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POPULAR COMMUNICATIONS

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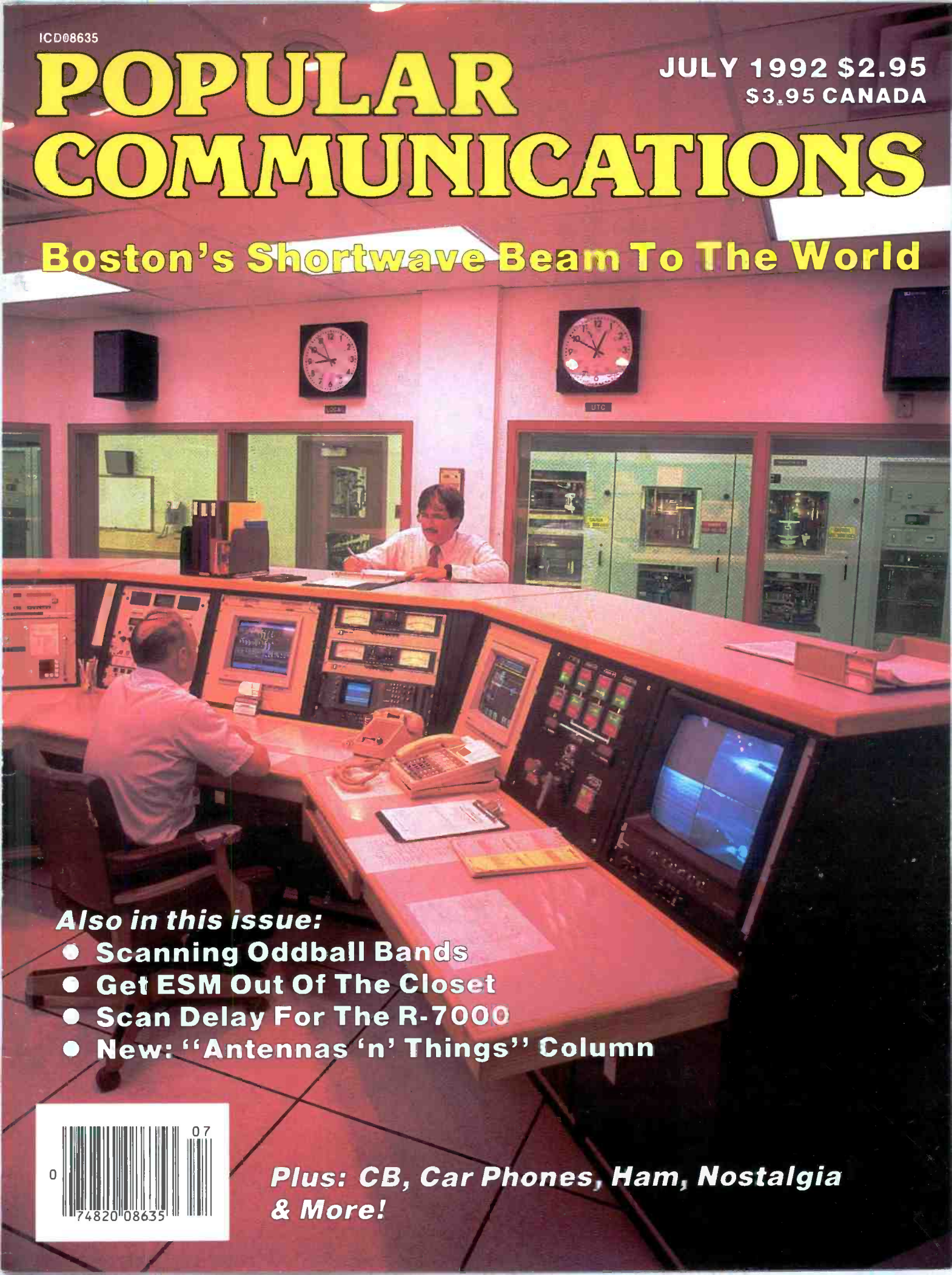

Also in this issue:

- Scanning Oddball Bands
- Get ESM Out Of The Closet
- Scan Delay For The R-7000
- New: "Antennas 'n' Things" Column

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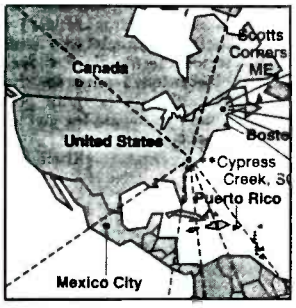
JULY 1992 **VOLUME 10, NUMBER 11**



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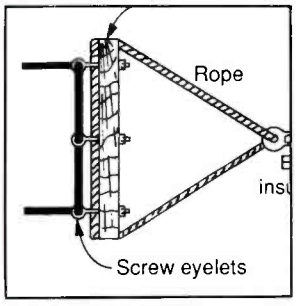

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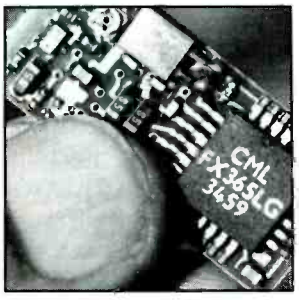

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FEATURES

COLUMNS

DEPARTMENTS

This month's cover: *Control room at WSHB shortwave station of the World Service of the Christian Science Monitor. Transmitter is at Cypress Creek, SC. Photo by Larry Mulvehill.*

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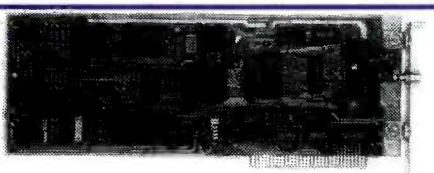
- ✦ Weather Reports
- ✦ Research Traffic
- ✦ Packet Messages
- ✦ Radio Bulletins

■ **Universal M-1000**



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BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

Congress Working For Scanner Owners—Not!

What with this being a major election year, it's somewhat focused my thoughts on Washington's doings. Readers are kind enough not to allow me to forget, anyway. After our March issue editorial on cellular industry efforts to force additional restrictive monitoring through the Congressional mill (H.R. 1674 and S.1132, which were tacked on to the FCC's 1992 operating budget), quite a few readers sent me copies of letters that they had received from their Congressional reps responding to inquiries about such matters.

