham VHF band, operating between 144 MHz and 148 MHz, has extensive repeater systems and even networks. Hams have, for example, linked their VHF and UHF repeaters together making statewide networks. One of the best examples is the system used in California and across the southwestern USA. Hams, using walkie talkies and the proper access codes, can talk from San Francisco to other hams as far away as Los Angeles and Phoenix. In North Carolina the ham link system can allow a walkie talkie user on the beach talk to another ham in the mountains some 500 miles away. These systems are especial-

ly helpful during times of emergencies when normal communications systems no longer work because of power interruptions.

One more thing that hams have explored to the maximum is the remote base concept. In this system, a normal repeater also has a receiver and transmitter added to the repeater on another completely different band. This would allow a ham on VHF to go through the local repeater and then by using the remote base station added to the repeater, talk on the low band amateur simplex channel 52.525 MHz. There is no limit to the number of things a creative ham can do to a repeater system, and it is fun to listen to on your scanner.

Just because a system has a mobile license on one frequency and a base license on another frequency does not always mean the base station is a repeater, however, it is normally the case when on the UHF band or higher frequencies. Sometimes, such as in VHF taxi dispatching systems, the base transmits on the base channel, but does not receive the cars that are received on the mobile channel. Listen to some of the taxi dispatchers in the 152 MHz band, for example. The cabs are transmitting to the dispatcher on their assigned mobile channel in the 157 MHz band, but their conversation cannot be heard because the base station is just a base station—not a repeater.

One other repeater that we should mention briefly is the "mobile repeater." This is an actual repeater which is added to a normal mobile two-way radio. The mobile repeater allows the station to send a signal to the car radio, which is in turn retransmitted to the officers handheld by the mobile repeater. The officer can also transmit on his handheld to the mobile repeater

(Continued on page 82)



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DE	48	NY	504
FL	472	OH	480
GA	336	OK	230
HI	56	OR	127
IA	272	PA	464
ID	128	PR/VI	116
IL	520	RI	56
IN	320	SC	164
KS	252	SD	121
KY	223	TN	261
LA	212	TX	840
MA	231	UT	104
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LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

You can no longer hear the words "This is Radio Moscow" on your shortwave radio. That famous phrase, which long time SWLs literally grew up with, has given way to a new identification. Radio Moscow now calls itself The Voice of Russia and Voice of Russia World Service. In addition, the station continues to suffer problems and cutbacks resulting from Russia's poor economic situation. The separate service for the West Coast of North America has now been dropped. And an additional eleven languages have also been discontinued. Broadcasting hours have been cut further, too—by some 840 hours per week! If you don't have a current schedule it's actually getting a little hard to locate Moscow's English broadcasts. A few years ago they were all over the dial.

There's progress to report with Radio For Peace International's announced plans to expand and put a second station on the air from Canada. The organization has purchased land near Salmon Arm, in British Columbia, and next plans to buy a used 50 kW transmitter and convert it for use on shortwave.

Radio France International has given up its plans to build a relay station in Djibouti.

It will build one in Southeast Asia, however, possibly in Thailand, which already has a big VOA relay site. Thailand will be the site of a new relay station for the BBC, which hopes to have four-250 kW transmitters active there by around 1996, in effect hedging their bets as to the future of their Hong Kong relay after the colony comes under the control of Beijing.

Construction of the VOA relay at Chilaw, Sri Lanka is running into problems. Locals think the relay will serve as a "cover" for military communications and cause damage from "radiation." Some have even rioted in an attempt to prevent the station from being built. Last we heard construction had been temporarily suspended.

More Name Changes

Radio Korea is now Radio Korea International, and the station has added a 250 kilowatt transmitter to further improve its coverage. The Voice of Ethiopia now calls itself simply Radio Ethiopia.

Destroyed

The volcanic eruptions near Rabaul, Papua New Guinea destroyed the city but

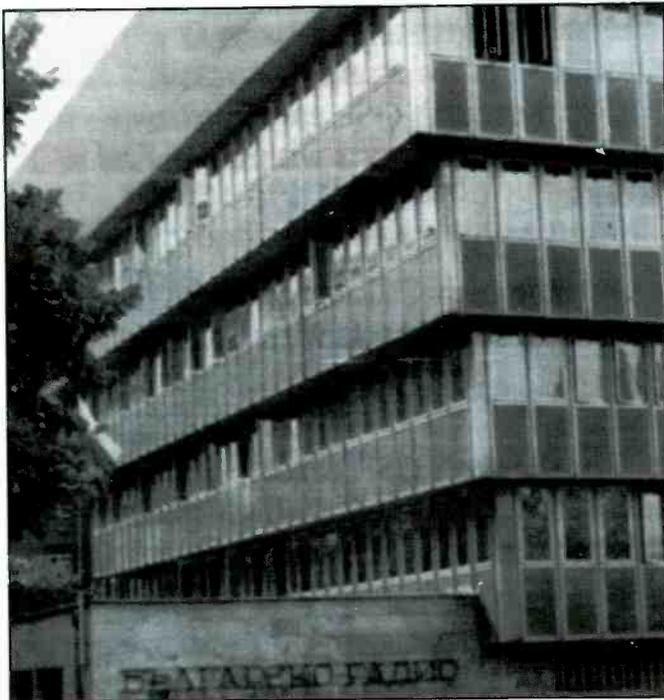
its station somehow escaped. Radio East New Britain (3385 kHz) was off the air for about three weeks before returning, though it may be using emergency, lower power equipment. The National Broadcasting Commission's Port Moresby station on 4890 could be heard with disaster emergency programming during the early morning hours here in North America.

Another station lost, at least for the time being, is the Liberian Broadcasting System's ELRL at Gbarnga, normally operating on 3255 and 6090. This station supports Charles Taylor, who brought civil war to the country in an attempt to take power.

Other Notes

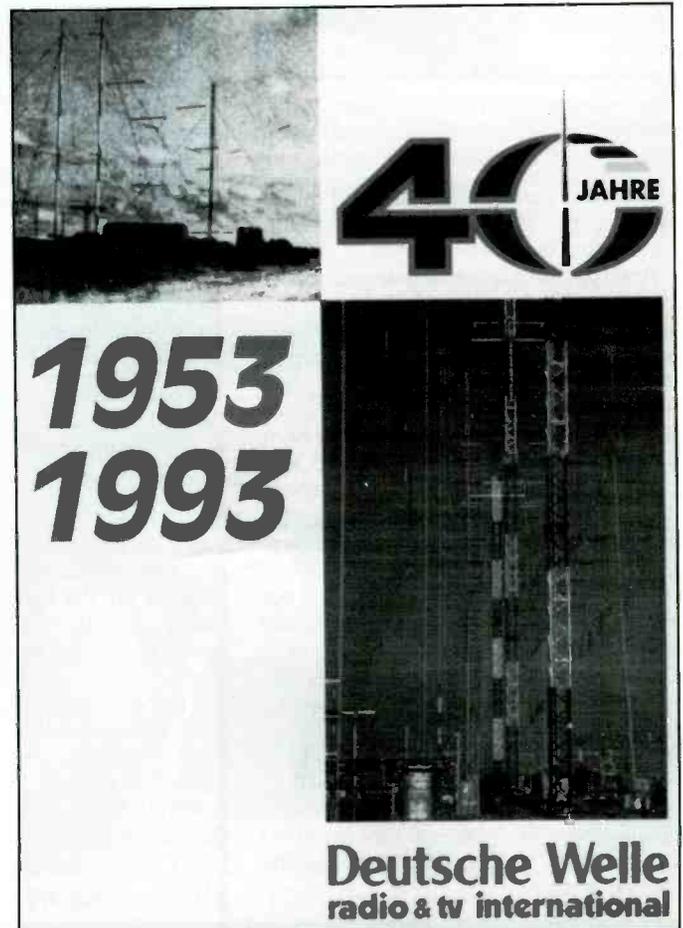
The private Canadian shortwaver, CFCX in Montreal, which operates around the clock on 6005 relaying a local broadcaster, has switched partners. It formerly relayed station CIQC, but now carries French language CKOI-FM. However, it has reversed itself and gone back to CIQC at least once so there's reason to wonder if this change is permanent.

It's wonderful to learn that Radio Vanuatu remains committed to shortwave.



↑ This is what the Radio Bulgaria building looks like. (Thanks to Jill Dybka, TN)

Deutsche Welle celebrated 40 years of broadcasting in 1993 and issued this commemorative QSL card. (Thanks to Richard Klingman, NY) →



That Pacific island station is installing two new 10 kW shortwave transmitters which, in fact, are probably active by now.

Radio Tunja has been on the lists of Colombian shortwave stations durn near forever, it seems. And now this one is apparently really on the air. It's reported to be using 4584. Another note from this country indicates that the Caracol Network (5075 and 6150) has a program, Amanacer en America which asks for reception reports that are acknowledged over the air. Each report is entered into a drawing for prizes including compact disks, Colombian stringed instruments, and pennants. Correct reports are also verified with QSL cards and stickers. The show is on at 0530 Sundays (Saturday night through Sunday morning here).

Let Us Know What You're Hearing!

Your loggings are very welcome, as often as you care to send them. Please list them by country, add your last name and state abbreviation after each, and provide some room for the scissors to cut them up. Feel free to include notes about recent QSLs received, too—especially names of verification signers, address changes, special requirements, etc. Also wanted are spare QSL cards we can use for illustrations, station schedules and other literature—whatever you feel would be of interest. And picture this! You and your shack (or just your shack if you're the shy type) featured right here! What a kick, eh? But it can't happen unless you send the photo!

Here are this month's logs. The language broadcast is assumed to be English (EE) unless otherwise specified, i.e. FF=French, AA=Arabic, SS=Spanish, etc. All times are UTC which is five hours ahead of EST (0000 UTC=7pm EST, 6 p.m. CST, etc.)

ALGERIA—"Voice of the Free Sahara" program via Radio Algiers, on 9640 at 2200 opening, in SS. Mostly talk. (Urbelis, NY)

ANGOLA—Radio Nacional, 3374.9//4950 at 0330 in PP with local music. (Maywoods DX Team) 4950 at 0359 in PP with pops, ID, African news and music. (Lamb, NY)

ANTIGUA—Deutsche Welle relay on 15410 at 2215. Also 17880 at 1935. (Williams, TX)

ARGENTINA—Radio Malargue, presumed, 6162 at 0335 with Argentine news and political discussion, all SS. (Williams, TX)

ASCENSION ISLAND—BBC relay, 7105 at 0519 in FF, 11750 at 0009 in EE, 11765 in SS at 0012. (Williams, TX) 17790 at 1147. (Jeffery, NY)

RAI, Italy, via Ascension, 11765 at 0129 sign on in II to Latin America, //15390. (Urbelis, NY)

AUSTRALIA—VL8A, Alice Springs, 2130 kHz at 1038, EE pops. (Maywoods, KY)

VL8T, Tennant Creek, 2325 at 1040, //2310. (Maywoods, KY)

Radio Australia, 5995 at 1330 with music. (Kohl, IA) 9580 at 0958, 15365//15510 at 0105 and 17795 at 0120. (Williams, TX) 9710//11660 at 1339 in CC. (Lamb, FL) 11800 at 1250. (Klingman, NY)

AUSTRIA—Radio Austria Int'l, 13730 at 1149 with news and features. (Jeffery, NY)

BENIN—Rdf. Benin, 4870 at 2100 with vocals and background chorus. Weak. (Maywoods, KY)

Radio Parakou, 5025 at 2122 with talk and drums. (Maywoods, KY)

РАДИО МОСКВА

RADIO MOSCOW WORLD SERVICE
SEPTEMBER 25th, 1994 - MARCH 25th, 1995
NORTH AMERICA

Radio Moscow is now the Voice of Russia.

BOLIVIA—Radio Fides, 9625 at 0318 in SS, weak but pulled out "Fides, La Paz." (Williams, TX)

Radio Galaxia, 5155 at 0325 in SS, on past listed 0300 close. (Williams, TX)

Radio Perla del Acre, 4600 at 0253 in SS. (Maywoods, KY)

BOTSWANA—Radio Botswana, 4830 at 0353 in presumed SeTswana and EE, pop and soul, ID, news. (Lamb, FL) 0421 with possible church service. (Maywoods, KY)

BRAZIL—Radio Anhanguera, Goiania, 11830, in PP at 2230. (Urbelis, NY)

Radio Integracao, 4765 at 0320 in PP, ID at 0357. (Maywoods, KY)

Radio Universo, Curitiba, 9565//11765 at 0130, the latter frequency covered by Italy. Brazilian pops, commercials, IDs, time checks, all PP. (Urbelis, NY)

Radiobras, 15445 at 1215 in EE. (Kohl, IA) 1225. (Northrup, MO)

Radio Nacional Amazons, 6180 at 0945 in PP. (Williams, TX)

11780 at 1230 in PP. (Northrup, MO)

Radio Rural, 4765 at 0251 with vocals, mention of Santarem, Para and ID. (Paszkiwicz, WI) 0837 in PP with pops. station promo, ID, address, talk. (Lamb, NY)

Radio Brazil Central, 4985 at 0300 with ID in PP. (Williams, TX)

Radio Gazeta, 15325 at 2230 in PP, talks about Brazil, news, ID, political talk. (Paszkiwicz, WI)

Radiodifusora Maranhao, 4755 at 0355 in PP, ID 0359. (Maywoods, KY)

Radio Aparecida, 5035 in PP at 0135 with "Star dust" in PP, more pops, ID, religious talk and off 0154. (Lamb, NY)

Deutsche Welle relay via Brasilia, 11810 at 0028 in SS but also a bit of GG. ID at sign off. (Williams, TX)

BULGARIA—Radio Bulgaria, 13642 at 0048, in presumed Bulgarian to South America. (Williams, TX)

CANADA—Radio Canada Int'l, 6120 at 0155, 13650 at 2130, 17820 at 2015. 11845 in SS at 0027. (Williams, TX) 9755 at 2212. (Harris, TN) 11855 at 1210. (Northrup, MO) 15325 at 2059. (Vaage, CA)

Radio Monte Carlo (Monaco) via Sackville, 5960 at 0305. (Maywoods, KY)

BBC via Sackville, 6170 at 0200 and 9590 at 2300. (Williams, TX) 9515 at 1500. (Jeffery, NY)

CFRX, 6070, relay CFRB at 2214. (Harris, TN)

Radio Japan via Sackville, 11705 at 1425 with "Media Roundup." (Jeffery, NY)

CANARY ISLANDS—Radio Nacional Espana/Radio Uno, USB feeder at 2015-2200 in SS with news, local info, music. Has futbol on some days. (Urbelis, NY)

CENTRAL AFRICAN REPUBLIC—Radio TV Centrafricaine, 5034.1 at 2205 in FF with local music, man announcer. (Maywoods, KY)

CHAD—Radio Nationale, 4904.5 at 2104 in FF with pops. (Maywoods, KY). Same time with "Docteur, Ministre" interview program. (Lamb, NY)

CHINA—China Radio Int'l, via Spain, 9690 at 0258 in CC. 11660 at 1405 in CC, 11815 at 0020 in SS, CC, SS. (Williams, TX)

9710 at 0310. Unsure of site, not listed in the CRI

RADIO MOSCOW WORLD SERVICE
SEPTEMBER 25th, 1994 - MARCH 25th, 1995

		Time (UTC/GMT)	Wavelengths (m)	Frequencies (kHz)
NEWS	-	Every hour on the hour	41	7165, 7105
NEWS IN BRIEF	-	Every hour on the half-hour	41, 49	7180, 7165, 7105, 5940
NEWS AND VIEWS	-	Our views on news developments	02.00-03.00	19, 25, 31, 41, 49
FOCUS ON ASIA AND THE PACIFIC	-	News and comments on events in the region	03.00-05.00	15455, 15425**, 12050, 9850*, 7270, 7180, 7165, 7105, 5940
UPDATE	-	Comments on the latest developments in the CIS, interviews with prominent personalities, in-depth analysis of current events and major issues of home policies	03.00-05.00	19, 25, 31, 41, 49
NEWMARKET	-	It is our visiting card for the world business community. We tell you where and how you can invest your money, sell your product, or start a business in this country, today's a new market	05.00-06.00	12050**, 9895**, 9850, 7345*, 7270, 7180, 7175, 7165, 7105, 5940, 5930, 5905*
SCIENCE AND ENGINEERING	-	Keeps you abreast of the latest developments in science and technology	06.00-08.00	12050**, 9895**, 9850, 7345*, 7270, 7175, 5905*
MAILBAG	-	Answers the questions you send in	20.30-21.00	31, 41
CULTURE AND THE ARTS	-	Brings you the varied arts and cultures of over 100 nationalities of the Russian Federation	23.00-00.00	31
AUDIO BOOK CLUB	-	Offers you the best of Russian classic and contemporary literature		
MUSIC AND MUSICIANS	-	World-famous performers and composers play for you		
FOLK BOX	-	An indispensable program for lovers of folk music		
JAZZ SHOW	-	The world of Jazz		
YOURS FOR THE ASKING	-	For 30 minutes we play music of your choice		
MUSIC AT YOUR REQUEST	-	A program that through music brings listeners closer together		
YOUR TOP TUNE	-	If you guess which song of the three is most popular among listeners, the prize is yours!		
TOP PRIORITY	-	A weekly panel discussion on key events		
TIMELINES	-	Robert Dell and Estelle Winters giving you an insight into life in Moscow through foreign eyes every weekend with information, entertainment and a few laughs.		
Ads	-	Programs for sale		

* - from 06.11.94 till 04.03.95
** - from 05.03.95 till 25.03.95

The Voice of Russia's World Service schedule is a shadow of what it was a few years ago, with far fewer frequencies in use.

schedule in their "Messenger" magazine. Parallel to 6960 via Spain and 11715 via Mali. (Lamb, NY) 11660 at 1230 in CC/EE. (Northrup, MO) 15110 (via Mali, ed) at 2104. (Northrup, MO)

Xinjiang PBS (Tibet, ed) 4735 in CC at 1139. (Maywoods, KY)

COLOMBIA—Caracol, 5075 at 0305 in SS with ID, music. (Williams, TX) 0253. (Maywoods, KY)

Ecos del Atrato, 5020 at 0307 in SS with ballads. (Maywoods, KY)

Radio Buenaventura, 4836 at 0222 in SS with music. (Jeffery, NY) 0250, ID in SS. (Williams, TX) Ondas del Meta, 4885 at 0410, fast Latin music, talks in SS. (Williams, TX) 0527 with Latin pops, mentions of Villavicencio. (Lamb, FL)

Radio Nacional de Colombia, reactivated on 9655,

noted 1621 in SS with news, US rock, bells, ID. (Lamb, FL)

CONGO—Radio TV Congolaise, 4765 at 0508 in FF with African news, fill music, ID, remote report. (Lamb, NY) 0440 with African pops and DJ in FF. (Kohl, IA)

COSTA RICA—Adventist World Radio, 6150 at 0940 in SS. (Williams, TX) 9725 at 0533 in FF with ragtime and classical music, talks, ID. Into EE at 0603. (Lamb, NY)

Faro del Caribe (TIFC), 9645 at 0430 with ID, frequencies, SS pops. (Kohl, IA) 0432 with cumbia rhythms. (Williams, TX) 1327 in SS with religion. (Lamb, NY)