For example, Paul T. Westervelt, III, of Chapel Hill, North Carolina, had received a letter in February from Rep. David Price, of North Carolina. Price's letter read (in part): "The House passed H.R. 1674 by voice vote on September 24, 1991. No amendments to the bill were offered during floor debate. The Senate version of this bill, S. 1132 is currently before the Senate Committee on Commerce, Science, and Transportation; no hearings have been held at this time. In response to your concerns about Section 8 of the bill, Interception of Cellular Telecommunications, I contacted the House Energy and Commerce Subcommittee on Telecommunications and Finance. According to the subcommittee staff, the intent of Section 8 is to restrict only the availability of telecommunications equipment which is designed specifically for individuals to intercept cellular phone conversations. As I understand it, the subcommittee is not attempting to restrict access to all cellular-capable scanners and receiving equipment. The subcommittee has crafted the language with this understanding and that the commission may grant exemptions for certain classes of scanning equipment."

So much for Section 8 of H.R. 1674. That letter was factual, but nevertheless it was artfully worded about the intent of H.R. 1674. It managed to fudge on stating the whole story, thus it didn't end up breaking any bad news to Paul. In a January letter to *POP'COMM* reader Dan Hull, of Flint, Mich., from Sen. Carl Levin, of Mich., we get a totally different perspective on H.R. 1674.

Levin's letter stated (in part): "Section 9 of the House of Representative's version of the FCC authorization bill would prohibit the manufacture of scanning radio receivers which include cellular frequencies." He went on to observe that, "The Senate's version of this legislation, S.1132, contains no manufacturing prohibition on radio scanners. S.1132 has been referred to the Senate Commerce Committee for further consideration."

Live and learn. The first thing that strikes me is that there seems to be reason to believe that at least some of the legislation that gets voted into law is little understood by those sent to Washington to represent our interests. Furthermore, those whose job it is to explain things to our Congressional reps are equally uninformed and/or confused. There is also some possibility that when voters ask for answers, they could be getting a rich mixture of double-talk, fertilizer, and half-information intended to say nothing much while simultaneously lulling them into a state of contentment when, in fact, they are being rolled off to Baghdad in a barrel.

Congress consists of 100 U.S. Senators, and 435 members of the House of Representatives. Theoretically, it's a dynamic legislative concept with an enormous potential for the nation. Some members are truly great at handling their responsibilities. But there aren't enough of them. Others are only mediocre, but even that's OK. It's all too obvious that, in addition, Congress has more than its share of people who truly have no business being there.

Last March, one incumbent U.S. Senator gave up his efforts to be re-elected after a Seattle newspaper broke a story alleging 20 years worth of abusive misconduct, physical assaults, drugging, and sexual harassment of eight women who worked for him. He is only one the members of this elite corps of Washington legislators whose alleged sleazy moral fiber has made horror headlines in recent times. According to media and court reports, influence peddling, drunkenness, drug use, tacky business dealings and associates, questionable campaign finances, abuses of power, and an assortment of bizarre personal conduct excesses, have long plagued many of these people. It raises questions regarding if, as a group, these people have the right stuff to establish reasonable and fair laws for a nation to follow.

Keep in mind that House of Representatives bank that was operated until last October for the use of members. Remember the *Rubbergate* flap when it was revealed last winter that during the 39-month period prior to last October, 296 of the 435 present members of the House passed 20,000 fraudulent checks drawn on this bank? The bank had to cover the payments for $11-million worth of these

(Continued on page 75)

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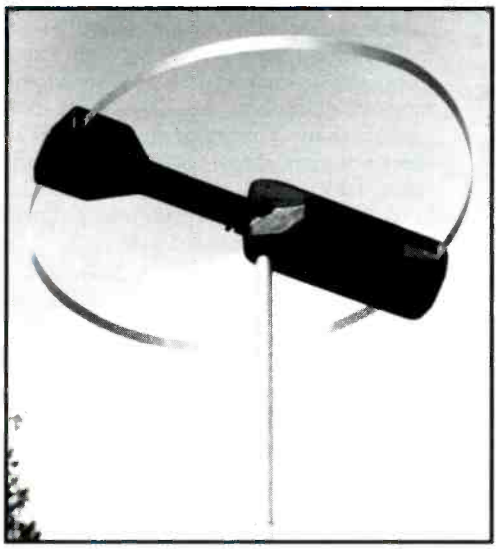

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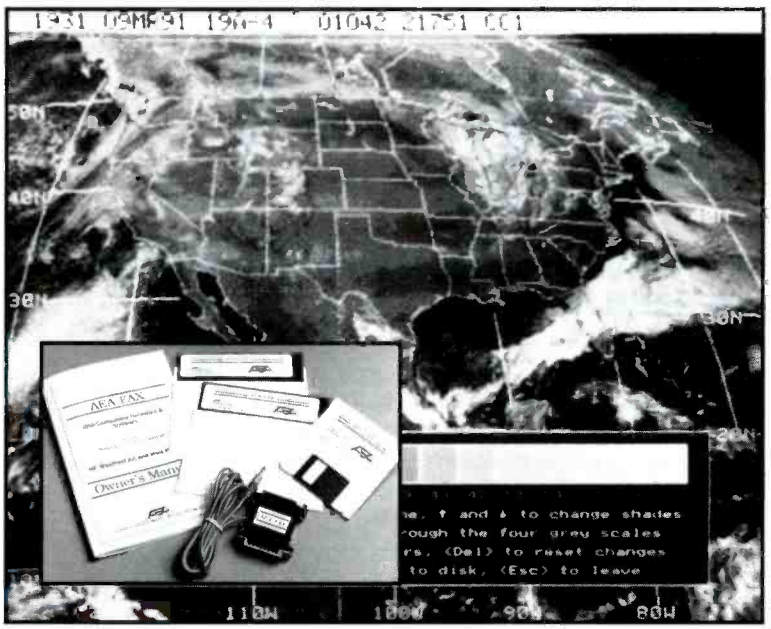

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MAILBAG

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 for consideration 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 North Broadway, Hicksville, NY 11801.

Railroad Scanning Author

Thanks to R.L. Slattery for the review and the good things written in the March issue about my railroad scanning booklet. I hope that *POP'COMM* readers discover the fun of listening to railroad operations. Your services to the scanning world are appreciated. Railroad fans just getting into scanning ask me about a magazine that will give them give them additional info, and I tell them about *POP'COMM*.

Vince Reh,
Byron, NY

He's On Strike

I'm concerned about something, since I use my handheld scanner out of doors in all kinds of weather. What I'm worried about is what will happen to my scanner if it should take a lightning strike while I am using it, and if there is some accessory I should get to protect the scanner.

M.W.B.,
Columbus, GA

Nothing to be too concerned about. If lightning scores a direct hit on your handheld scanner while you're holding the thing, you'll never have another worry in this world. —Editor.

Forbidden Knowledge

I was flipping through the February issue of *Popular Communications* (which was the first one I had ever seen) when my eye caught an ad for a book, *How To Get Anything on Anybody, Book II*. I was really enjoying the magazine until I saw the ad and a review for this book. The subject matter of your magazine generally seems to be fascinating. Undoubtedly, the information in *How to Get Anything on Anybody, Book II* would also be quite interesting to your readers, but for all the wrong reasons. Don't you realize that the the material in this book is going to be used to victimize people? What else could it be used for? There is a big difference between monitoring things meant to be monitored and monitoring people's private lives. A line must be drawn here. Your magazine is called *Popular Communications*, not *Personal Surveillance*, which Mr. Lapin encourages in his book. This is just a heap of temptation for an already criminally minded public.

Jason Shutt,
Dallas, TX

We thank Mr. Shutt for being able to establish reasonable goals and purposes for us after seeing only one issue. Still, we have marched to the beat of a different drummer going on ten years now. At this point it's probably way too late for us get into step with Mr. Shutt's noble hopes. —Editor.

CB or No CB

I thumbed through several magazines about electronics and radio at a local newsstand. I couldn't believe that there were no magazines on my newsstand devoted to CB radio. The only coverage beyond a passing mention was in your magazine, and the space you devote to the topic is a far cry from being an entire magazine. Why bother at all? Obviously, in your opinion, CB'ers are not as worthy as hams, SWL's, and scanner owners. Please send me the names and addresses of any magazines completely devoted to CB radio.

Leon Griffin III,
Lakeport, NH

Hate to be the bearer of bad news, Leon, but in 1982 the last two national magazines devoted to CB radio died of apathy. A few years before that, there were more than forty monthly CB magazines. Our magazine is the only one that presently gives the topic any monthly coverage at all. The amount of space any topic receives in our pages is proportionately based upon the interests of our readers, according to the mail we receive. It isn't a case of CB'ers being less "worthy" than other readers. While we realize that our coverage is a "far cry" from being the entire magazine, we feel CB nevertheless deserves regular attention. We don't agree that by not bothering with CB coverage, we would improve the plight of CB operators. Our impression is that CB SCENE has a loyal following. If a sufficient number of other CB'ers agreed with you that unless we turned over the entire magazine to CB, there's no point in bothering with CB at all, then we'd consider ending our CB coverage. —Editor. ■

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has been setting the standards in electronic communications. . . and then raising them. Today, there's no better shortwave receiver than the Drake R8. **Out-Of-This-World Performance.** The new Drake R8 has more standard features than other shortwave radios. You get wide frequency range (100 KHz to 30,000 KHz), coverage of all world and local bands, and excellent dynamic range. But you also get important features you won't find on receivers costing hundreds of dollars more. A multi-voltage power supply. Pre-amp and attenuator. Five bandwidth filters and synchronous detector. Dual mode noise blanker and passband offset. Non-volatile 100 channel memory. All designed to give you the best reception with the least distortion. **Down-To-Earth Design.** The ergonomic design of the R8 gives you real ease of operation. You have convenient keypad entry, with large, legible controls. The face is bold. Uncluttered. And the liquid crystal display (LCD) is backlighted for easy reading. **Try The R8. . . At Our Risk.** If you're not impressed by Drake's quality, performance and ease of operation, return the R8 Receiver within 15 days and we'll refund your money in full, less our original shipping charge. For more information, or to order, call **TOLL-FREE, 1-800-9-DRAKE-8.** Telephone orders may be placed on a major credit card. $979.00 (Shipping and handling $10 in continental U.S. Ohio residents add 6½% tax.) Call **TOLL-FREE, 1-800-9-DRAKE-8** today. You can't lose.

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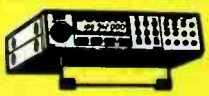
UNIDEN BEARCAT BC-950 XLT



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Digital Programmable 100 Channel Scanner

BC-950 XLT covers the following frequencies: 29-54 MHz, 118-174 MHz, 406-512 MHz, 806-954 MHz (excludes cellular). Features compact size of 6-5/16"Wx1-5/8"Hx7-3/8", scan delay, priority, memory backup, channel lockout, bank scanning, key lock, AC/DC power cords, telescopic antenna, mounting bracket supplied, one year factory warranty, search, direct channel access, track tuning, service search including preprogrammed frequencies by pushing a single button for police fire/emergency, aircraft, weather, and marine services plus exclusive optional features never available on any scanner before. First is an RF receive amplifier for boosting weak signals for only $34.99 plus a CTCSS tone board is available for only $59.99 to make this the number one scanner available in the USA. Optional cigarette lighter plug #950 MPC $4.99.

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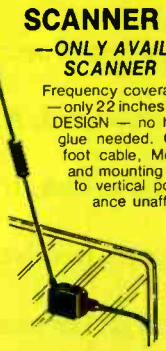
—ONLY AVAILABLE FROM SCANNER WORLD—



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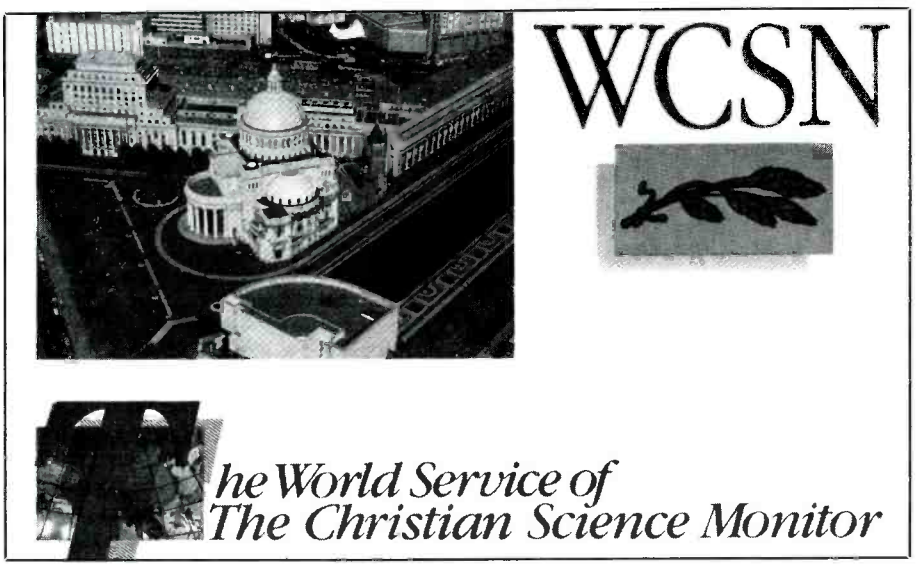
Beamed From Boston: Monitor Power