Radio For Peace International, 7385 at 0257, 9400 USB at 1203. (Jeffery, NY) 1045 with call-in show. (Maywoods, KY) 1749. (Lamb, FL) 15030 at 0055 in SS. (Williams, TX)

Radio Nacional Espana Costa Rica relay, 11815 at 0024 with announcements, music, ID. Also 17870 at 0013 with sports in SS. (Williams, TX)

CROATIA—Croatian Radio, Zagreb, 13640 at 2305 with music. (Jeffery, NY)

CUBA—Radio Rebelde, 5025 at 2110 with Latin music, man in SS. (Maywoods, KY)

Radio Havana Cuba, 6010 at 0225. (Harris, TN) 0030 with news, DX program. 9550 at 2224 and 17760 at 2123. (Jeffery, NY)

11760 at 1215 and 11970 at 1150. (Northrup, MO)

CZECH REPUBLIC—Radio Prague, 9420 at 1759 in EE with IS, ID, news. (Lamb, FL)

DENMARK—Radio Denmark, 9565 via Norway at 0443, weak with talk in Danish. (Williams, TX) 9580 at 0350 in DD, off at 0354. (Vaage, CA)

DOMINICAN REPUBLIC—Radio Amanecer, 6025 at 0235 in SS with organ, bells, religious talk, ID, address. Into EE 0259. (Lamb, NY)

ECUADOR—HCJB, 9725 at 0030 with "Musical Mailbag" and "DX Party Line." (Klingman, NY) 9745 at 0326. (Harris, TN) 11910 at 1225 in SS, 15115 at 1215 in EE. (Northrup, MO) 15140 at 2130. (Vaage, CA)

Ecos del Oriente, 3270 at 0315 in SS with music and announcer. (Maywoods, KY)

La Voz de Upano, 5997 at 0242. Fast Latin music, IS, ID and off at 0305. Also 5040 at 0308. (Williams, TX) The latter is their normal frequency. (ed)

EGYPT—Radio Cairo, 9475 at 0300. (Harris, TN) 9900 at 0355 with AA music. (Williams, TX)

ENGLAND—BBC, 6110 at 2353, 9515 at 0345, 15070 at 1719. (Harris, TN) 9515 to 1715 sign off. (Klingman, NY) 9590//11750 at 0059. (Vaage, CA) 15220 at 1205. (Northrup, MO)

EQUATORIAL GUINEA—Radio Nacional, 5003.7 at 2117, barely audible, mention of Bata. (Maywoods, KY) 2116 in SS with ID, possible news, mention of Bata. (Lamb, NY)

FRANCE—Radio France Int'l, 9790 at 2300 in FF. (Williams, TX) 15155 at 1300. (Klingman, NY) 17620//17630 at 1815 in FF. (Lamb, NY)

FRENCH GUIANA—RFO Guyane, 5055 at 0252 in FF with talks, FF pops. (Maywoods, KY)

RFI relay, 9715 at 2215 and 15200 (in SS/FF) at 0130. (Williams, TX) 11670 at 1205 in FF. (Northrup, MO) 13625 at 1217. (Jeffery, NY)

Swiss Radio Int'l relay, 9905, ex-11620, at 0518 in Italian. ID, frequencies, address. (Lamb, NY)

Radio Japan relay, 9685 at 2210 in JJ. (Williams, TX)

GABON—Africa No. One, 9580 at 1936 in FF. (Jeffery, NY)

2140. (Williams, TX) 15475 at 1800 with news in FF. (Maywoods, KY) 1815-1857 sign off. (Urbelis, NY)

GERMANY—Deutsche Welle, 5960 (via Canada) at 0536 and 6075 (via Antigua) at 0520. (Harris, TN) 6145 via Malta at 0100. (Klingman, NY) 9700 (via Canada) at 0420. (Williams, TX)

13780 at 1220 in GG and 15275 (Antigua) also in GG at 1220. (Northrup, MO)

Sudwestfunk, 7265 at 0130 with US pops, GG announcer, heavy ham QRM. (Kohl, IA)

GHANA—Ghana Broadcasting Corp—Network II on 3366 at 0451 with pops, ID, choir, talking drums. (Lamb, FL) Network One, 4915 at 2300 with African pops and news about Ghana. (Klingman, NY) 2105. Early for Africans here. (Maywoods, KY)

GREECE—Radio Macedonia, 11595, 1200 in Greek. (Urbelis, NY) 1905 with talk in Greek. (Maywoods, KY)

Abbreviations Used in Listening Post

AA	Arabic
BC	Broadcasting
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America
nx	News
OM	Male
pgm	Program
PP	Portuguese
RR	Russian
rx	Religion/ious
SA	South America/n
SS	Spanish
UTC	Coordinated Universal Time (ex-GMT)
v	Frequency varies
w/	With
WX	Weather
YL	Female
//	Parallel Frequencies

VOA Kavala relay, 11740 at 1834 in Amharic with African music, news, interview. (Lamb, FL)

Voice of Greece, 9395 at 0532 with music, in Greek. (Foss, AK)

GUATEMALA—Radio Chortis, 3380 at 1118 in SS. (Maywoods, KY) 3382 at 0225 with guitars, other Latin music, SS. (Williams, TX)

Radio Tezulutlan, 3370 in SS at 0223 and 4835 at 0235. Christmas melodies way ahead of the season, SS lessons for Mayans. (Williams, TX)

Radio Cultural, 3300 in SS at 0158 with chorus, music, ID. (Williams, TX)

HAWAII—WVH time station, 5000 at 0439. (Williams, TX)

HONDURAS—Radio Internacional, 4930 at 0230 with ID by man. (Maywoods, KY) 0250 with "Las Canciones del Recuerdo" with old Latin and US tunes. (Williams, TX) 0435 with SS pops, slogan "Internacional—su radio," sign off announcement, IS and off at 0442. (Lamb, NY)

HRET, 4960 at 0238 in SS and local language with contemporary Christian music. ID and off at 0313. (Lamb, NY)

La Voz Evangelica, 4820, 0230 with ID by man at 0234, nice ballads. (Maywoods, KY) 0247 with religion and ID. (Williams, TX)

HUNGARY—Radio Budapest, 9835 at 0100 with news and DX program. (Kohl, IA)

INDIA—All India Radio, 10330 at 1130 in Burmese with news, talk, Hindi music. (Urbelis, NY) 11620 at 1840 with Indian pops.

Also at 1925. (Maywoods, KY) 2100 with news. (Klingman, NY)

INDONESIA—RRI Ujung Pandang, 4753 at 1105 in II with woman talking, music interlude, more talk. EE ID at 1155. (Maywoods, KY)

RRI Sorong, 4874.6 at 1050 with talks by man and woman, pops, ID with mention of Sorong. (Maywoods, KY)

IRAQ—Republic of Iraq Radio, 6560, presumed, at 0340 in possible Kurdish with mentions of Jerusalem, possible ID, Iraqi and easy listening music. (Lamb, NY) (Ironic that their IS is the sound of a chicken! editor.)

ISRAEL—Kol Israel, 9435 at 0400 with news, lo-



Steve Bies does his SWLing from this shack in Michigan and is very proud of his new Lowe HF150 receiver and matching PR150 pre-selector.

cal weather. Into FF at 0415. (Kohl, IA) 0457 in Hebrew, then beep tones. ID and off at 0501. (Williams, TX)

ITALY—RAI, 9725 at 0050 with IS, ID, news, music. Also 15245 in II with ID, talk, music. (Jeffery, NY)

JAPAN—Radio Japan via Sackville, Canada, 5960 at 0100 with news and features, language lessons. (Klingman, NY) 0135 with travelogue. (Williams, TX)

JORDAN—Radio Jordan, 11940 in AA at 2220.

(Harris, TN)

KAZAKHSTAN—Goloss Rossii, 13605 at 0350 in RR. (Williams, TX)

Radio Netherlands via Kazakhstan, 7305 at 0330 with ID, news. (Kohl, IA)

KUWAIT—Radio Kuwait, 9840 at 2122 with longest mideast song in history. Also 11990 at 1829 in EE. (Maywoods, KY) 9840 in AA at 2230 with ballads, chorus. (Williams, TX) 11990 at 1800 with ID.

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frequencies, "Argus Eyes" news program. (Kohl, IA)
LEBANON—Wings of Hope, 9960 at 2200 with Gene Scott. (Urbelis, NY)

LESOTHO—BBC relay, 3255//6005 and 9600 (Ascension) at 0344 with "Network Africa." (Lamb, NY)

LIBYA—Radio Jamahiriya, 15435 at 1704 in AA with men talking. (Maywoods, KY) 1900-2115 in AA, news, talk, AA music. (Urbelis, NY)

MALAYSIA—Radio Malaysia, 7295 at 1058 with ID by man, news by woman. (Maywoods, KY)

MEXICO—Radio Educacion, 6185 at 0838 with hot, Mexican "power fiddle" music. (Maywoods, KY) 0351 in SS, at 0415 on travel and geography of San Luis Potosi state. (Williams, TX)

XEQM, Merida, 6105 at 0400 with music, ID and sign off with song "Gaudeamus Igitur." (Williams, TX)

MOLDOVA—Radio Moscow via Moldova, 15340 at 2210 in SS and some RR. (Williams, TX) 17760 at 1853. (Jeffery, NY)

MOROCCO—Radio Medi-Un, Nador, 9575 at 1900 in AA with announcements and AA music. (Urbelis, NY)

VOA relay, 15205 at 1854. (Jeffery, NY) 17785 at 1825 in FF. (Lamb, NY)

NAMIBIA—Namibian Broadcasting Corp., 3290 at 0318 with pop, soul & "oom-pah." (Maywoods, KY)

NETHERLANDS—Radio Netherlands, 6020 at 2334. (Harris, TN)

9895 at 2303 in SS. (Williams, TX)
11900 at 1215 in Dutch. (Northrup, MO)

NETHERLANDS ANTILLES—Radio Netherlands Bonaire relay, 6165 at 0521 in SS. (Harris, TN) 0344 in EE, 9590 at 0439 in SS and 9715 in SS at 1155. (Williams, TX) 15315 in SS at 2228. (Vaage, CA)

NEW ZEALAND—Radio New Zealand, 6100 at 1133 with easy listening music and news. (Jeffery, NY) 0930 with ID, message from Governor General of New Zealand. 9700 at 1153 and 15155 with sports at 0340. (Williams, TX) 9700 at 1127 with news program, ID, frequencies and schedule. (Maywoods, KY)

NIGERIA—Radio Nigeria, Kaduna, 9570 at 2027

with rock, ID, interview, talking drums and trumpets leading into news at 2100. (Lamb, NY) 2139 with African music. (Williams, TX)

Radio Nigeria, Lagos, 4990 at 2138 with music, ID. (Maywoods, KY)

NORTH KOREA—Radio Pyongyang, 6576 at 1112 with usual propaganda. (Maywoods, KY) 9977 at 1010 in Korean, 13650 at 0050 with oriental symphonic music, ID and off in SS. (Williams, TX)

NORTHERN MARIANAS—Monitor Radio, KHBI Saipan, 9425 at 1140 with news and features. (Jeffery, NY) 1200. (Urbelis, NY)

PAPUA NEW GUINEA—NBC, Port Moresby, 4890 at 1105 with rock, 1158 with pops, talk, ID and into news at 1200. (Maywoods, KY)

Radio Eastern Highlands, Goroka, 3395 at 1124 with talk. Very poor. (Maywoods, KY)

Radio Manus, Lorengau, 3315 at 1116 with talk, ID. (Maywoods, KY)

PERU—Radio Union, Lima, 6115 at 0405 in SS with ID, music. (Williams, KY)

Radio Ancash, Huaraz, 4991 at 0856 in SS with folk, ID, frequencies, address, commercials. (Lamb, NY)

Radio Andina, Huancayo, 4995.8 at 0245 with excited announcer and many mentions of Andina. (Maywoods, KY)

Frecuencia San Ignacio, 5700 at 0300, local pops with interference from a utility station. (Maywoods, KY)

Radio Horizonte, 4505 at 1043 in SS with ID. (Maywoods, KY)

Radio San Martin, 4810 at 0232 in SS with music. (Jeffery, NY) 1033 with LA pops, ID. (Maywoods, KY)

PHILIPPINES—VOA relay, 17735 at 2200, //17820. (Urbelis, NY) 17820 at 0010. (Williams, TX)

PORTUGAL—Deutsche Welle relay, 11740 at 1930-1950 sign off. (Urbelis, NY)

Radio Canada relay on 9650 at 0428. (Williams, KY)

Radio Liberty relay on 11770 at 1847 in RR with Clinton speech, IS, ID, news. (Lamb, NY)

Radio Portugal, 9570 at 2204 in PP. Also at 0000 sign off with bells, music/IS. Also 9705 at 2215. (Williams, TX)

RUSSIA—Magadan Radio, 7320 at 0450 with concert music and man in RR. (Foss, AK)

Radio Moscow, via Petropavlovsk, 7270 at 0444 with chamber music. (Foss, AK) 15425 at 0140 with balalaika. Also at 2348. (Williams, TX)

Voice of Russia—the new name for Radio Moscow —on 7300 at 2258 with instrumental music, ID, "Moscow Nights" theme, IS and into SS as "La Voz de la Russia" at 2300. (Lamb, NY)

RWANDA—Deutsche Welle relay reactivated, 9670 at 1928 with press review, other shows, and site ID. (Lamb, NY)

SEYCHELLES—FEBA, 11675 at 0228 in Pushtu with IS, ID, subcontinental music, presumed religious talk. (Lamb, NY) 11870 at 1515 with gospel songs. (Maywoods, KY)

SLOVAKIA—Radio Slovakia Int'l, 5930 at 0101 in EE. (Jeffery, NY) New 5930, //9810 at 0058 with IS, ID, frequencies, news introduced with "Now please try to forget your problems and listen to ours!" (Lamb, NY)

SOUTH AFRICA—Channel Africa, 3220 at 0305 with news and music. (Jeffery, NY) 7185 at 0417 with talk in FF. (Kohl, IA) 7225 at 1958 in PP with IS, ID, African news and music. (Lamb, NY)

Afrikaans Stereo, 4810 at 0400 with choral hymn, music and announcements in Afrikaans. (Williams, TX)

SOUTH KOREA—Radio Korea Int'l, 15575 at 0140 with ID "...coming to you from Seoul, the capital of Korea." (Williams, TX)

SPAIN—Spanish National Radio/REE, 6055 in SS at 0457 leading to sign off. 9620 at 0437. (Williams, TX) 9540 at 0539. (Harris, TN) 11775 at 1901 with program line-up, ID, news, "Panorama" with SS pops. (Lamb, NY) 15110 at 1215 in SS. (Northrup, MO) 1844. (Jeffery, NY)

China Radio Int'l relay, 9690 at 0310. (Harris, TN)

SRI LANKA—Deutsche Welle relay, 9670 at 1111 with pops and woman announcer. (Maywoods, KY)

SURINAM—Radio Apinte, 4990.9 at 0320 with Indian-like music. Very weak with QRM from Peruvian. (Maywoods, KY)

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SWEDEN—Radio Sweden, 17870 at 1345 with news features. (Jeffery, NY)

SWITZERLAND—Swiss Radio Int'l, 9885 at 0229 with news and ID in EE. (Williams, TX)

SYRIA—Radio Damascus, 12085 at 1810 with news, music. (Maywoods, KY)

TAIWAN—Voice of Free China via WYFR, 5950 at 0327. (Harris, TN)

TAJIKISTAN—Radio Netherlands relay, 12025 at 0030 with news and "Newslines." Poor, //9860. (Urbelis, NY)

TUNISIA—RTV Tunisienne, 1930 to 2200, all AA with news, Arabic music. (Urbelis, NY)

TURKEY—Voice of Turkey, 9445 at 2239. (Harris, TN) 9460 in TT at 0527. (Foss, AK) 9900 at 2116 with mideast music, woman announcer. (Maywoods, KY)

UGANDA—Radio Uganda, 4976 at 0400 with news, sports, IDs, mention of home service. (Lamb, NY)

UKRAINE—Radio Ukraine Int'l, 9860 at 0332 with mentions of Ukraine. Also 15580 at 0144, both in RR or Ukrainian. The latter frequency may be via a Russian site. (Williams, TX)

Radio Moscow Int'l, via Ukraine 9860 at 2238 with RR/EE lesson. (Williams, TX)

UNITED ARAB EMIRATES—UAE Radio, Abu Dhabi, 11885 at 1130. (Urbelis, NY) 15315 at 2205 in AA. (Williams, TX)

UAE Radio, Dubai, 13675 at 1329 with ID, news, weather and "Great Arab Modern Poets." (Jeffery, NY)

UZBEKISTAN—Radio Tashkent, 5955 at 0238 but lots of multi-station interference. (Maywoods, KY) 11975 at 1145, QRM from Cuba. (Northrup, MO)

VATICAN—Vatican Radio, 5882 at 0315, church music, ID, sign off in II. Also 9645 in II at 0005. (Williams, TX) 6095 at 0330 in SS. 7355//9645//11625 at 2017. (Lamb, FL)

VENEZUELA—Radio Tachira, Maracaibo, 4830 in SS at 0342, mention of Tachira. (Williams, TX)

Ecos del Torbes, 4980 at 0230 with lively brass and bongos, ID at 0229. (Maywoods, KY) 0255 with tangos. (Williams, TX)

Radio Maracaibo, 4860 at 0255 in SS with music, ID. (Williams, TX)

Radio Maturin, 5040 at 0917 with mention of "Maturin." Weak, SS. (Williams, TX)

Radio Rumbos, 9660 at 1356 in SS with Latin pops, ID. Off suddenly at 1400. (Lamb, FL) 0426, news with ID at 0430. Also heard at 2205. (Williams, TX) 0528. (Harris, TN)

VIETNAM—RTV Gai Lai, Pleiku, 1151 in VV with man and woman talking. (Maywoods, KY)

ZAMBIA—Radio Zambia, 4909.7 at 0320 with log drums, much QRM including CW station on top. (Maywoods, KY) 4909 at 0328 in local language with African music, talk, ID "Zambia Broadcasting." (Lamb, FL)

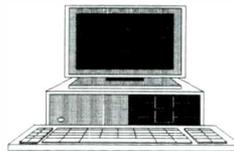
And that's a wrap for this time! High tribute, please, to the following who did the good thing this month:

Marie Lamb, Brewerton NY and from near Tampa, FL; Steve Williams, Corpus Christi, TX; Tod Kohl, Cedar Rapids, IA; Sheryl Paszkiewicz, Manitowoc, WI; Maywoods DX Team, Kentucky (Edward C. Shaw, Dr. Joel Roitman, Jim McClure, John Hofendorfer, Oliver Brewer, Chuck Everman, Eric Petty and Loy W. Lee); Bjorn F. Vaage, Granada Hills, CA; Marty Foss, Wasilla, AK; Mark Northrup, Gladstone, MO; Errol Urbelis, Kings Park, NY; Dave Jeffery, Niagara Falls, NY; Paul Harris, Columbia, TN and Richard Klingman, Mt. Upton, NY. Special thanks, also, to Jill Dybka, in Tennessee, who hasn't much time for SWLing these days but still sends a nice package of schedules and other stuff! Thanks to each of you! ■

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Winter's just about over and most scanner enthusiasts start turning their attention to warmer weather monitoring. Instead of tuning in snowplows during a snowstorm, you can start monitoring park rangers handling crowds. Instead of listening to ski slopes, you can monitor lifeguards. Whatever you decide to tune in, have fun—that is necessary to enjoy the hobby.

Plugged In

Neill Nugent, a student at Bishop Connelly High School in Fall River, Massachusetts, uses his school's Internet connection to send greetings to the POP'COMM staff and to the Scanning VHF/UHF section.

Neill is a sophomore and he just subscribed to POP'COMM. He recently received his technician class ham license as N1TEO and he's probably going to get a Radio Shack HTX-202 handheld 2-meter transceiver. For scanning, Neill has a Realistic Pro-46 hooked up to a Radio Shack all-band scanner antenna on his family's TV antenna mast. He says he can pick up local police and fire departments easily, but he describes his county's trunked public safety system as a "graveyard."

While public safety trunked radio systems on the 800 MHz band usually give you more than you bargain for in terms of monitoring, I personally feel that they enhance your listening. For instance, perhaps you didn't monitor your city's water utility before they moved with the police and fire to a trunked system. However, now you hear them—whether or not you want to.

But the next time the fire department has a large-scale fire, keep in mind the water utility may be requested to respond to boost water pressure for firefighters at the scene. Likewise, city buses may use the same trunked system, and you can hear their dispatcher rerouting them around a fire scene. All the communications relate to the same incident. While it won't occur on a day-in and day-out basis, you will hear a lot more when something gets cooking in town! Look at public safety trunking as an enhancement to your monitoring, even if you have to take the routine stuff with it.

More from Mass

Also checking in from Massachusetts is Ken Windyka of Chicopee, Massachusetts. He passes along some frequencies that he monitors in his area: Massachusetts State Police western Troop B, 42.46 (dispatch), 42.50 (secondary); central (Quabbin Reservoir Patrol Area—Station C-7, 854.0375R; central Troop C dispatch, 42.40; Massachusetts Turnpike Patrol support,

159.030R (western sector), 42.42 (western sector simplex—station E-3), 159.165R (central sector), 154.920 (portable to cruiser repeater); Springfield and northern Connecticut police coordination, 460.225R (primary) and 460.475R (alternate).

Ken also notes that the Massachusetts State Police is licensed to operate on 857.7875R, 858.7875R and 859.7875R. He recently started monitoring a steady data channel on 859.7875R, so he assumes they are starting to test the system in western Massachusetts.

Trunked Tones?

Jan Weiss checks in via the Internet and says: "I've been reading some of your magazine articles and I especially like scanning around in POP'COMM. I also have a question for you: Do different users of an 800 Mhz trunked system have a different CTCSS tone?"

I used to wonder the same thing myself. However, there is no need for subaudible tones or continuous tone-coded squelch systems in 800 MHz trunked radio systems. Remember the data channel in trunked systems? It sends out continuous data telling mobiles and other radios in the system what frequency they need to be tuned to. The data is the only encoding and decoding necessary. The data sent out by the trunked transmitter tells the mobile what frequency to operate on and what radios it is allowed to receive within the system.

It may be easier to understand the principle if you let yourself believe that the CTCSS in trunked systems actually is data streams that serve the same function as CTCSS in conventional radio systems.

Guam Comms

Douglas Zipay, WH2G, says he's in the military and he reported to Guam about a year ago. He's into scanning, shortwave listening and also likes to operate on the VHF and UHF ham bands. He said he was interested in finding any ham clubs in Guam and wanted to know if there were any databases for Guam. Apparently, he says the local operators aren't into scanning, but as he notes, there's a lot of spectrum for a little island! First, to find out if there are any ham clubs on Guam (or anywhere else in the United States and its territories, contact the American Radio Relay League at 225 Main St., Newington, CT 06111-1494.

As to a database for Guam, I know the FCC database for Guam is posted in the scanning download library of America Online. It was posted there by the developer



Raymond-Marc Dussault of Beauharnois, Quebec, has an extensive radio post. Here he is seen with some of his CB equipment.

of ScanWare, a program to manipulate scanner and FCC databases. The nice thing about Guam is that the frequency allocations there are about the same as on the mainland being that it is a U.S. territory.

Enhancing 911

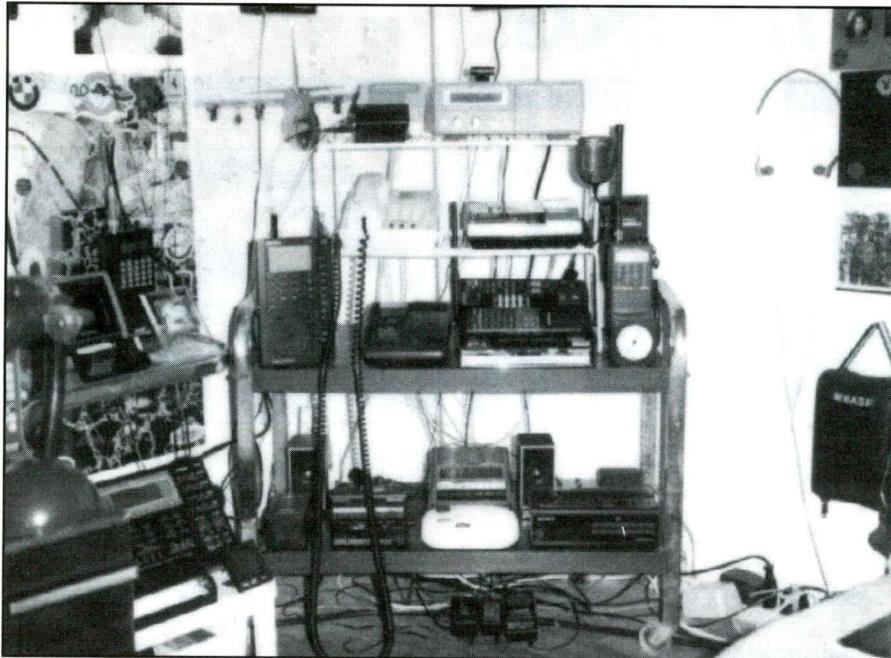
Dennis O'Keefe sends us a message from New Paltz, New York. He says that Ulster County, New York, recently started an enhanced 911 system. It's operated by the former fire and emergency medical service control center in Kingston, New York.

The new repeater output frequency for the police is 155.025. Dennis notes that by monitoring that channel, you can hear all the 911 dispatches and responses throughout the county. Each police (some of the towns, the county sheriff and the New York State Police) all maintain their own dispatchers who still coordinate their own units and perform things such as license checks on the computer.

Dennis says he's a member of the all-volunteer New Paltz Fire Department. At the time of the 911 startup, his department switched from being dispatched by the New Paltz communications center to Ulster County control. The fire department's main frequencies are: 33.48, 46.34, 46.46 and 46.30. Ulster County is half way between New York City and Albany from the Hudson River into the Catskill Mountains.

Frequency Helper

Michael Brazinskas of Tequesta, Florida, says it's nice to be able to reach POP'COMM via the Internet. He says he's been scanning ever since he purchased a Realistic Pro-2024 floor model from Radio Shack for only \$89. He says he still admires his "deal of the century."



Here is Raymond-Marc Dussault's monitoring post. He uses three scanners: Realistic Pro-2006 hooked up to a discone, a Pro-46 and a Pro-38. Shortwave receivers round out this Canadian station.

Michael notes that Radio Shack has helped him a great deal on starting his scanning adventure. He says his local store has a listing of local frequencies that is free for

the asking. In fact, many Radio Shack stores and other scanner shops maintain a local listing of frequencies that can be obtained on a handout flier just for request-

ing it. If you're traveling, it doesn't hurt to stop in a local shop to see if they can help you find local frequencies.

Michael said Radio Shack's listing helped him identify some of the following frequencies he likes to monitor: 154.845, Palm Beach County Sheriff's office—north; 154.725, Palm Beach County Sheriff's office—central; 453.575, Florida Highway Patrol; 155.310, Tequesta police.

He says that there are many more frequencies he likes to monitor, but he can't identify them.

Lastly, Michael asks: What is that weird mix of letters and numbers that follow some of the names of your staff (i.e., Tom Kneitel, K2AES)? How did they get that ID?

Mostly, those are amateur radio call signs. Mine, N2DUP, also appears after my name. I consider my call sign as part of my byline and many other radio writers do also.

Write on

What are your favorite frequencies? Do you have any scanner-related questions? Do you have any listening tips worth passing along to your fellow readers? How about sending in a photo of your listening post or antenna farm? Write to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 N. Broadway, Hicksville, N.Y. 11801-2909, or e-mail to scan911@aol.com through the Internet.

Popular Communications Goes "Online"

Popular Communications readers now have a direct electronic link to our columnists and editors. A new "reader feedback" area has been set up on "America Online," (AOL) in which Popular Communications readers may ask questions, make comments, send column contributions, suggestions, and letters to the editorial staff. Popular Communications columnist Chuck Gysi, N2DUP (AOL Screen Name: SCAN911), will regularly read the mail, respond to questions, and refer comments, suggestions, etc., to the appropriate columnists or staff. Reports concerning subscription matters will be forwarded to our Circulation Department.

Please indicate the specific person, column, or department you want to receive your message. Otherwise, we'll try to direct it to the proper place.

AOL members can find the Popular Communications feedback area in the Ham Radio Club (keyword: Ham Radio) message center, under the heading, "Manufacturers, Dealers, and Vendors." Look for the Popular Communications folder (along with those for our sister publications, CQ and Communications Quarterly, and for the CQ Books and Videos). Readers who are not AOL members may send e-mail to us via the Internet to SCAN911@aol.com.

This reader feedback area is the first step in ongoing efforts by CQ Communications Inc., to better serve its customers through an easily-accessible online presence for Popular Communications and its other publications and products.

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BROADCAST DX'ING

BY TIM KRIDEL

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

If You Expand it, They Will Come:

At long last, the FCC has chosen 79 AM stations to pioneer the expanded AM band from 1605 to 1705 kHz. Released in mid-October 1994, the list contains broadcasters in 33 states, Puerto Rico, and the Virgin Islands that could potentially be on their new channels as early as the first quarter of 1995. Upon receipt of a license for the expanded band, a broadcaster is permitted to simulcast on both its old and new frequencies for a period of five years.

In December 1993, as part of its *AM Improvement Order*, the FCC released a preliminary list ranking the 688 stations which had applied for "top-end" channels. Calculating the hierarchy meant assessing which stations' migration would most improve—reduce interference and congestion in—the original AM band. The emphasis would appear to be on daytime, groundwave broadcasts.

According to a press release accompanying details of the final allotment plan, several criteria determined the list of 79 stations. The FCC considered the "service area lost by other stations due to interference caused by the present facilities of the prospective migrator," as well as the "present service area of the prospective migrator." At the same time, in an effort to avoid harmonic interference, no allotments were granted to stations within 30 km of an existing station if the frequency of the new station was twice that of the existing station. Additional factors included the U.S.-Mexico agreement governing the maximum day and night power of top-end broadcasters within 450 km of the common border. A similar reciprocal agreement with Canada, restricting allocations within 500 km of the common border to 1620, 1640, 1660, 1680, and 1700 kHz, also limited which stations could make the move.



Albuquerque, New Mexico, is the home of KKOB-FM. (Courtesy Sue Wilden, Columbus, Indiana.)

Although the FCC gave 79 stations 60 days to file for construction permits, the top-end, the land rush may not be over just yet. Those not originally chosen for migration had 30 days to file a petition for reconsideration, and there were at least a few disgruntled broadcasters. Shortly before releasing its final list, the FCC denied a petition by the licensee of WKTA-AM, in Evanston, Illinois, which had requested that the Commission reconsider how it weighs the interference caused by a prospective migrator when it is not the sole source of interference to another station.

Some of the obvious changes that will result from the migration include power upgrades and changes in antenna patterns and coverage areas, both for top-enders and for those that remain in the original AM band. In addition to dealing with the petitions for reconsideration, the FCC will have the added challenge of keeping the entire band from 535 kHz to 1705 kHz from relapsing into congestion by stations seeking new and larger audiences.

Information Along the Superhighway: As plans for the expansion of the AM band

began to take shape, the fate of Travelers Information Stations above 1600 kHz seemed at best dicey. Under the *AM Improvement Order*, established TI stations operated by the U.S. Government remain protected under current FCC rules.

How TI stations owned by other groups might be affected remains to be seen. Power will no doubt continue to be a major factor in determining where one can set up shop. Essentially, TI stations can be grouped into two categories—those running one-tenth of one watt, which require no licensing, and those that have a power of no more than 10 watts, which do require an FCC license.

While most DXers might expect TI stations to be limited to 530 and 1610 kHz, the actual channels available are again determined by power. A station running 10 watts will be assigned to either 530 kHz, 1610 kHz, or 1620 kHz, but a station broadcasting with 0.1 watt may choose any vacant local AM channel. Ten watt stations are restricted from broadcasting music, and the mentioning of businesses by name.

Rules also govern where a station may

Changed AM Call Letters

New	Was	
KKFN	KYGO	Denver, CO
KKGM	KKTK	Grand Junction, Co
KRIT	KQIK	Lakeview, OR
WAXY	WMRZ	South Miami, FL
WCJM	WPLV	West Point, GA
WMJT	WZAO	Moundsville, WV
WNTM	WRKG	Mobile, AL
WTKZ	WKAP	Allentown, PA
WWWB	WGLD	Greensboro, NC

Changed FM Call Letters

New	Was	
KCTL	KQIK-FM	Lakeview, OR
KDLL	KCZP	Kenai, AK
KDRE	KZQA	North Little Rock, AR
KITN	KLFN	Worthington, MN
KKGB	KTQQ	Sulphur, LA
KKYT	KAMC-FM	McCook, NE
KLRF	KGAL-FM	Brownsville, OR

KLVC	KWXP	Magalia, CA
KLVN	KXDA	Chowchilla, CA
KLVS	KJET	Kingsburg, CA
KNOZ	KDEE	Cameron, MO
KPPV	KIHX-FM	Prescott Valley, AZ
KRZN	KWQK	Albuquerque, NM
KSLK	KGYU	Visalia, CA
KTKO	KIBL-FM	Beeville, TX
WCJM-FM	WCJM	West Point, GA
WDWG	WGCX	Atmore, PA
WETA	WETA-FM	Washington, DC
WGCX	WZEW	Fairhope, AL
WKRZ	WKRZ-FM	Wilkes-Barre, PA
WLLD	WRVF	Upper Arlington, OH
WMCX	WKRD	Mobile, AL
WNCK	WLOW	Port Royal, SC
WRNR-FM	WXZL	Grasonville, MD
WVHQ	WDOW-FM	Dowigac, AR
WWWB-FM	WWWB	High Point, NC
WXRA	WNEU	Eden, NC
WYBR	WPZX	Big Rapids, MI
WZGO-FM	WZGO	Portage, PA

Applied to Construct New FM Stations

AK	Barrow	91.9 MHz	3 kW
AL	Brantley	100.3 MHz	6 kW
AL	Mountain Rock	102.5 MHz	99 watts (WOWC booster)
AR	Maumelle	96.9 MHz	6 kW
CA	Fairmead	91.1 MHz	15 kW
CA	San Ardo	91.7 MHz	2.7 kW
FL	Bellevue	91.3 MHz	200 watts
GA	Savannah	88.1 MHz	12 kW
IA	Forest City	91.9 MHz	100 watts
IA	Sac City	104.7 MHz	6 kW
IL	Rockford	89.1 MHz	100 watts
KS	Baldwin	90.5 MHz	1.3 kW
LA	Jena	88.1 MHz	15.5 kW
ME	Winter Harbor	97.7 MHz	6 kW
MI	Traverse City	104.5 MHz	
MN	Babbitt	106.7 MHz	193.8 kW
MN	Buhl	92.5 MHz	50 kW
MS	Greenville	104.7 MHz	30 kW
NH	New London	90.9 MHz	625 watts
OH	Marion	91.1 MHz	2 kW
PA	Altoona	95.5 MHz	400 watts (WKYE booster)
PA	State College	90.7 MHz	100 watts
SC	Branchville	105.1 MHz	6 kW
TX	Giddings	91.5 MHz	8 kW

Permit Granted to Construct New AM Station

WI Altoona 1560 2.5/1 kW

Seeking AM Facility Changes

KICA	Clovis, NM	980 kHz	Seeks night service with 100 watts.
KKDA	Grand Prairie, TX	730 kHz	Seeks 9 watt night booster at Forest Hill.
KLLF	Wichita Falls, TX	1290 kHz	Seeks night power drop to 73 watts.
WCHP	Champlain, NY	760 kHz	Seeks night service with 11 watts.

Seeking Changed FM Facilities

KTLO-FM	Mountain Home, AR	98.3 MHz	Seeks move to 97.9 MHz, 50 kW.
KVCX	Gregory, SD	101.5 MHz	Seeks non-commercial status.
WKOC	Elizabeth City, NC	93.7 MHz	Seeks move to Chesapeake, VA.
WMSQ	Havelock, NC	104.9 MHz	Seeking frequency change.

Changed AM Facilities

KBIL	Breckenridge, TX	1430 kHz	Added nights with 97 watts.
KDSN	Denison, IA	1530 kHz	Added nights with 12.5 watts.
KEZF	Tigard, OR	1040 kHz	Moved to Sacramento, became non-commercial.
KNIM	Maryville, MO	1580 kHz	Reduced power to 700 watts.
KNUS	Denver, CO	710 kHz	Increased day power to 700 watts.
WCEN	Mt. Pleasant, MI	1150 kHz	Deleted night service.
WCRM	Ft. Myers, FL	1350 kHz	Reduced day power to 2kW.
WISR	Butler, PA	680 kHz	Added nights with 50 watts.
WRHL	Rochelle, IL	1060 kHz	Added nights with 20 watts.
WTEM	Bethesda, MD	570 kHz	Operate with 4.7/3 kW.
WWMO	Eden, NC	830 kHz	Moved to Jamestown.
WWOL	Forest City, NC	780 kHz	Increased power to 10 kW.

Permits Granted to Construct New FM Stations

AR	Jonesboro	90.5 MHz	1 kW
CA	Lancaster	88.9 MHz	5.5 kW
MO	Point Lookout	91.7 MHz	200 watts
ND	Devils Lake	96.7 MHz	45 kW
ND	Grand Forks	90.7 MHz	2.4 kW
OK	Stillwater	98.1 MHz	6 kW
OR	Canyon City	94.5 MHz	190 watts
OR	Seaside	98.9 MHz	6 kW
PA	Bristol	91.7 MHz	100 watts
TX	Point Comfort	94.1 MHz	25 kW
WI	Wausau	91.9 MHz	380 watts

Changed FM Facilities

KMSM-FM	Butte, MT	91.5 MHz	Moved to 106.9 MHz, 740 watts.
KTRY-FM	Bastrop, LA	94.3 MHz	Moved to 93.9 MHz, 50 kW.
WKTT	Cleveland, WI	103.1 MHz	Moved to 98.1 MHz, 5.1 kW.