One Of America's Shortwave Voices

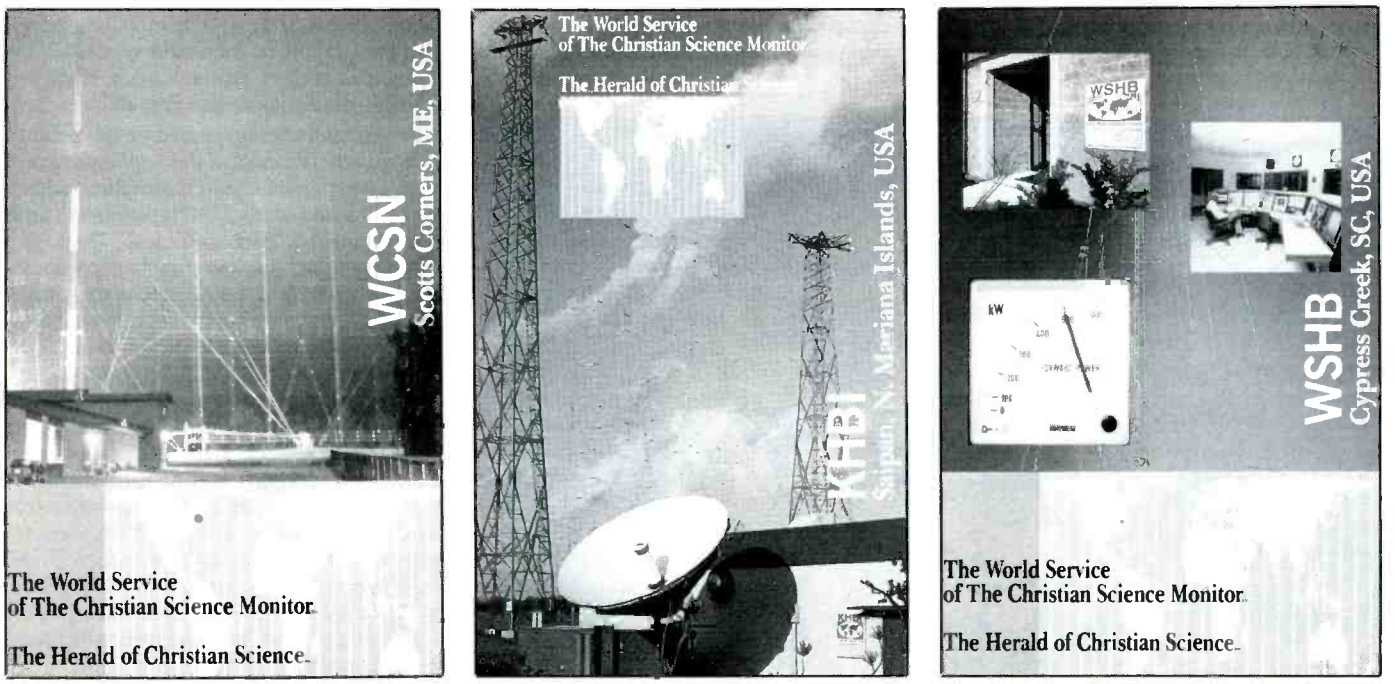
BY GERRY L. DEXTER

It's hard to believe, but it's been more than five years now since the first shortwave voice of the Christian Science Monitor took to the air on March 30, 1987. It was a 500 kilowatt wallop heard 'round the world. By the time another three years had passed, "Monitor Shortwave" could be heard nearly everywhere on the globe, broadcasting from three transmitter sites at more than triple the original half million watts!

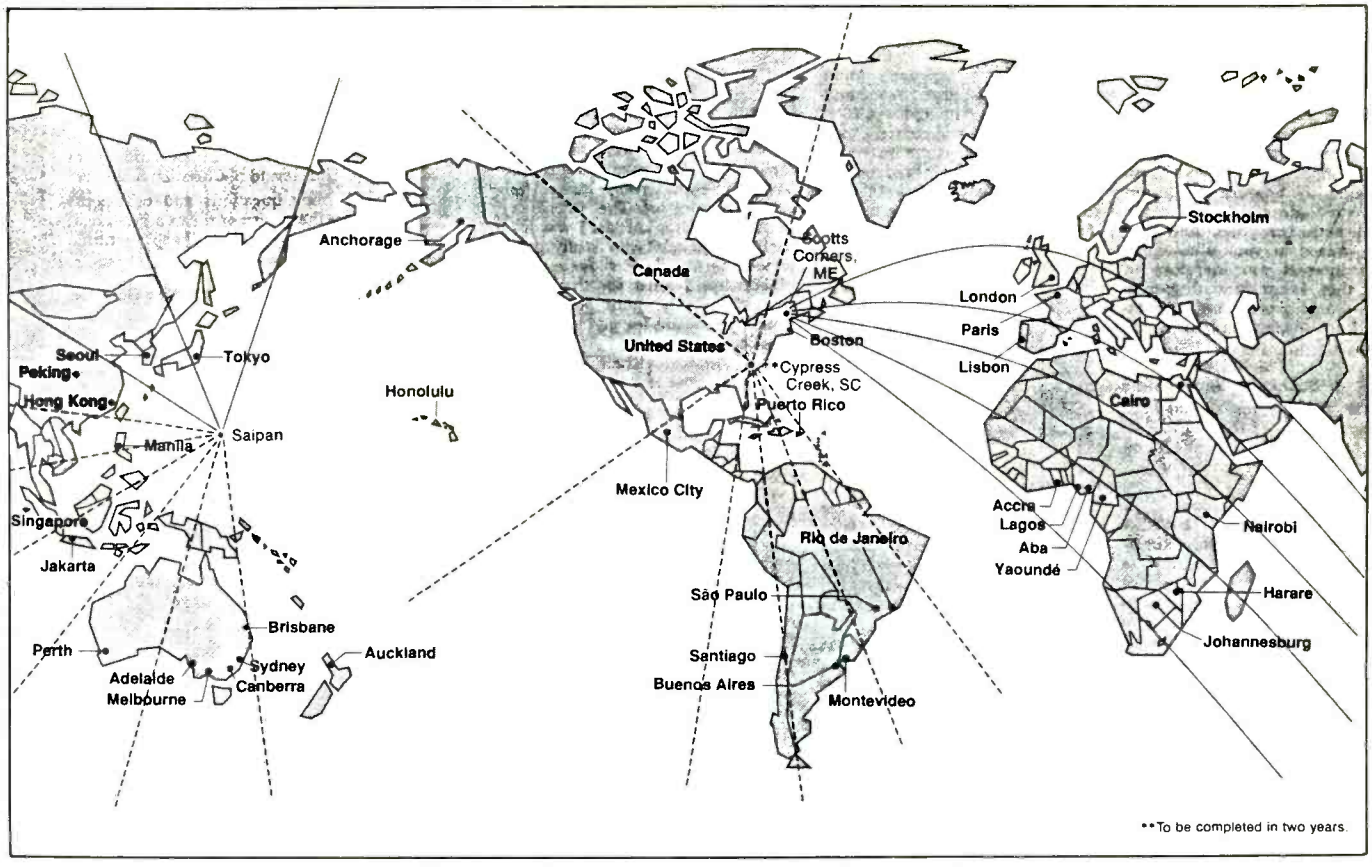
The stations are owned by the Christian Science Monitor Syndicate, Inc., which also publishes the world-famous newspaper, begun in 1908 by the founder of the First Church of Christ, Scientist, Mary Baker Eddy. The main offices for all of the various media efforts is at One Norway Street, Boston, MA 02115. These other media enterprises include a Boston TV station and a syndicated radio program "MonitorRadio" (heard on non-commercial stations in the US and Canada) and a news magazine, "World



WCSN's early non-QSL QSL card.



Each station now has its own QSL.



The Monitor's three stations reach most of the world.

Monitor". "MonitorRadio" began as a one hour program on weekends but has expanded into two daily half hour shows.

The Monitor's shortwave service is really two. During the week "The World Service of the Christian Science Monitor" broadcasts a 'round the clock two hour program (beginning fresh at 1600 daily - through newscasts in the two hour block are updated). The World Service aims to provide unbiased and independent programming of world news to a shortwave audience around the world.

Weekends (and sometimes into Mondays UTC for some areas) the programming is "The Herald of Christian Science," produced by the *Christian Science Publishing Society*, also in Boston. On Sundays this includes a broadcast of services from the Mother Church in Boston. The religious programming is "designed to show how Christian Scientists apply their religious teachings to daily affairs and to life as a whole." The programming focuses on family and community issues and avoids the screaming, haranguing style of much of the commercial shortwave religion one finds all over the dial.

Beams of the World Service to Central and South America are half in English and half in Spanish from 0101 to 0706 UTC. In addition to English, the Herald of Christian Science is aired in German, Czech, Russian, Spanish, Portuguese and French.

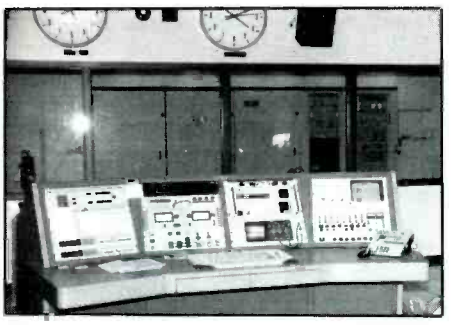
Programming is produced at the Boston headquarters where the shortwave program team shares a twelve studio complex (including production studios) with producers and programmers of "MonitorRadio". Three full-time engineers maintain the facility, which uses computerized, automated audio distribution which can handle five different and simultaneous shortwave program feeds at once. Shortwave programming is sent via satellite to the three sites via Satcom II-R (plus Intelsat IV-A for Saipan).

Headquarters and the three stations have their own computer E-mail network which allows the stations to communicate with each other as well as with Boston. Plans were to eventually have all maintenance logs, parts inventories and so on in the computer so they could be accessed by any of the stations.

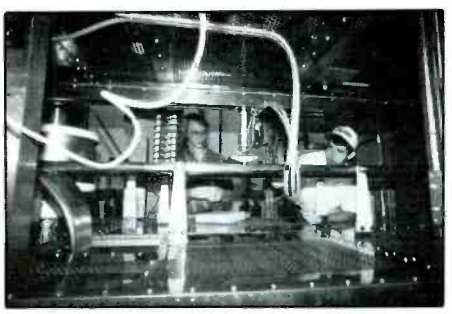
The first of the Christian Science Monitor stations was WCSN, located at Scotts Corner, Maine, about 25 miles north of Bangor.

The WCSN staff enjoys their Christmas party in the station lobby.

Judy Cook is an operator at WSHB and also handles QSLs.



The transmitter operation console at WCSN.



WSHB operators Calvin Giles and Clarence Causey do some routine cleaning of an RF output section in one of their 500 kW beasts.

The station, with its single, half million watt transmitter, sits at the end of a three quarter mile dirt road called, appropriately enough "Tower Road". The transmitter is a Brown Boveri. Three towers (2 of 363 feet and one 212 feet) support two larger dipole curtain arrays. One tunes between 11 and 22 MHz, the other 6 to 11 MHz. Each antenna consists of 16 wide frequency dipole curtains arranged in a 4 by 4 flat plan array. Behind this is a flat wire grid reflector. The antennas are stationary but are electrically "slewable". Both were manufactured by TCI of California. WCSN (which stands for World Christian Science Network) beams to north, east, central and southern Europe. The western part of the Commonwealth of Independent States, the middle east, northwest, central and southern Africa and eastern Canada.

Four months before WCSN was ready for air action, the Monitor had purchased financially troubled shortwave rock station KYOI on Saipan Island in the US Commonwealth of the Northern Marianas. KYOI kept its call letters and its program fare for sometime. It was a year after WCSN came on the air and satellite feeds were worked out before World Service programs started on KYOI. At first, they were just added to the regular KYOI programming. KYOI was closed down in mid 1989 so that a second transmitter could be installed, along with a new antenna and the current facility upgraded. When transmissions resumed in November of that year KYOI had become KHBI (Herald Broadcasting International). Two - 100 kilowatt Continental Electronics transmitters were in play and two TCI curtain antennas similar to those used in Maine were in use. KHBI's signal is intended primarily for listeners in Japan, Korea, China, India, Indoesia, the Philippines, east Africa, Australia and New Zealand.

The third base in the Monitor's triple play game was WSHB (World Service/Herald Broadcasting) which came on the air on March 27, 1989. This one is the Papa Bear of the trio. There are two Brown Boveri 500 kilowatt transmitters at this station and five TCI antenna arrays to beam programming to Canada, Australia, New Zealand, Central America, the Caribbean and eastern and western Latin America. With its high transmitter power and the gain provided by its antennas, WSHB claims to have more output than any other private broadcaster in the World.