Provisional FM Call Letter Changes

New	Was	
KHTX	KSZZ	Riverside, CA
KKER	KLVA	Casa Grande, AR
WJPC-FM	WEJM	Lansing, IL
WMTE	WVXM	Manistee, MI

New FM Call Letters Issued

KLRX	Clovis, NM
WAJB	Vinton, VA
WAJE	New Albany, IN

be located—"the transmitting site of [a 10-watt] Travelers' Information Station shall be restricted to the immediate vicinity of the following specified areas: Air, train, and bus transportation terminals, public parks and historical sites, bridges, tunnels, and any intersection of a Federal Interstate Highway with any other Interstate, Federal, State or local highway...[A 10-watt station] shall transmit only noncommercial voice information pertaining to traffic and road conditions, traffic hazard and travel advisories, directions, availability of lodging, rest stops and service stations, and descriptions of local points of interest." Of further interest is the fact such a station "shall normally be authorized to use a single transmitter. However, a system of stations, with each station in the system employing a sep-

arate transmitter, may be authorized for a specific area provided sufficient need is demonstrated by the applicant."

If all of this sounds a bit bewildering, reader and KKSJ-FM staffer Craig Adams, of Portland, Oregon, rides to our rescue. After tracking down WGM476, a 1610 kHz TI station in Elsie, Oregon, Craig was able to compile a sheaf of information about low power broadcasting from the station's operators, among them Mike Bondi, of Oregon State University Extension Service. A colleague of Mike's, Bruce DeYoung, has produced a booklet titled *Low Power Radio: A New Communication Method for Reaching Target Audiences*. Both highly readable and highly informative, the eight-page publication is an excellent primer for those interested in TI sta-

tions. The booklet goes so far as to include lists of supplemental readings and equipment sources, potential applications of the service, and even tips on message writing. More information about Special Report 890, *Low Power Radio*, is available from Bruce DeYoung, Program Leader, OSU Extension Sea Grant Program, Oregon State University, Ballard Extension Hall 108, Corvallis, OR 97331-3606. A hearty thanks goes out to Bruce, Mike, and Craig.

A Noticeable Improvement?: Elmer Wallesen, of La Grange Park, Illinois, passes along a report by the *Chicago Tribune* that WBBM-FM was part of a test conducted by the National Association of Broadcasters to determine the utility of digital broadcasting. For an unspecified period in October 1994, the station transmitted dig-

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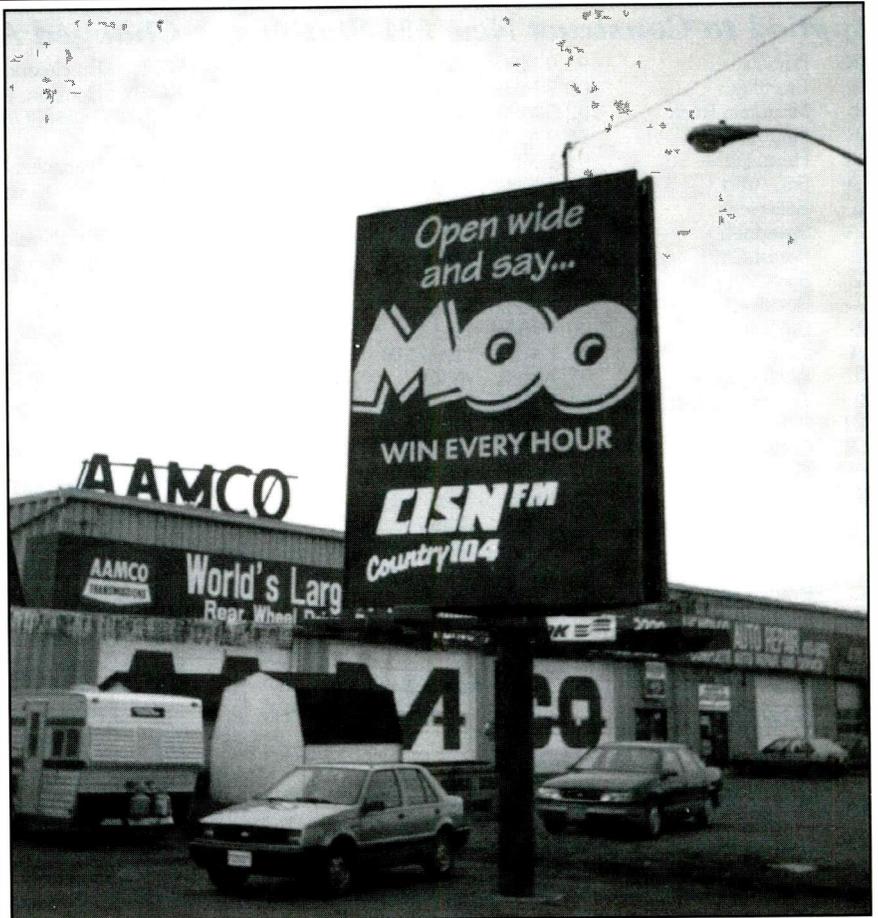
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CIRCLE 83 ON READER SERVICE CARD



If you're listening to Edmonton, Alberta's CISN-FM, and you hear a cow mooing, it's an opportunity for you to call in and win \$100. This is but one example of what stations in the city are doing to attract listeners. (Courtesy Trevor Fletcher, Edmonton, AB.)

initially its normal programming, while a van, equipped with a digital receiver, was driven through downtown Chicago in an effort to determine how the mode fared under various conditions.

Apparently, the mode was a success. As one team member observed, in "an area where the analog signal was overlapped with multipath interference, the digital signal was clear." WBBM was chosen for the experiment both because it is owned by CBS, which is helping finance USA Digital, and for the station's coverage area. A digital signal is much more resistant to multipath distortion and fading, two factors that are of importance in the concrete canyons of a metropolitan area such as Chicago.

This is not the first experiment with digital radio, however. As we reported in our March 1993 column, several stations in the Midwest have conducted tests to determine the effectiveness of digital broadcasting. In Cincinnati, Ohio, for example, USA Digital operated a 10 kW experimental station on 1660 kHz.

Whether the experiment is a harbinger of things to come remains to be seen. Another *Tribune* article supplied by Elmer addresses a different sort of digital radio,

albeit one that has not had such a propitious start. Radio Broadcast Data System, a variation of the European Radio Data System, allows listeners with a specially equipped receiver to read from its display a station's call letters, slogan, song titles and artists. There is the potential to include other information, such as weather and traffic advisories, news headlines, or a stock ticker. The mode is suffering from a lack of interest, however, at least among receiver manufacturers and broadcasters. Distribution of the handful of receivers capable of decoding RBDS is at best spotty, and only 130 FM stations employ RBDS, a nearly insignificant proportion of the 5,076 commercial FM stations nationwide.

Gone, But Not Forgotten: Allentown, Pennsylvania broadcaster WKAP-AM made the switch to WTKZ in early October 1994. As Arthur Holt, president and chief executive officer of licensee Holt Corporation of Pennsylvania, told the *Allentown Morning Call*, "We were looking for diversity without confrontation and ended up with the existing lineup. Nature abhors a vacuum and we might as well fill it." The new lineup at "TalkZ" includes some big names, among them Don Imus, David

Proposed Allotments to the Expanded AM Band

State	City	Call	Present	New
AL	Cullman	WFMH	1460	1700
AL	Huntsville	WEUP	1600	1610
AL	Mobile	WKRK	710	1690
AR	Fort Smith	KWHN	1320	1670
AR	Little Rock	KITA	1440	1650
AZ	Phoenix	KIDR	740	1630
AZ	Tucson	KCEE	940	1700
AZ	Yuma	KBLU	560	1660
CA	Auburn	KAHI	950	1700
CA	Concord	KKIS	1480	1680
CA	Crescent City	KFVR	1310	1610
CA	El Cajon	KECR	910	1670
CA	Fresno	KFRE	940	1690
CA	Long Beach	KFRN	1280	1650
CA	Merced	KLOQ	1580	1640
CA	Redding	KNRO	600	1650
CA	Roseville	KRCX	1110	1660
CA	Vallejo	KXBT	1190	1620
CO	Arvada	KQXI	1550	1680
CO	Denver	KRKS	990	1640
CO	Fort Collins	KCOL	1410	1660
FL	Callahan	WELX	1160	1680
FL	Mims	WPGS	840	1630
FL	Punta Gorda	WCCF	1580	1660
FL	Winter Garden	WOKB	1600	1700
GA	Adel	WBIT	1470	1650
GA	Atlanta	WAOK	1380	1640
GA	Warner Robins	WRCC	1600	1670
IA	Cedar Falls	KCFI	1250	1650
IA	Iowa City	KCJJ	1560	1630
ID	Blackfoot	KECN	690	1610
IL	Normal	WBCI	1440	1690
IN	South Bend	WIWO	1580	1640
KS	Liberal	KYUU	1470	1630
KY	Bowling Green	WKCT	930	1680
LA	Port Sulphur	KAGY	1510	1660
MD	Salisbury	WTGM	960	1670
ME	Brewer	WNSW	1200	1680
MN	Duluth	WBCO	560	1680
MN	Jackson	KKQJ	1190	1670
MO	Hannibal	KHMO	1070	1620
MS	Biloxi	WVMI	570	1620
NC	Farmville	WGHB	1250	1690
NC	Laurinburg	WLNC	1300	1620
NC	Mount Airy	WSYD	1300	1630
NC	Sylva	WRGC	680	1660
ND	Bismark/Mandan	KLXX	1270	1640
ND	West Fargo	KQWB	1550	1620
NE	Grand Island	KRGI	1430	1700
NJ	Elizabeth	WJDM	1530	1660
NM	Farmington	KENN	1390	1610
NY	Buffalo	WNED	970	1680
NY	Elmira Heights	WEHH	1590	1620
NY	Troy	WTRY	980	1640
OK	Claremore	KTRT	1270	1640
OK	Enid	KCRC	1390	1690
OR	Lake Oswego	KPHP	1290	1640
OR	Phoenix	KTMT	880	1630
PR	Adjuntas	WPJC	1020	1660
TX	College Station	WTAW	1150	1630
TX	Denison/Sherman	KDSX	950	1680
TX	Edinburg	KURV	710	1640
TX	El Paso	KSVE	1150	1650
TX	Fort Worth	KAHZ	1360	1700
TX	Fort Worth	KHVN	970	1660
TX	Granbury	KPAR	1420	1620
UT	Brigham City	KSOS	800	1650
UT	Sandy	KTKK	630	1630
VA	Leesburg	WAGE	1200	1700
VA	Portsmouth	WPMH	1010	1650
VI	Frederiksted	WRRA	1290	1690
VI	St. Thomas	WGOD	1090	1620
WA	Dishman	KEYF	1050	1660
WA	Olympia	KCPL	920	1700
WA	Renton	KRIZ	1420	1620
WA	Seattle	KPOZ	1590	1680
WI	Sussex	WKSH	1370	1700
WI	Wisconsin Dells	WNNO	900	1660
WY	Fox Farm	KSXY	1530	1620

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Brenner, and Pete Rose. But as reader and former (1957-1959) WKAP staffer Wally Ely comments, "Although the current station ownership and management doesn't appreciate it, understand it, or even know it, WKAP had a strong talk radio orientation back in the 1950s, practically inventing things like multiple-line call-in equipment and ten-second tape delays."

Down for the Count?: Dark for well over five years, Norfolk, Virginia's WZAM-AM returned to the air briefly in March 1994, only to relapse into silence by late July. In spite of the fact that it was the second Southern Gospel music format station in the market, WZAM was apparently the victim not of fierce competition but of a lack of operating funds. Manager Tony Johnson had revived the station under a one-year lease, but was unable to secure financing to purchase the station outright, perhaps due to his management company having recently declared bankruptcy. Even worse, WZAM was already mired in a tug-of-war between several creditors.

According to an article in *The Spirit* supplied by G. Stewart Tyler, WA4JUO, of Suffolk, Virginia, the five years off the air were not kind to WZAM. The remote transmitter site had been neglected and, when the station finally did resume broad-

casting, thieves plundered the facility, a financial loss from which Johnson and the station were unable to recover. Although WZAM was licensed for 50 kW daytime operation on 1110 kHz, Stewart reports that the station was only able to muster five kW during its four-month return.

Ironically, Johnson is credited with the success of another Southern Gospel station, WOJY-AM, WZAM's chief competitor in nearby Hampton. Johnson abruptly shuttered WOJY in December 1993 after a deal with its owners to purchase the station fell through. A month later, while Johnson was making preparations for the restoration of WZAM, Gene Bryant took over as manager of WOJY, returning that station to the air.

So Weird, We Had to Tell You About It: Unnerved by the World Trade Center bombing a couple of years ago, New York City TV station WPIX has purchased a portable transmitter in order to avoid the sort of service outages that had accompanied the attack. As a spokesman told *Long Island Newsday*, it is the size and portability of the transmitter that will foil a terrorist attack, "because they'll never know where the damn thing is." Novelist Tom Clancy is reportedly at work on a screenplay about just such a scenario, with Harri-

son Ford set to star. No, not really.

Bits and Snippets: According to reader Sue Walden, KIN9GK, of Columbus, Indiana, Indianapolis' WKLR reverted to its WNAP call just after Labor Day. At the same time, the music of the fifties and sixties was dropped in favor of that of the seventies...In early November, John McCormick, KMOX's overnight host for 31 years, passed away. "The man who walks and talks at midnight" was an announcer at WBBM and WGN before coming to St. Louis in 1958, and was one of the first in radio to play records on the air...As of September 30, 1994, there were 4,919 AM and 5,076 FM stations, in addition to 1,715 FM Educational and 2,240 FM translators and boosters.

Thanks: Another fine turnout this month. Just a word of note—since these columns are prepared well over a month in advance of when you read them, if you send along something, don't despair when your letter or clipping doesn't appear the very next issue. If the Postal Service gets it to us, nothing goes unread. So keep sending along news clippings, station and shack photos (with an S.A.S.E., if to be returned), QSLs, and bumper stickers. And please, please write legibly. I'll be looking for you. Until then, 73s. ■

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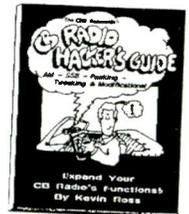


CIRCLE 65 ON READER SERVICE CARD

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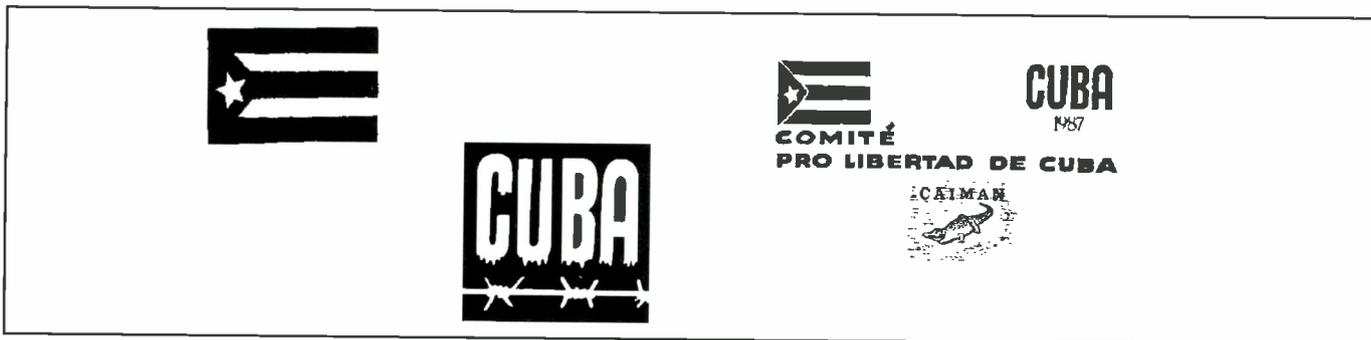
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CIRCLE 11 ON READER SERVICE CARD

CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES



The "Comite Pro Libertad de Cuba" once claimed to operate the mysterious Radio Caiman but many believe it's really a CIA effort. Caiman uses 9965 between 0000-0500 and 1100-1600 and change. Castro is jamming the signals.

Is it, or isn't it? We seem to get a new story about the status of Radio Free Bougainville virtually every month. It's on, it's off, it's still on, etc., etc. Our most recent information indicates that the station continues to broadcast but has discontinued use of 3870 in favor of 3850, then it apparently moved again—to 3875! Sources also indicate that the former power rating—a piddley 80 watts has been cut back to a miniscule five watts! The official station, Radio United Bougainville, (operated by—or at least from—a Papua New Guinea army camp on the island) often operates within 10 kHz or so of the clandestine. With the extremely small power involved here, this is probably all moot anyway. The Bougainville Revolutionary Army has broken off peace talks with the government of Papua New Guinea, so this affair is not yet settled and the anti-government broadcasting continues, however dinky the strength.

Current frequencies in use for the U.S. Government's Radio Marti broadcasts to Cuba include 6030, 6055, 6120, 6190, 9520, 9525, 9600, 9615, 9665, 9690, 11730, 11740, 11750, 1765, 11910, 15330, 15730. This is (or was) operating 24 hours a day but not all frequencies are in use at all hours so check around. Thanks to A.E. Bednarski, British Columbia, for the information.

Meantime, La Voz del CID continues on the air, despite the financial problems it is reported to be having. But the still mysterious Radio Caiman was gone from its usual 9965 spot for at least awhile. Whether this means something's up we can't say at this point. You might want to make 9965 a regular stop during your monitoring sessions

to see if the station is there or not.

The Colombian clandestine, Radio Patria Libre, is jumping up to 6626 variable on occasion, during its 0030 transmission. A more nominal spot is 6260. Other times that this one is reported active are 2130-2200, 1130-1200 and Sundays at 1600-1700. It also uses 15050 occasionally, most likely on the weekends. Years have passed since this one first became active and we are still trying to locate an address. Anyone have any information or leads?

The Voice of Iranian Kurdistan broadcasts in Kurdish from Iraq, against the government of Iran. It is currently using 4290 between 0200 and 0400 and 1500 to 1800. This is one of many stations speaking on behalf of (or ostensibly on behalf of) various Kurdish groups—some in Iran, Iraq, even Turkey. Most of them, unfortunately, are difficult or nearly impossible for North American listeners to pick up.

Another station broadcasting from Iraq to Iran is the Voice of the Mojahed, using Farsi on 4460, 4725, 5445, 5485, 7000, and 7060 around 1700.

The Mozambique National Resistance movement, operators of The Voice of Renamo, is going to receive a donation from the German government now that Radio Mozambique has received a grant from Germany. Voz da Renamo is apparently now using 7135 with sign on at 1000.

Clandestine hunters have always been certain that Korean clandestine Voice of National Salvation, supposedly operated by something called the South Korean National Democratic Front was, in fact, a North Korean effort. Seems that, a while back, somebody pulled the wrong switch

or pushed the wrong button and North Korea's Radio Pyongyang spent a few days using a National Salvation frequency.

Since these frequencies are in the "odd-ball" category (3480, 4120, 4400, 4557) and nowhere near those of Radio Pyongyang it becomes pretty obvious what transmitters are being used by the National Front station. The organization actually has a known address—Mission of the National Democratic Front of South Korea in Japan, Amatsu Building, 2-1 Hirakawa 1-chome, Chiyoda-ku, Tokyo 102, Japan. Best time to check for the station is between 100-1200 or later on any of the above mentioned frequencies. Broadcasts are in Korean, of course.

Democratic Voice of Burma, which is carried over Radio Norway, is now on 15180 between 1430 and 1454 sign off, in Burmese.

The sorta-clandestine, Voice of China broadcasts to mainland China over Taiwan's Central Broadcasting System has added an hour to its broadcasting day. The schedule is now from 0830 to 0930 (new) on 11940 and 2100 to 2200 on 15280. If you should log this one here are a couple of addresses you can try: P.O. Box 11663, Berkeley, CA 94701 or P.O. Box 79218, Monkok, Hong Kong. It's probably a waste of time, stamp, and energy to try going via CBS in Taiwan.

That takes us to the end for this round. Remember we are eager to have whatever news or observations about clandestines you can send—whether loggings, station news, or QSLs received, addresses, or press items. Everything will be gratefully received. Until next month, good hunting!

COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

Here is a tip from Steve McDonald, BC, Canada, for those DX'ers wanting to log some interesting aeronautical catches. Steve suggests you try 5680 kHz—many of the airports in the Yukon and N.W.T. use this frequency to work flights in Northern Canada. Steve said he has logged airports at Whitehorse, Baker Lake, Cambridge Bay, Yellowknife, Lynn Lake, and Ft. Simpson.

Queries continue to come in about the station operated from a private vessel called South Bound II which was docked in Bermuda. Operator Herb used to give weather forecasts for the Atlantic, Caribbean, and the Gulf of Mexico. The usual operating frequency was 6225 kHz during the 1800-2100 local time period.

If any reader can provide updated information it will be appreciated, and carried in the column.

Some months ago I wrote to the Aviation Hobby Shop in England and asked about the book, *High in the Sky*. I have since been advised that the book is out of print, but a new edition is planned. The reply indicated I would be informed of further details when the new edition is available. I will pass on any information.

Al Hemmalin, RI, sends another nice list of beacon loggings. Al comments, "The one that pleased me the most was Swan Island, as so much has been written about it over the years. The best name was 'Roman Gorilla,' an oil rig in Nova Scotia."

Ralph C. Craig, OH, is a FAA retiree. He explains that the two-letter beacon ID's are LOMs (Locator Outer Marker) which are located at the OM (Outer Marker) of the ILS (Instrument Landing System) and take their ID's from the first two letters of the three-letter identification for the runway ILS. Thus the LOM operating on 315 kHz in Dayton has an ID at from runway 6L ILS which is ATD.

Basil Sherry, CA says he finally has a FRG-100 and hopes to add a RTTY decoder with monitor in the near future.

An apology is due Patrick Privat who was incorrectly listed as being in Greece—he lives in France. Sorry for the error. Patrick uses a Panasonic RF-B45 with telescopic antenna and enjoys listening to air activity at Roissy Charles de Gualle airport, located about 20 miles from his residence.

Lon Cerame, CA, says he really enjoyed reading his first copy of *POP'COMM*. "I've been on CB and since getting my ham ticket, I haven't been doing too much SWL'ing. However, the other night I decided to turn on my Radio Shack DX390 with my indoor power antenna. Somewhere around the 15560 kHz area, I picked up one of these



To: Radio AA4JN
This confirms your reception of radio transmissions from the vessel

M/V ICELAND REX - 3ECV8

Date: 14/7/93 **Time (UTC):** 2030 **Freq:** 16634 **Mode:** CW

Approximate QTH during transmission: NEAR ST. JOHNS, NFLD/CANADA

Voyage from/to: NEW ZEALAND TO NFLD. **Xmitr Power:** 1K W

Vessel type: REEFER **Antenna:** Inverted "L"

Remarks: M/S ICELAND REX 14.7.93 Rodolfo G. Canete 



R/O
(Signature/Title)

This PFC was sent in by Jim Navary, VA

so-called 'Spy Transmissions.' The woman kept repeating numbers in Spanish. In five minutes she was off."

Welcome to the column, Lon. We look forward to receiving loggings from you.

From Greece we hear from Zacharias Liangas who has added a Lowe HF150 receiver to his monitoring position. He also said he ordered an MFJ RTTY decoder.

Beacon loggings were sent in from Jim Osborn, VA. "All loggings were received with a Sangean ATS-803A portable using its internal ferrite rod antenna. These initial DX loggings have been real encouraging. My interest in Beacons was inspired by the excellent loggings of Perry Crabill, VA."

Ary Boender, Netherlands, sent in a description of the German radio direction-finding network for the North Sea. Net control is DAN, Norddeich. The three DF stations are DAE, Elbe-Weser Gonio; DAQ, Norddeich Gonio, and DAG, S. Peter-Ording Gionio.

"Bearings are taken in 410 and 500 kHz and on frequencies between 1605 and 3800 kHz. The three DF stations normally take bearings simultaneously. They can also individually furnish bearings on request. DF stations are not equipped with transmitters to communicate with ships. When an individual station is desired to provide bearings for a ship, it must be arranged through Norddeich Radio. The ship specifies the desired station by call sign.

"When requesting bearings the ship calls Norddeich on 500 or 2182 kHz and indicates 'QTE?.' If a position determination is

requested, then 'QTF?' is used.

"Norddeich informs the net and when the stations are ready, the ship is told to send its bearing signals.

"If the bearing is to be taken on 410 or 500 kHz, the ship transmits twice on the selected frequency with a sequence of two dashes of circa ten seconds, followed by a ship call sign.

"If the bearing is to be taken on frequencies between the 1605-3800 kHz range, the ship transmits twice on 1665, 2153, or 2182 kHz with two dashes of circa ten seconds, followed by the name of the ship.

"When the bearing has been taken, Norddeich transmits the results to the ship on either 444 or 2614 kHz in the following format:

QTE, call sign of the DF station, bearing in degrees (0-360), accuracy of bearing, UTC time.

"If the request was for position determination, it is sent in this manner:

ATF, latitude and longitude, accuracy of bearing.

"In both cases, the results are to be repeated by the ship and then confirmed by Norddeich."

Ary, thanks so much for these informative details.

"It was like old home week when I turned to the UTE column in the October *POP'COMM*," writes Sheldon F. Crook, CA. "I am an electronics technician for the FAA, and from October 1988 until March 1994 I was posted at Guam. The radar facility

shown on page 53 is an AN/FPS-93 long-range radar (300 mile radius) used for air traffic control at the CERAP (Combined Enroute Approach Control Facility on Andersen AFB). The square building in the foreground (not the dumpster!) is the operations building used by the Hawaii Air National Guard (HANG) for wartime exercises. This site is located in top of Mt. Santa Rosa in the village of Yigo (pronounced Jeego), just south of the AFB.

"The unidentified site on page 54 is part of the USAF communications facility and is located very close to the NEXRAD weather radar in south central Guam.

"The two shots on page 56 were taken from the same location as the one on page 53, only looking toward the west and the north, respectively, instead of south, as on page 53.

"The left picture is showing the tracking radars located on NCTAMS (a USN comm base). The 'elephant cage' antenna is a large circular antenna used for some very classified communications. The right picture is of the ASR (Airport Surveillance Radar) belonging to the FAA. It has a 50-mile radius and feeds both the CERAP on Andersen and the Navy controllers at the NAS and civilian airport in Agana. The small white building and tower in the foreground is a telephone microwave link feeding the island of Rota, 40 miles to the north of Guam.

"I hope this information is of interest and clarifies some of the details about these facilities. I thoroughly enjoyed my tour on Guam and will probably return there some day to visit the many friends I made among the locals."

We extend our thanks to Sheldon for his explanatory remarks.

Reader Info...

Folks, please place a time of intercept on each logging. When you indicate a blanket time frame for your loggings, it is difficult for me to assign an appropriate time to an individual logging. Readers want to know the time at which a particular item was heard. Let's help each other. Thanks.

One question often asked by readers is whether the U.S. Military is involved in numbers traffic. I refer you to the August 1990 POP*COMM issue and the logging supplied by Daniel Yemiola, NC. Daniel, a deputy sheriff in Davidson County, NC, along with a state Wildlife Officer, investigated a small fire in a National Forest area. They discovered it was the campfire of an Army Airborne Ranger unit on a training exercise. They talked to the squad and noted the radio man was busy copying CW.

"When I talked to the radio operator he told me that he copied numbers broadcasts every day, and that the numbers usually did not have any messages in them. They were mostly for practice to help operators get their speed up."

This would certainly seem to indicate



Lufthansa

<small>Deutsche Lufthansa Aktiengesellschaft Flughafen-Bereich West, D-60548 Frankfurt/Main</small>	<small>Ihre Zeichen Your Ref</small>	<small>Unsere Zeichen Our Ref</small>	<small>Datum Date</small>	<small>Telefon, Dur., Fax Telefax, etc. Fax</small>
		FRA NJ be-ap	16.08.1994	069-690-7400

Mr. Patrick Privat

Dear Mr. Privat,

thank you for your letter in which you are describing your HF-experience with LH-aircraft

The position of LH 745/08.JULY at 21.48 h UTC might have been between the cities of New Delhi/India and Multan/Pakistan.

Our flight LH 573/08.JULY might have been in the area of Kinshasa/Brazzaville

Best regards,

Lufthansa German Airlines
Department Pilots B747



Capt. D. Berger

Here is a letter QSL from Lufthansa Airline sent to Patrick Privat, France.

that such broadcasts would also be used under actual combat/infiltration operations as well.

Another question often raised concerns the use of MCW rather than CW. Perhaps the receiving location only has a common AM shortwave radio. Since such a radio does not have a BFO, it is not possible to listen to CW signals. But an AM radio can receive MCW signals and thus Morse traffic can be heard.

Why would anyone use this method of passing traffic? Maybe the site is an emergency receiving location or possibly the residence of a person who does not want to have to explain the reason for a fancy communications receiver sitting in his living room. In the real world these would seem to be valid possibilities!

UTE Loggings: SSB/CW/RTTY/SITOR/etc. All Times in UTC.

- 196: Beacon FRN, Ft. Richardson, AK. (GB)
- 204: Beacon ZZU, Zanesville, OH. (RC)
- 212: Transcribed Weather Broadcast (TWEB) station BCC, Bear Creek (Tanana), AK. (GB)
- 223: Beacon CDI, Cambridge, OH. (RC)
- 233: Beacon LG, Long Beach (Daugherty Fld-Becca), CA. (PL)
- 239: Beacon HFK, Middleton, OH. (RC)
- 248: Beacon UL, Montreal, PQ, Canada at 0953. (JO)
- 257: Beacon LKA, Chino, CA. (PL)

- 260: TWEB stn ESS, Middleton Island, AK. (GB)
- 277: TWEB stn ACE, Homer, AK. (GB)
- 278: Beacon OS, Los Angeles, CA (PL); Beacon HOC, Hillsboro, OH. (RC)
- 283: Beacon DUT, Dutch Harbor, AK. (GB)
- 285: Beacon NE, Newport Bay (West Jetty Light 3), CA. (PL)
- 286: Beacon T, Cape Spencer LS, AK. (GB)
- 296: Beacon SB, Caybrook, CT at 1435; Beacon UVT, Victoria de las Tunas, Cuba at 0814; Beacon W, St. Scholasique, PQ, Canada at 0821. (AH)
- 298: Beacon CL, Fort Macon (Cape Lookout), NC at 0728. (JO)
- 299: Beacon HW, Wilmington, OH. (RC); Beacon KKA, Koyuk, AK. (GB)
- 302: Beacon L, Point Loma LS, CA. (PL)
- 302.5: Beacon FB, Flamborough Head Light, UK at 0850. (AB)
- 305.5: Beacon AL, Point D'Ailly Light at 0835. (AB)
- 307: Beacon AV, Avalon Harbor (Santa Catalina Is), CA. (PL)
- 311: Beacon LMA, Lima, Germany at 0834.0 (AB)
- 312: Beacon OE, Ostende Light, Belgium at 0832. (AB)
- 313.5: Beacon CM, Cromer Light, UK at 0833. (AB)
- 315: Beacon USR, Simon Reyes, Cuba at 0944. (AH)
- 318: Beacon SSB, San Sebastian, Venezuela at 0919. (AH)
- 323: Beacon BSD, Davids Head, Bermuda at 0848. (AH)
- 326: Beacon BHF, Freeport, Bahamas at 0700. (JO); TWEB stn UMM, Summit, AK. (GB)
- 329: Beacon CH, Charleston, SC. (RC)
- 335: Beacon LUK, Cincinnati (Lunken), OH. (RC)

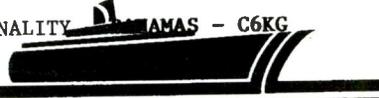
Abbreviations Used For Intercepts

AM	Amplitude Modulation mode
BC	Broadcast
CW	Morse Code mode
EE	English
GG	German
ID	Identification/led/location
LSB	Lower Sideband mode
OM	Male operator
PP	Portuguese
SS	Spanish
tfc	Traffic
USB	Upper Sideband mode
w/	With
wx	Weather report/forecast
YL	Female operator
4F	4-figure coded groups (i.e. 5739)
5F	5-figure coded groups
5L	5-letter coded groups (i.e. IGRXJ)

- 336: Beacon SL, Anyang, S. Korea at 1546. (DS)
 337: Beacon NA, Santa Ana, CA. (PL)
 338: TWEB stn CMQ, Anchorage, AK. (GB)
 339: Beacon A, Havana, Cuba at 0727; Beacon PIC, Calverton, NY. (AH)
 340: Beacon YY, Mont Joli, PQ, Canada at 0804. (JO)
 344: Beacon FCH, Fresno, CA. (PL)
 347: Beacon DJN, Delta Junction, AK. (GB)
 350: Beacon LE, Raleigh-Durham, NC at 0050. (JO); Beacon SI, Covington, KY. (RC)
 352: Beacon DKO, Ft. Devens, MA at 0124. (AH)
 353: Beacon UHG, Hoguein, Cuba at 0749; Beacon YAW, Shearwater, CFB, NS, Canada at 1040; Beacon MG, Montgomery, NY at 0911.
 359: Beacon EMT, El Monte, CA. (PL)
 362: Beacon SB, Sudbury, Ontario, Canada at 0743. (JO)
 365: Beacon CKK, Miami, FL at 1003. (JO)
 366: Beacon TMW, Maniwaki, Ontario, Canada. (RC)
 368: Beacon L, Toronto, Ontario, Canada at 0810. (JO)
 370: Beacon GR, Iles de la Madeleine, PQ, Canada at 0722; Beacon UCM, Camaguey, Cuba at 0940; Beacon VVC, Villaviciencio, Columbia at 0910. (AH)
 376: Beacon ZIN, Great Inagua, Bermuda at 0118. (JO)
 379: TWEB stn IWW, Kenai, AK. (GB)
 382: Beacon UPA, Punta Alegre, Cuba at 0735; Beacon YSR, Nanisivik, NWT, Canada at 0809. (AH)
 386: Beacon HOT, Higuerote, Venezuela at 0624. (AH)
 387: Beacon PV, Turks and Caicos Islands at 0825. (AH)
 391: TWEB stn EAV, Bettles, AK. (GB); Beacon DDP, San Juan, Puerto Rico at 0748. (JO)
 394: Beacon YB, North Bay, Ontario, Canada at 0754. (JO); TWEB stn RWO< Kodiak, AK. (GB)
 397: Beacon SB, San Bernardino (Norton AFB-Petis), CA. (PL)
 402: Beacon KB, on Oilrig 'Placid K/12' at 1519. (AB)
 404: Beacon YSL, St. Leonard, PQ, Canada at 0920. (JO)
 407: Beacon H, Montreal, PQ, Canada at 0733; Beacon OX, Ocean City, MD at 1122; Beacon SWA, Islas del Cisne, Honduras (Swan Island) at 0729. (AH)
 410: Beacon NJZ, Santa Ana (el Toro MCAS), CA. (PL)
 415: Beacon CBC, Cayman Brac, Cayman Islands at 0541. (JO)
 419: Beacon RYS, Grosse Point, MI. (RC)
 430: Beacon LML, Lomalinda, Columbia at 0741. Best DX, 2300 miles. (AH)
 516: Beacon YMA, Petawawa, Ontario, Canada at 0743. (JO)
 518: NAVTEX (prob from NMG, New Orleans, LA) w/notices to mariners re inoperative buoy light, buoy reported offstation, and 14 feet outboard boat adrift. (TS)
 521: Beacon TUX, Greencastle, IN. (RC)
 530: Travelers information station (TIS) at Westport, MA w/callsign WNM0415 heard at 0950. (AH)
 2366: AX, AB, AS, A5W, 2XJ, U2X, 9ED, AM

**The "Fun Ship"
Mardi Gras**

MR. RICHARD BAKER
 QSL IN YOUR CONFIRMATION OF RECEPTION
 MY TRANSMITTER IS A ITT MARINE MACKAY
 1KW USING A 300 FOOT LONG WIRE MOUNTED
 AT 50 FEET.
 THIS IS A CRUISE SHIP OF 27,250 TONS
 650 FEET LONG, 87 FEET WIDE.
 BUILT IN ENGLAND IN 1961, CARRY 1100
 PASSENGER AND 500 CREW.
 NATIONALITY **BAHAMAS - C6KG**



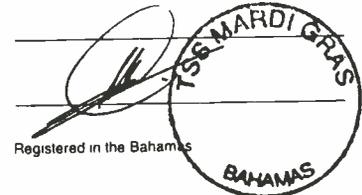
Carnival
 THE MOST POPULAR CRUISE LINE IN THE WORLD

C6KG

YOUR COLLEAGUE.

LUIS MENDOZA - TI2LMC
 (COSTA RICA)

CHIEF RADIO OFFICER
 TSS MARDI GRAS



Registered in the Bahamas

Richard Baker, OH, received this QSL from the Cruise Ship, Mardi Gras, on of the Carnival line ships.

& many other tactical callsigns. Track reports & rdo cks. Prob Dutch Naval exercise. USB at 1944. (AB)
 2863: Tokyo VOLMET (YL opr, faint sig) in USB mode at 1613. (DS)
 2965: Bangkok VOLMET in USB at 1541. OM opr, vy weak, but much stronger & cleaner in//6676 kHz. (DS)
 3090: SLHFM "L" at 2225. (AB)
 3195: SLHFM "R" hrd at 2040. (AB)
 3276: Rapid rpts of 4K2E in CW at 1548. (DS)
 3440.8: U/1 stn in CW mode at 1352 rpts V 8L6S (x3) DE 2RC8 (x2). //w 4276.5 kHz. Same calls noted prev on 3446/3446.1, 4274.6/4274.7 and 4279.5

kHz. similar xmsn but w/diff calls also noted on 8452 kHz. (DS)
 4113/4405: WOM, Miami, FL wkng ELOU5, Liberian ship "Zenith" w/pp in USB at 0555. Channel 417. (TS)
 4222.3: XSN, Ningbo, PRC in CW at 1605 w/CQ mkr. (DS)
 4301: SLHFM "C" & "S" at 2043. (AB)
 4305: JNA, Tokyo Naval, Japan in Cw mode at 1852 w/CQ mkr. Sent in clear, slow CW. (DS)
 4390: WX in SSB at 2310. Believe callsign was WOO. (KB). WOO is Ocean Gate, NJ w/assigned freq of 4387 kHz. (Ed.)