QSL hunters initially received only no-data cards in response to their reports. Formal QSL's began being issued in 1990, after all three stations were up and running. Each station has its own distinctive QSL. The listener has to write to Boston to obtain a set of these cards, then fill them in based upon his or her reception details and mail them back. The cards are then sent to the individual stations for official verification/signature and returned to the SWL. Listeners are requested not to try to QSL any of the stations more than once. The World Service address is Post Office Box 860, Boston, MA 02123 (letters for "Herald" programming should go to Post Office Box 58, same zip. You can get up-to-the-minute frequency information by calling the Monitor's shortwave hotline at (617) 450-2060.

Tours of the Monitor's Boston radio facility are given Monday through Friday at 2pm. Staffers at the three stations are glad to give tours, also, but please give them some advance notice. ■

Scanning The Oddball Bands

Search for Scanner Intrigue in the Overlooked Bands. You're Missing Plenty!

BY CHUCK ROBERTSON

Just because manufacturers leave certain bands out of some or all of their basic scanners, it doesn't mean there's nothing to be heard there. To the contrary, some rather exotic and exciting things are taking place just outside the standard scanner bands. If you have equipment that can scan these frequencies, you'll want to direct your attention there. Here's how.

Patrolling Grunge Beach

Some DX'ers call it Grunge Beach—that shadowy shoreline between 29.80 and 29.995 MHz that separates HF from VHF. Officially, this piece of real estate is primarily made up of 29.80 to 29.89 MHz and 29.91 and 29.995 MHz, dedicated to International Fixed (point-to-point) Public services. They're allocated for high-powered ionospheric scatter comms between land stations, or from land stations to aircraft. The stations run thousands of watts, although the majority of the power passes through the ionosphere and is lost in space.

A small amount of this power gets reflected off random patches of ionosphere in the E-layer, resulting in skip distances between 450 to 1,300 miles. Even when the Maximum Usable Frequency (MUF) is below 29 MHz, reliable comms on several non-voice channels (or one voice channel) are possible.

The channels for this are 29.81, 29.82, 29.83, 29.84, 29.85, 29.86, 29.87, 29.88, 29.89, 29.91, 29.92, 29.93, 29.94, 29.95, 29.96, 29.97, 29.98, and 29.99 MHz. The frequency gap from 29.89 to 29.91 MHz (discrete frequency 29.90 MHz) appears to be allocated for military use in the US and Canada.

In the US, ITT World Communications has bases in New York City and San Francisco on 29.84, 29.85, 29.87, 29.88, and 29.94 MHz. RCA Global Communications also has bases in these locations using 29.96 and 29.97 MHz.

There are some government contractors in this band, too, although I have never monitored their stations in use. I have heard military activity on 29.90 MHz, and my guess that it consists of all low-power operations.

Some 10-Meter ham band SSB transceivers can be modified for unauthorized operation in the 29.80 to 29.995 MHz band, as well as other bootleg frequencies. This modified 25-watt President HR-2510 ham rig is given extra muscle on these channels by the 100 watt linear amplifier it's sitting on.

But nature doesn't like a vacuum. The 29.80 to 29.995 MHz band is mostly crowded with illegal comms, as frequency stealers were delighted to have stumbled upon a piece of turf that isn't in much use by those stations that are supposed to be there. Same thing happened to the US Government band that runs from 27.54 to 27.995 MHz. It was another case of "use it or lose it." Uncle Sam hardly used it, so squatters moved in.

In the 29.80 to 29.995 MHz band, the illegal users are mostly American commercial fishing vessels. They are often heard in AM mode on 29.875, 29.89, and 29.93 MHz. Sometimes ham (USB) operators stray above their 29.70 MHz band edge and are heard here, too. You can also monitor drug runners, "gypsy" cabs in New York City, radio telephones, and business comms. Even hobbyists pop in from time to time in this band, although not to the extent you'll hear them in the 27.54 to 27.995 MHz band. A couple of hobbyists in California heard between 29.80 to 29.995 MHz seem to be using their computers to automatically channel hop.

This time of the year, Sporadic-E skip will be bringing in signals from across North America and the Caribbean. Listen for Spanish language business ops in AM mode on 10 kHz channels (such as 29.93 and 29.94 MHz). Spanish language full-duplex telephone circuits show up on 5 kHz channels (like 29.815 and 29.825 kHz). If you hear voice scramblers and NFM mode here, it's probably Canadian commercial fishing vessels using the band illegally. Canada also has some legal low-power telemetry devices in this band, which you'll hear in AM mode with a beeping sound.

Mainly, you'll hear surreptitious comms.

Brian Webb, of Thousand Oaks, Calif., recently reported strange comms on 29.99 MHz, USB mode. "Air Bat" was in contact with "Charlie Juliet," and they sounded as if they were from a southeastern state. All very suspicious, and definitely not military.

Some 10 Meter band ham and some older CB transceivers can be modified to operate on these frequencies, and we presume that's been the basis for the influx of illegals in the band.

Log These!

Between the 10 Meter ham band and the IFP band is the tiny and obscure 29.70 to 29.80 MHz band. In the US, it's allocated for use by companies producing forest products, including their mills and trucks. They are authorized for FM on 29.71, 29.73, 29.75, 29.77, and 29.79 MHz. Canada has business stations in this band. Most other nations either use it for military ops, or don't allow the use of the band at all.

Some illegals turn up here. Recently, I monitored a couple of Floridians on 29.725 MHz, FM. They were testing out a phone patch by dialing up an automated time-answering service that ID'ed as "The First National Bank of Osceola."

Give a listen for the loggers, and plenty of overseas illegals.

Fed Fun

Although federal agency comms in the US are supposed to be restricted to certain specific bands, some fed users seem to turn up on any convenient frequency that pleases them at the moment. They can turn up unexpectedly on any frequency between DC and ultraviolet!

Many military VHF low band radios cover 30 to 76 MHz, and do it in 50 or 100 kHz steps. Scannists tend to overlook the 50 to 76 MHz band, either because they don't think they'll find anything good there, or because their scanners won't work there.

In the aftermath of Hurricane Hugo, the USS Bainbridge was monitored on 50.35 MHz working food distribution centers in the Virgin Islands. This is, of course, in the 6-Meter ham band, although the mil comms were in wide FM (WFM), whereas most hams in this band use USB mode.

The USAF Thunderbirds have been reported on 66.90 MHz, which falls within the 54 to 72 MHz TV broadcast band (TV Channels 2 to 4).