VERIFICATION OF RECEPTION

CALM AIR 1573

Date	Time (UTC)	Frequency	Mode
05 July 93	1331	5680	USB

Aircraft Type	Approx. Xmsn Location	Power (watts)
HS-748	100 miles south of YYQ	--

Aircraft Home Base
 YTH

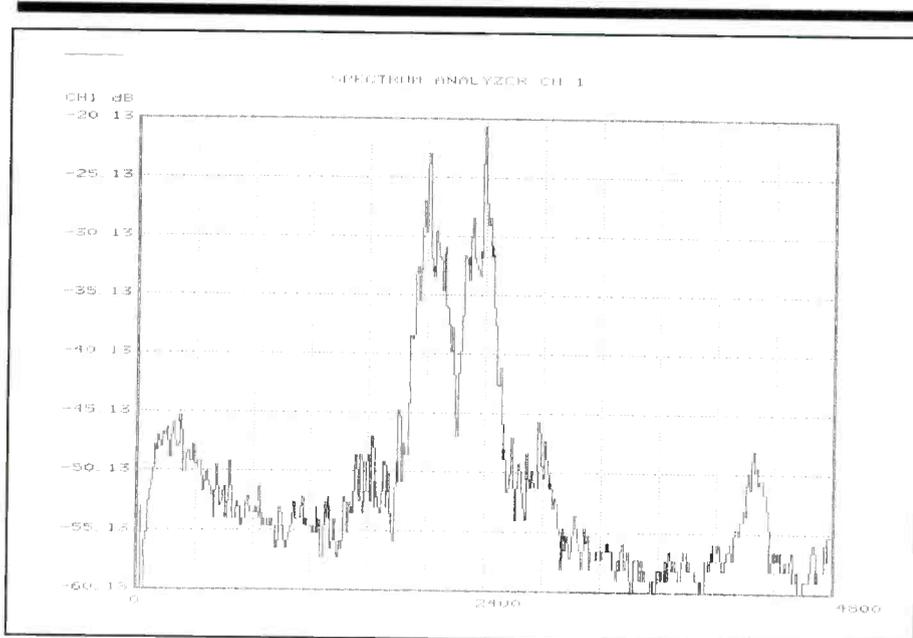
Certified correct as per flight records on file at company head office.

Signed Steve McDonald
 Chief Pilot
 CALM AIR INTERNATIONAL LTD.

Signature Steve McDonald

Official Stamp

Steve McDonald, BC, Canada, shares his PFC with readers. According to Steve, the HS-748 is a two-engine Turboprop built by British Aerospace (50 passengers). When logged, Flight 1573 was "100 miles south of YYQ" (Churchill, Manitoba). Home base is Thompson, Manitoba.



Spectrum Analyzer chart of a TDM signal, 400 Hz/192 bps, ARQ-E3, on 18553.7 kHz. Chart provided by Kevin D. Tubbs, VT.

- 4487: Bulgarian Betty number stn in USB at 1355. (AB)
- 4568: YL/EE numbers stn at 2230-2310. (RK)
- 4560: YHF2, Mossad stn at 2230. (ZL)
- 4602: Irish Military. 80 DE 13 CALL OPS ON SATCOM. FEC/100 mode at 2035. (AB)
- 4643: At 2100 CWNNN being sent. Then at 2105 YL/E w/Group 25 & into 5F grps. Ended at 2112

- w/Ended. Replaces YL/GG. (SM)
- 4665: VLB2, Mossad station at 2350. (ZL)
- 4666: Naha Aeradio asks United-807 for progress report. Was USB mode at 1124. (DS)
- 4707: Neatishhead Radar, UK w/C4R, U2T, W3P, W9X w/rdo cks & track reports. Prob a RAF exercise. Hrd at 1202. (AB)
- 4722: RAF VOLMET w/wx at 2351. (ZL)

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To: David Sabo, Seoul, Republic of Korea



This confirms your reception of
"Auckland Dispatch"

on 10072 kHz USB/volce at 1209 UTC on 4 January 1992.

Call sign: AIR NEW ZEALAND AUCKLAND
Transmitter/Power: Japan Radio Corp JRC 501 K (5kw)
Antenna: 80 FEET WIDE BAND
QTH: 37°01'S 174°48'E

(Signature/Official Stamp)



This will verify your reception of vessel:

USCGC CONFIDENCE WMEC-619
Frequency: 6200 kHz Call sign: NHKW
Date: Nov. 9, 1992 Time: 0250 UTC
Location: C CAROLLEBEAN
Antenna: 35FT WHIP Power: 80 watts
Signature: James J. Helming Jr RM2
Ship's stamp:

**COMMANDING OFFICER
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▲ Russ Hill, MI, used this PFC for his veri of a Coast Guard Cutter.

◀ Another neat PFC from the collection of David Sabo, Seoul, South Korea.

4742: 30V w/FOX FLIGHTWATHC for rdo ck. USB at 2058. (AB)

4780: CIO, Mossad station at 2239. (ZL0)

4873: KUL, u/i in Baudot 75/500 w/3/772 (3 mssgs, total grps 772) bld by 64's and then into 5L grps. Hrd at 1857. (AB)

5305: SLHFH "C" & "S" at 2230. (AB)

5417: 5F CW cut # stn at 0130 w/faulty xmtr. (TS)

5485: Telecoms in FF at 0745. (ZL)

5629: YL in USB mode at 1931 passes "SYN2"

in phonetics. Mossad stn. (DS)

5658: Karachi w/Air France 174 (Selcal=DGCM), Paris to Karachi. Hrd at 2143. Karachi w/Lufthansa 736 (ALDM) at 2148. Enroute Frankfurt to Hong Kong. Karachi w/Turkish 572 at 2204. Karachi w/Philippines 741 at 2206. Monitored on VHF & seen taking off from CDG previous afternoon. (PP)

5810: 5F CW cut # stn at 0606. (TS)

5904: GYU, Gibraltar Naval, Gibraltar at 0200 w/coded wx in RTTY 75/850. (TS)

6200: Music box w/Swedish Rhapsody at 2200 and YL/GG w/1-0 count in between. Into 5F grps for 26820 at 2206. (SM)

6645.1: HLO, Seoul, ROK w/CQ mkr in CW at 0734. Abruptly down foll a final "QS" at 0735. (DS)

6491.5: VCS, Halifax, Canada in CW at 0155 w/wx forecast re tropical storm Chris. (TS)

6496: CFH, Fleet rdo Halifax, NS, Canada at 1715 w/FAX. Isobar prognosis for NW Atlantic. (JW)

6577: New York wrkng American 1169,

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American 689, and TWA 904. Called Varig 833 but no reply. 0115-0200. (PP)

6683: Several long pp's between SAM 972 (carrying ex-Pres. Carter, retired General Powell & Sen. Nunn) on return trip from Haiti to States. Embassy in Haiti requests Carter be awakened. Clinton speech not received favorably and described as "shallow." Embassy requests Carter discuss certain points with Clinton at breakfast meeting next day. Arrangements made for Carter to talk to Embassy early next morning. Patch concluded at 0538 UTC. (PS)

6758: MKL, Pitreavie Air, Scotland in CW at 0211 w/TAFs. (TS)

6993: Andrews AFB in USB w/kg SAM 972 (see 6683 logging). At 0125 QSY'd to 6683 USB (Mystic Star F731) w/pp to RYAL CROWN re diverting to San Juan, PR for refueling before going to Andrews. (AA)

6996: USAF MARS net in USB at 0915. U/i str (OM opr, strong sig) handed over net control to AGA80S (Osan AB, Korea). YL opr said something re moving to freq "NEW-1." Prev identified "NEW-1" as prob 10273.5 kHz but didn't hear anything that freq. About 1 1/2 weeks later, hrd AGA8KU, prob Kunsan AB, Korea at 1037 w/pp thru unid str. (DS)

7039: SLHFM "C" in CW at 1411. (AB)

7547: YL/EE w/3-2F grps in AM at 1348. Ended at 1352. (BS)

8000: JJY, Sanwa, Japan Time Signal str in USB at 1410. (BS)

8142: OLX, Czech numbers station in CW/USB at 1400. (AB)

8165: KUL, (prob RR Dipl) w/RTTY best 75/500. One mssg of 369 grps in 54L grps. Hrd 0730. (AB)

8273: South Korean vessel captain prob to his Company Hqs via HLS, Seoul Radio, re some procedural problem having with authorities. Made ref to investigation, an u/i security agency, & Anchorage, Alaska. Vessel rdo opr subsequently came on & called Seoul to end pp. Shore side was audible on duplex 8797 kHz USB where sigs were strong but extremely garbled. USB mode from 0622-0626. (DS)

8416.5: NMF, CommSta Boston, MA in FEC at 0148 w/wx & mkr. (RK)

8440: VCS, Halifax CG rdo, NS, Canada in USB at 2015 w/VVV mkr. (RK)

8452: Strong u/i str in CW at 1511 rpts "BFR7 BFR7 BFR7 DE 4XML 4XML 4XML." Similar to xsmns on freqs listed with/3440.8 kHz logging. (DS)

8490: Karachi Naval, Pakistan in CW at 1450 w/V's & call mkr (APQ/4/5/6). Vy weak. Had heck-uva time digging this out of the mud. (DS)

8495: SLHFM "C" & "S" at 1428. (AB); SLHFM "P" at 0632. (DS)

8511: XSW2, Taichung, Taiwan in CW at 0634 w/call & QSX mkr. About 2 min pause after each five rpts. (DS)

8662: XSG/4/7, Guangzhou, PRC in CW at 1559 w/call mkr. (DS)

8764: WHMK, Tanker Exxon Baltimore passing info re empty raft to NMN, Portsmouth CG CommSta. After NMN cld u/i unit in Florida, WHMK told to destroy raft. USB at 1335. (BS)

8770: XSG, Shanghai, PRC w/R/T comms in USB at 1518. (BS)

8804: OM/EE w/cryptic mssgs. "The fish will rise tonight." "Go to the mirror boy." (RK) Very interesting. What was the time of intercept?? (Ed.)

8822: KBU6, Rockwell Flight Test, Cedar Rapids, IA advised 760 to go to 4 MHz if he wanted to call New York. USB at 1242. (BS)

8861: GINA 86 wrkd Baffin Rdo at 0130 in USB. MNPO wrkd Cambridge Bay, and u/i a/c wrkd y/l at Churchill. (JW)

8894: Algiers wrkg Portugal 242 at 2305. Lufthansa 572 calling Niamey at 2307. (PP)

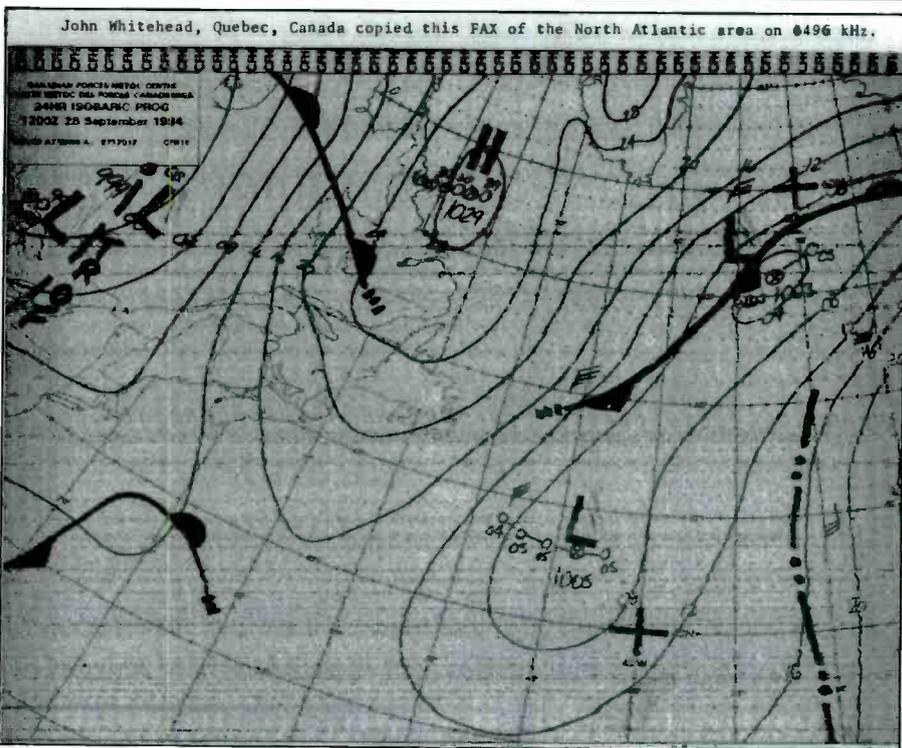
8900: Elite 7784 wrkg y/l at 2337 in USB. Out of Puerto Plata w/ETA Mirabel (Montreal). Selcal ARBJ. The check failed. Then ARQ idling??? (JW)

8903: Speedbird 52 (Harare-London) wrkg Kinshasa then Brazzaville re maintaining flight level 280, requesting 310 at 2200. U/i a/c wrkg Manila airport at 2210. Manila states a/x is unreadable. (PP)

8942: Singapore Aeradio wrkg British Airways Speedbird-9 in USB at 1130. (A/c enroute Bangkok to Sidney. (DS)

9103: 5L grps in RR at 2108. (ZL)

9251: YL/EE in USB at 2035 w/5F grps, each x2. Ending w/single tones, then "Lincolnshire



John Whitehead, Quebec, Canada, copied this FAX of the North Atlantic area on 6496 kHz.

Poacher" tune at 2045. (DS)

9318: NRK, USN Keflavik, Iceland w/satellite pix in FAX 120/576 at 0725. (AB)

9450: 5F grps in GG AT 2339. (ZL)

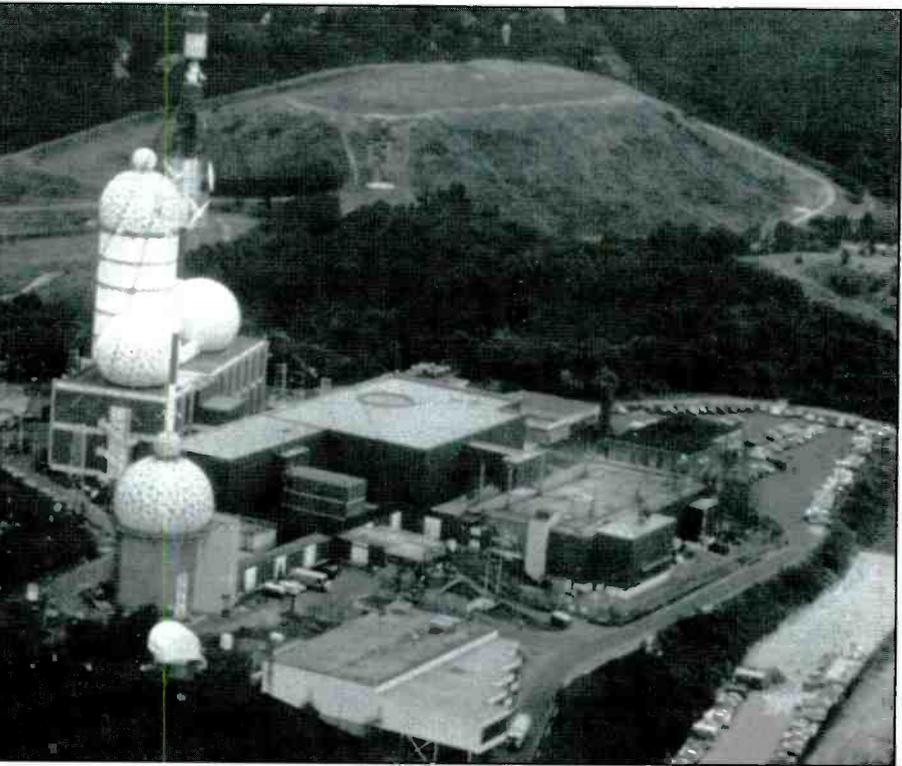
10000: BPM, Xain, PRC. Time Signal str in AM at 1510. (BS)

10162: OM/EE at 1910 rptng 947. Then 251

251 367 367 and into 367 5F grps. Jammed at 2005 and ended w/00000. Next day 947 x3, 00000. (SM)

10177: YL/GG w/Whisky Lima from 1900-1905. Then 5F grps for 522/67. (SM)

10191: MFA Rome w/5L grps to Italian Embassies in several Eastern European countries. ARQ-E 96 at 1020. (AB)



An anonymous contributor sent in this photo of the U.S. Army Field Monitoring Station located in Berlin, Germany. This facility is now closed.

10298: Austrian Embassy Tel Aviv w/mssgs in GG. SI-ARQ 96 at 1158. (AB)
10400.2: RDQP, French forces Djibouti, Control de Voie. ARQ-M2 200 at 0852. (AB)
10410: KUL, prob RR Dipl. This is bcst RTTY 75/500 to KUL. One mssg of 369 5L grps. Hrd at 0715. (AB)
10415: MFA Warsaw in RTTY 75 baud at 0605. Polish political news in EE and Polish. (AB)
10493.0: FEMA station WGY 912 (Mt. Weather, VA) net control for National Emergency Coordination Net at 1405 UTC. Station check-ins included KCP63 (FAA-Longmont, CO), WWJ47 (Fed Highway Admin-Kansas City, MO), WUC2 (US Army Corps of Engineers-Jacksonville, FL), WUC6 (US Army Corps of Engineers-Mobile, AL), WUK3 (US Army Corps of Engineers-Sacramento, CA), WWJ76 (Fed Highway Admin-Effingham, IL) KM96 (FAA-Freemont, CA) NNN01PM (Navy Mars-Santa Fe Springs, CA), KCJ20 (FAA-Farmington, MN) and WUC4 (US Army Corps of Engineers-Savannah, GA) (CM)
10583: SAM, MFA Stockholm w/mssg in SWED-ARQ 100 to Ambassador to Moscow fm "Cabinet" at 1445. (AB)
10612: SLHFM "C" at 1928. (AB)
10854: KUL, prob RR Dipl. RTTY bcst 75/500 to KUL. 4 mssgs, same ones as sent on 12193 kHz.

Hrd 1430. (AB)
10872: SLHFM "C" & "S" in CW at 1410. (AB)
10874: SLHFM "F" in CW at 1530. (DS)
10890: GXQ, British Army, London w/RTTY 50 baud. Running test at 0925. (AB)
10945: CFH, Halifax CG, w/coded wx RTTY 75/850 at 2218. (TS)
11048: G8T, French Embassy, Belgrade in FEC-A 192 at 1535. (AB)
11176: Reach 138WR w/Ascension. PP to Hilda. A/c is short on fuel, wants to refuel at Cairo. Hilda advises him to divert to Sigonella. A/c was enroute EDFA. USB at 2046. (AB)
11292: MFA Cairo in ARQ 100 at 1550 w/mssg signed by 'Minister.' (AB)
11431: CW stn between 1900-1905 sending 411 x3 000. (SM)
11626: YL/EE in AM at 1307 rpts 571 571 571 and 1-0 notes, then ten beeps, "count 225 Count 225" and into 3/2F grps. Mon and Sat skeds at 1300. Sat sked is //8014 kHz. (DS)
12192.6: RTTY bcst to KUL, 75/500 at 1401. Weak, solid copy not possible. Upon completion t/c, QSY'd to 10584 kHz and resent t/c. Very weak that freq and also no copy. Hrd at 1410. (Ed.)
12236: Ship-to-shore pp QRM'd by OTH radar at 2332. (TS)

12285: Everyday at 1730, YL/EE sending 4F grps rptd (8175/10085 today) on this 'counting station control bcst.' Also on 5205//8560 kHz. (SM)
12603: YL/EE in USB at 1505 rpts 961-87 ten times, then 12 rpts of electronic "Lincolnshire Poacher" tune. Pattern rptd til 1510, then 3 two-tone sets, and into 5F grps, each passed x2. Noted //13375 kHz at 1507 and //11545 at 1508. 12803 and 13375 kHz were both strong, 11545 weaker w/bcst band QRM. (DS)
13042.5: FUV, Djibouti w/V's in CW at 1533. (DS)
13083: KMI, San Francisco, CA w/RT comms to Ocean Express 2 at 1605 in USB. (BS)
13370: Radio Moscow feeder at 0753. (ZL)
13372: 5YD, Nairobi, Kenya in RTTY 50/170 w/RV's & CQ tape at 2014. (TS)
13636: SLHFM "C" & "S" in CW at 1422. (AB)
13750: CC numbers "New Star Radio Station #4" signing on AM mode at 1402. Terrible sigs, noisy. (DS)
13970: OM/EE between 1620-1625 rptng 258 x3 00000. (SM)
14332: In 20 meter Ham band OM/EE sending 5F grps from 1820-1841 ending w/000 000. Two hams were in conversation on top of numbers stn. When nbrs stn went down, one ham told other "you are not clear of QRM." (SM)
14395: OM/EE w/395 from 1900-1905, then 842 842 18 18 and into 5F grps. (SM)
14441.5: At 1850 MARS net involving NNN0CNP/NNN0CZO/NNN0ZTI/NNN0CIT9/NN NOAEN. Some later moved to 13538.5 kHz. (SM)
14470: NNN0CEK w/pp's to NNN0JHR at 2310 in USB. (BS)
14980: RAU, u/i stn receiving RTTY 75/500 bcst. QRU. Hrd at 1410. Blvd be another RR Dipl bcst. (AB)
15728: PCW1, Hague, Holland MFA in CW at 1520 w/mkr. (AB)
15780: OT H radar bursts here at 2305, at 2321 were found on 12075 kHz. (TS)
15804: Army MARS net, all YL oprs. USB at 0205. ABM4USB (u/i) trying run patches thru ABM1US (Camp Zama, Japan). (DS)
16310: YL/SS w/4F grps at 1833. Ended at 1352. (BS)
16414: YL rptng Kilo Whisky from 1430-1435 then 5F grps for agents as follows: 568/6, 920/9, 417/2, and 023/73. (SM)
17016: SLHFM "C" & "S" in CW at 1420. (AB)
17103.2: XSG, Shanghai, PRC in CW at 0914 w/CQ-callsign mkr til 0915, then into t/c list. (DS)
17269: VIS, Sydney, Australia at 2347 w/RT comms. (BS)
18275: VOA reserve feeder, Greenville, NC at 1741 in ISB. (BS)
19884: YL/EE in USB at 1017 passes 5F grps, each x2. Strong sig. Sounded like the Lincolnshire Poacher bcst but ended at 1047 x3 two-tone sets, & several rpts of a tune that was not the Poacher tune. Hrd another day at 1212, but was not // regular Lincolnshire Poacher bcst which were in progress at the time on 15682 & 16084. (DS)
22575.3: PKX, Jakarta, Indonesia w/CQ mkr in CW at 0820. (DS)
22970: YL/EE in AM at 0342 w/3-2 grps. //20368. This freq was the stronger of the two. (DS)
25250: SLHFM "R" in CW at 1346. (AB)

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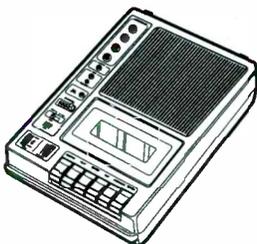
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CIRCLE 87 ON READER SERVICE CARD

Again, thanks to all who provided loggings, and welcome to our first-time contributors! This months logging contributors: John Whitehead, Quebec, Canada; Simon Mason, England; Patrick Privat, France; Zacharias Liangas, Greece; Ary Boender, Netherlands; David Sabo, South Korea; Gerald R. Brookman, AK; Paul K. Swietek, AZ; Paul Lukas, CA; Basil Shelley, CA; Tom Severt, KS; Richard Klingman, NY; Ralph C. Craig, OH; Al Hemmalin, RI; Jim Osborn, VA; Kevin L. Bierstedt, WI; Anonymous (AA), WV; and Charlie McAtee, WV.



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Radials: What Are They and How Many Do You Need?

Ever wonder what “radials” are for in antennas? Radials are quarter wavelength (usually) pieces of wire connected to the ground side of the transmission line or antenna tuning unit in an antenna system. They are used to either improve a physical ground, or form a synthetic or “counterpoise” ground plane when a physical ground is not convenient.

Figure 1 shows a common use of radials. Vertical antennas are built with a vertically mounted radiator (or “hot”) element that is $1/4$ to $5/8$ wavelengths in height ($1/4$ wavelength probably being most common). The radiator element is fed with the center conductor of a coaxial cable transmission line, while the coax shield is grounded at the base of the antenna (see “optional physical ground” in Fig. 1).

What happens when the vertical antenna is mounted above the ground surface (my own ham radio vertical is mounted on a 20-foot high telescoping mast)? Except for a few very specialized end-fed half wavelength antennas, a counterpoise ground plane is needed. The counterpoise ground consists of several quarter wavelength radials (again, see Fig. 1) spread out from the antenna base at an angle that is 90 degrees from the radiator (i.e., radials are horizontal) or greater (radials are drooped, as shown in Fig. 1). The length

of the radials in feet is $246/\text{Frequency}$ (in megahertz). The radials are all connected to the shield of the coaxial cable transmission line.

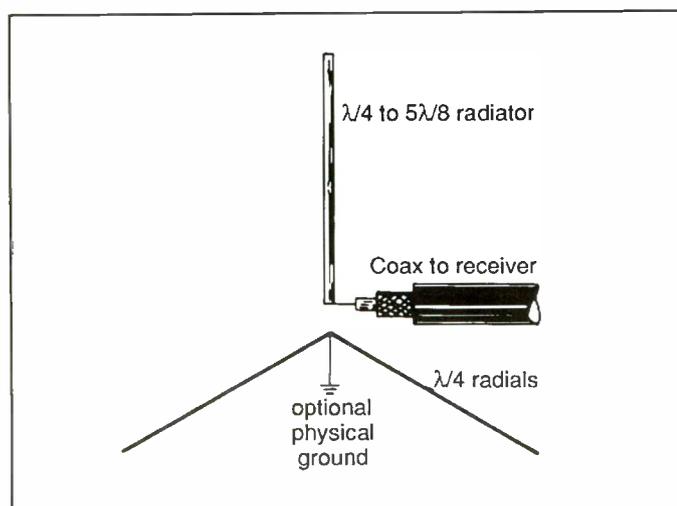
The radials provide the only “ground” connection for vertical antennas mounted above the surface; while it’s an artificial “ground,” it is nonetheless effective. When the vertical is mounted on the surface, some people like to use both a physical ground and a set of radials in order to improve antenna effectiveness. This approach is especially attractive when the soil underneath the antenna is a poor conductor. Some ham radio authorities, and all AM broadcast authorities, recommend using both a physical ground and radial system, especially at low frequencies. Engineering standards for the AM broadcast band require the radio stations to use about 120 radials arranged in an evenly distributed pattern around the antenna.

So how many radials do you need? At any frequency, even those where radials are relatively short, using 120 radials is an imposing mechanical task, looks like heck if they are not buried, and cost big bucks. Fortunately, we are not bound by AM BCB transmitter rules. Figure 2 shows that the effectiveness in transmitted signal strength (hence, by reciprocity, for receive also) is not a linear function of the number of radi-

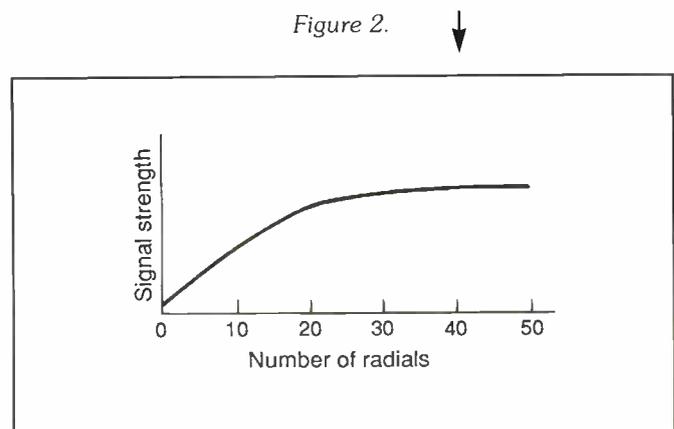
als. Above 20 radials, the slope declines so one realizes decreasing benefits as each additional radial is added to the system. Most ham radio antenna textbooks (including my own *Practical Antenna Handbook—2nd Edition*) recommend 15 or 16 radials on any one band as the practical maximum.

For many people 15 radials is burdensome, and doesn’t provide enough practical benefit to be used. However, even one radial is beneficial over none. A good compromise is to use four radials per band (let a “band” equal a 300 to 500 KHz segment of spectrum, as on the ham bands) arranged so that they are spread out equally spaced in all directions (i.e. when viewed from above the radials are 90 degrees from each other). If four radials are too much, try for two radials spread out in opposite directions from each other. Even with only two radials per band, however, an SWL is likely to have quite a few radials because of the large number of bands covered.

Radials will also make the random length Marconi antenna more effective (Figure 3). Such antennas are wire antennas, longer than quarter wavelength, and fed at one end. Hams usually use an antenna tuning unit (ATU) at the feed end to match the impedances. Although many



← Figure 1.





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SWLs do not match the impedance, it can provide a better performing antenna to use the ATU. The radials are connected to the shield of the coaxial cable transmission line at the antenna feedpoint (as with the vertical), or to the ground terminal on the ATU.

In both Marconi antennas and ground mounted verticals, the radials can be installed either on the ground surface or buried a few inches under the surface. To bury radials, dig a slit trench with a shovel tip, and press the wire into it. One of my ham radio mentors was an old gent named Abe.

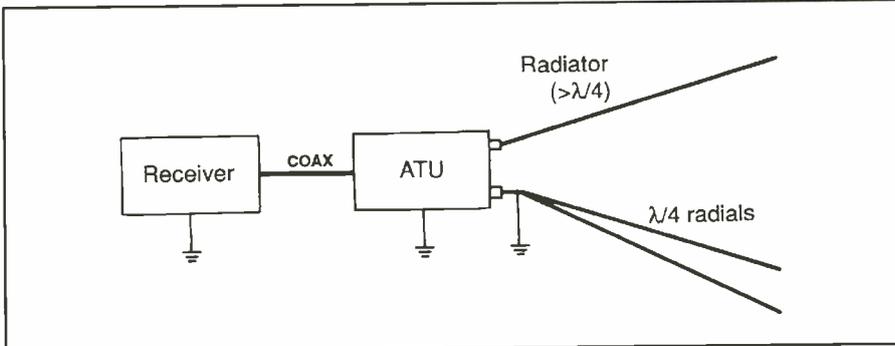


Figure 3.

He built a house in Virginia in the 1940s. During the house's construction, he installed two forms of ground for his transmitter. One was a radials grid of #14 copper wires laid out on the lot before the sod was laid down. Once the sodders did their thing, he had a set of fifty buried radials.

The second ground installed at Abe's house...oh, you wouldn't believe me anyway...well, maybe you would after all. Abe's other ground was an old-fashioned copper bathtub buried in a hole six to eight feet deep a couple feet from the house's foundation. When the excavation for the basement was done, it was relatively cheap to also dig the hole for the bathtub-ground. What I want to know, however, is how much would that bathtub be worth today on the antique market? It might be that Abe's bathtub is a lot more costly per decibel of improvement than buying an equal weight of copper flashing from a metals distributor.

Safety Note

Radials can be dangerous, so be wary of them. At least two main problems seem to present themselves. First, when the radials are mount above the surface of the ground, they may be a hazard to people walking past them. Especially if the antenna is not very high relative to the wavelength, or the radials are drooped down. A person walking in your yard might catch a radial in the eye or neck, or be knocked off their feet by one...and be seriously injured.

The second problem is seen on unbury radials on the ground surface. People walking in the vicinity of the antenna can be injured by tripping over the wire. Given that we live in a litigious society, and that the courts tend to favor the victim, injury to others caused by coming in contact with your radials may cost you a bundle. Heck, I've even heard of cases where trespassers and burglars injured on their victim's property get to cash a check from a lawsuit!

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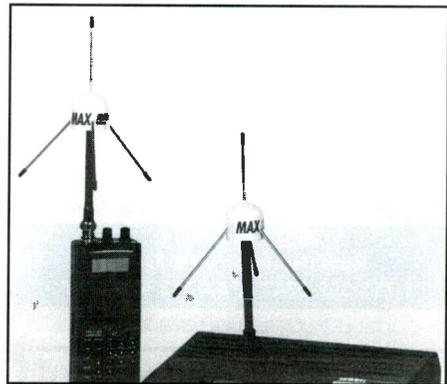
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The suggested retail price for the IC-736 is \$2,250. For further information, please contact your local ICOM amateur radio dealer or ICOM America, Inc., 2380-116th Avenue N.E., Bellevue, WA 98004, (206) 454-8155, or circle 101 on our Readers' Service.

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The MAX-HH for handheld scanner use is \$31.95, plus \$5 s/h (NY State residents please add \$3.14 tax), or \$6 to Canada. The Model MAX-CMP for base station use is \$35.95, plus \$5 s/h (NY State residents, add \$3.48 tax), or \$6 to Canada. Order from CRB Research, Box 56, Commack, NY 11725. VISA/MC accepted. Phone orders: 1-800-656-0056; catalog requests and Canadian/AK/HI orders: (516) 543-9169. Or, for a catalog, you can circle Number 11 on our Readers' Service.

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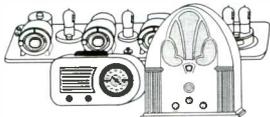
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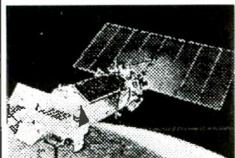
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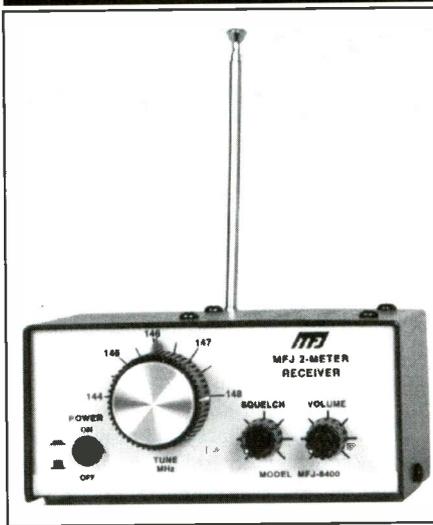
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ICOM announces the IC-820H high performance all-mode dual band base station transceiver. The IC-820H is compact and light weight, making it ideal rig for mobile, fixed or field operation. Yet the IC-820H is packed with top performance features unmatched by other base station transceivers including a newly designed DDS (Digital Direct Synthesizer) capable of resolving 1 Hz tuning steps for fine tuning.

Built-in satellite functions include normal and reverse tracking, independent uplink/downlink control for Doppler shift compensation and separate satellite VFO. Ten satellite memories allow you to quickly switch from normal to satellite operation, plus easily recall satellite uplink and downlink frequencies.

Independent controls and indicators for each band make the IC-820H easy to operate. To change from the main band to the sub-band, simply push a button. You can even receive simultaneous signals on each band and monitor the signal strength of both signals on separate S-meters.

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The IC-820H covers from 144 to 148 MHz VHF and 430 to 450 MHz UHF. Both bands have two VFO's.

Other features include IF shift that electronically adjusts the center frequency of the receiver pass-band for effective interference reduction and a noise blanker to eliminate pulse-type noise. A memory allocation function divides memories between bands. The IC-820H has an AF speech compressor, auto repeater and one-touch repeater functions, built-in high stability crystal unit, RIT, CW semi break-in and side tone.

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The suggested retail price for the IC-820H is \$1,999. For further information, please contact your local ICOM amateur radio dealer or ICOM America, Inc., 2380-116th Avenue N.E., Bellevue, WA 98004, (206) 454-8155, or circle 103 on our Readers' Service.

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Deferral of Acceptance Modification Applications for 220 MHz Stations Pending Rulemaking

The Private Radio Bureau released a Public Notice (DA 94-902) extending the deadline for construction of a non-nationwide 220 MHz stations to April 4, 1995, and announced it would accept certain application for modification of non-nationwide 220 MHz station locations. The Public Notice indicated that the freeze on modification applications would be lifted 30 days after publication of the Public Notice in the Federal Register.

Following the release of the Public Notice, the Commission released its Third Report and Order in GN Docket No. 93-252 regarding technical, operational, and licensing rules for Commercial Mobile Radio Services. Third Report and Order, GN-Docket 93-252, FCC 94-212 (adopted August 9, 1994; released September 23, 1994). In that proceeding, the Commission reaffirmed the extension of the construction deadline to April 4, 1995 and announced that it intends to initiate a rulemaking in the near future to address implementation of a possible new licensing scheme for the 220 MHz service. See Third Report and Order, para. 127. The Commission also stated that other licensing issues, such as the status of facilities being constructed or operating under the STAs and proceeding. Id., paras. 345, 362.

As a result of the Commission's decision, the Private Radio Bureau has concluded that it will not implement the previously announced timetable for acceptance timetable for acceptance of modification applications, but will instead defer adoption of new modification procedures pending consideration of such procedures as part of the upcoming rulemaking. Therefore, the Bureau will not begin accepting non-nationwide 220 MHz licensees who have received Special Temporary Authority (STA) to construct and operate at locations other than those specified in their authorizations may continue to operate under STA provided that they complete construction by the April 4, 1995 deadline. Operation under STA is expressly conditioned on the Commission granting a modification at such time as new modification application procedures are established.

Special Temporary License for Visiting Foreign Amateur Operators

The Commission terminated the proceeding which proposed to amend the am-

ateur radio service rules to provide a special temporary licensing procedure for visiting a foreign amateur operators.

This proceeding proposed that a temporary licensing procedure be made available to foreign amateur operators who are visiting the United States as tourist or as a convention attendee. The proposal would have allowed volunteer examiners (VEs) in the existing volunteer-examiner coordinator (VEC) system to accept the amateur service licenses of visiting amateur operators as proof of technical and operational competence. It was also proposed that the VEs administer a brief examination to the visitor on the rules governing the amateur service in the United States.

In light of concerns expressed by commentaries, the Commission decided not to amend the amateur service rules as proposed. The Commission recognized, however, the need for a convenient licensing procedure for visiting foreign amateur operators and have noted the suggestions in the comments for alternative means of licensing visiting foreign amateur operators. The Commission will therefore continue to explore other options for meeting this need and will work to ensure the reciprocal treatment of United States amateur operators—whether through bilateral or multilateral arrangements.

FCC Modifies Renewal Dates for Certain Stations

The FCC changed the license renewal dates for FM radio and television translator station and low power television (LPTV) stations licensed under Part 74 of the rules to coincide with those full service radio or television stations operating in the same state. The Commission also eliminated FCC Form 348, Application for Renewal of Low Power TV, TV Translator, or FM Translator Station License, and revised FCC Form 303-S, Application for Renewal of License of Commercial and Non-commercial Educational AM, FM, and TV Broadcast Stations, to include information requests formerly included in Form 348.