War games at the National Training Center, Ft. Irwin, Calif., are sometimes logged on 56.50, 56.65, 56.85, 51.00, and 72.00 MHz. Ops at McChord AFB, In Wash., are noted on 72.30 and 72.70 MHz. The 72 MHz channels are in the 72 to 76 MHz Operational/Fixed band. Wireless microphones used for surveillance in the US and Canada sometimes turn up in this band.

Something New

This 72 to 76 MHz band is a strange little swath of frequencies left out of many basic scanners even though it's used by police, business, and just about all other two-way communicators. High-power (up to 300 watts) transmissions occur here, as do transmissions from roadside callboxes, remote control devices, and 1-watt handheld transceivers.

In the September, 1990, issue of *POP' COMM* there was a full examination of the band, so right now all we need do us update you with some recent FCC changes. The former 74.60 to 75.40 MHz "guard band" protecting the 75 MHz Instrument Landing System (ILS) marker beacon channel has been trimmed down in size to 74.80 to 75.20 MHz. This has allowed the creation of new low-power frequencies that you should monitor for activity. These channels are: 74.61, 74.63, 74.65, 74.67, 74.69, 74.71, 74.73, 74.75, 74.77, 74.79, 75.21, 75.23, 75.25, 75.27, 75.29, 75.31, 75.33, 75.35, 75.37, and 75.39 MHz.

Weird Science

The frequency bands of 40.66 to 40.70 MHz, 216 to 220 MHz, and 400 to 406 MHz host all sorts of telemetry and experimental stations. This includes sea buoys, wildlife tracking, earthquake sensors, proximity detectors, flood-level sensors, radiosondes, security and safety devices, and numerous types of non-voice transmitters used by business and industry, power utilities, and the federal government.

The 216 to 220 MHz band is shared with the Automated Maritime Telecommunications System (AMTS), which we reported on in detail in the August, 1991, issue of *POP'COMM*. AMTS is currently operational along the Gulf of Mexico as well as the Mississippi and its navigable tributaries. Vessels transmit between 219.0125 and 219.9875 MHz, 18 watts max. ERP. Full duplex base stations operate with 1 kW ERP from 217.0125 to 217.9875 MHz. NFM mode is used, with channels spaced at 12.5 kHz.

AMTS carries ship/ship and ship/shore comms, both voice and non-voice (mostly FAX).

Many readers report hearing beeping and other odd sounds in the 40.66 to 40.70 MHz band. The discrete frequency is 40.68 MHz, which is authorized for industrial, scientific, and medical devices (no power limits). Who knows what hideous devices you might be monitoring here. Other similarly allocated frequencies include the HF channels 6.750 MHz, 13.560 MHz, and 27.120 MHz, as well as the UHF frequency of 915.0 MHz. Note that 27.120 MHz is midway between CB Channels 13 and 14.

Many federal government telemetry activities are between 40 and 41 MHz, although 40.45 MHz is used by the VA for paging in some areas.

Ready, Set, Scan!

Now you're ready, and you're set to scan. Like the man said, monitor till it Hertz! ■

Radio: The Way It Was

A Look Back Into The Golden Era, & Earlier!

BY ALICE BRANNIGAN

One of America's most fabled offshore resorts is Avalon, on California's Catalina Island. Almost lost in the passing years is the wireless station put into service in 1902 at Avalon under the auspices of Robert H. Marriott's Pacific Wireless Company.

Being twenty-five miles offshore, until this station was put on the air Catalina had no means of communication with the mainland except for the boat, and that wasn't too reliable, especially during bad weather.

Pacific Wireless was a small company that was opening stations along the coast at the turn of the century. Their network consisted of San Francisco (call letters "SF"), Seattle ("DA"), and Port Townsend, Wash. ("D"). Their station in Avalon ("A") was put there to communicate with the Los Angeles station ("G"), which was located at 7th Street and Alameda.

Although the Alameda station announced it would handle Western Union telegrams, one of its first uses was to receive the results of the big Jeffries-Fitzsimmons fight that took place in San Francisco. The telegraph station had the results for the Avalon newspaper to publish many hours before the local steamer arrived carrying the same information.

Skeptics on the island doubted the authenticity of the early wireless fight results and refused to pay on bets until steamer confirmation arrived. Even after the fight results were confirmed, many people didn't believe that invisible electrical signals could actually carry messages over such distances without wires. Some claimed that carrier pigeons were used, others insisted that powerful lights on the mainland were used to flash the results. Additional theories were also put forth to explain the way the fight results had gotten there so quickly.

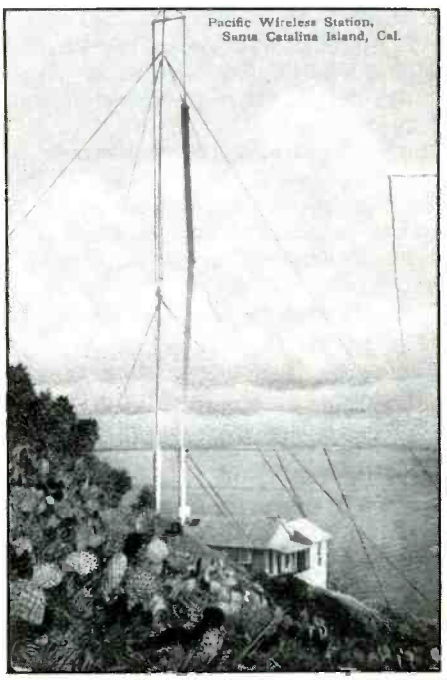
Being a fine resort area, Avalon has always had expensive hotels and a well-heeled clientele. Such are the magnets that also attract a certain criminal element. Avalon, in particular, was a good target because once the steamer left the dock carrying the thieves toward the mainland, they were so far ahead of any pursuers that they were practically home free.

One morning two men sailed from Avalon on the 5 a.m. steamer before it was discovered that during the night, they had helped themselves to cash and bottles of expensive wine from the bar at the Metropole Hotel. When the theft was realized, local residents assumed that it was another virtually perfect crime. The sharp hotel manager, though, promptly sent a wireless message to the mainland. That resulted in the police waiting to pick up the men when the steamer pulled into the dock at San Pedro. Wireless had changed the steamer from the route to freedom into a trap from which there was no escape.

The station evolved as technology improved, later using two-way voice instead of telegraph for its communications. According to a statement made (April, 1926, issue of *Radio Broadcast*) by Pacific Wireless' Robert H. Marriott, radiotelephony is what led to the closing of the station in July, 1923. He wrote, "Too many uninvited folks were able to listen in." An underwater cable was then used for the services previously exchanged by radio.