The Commission said these form revisions will permit translator station co-owned with primary stations in the same state which rebroadcast the same signal as the primary station to file for license renewal on a single application form with their primary station. The Commission stated that by conforming the renewal dates for translator and low power television stations to those of full service stations of the appropriate service in the same state, a substantial savings to the FCC, broadcasters, and the public should be realized.

Therefore, the Commission will grant translator and LPTV applicants filing for license renewal a short term renewal with

the license period extending only until the end of the license period for stations of the relevant type located in the same state; at that time they will have to file again for a full term license renewal. The Commission recognizes that this action will require two renewal applications to be filed within a brief period of time by some translator and low power licensees. However, the Commission pointed out that this is a one-time cost counter-balanced by the long term savings accruing from the synchronization of renewal schedules and consolidation of forms that this action will achieve.

The Commission will waive the application fees for any translator or LPTV license renewal application that is required by this action to be filed within 26 months of the station's most recent prior renewal filing.

Low Power Television Eligibility for Four-Letter Callsigns

Pursuant to the First Report and Order in MM Docket No. 93-114, 9 FCC Rcd 2555 (1994), low power television stations (LPTV) are eligible to apply for four-letter call signs, thereby modifying their initially assigned five-character alpha-numeric call signs. In that Order, the Commission stated that such modifications may be competitively beneficial to the low power television industry by promoting viewer recognition of LPTV stations and by enabling LPTV operators to more effectively market their stations.

In the Order, the Commission stated that a phased implementation of the new call sign policy would be necessary to quickly handle the potentially large number if requests for modified callsigns, and that a schedule would be established by public notice whereby licensees and permittees could apply at the appropriate time, with the old stations having the first opportunity.

Accordingly, notice is hereby given that, starting as of December 5, 1994, a modified callsign in the form of a four-letter call sign may be requested for any low power television station, which was granted a license by the Commission in 1987 or earlier, irrespective of the station licensee at that time. No other low power television station licensees are eligible to apply at this time, and no callsigns may be reserved. Subsequent public notices will be issued from low power television station permittees can be filed. Television translator stations are not eligible for four-letter callsigns.

Callsign requests will be processed in accordance with the procedures set forth in Section 73.3550 of the Commission's Rules. Requests for four-letter callsigns must be made by letter to the Secretary, Federal Communications Commission, 1919 M Street, N.W., Washington DC

20554. An original and one copy of the letter must be submitted. As many as five callsign choices, listed in descending order of preference, may be included in a single request. Requesters must also submit the drug certification statement required by Section 1.2002 of the Commission's Rules. Incomplete or otherwise defective filings will be returned by the FCC.

Callsigns are assigned in a "first-come-first-served" basis. Receipt by the FCC of a request for an available callsign blocks the acceptance of subsequent requests until the first received request is processed to completion. In the case of request by low power television operators for the same callsign being received on the same date, the assignment will be made to the station having the longest continuous record of broadcast operation under substantially unchanged ownership and control.

If a low power television operator and an Am, FM, or full power TV operator apply on the same date at the FCC, the Am, FM, or full power TV operator will prevail. It should be noted that a low power television station operator may not request a callsign used by another broadcast station unless the stations are commonly owned or unless the LPTV operator has the other station's written consent. All four-letter callsigns assigned to low power television stations will include the suffix, "-LP." Telephone request about callsign availability can be made to the FCC Reference Center, (202) 418-0270.

FCC Takes Further Action to Prevent Unauthorized Switching of Long Distance Carriers

Citing over 4,000 complaints received in the last two years, the FCC asked for comments on ways to eliminate the practice of changing a customer's long distance telephone company without the customer's knowledge or approval. This practice is commonly known as "slamming."

Current FCC rules require that a company must obtain the customer's authorization in order to change his or her long distance service. One method of obtaining this authorization is by a letter of agency (LOA), by which the customer indicates, in writing, that he or she wishes to switch long distance companies. The Commission's proposed ruled rules are designed to prevent such customer confusion. At present, many long distance carriers combine LOAs with promotional inducements, such as contest entries, prize giveaways, and checks, which are designed to attract new customers. As a result, recipients may be unaware that by signing the document to enter the contest, claim the prize, or cash the checks, they also are supposedly "authorizing" the company to change their long distance carrier.

To further protect consumers from these misleading inducements, the Commission has proposed to require 1) that LOAs be

separate from other promotional or inducement materials; 2) that the LOAs be limited strictly to authorizing a change in long distance carriers; and 3) that they be clearly identified as an LOA. Further, the Commission has proposed that the language in the LOA be clear and unambiguous, and that the print be of sufficient size and readable style to be clear to the consumer that the document, if signed, would change his or her long-distance company.

Being very concerned about the problem of slamming in the non-English speaking community, the Commission is also seeking comment on whether it should adopt rules to govern the bilingual or non-English language LOAs. For example, the Commission seeks comment on whether it should require all parts of the LOA to be fully translated if any parts are translated.

Finally, the Commission seeks comment on several other issues pertaining to unauthorized changes of the consumers' long distance companies that have come to its attention as a result of consumer complaints. For example, comments are requested concerning: 1) whether and to what extent consumers should be liable for the long distance telephone charges billed to them by the unauthorized carrier; and 2) whether all LOAs should be captioned, "An Order to Change My Long Distance Telephone Service Provider," or a similar title that makes it clearer to customers that the LOA authorizes a change in their long distance service.

Commission Replaces Current EBS System With a New Emergency Alert System

Paving the way for an emergency warning system of the 21st century, the FCC replaced the current Emergency Broadcast System (EBS) with a new Emergency Alert System (EAS). The digital EAS will work with both new and established communications technologies, including satellite, broadcast, and cable, to make the disaster warning system more effective. The new EAS emphasizes speed, reliability, and efficiency. The Commission said the new system will have the ability to alert the public more quickly and reliably than the old EBS and will reduce property damage, injuries, and deaths caused by natural and manmade disasters.

Broadcasters were required to participate in the EBS and will likewise be required to participate in the EAS. In addition, cable operators will be required to participate in the EAS, as mandated by the Cable Act of 1992. The participation of satellite and public service providers will be voluntary.

Major new features of the EAS include: 1) a digital system architecture that will allow broadcast, cable, satellite, and other services to send and receive alerting information, 2) multiple source monitoring for emergency alerts,; 3) a shortened (mini-

mum eight seconds) alerting tone; 4) automated and remote control operations; 5) a weekly test that is unobtrusive to viewers and listeners, as well as a monthly on-air test; 6) ability to issue alerts in languages other than English; 7) provisions for the hearing and visually impaired; 8) prohibition of the false use of the codes and the alert signal; and 9) a mandated standard protocol for sending messages.

Radio and television broadcasters will be required to replace EBS equipment with EAS equipment by July 1, 1996. The following timetables also apply to broadcasters: 1) existing EBS decoders at broadcast stations must be modified by July 1, 1995, capable of decoding a shortened eight second version of the two-tone alerting signal currently used in the EBS; 2) after July 1, 1995, stations may transmit the shortened two-tone attention signal for not less than eight seconds nor more than 25 seconds; and 3) after July 1, 1997, the two-tone signal must be used only as an audio alert signal to announce either the monthly test or actual emergency message. Class D FM and low power television stations must have decoders according to the timetable used by broadcasters, but are not required to have encoders.

Because the cable industry is new to EAS and may require more time to implement this system, the Commission granted cable systems an additional year to install EAS equipment. Cable systems must comply with the provisions of the new EAS rules by July 1, 1997.

To encourage rapid manufacture and deployment of the new EAS equipment, broadcasters and cable systems are authorized to purchase and install the new EAS equipment in advance of the deadlines set forth in the timetables. The Commission will permit early replacement of current technical and operating procedures on a state or local area basis. At that time, new procedures such as weekly unobtrusive tests, the use of a shortened (eight second) two-tone signal, and removal of EAS equipment can occur. Authorization for early deployment of EAS can be obtained upon written request to the FCC's EAS office after all broadcast stations in an EAS local area have installed the required equipment, demonstrated representation of cable systems in their state or local emergency communications committee plans, and demonstrated compliance with certain other rules.

The Commission requested additional comment in whether the waiver standards should be extended to small cable systems. The Commission also asked for comment on whether and how certain service providers should participate in the new EAS.

Magalie R. Salas Appointed Acting Chief, Enforcement Division, Field Operations Bureau

Magalie R. Salas has been appointed

Acting Chief of the Enforcement Division, Field Operations Bureau. In this capacity, Ms. Salas is responsible for the overall management of field enforcement programs.

Ms. Salas began her career at the Commission in 1979, as an attorney in the Television Branch, Mass Media Bureau. In 1982, Ms. Salas transferred to the Administrative Law Division, Office of the General Counsel, where she developed expertise in handling legal issues and litigation pertaining to personnel, procurement, the Freedom of Information Act, the Privacy Act, and broadcasters' equal employment opportunity program.

She received a J.D. from Georgetown University, and a B.A., cum laude, from Trinity College, Washington D.C. She is a member of the D.C. Bar.

James A. Bridgewater Named Engineer-in-Charge of the Detroit Office

James A. Bridgewater was recently selected as Engineer-in-Charge of the Detroit, Michigan, Field Office. The Detroit Office has jurisdiction over the state of Ohio and portions of Michigan and Kentucky.

In 1975, Mr. Bridgewater received his Bachelor of Science in Electrical Engineering (BSEE), and Bachelor of Science in Engineering (BSE), from Purdue University, in West Lafayette, Indiana. He began his FCC career in 1977, as an engineer with the Detroit Special Enforcement Facility. He later transferred to the District Office. Jim Bridgewater resides with his wife, Sally, and their two children, Matthew and Natalie, in Warren, Michigan. He also holds an Amateur Extra Class License, AA8JD. Congratulations!

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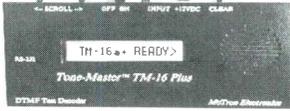
The FCC announced that the maximum allowable reimbursement fee for an amateur operator license examination will be \$5.92. This amount is based upon a 2.96 percent increase in the Department of Labor Consumer Price Index between September 1993 and 1994.

Volunteer examiners (VEs) and volunteer-examiner coordinators (VECs) may charge examinees for out-of-pocket expenses incurred in preparing, processing, administering, or coordinating examinations for amateur operator licenses. The amount of any such reimbursement fee from any one examinee for any one examination session, regardless of the number of elements administered, must not exceed the maximum allowable fee. Where the VEs and VECs both desire reimbursement, they jointly decide upon a fair distribution of the fee.

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THE MONITORING MAGAZINE

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Beaming In (from page 5)

show yourself! Some stations sell (more correctly, lease) time on a block-time basis. On many local stations it's not as costly as you might expect. A station in Bridgeport, Conn., announces over the air that they invite inquiries for this. All programs over shortwave WWCR (Nashville, Tenn.) are scheduled on time leased in blocks by those who present the programs. A person can lease a series of weekly half-hour or hour programs, then provide their own favorite musical programming. They can sell commercial time (and keep all the money) during the segment their program is on the air.

Here's another approach. Check area cable TV systems. Most cable systems seem to have channels that are used for community bulletin boards, swap and shop, program information, or sports results. Most often these channels are video only, accompanied by canned

music, or programs replayed from an area FM station. Ask your cable operators if they would be willing to allow the use of that audio channel for an hour each day or week for that special musical programming purpose dear to your heart which was dumped by your erstwhile favorite broadcaster.

Assuming that you are willing to supply them with the music, and they won't think it too odd or freaky, a cable system might go along with the idea. Cable systems don't presently enjoy the best public image, so this could be something they'd see as a needed image enhancer. It replaces some of the music taken off a discontinued local broadcast station. A definite public service.

There are college and community college stations that may be more than willing to give some of their air time at no cost to some responsible individual willing to present a program. One of the major problems college stations have faced is a shortage of students to occupy all of their

available broadcast hours. Many of the student directors at these stations are willing to fill open time slots with off-campus volunteers who step forward to do their own programs.

Actually going on the air and making the effort to do a program in a professional manner is a real education. It shows a person what goes on at a broadcast station, which is a palace of never-ending wonderment. In the event your program develops a following, as in the case with commercial radio, your program may be moved into a better time slot. Possibly it will be expanded, and could make a cultural contribution to your community.

One of the things about college stations you don't need to worry about is low ratings causing advertisers to take their money to other stations. That's what gets formats ditched. But colleges don't have advertisers, so they're generally insulated from ratings. College stations don't worry about such crass matters, and enjoy free-form programming. You get to design your own show, and your biggest worry is getting the station ID's right.

Here's side benefit! You may receive calls and letters from listeners, thus putting you in direct contact with others who share your passion for your favorite music. You can compare notes, or swap tapes, and thereby increase your knowledge and music collection. On the other hand, you shouldn't get too upset if you don't get much input. Danny O'Day reports that less than one percent of the people listening to a radio station will call to even make a request for a certain song to be played.

If you do a program or even supply specialty music for use over any medium, your local newspapers should be willing to mention or list this information if you let them know when and where you're on. If there are special interest groups or publications in your area that would be particularly interested in this information, be certain to let them know about it, too.

Here are viable alternatives to getting those good sounds back on the air. Your chance to finally let everybody hear that knowledge and collection you have. What did you say you liked? Calliope music? Marches? Viennese Waltzes? Sea Chanties? Whatever! You can be certain there are at least some people out there in Radioland anxiously waiting for you to share it with them.

There's more to the communications hobby than traditional areas of scanners, CB, BCB/SW monitoring, hamming, and modems. Here's an obviously needful aspect that has scarcely been explored. All the excitement of being a broadcaster, and none of the headaches. And you don't even have to be a pirate.

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You Should Know

(from page 46)

in the patrol car, which, in turn feeds the signal into the car radio which transmits the call to the station just as if the officer had picked up the car microphone. Mobile repeaters are normally operated on a completely different band from the car transceiver. Many highway patrol and state police systems use a mobile repeater in the patrol cars.

One of the advantages of knowing the mobile repeater output frequency is the ability to know when you are in-range, or close to a patrol car on the highway. When turned on, the mobile repeater re-broadcasts all calls heard by the car radio even when the officer is in the car, and can be quite an active frequency. Some directories list the mobile repeater frequencies of all state patrol agencies, and monitoring this channel on your scanner can certainly tell you when you are "with-in range" of the patrol vehicle.

Monitoring the many different kinds of communications system can be fun, especially if the system is using a repeater because you can hear both sides of the conversation. I hope this simple illustration gives you a better understanding of how a repeater system works. There is something new out there, waiting just around the corner! It is called "trunking." We will explain just how a trunked system works in a future article. A trunked system has many channels, can mostly be found on 800 MHz or above, and can be a challenge to even the most advanced scanner user.

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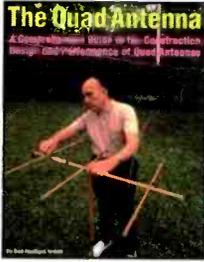


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Hams love antenna books and this book is no exception. Written by world renowned author Bob Haviland, W4MB, The Quad Antenna is the authoritative technical book on the design, construction, characteristics and applications of Quad Antennas. Discover how to easily build a quad antenna for your station that will help you fill your log-book with rare DX that you have only dreamed about before.

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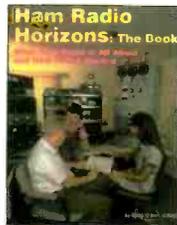
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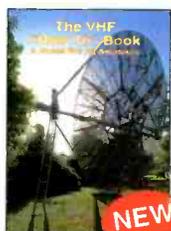
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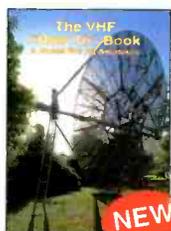
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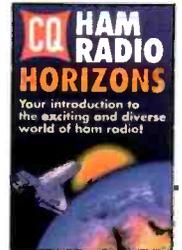
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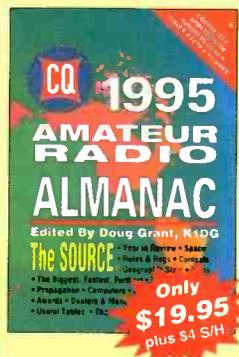
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890XLTB covers 29-956MHz with 200 channels, Turbo scan, WX search, VFO tuning, 10 priority channels and more! The Bearcat **8500XLTC** covers 25-1300MHz in AM/NFM/WFM modes with 500 channels, turbo scan, 10 priorities, VFO tuning, and more. Fax fact documents 477 & 475. Bearcat **2500XLTA**: \$339.00 Bearcat 8500XLTC \$379.00 Bearcat 890XLTB \$259.00 Mobile Scanners Bearcat **760XLTM** \$199.95 100 Channel 800 MHz Five banks of 20 channels each. Covers 29-54, 118-174, 406-512 and 806-954MHz (with cell lock). Features scan, search, delay, priority, CTCSS option, lockout, service search, & keylock. Includes AC/DC cords, mounting bracket, BNC antenna. Size: 4 3/8 x 6 15/16 x 1 5/8. Weight: 4.5lbs. Fax fact document #550. BC560XLTZ \$99.95 Fax fact on above: #560 Pre-programmed scanning receivers BC350AS \$129.00 BCT2 \$149.00 BC700AS \$169.00 Fax fact on all above: #690

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Trident TR2400



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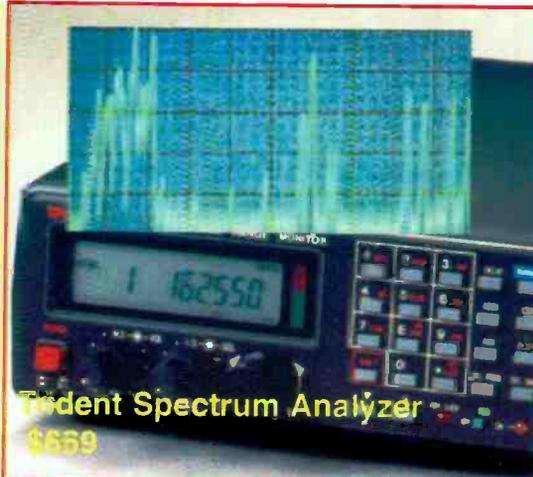
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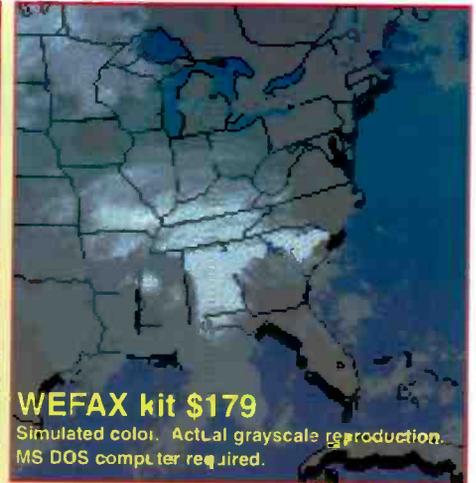
Grundig
YB400
\$199



Sangean
ATS818
\$145



Trident Spectrum Analyzer
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29-958MHz \$259



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Bearcat BC2500XLT
251-300MHz \$319



Bearcat BC80
with 800MHz \$169



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100 Chs. 800MHz \$169



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100kHz-2060MHz
1KHz steps
VFO, BFO/USB, LSB,
Signal Strength
Meter \$449



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*Sales restricted to government or wireless communications companies only
**Specifications of the IC-R7000 guaranteed from 25-1000MHz and 1025-2000MHz. No coverage from 1000-1025MHz.

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