Robert H. Marriott became the first President of the Institute of Radio Engineers.

This 1905 picture postcard shows Catalina station "A" with its mast, located on a bluff above the beach.



An undated early picture postcard of the Catalina station taken from a slightly different angle reveals the mast used to support a vertically mounted wire cage antenna system.

Pump Up The Volume & The Oil

Rebecca Krench, of Rockford, Ill., writes to say that she and her brother, Robert, haunt flea markets and antique shops looking for books and old radio items. One of Rebecca's recent finds was an undated old postcard from station KFDM. This wasn't a QSL card, but a card sent out to listeners who wrote in to the station's *Children's Hour* program. Although intended to appear individually handwritten and personally signed by "Miss Magnolia Blossom" (undoubtedly the program's hostess), everything is machine printed.

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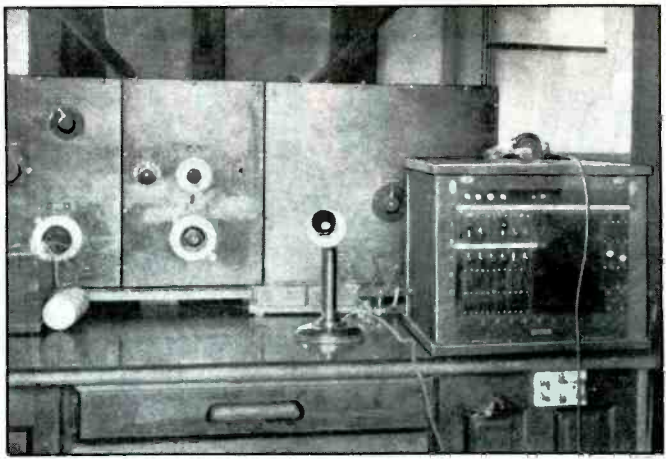
In this distant view of the beach at Catalina, we see the station there (left center, on the beach) with two masts. This was probably taken late in the station's career.



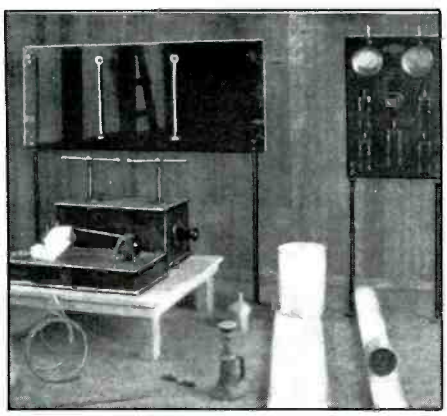
The Catalina station's operating position in the early 1920's, when it used voice. The station was closed in 1923 because too many people liked to listen in on its traffic.

This was a good find! Rebecca advises that she found out that KFDM, which the card mentioned was running 500 watts on 315.6 meters (that's 950 kHz), was owned by the Magnolia Petroleum Company, Beaumont, Texas. She estimates that the card is from the late 1920's, and hopes we have more information on KFDM.

KFDM started out in 1924, but then it was known as WMAM, with 100 watts on 833 kHz, and owned by the Beaumont Radio Equipment Company. A year later, Magnolia Petroleum owned the station, and it was operating on 950 kHz. The station's slogan, based upon its call letters, was *Kall For Dependable Magnolene*. This made reference to the refinery's car lubricant.

By 1927, KFDM had moved to 800 kHz, so we'll date Rebecca's card in the 1925 to 1926 time frame. The year 1928 saw KFDM on 620 kHz, then shifted to 550 kHz in November of that year. As the 1930's rolled in, KFDM moved up to 560 kHz and had its studios in the Hotel Beaumont. The station's two 200 ft. towers were located at Doucette and Grove Streets, Beaumont. Magnolia Petroleum still owned KFDM, but the station was licensed under the name Sabine Broadcasting Corp.

By the 1940's, KFDM was running 1 kW, but moved to 5 kW in the 1950's. Towards the end of the 1960's, KFDM became KLVI. These days, running a Country/Western music format, KLVI still serves Beaumont on 560 with 5 kW. Since July of 1987, KLVI has been owned by the Hicks Broadcasting Corp.



Interior of the Catalina station as it looked in 1902. The switchboard at the right controlled the electric power. The large panel to the left rear carried two remote control switch arms to change the antenna from "send" to "receive." Just below it in the photo is the box with the spark rods, which was an induction coil capable of producing a 20-inch spark, although actually delivering a .75-inch spark into the antenna. The piece of paper at the left covers a mechanical interrupter which, at the time the photo was taken, was a secret.

Hobby Lobby

There are many unusual and fascinating specialties in the radio hobby. One was recently made known to me by Paul J. Carlson, who collects recordings of old broadcast station ID jingles from the late 1950's and early 1960's. This was the golden age of AM rock radio, when many stations had dozens of clever jingles for their call letters, weather, traffic reports, news programs, and for individual deejays.

To demonstrate this, Paul sent along a cassette of the Anita Kerr singers doing a whole string of jingles for Pittsburgh's KQV, back in 1957. This was just great, and came complete with all of the recording studio chatter, false starts, and out takes.

Paul told us that the KQV tape was unusual in that it had a live music combo in the recording studio. Many jingles were sung with live voices over a prerecorded music track, using the same standard canned music for dozens of different stations. Sometimes copies of the music track were bootlegged and used by broadcasters who hired their own singers to add in the words for their own stations. Occasionally, parodies of a competing station's jingles were produced this way, which often led to legal action.

There were a handful of jingle production companies, mostly located in Dallas. They sent their jingles out to stations across the nation. Usually, the production company would record the basic music at one time for a set of jingles, then just have singers overdub custom words for each station purchasing a set. Really cheap sets came with the music and most of the words prerecorded, with just the call letters dubbed in.

Paul has many hours of jingles on tape. These are mostly dubs from radio station masters, also some from air checks and from other collectors. He would be interested in hearing from anyone with similar interests. Contact him at: Paul J. Carlson, 103 Drood Lane, Pittsburgh, PA 15237.

The Feeling is Mutual

Douglas H. Stingley, of Salem, Oregon, wrote to mention that we have, in the past, written about the ABC, CBS, and NBC networks. But he is curious about the Mutual Broadcasting System (MBS), which was a major radio network for many years and we have not had any occasion to include in these pages. He reminds us that MBS was the first radio network to treat college football in a big time way. Douglas asks for background information on MBS, why it never expanded into a TV network, and what became of MBS.

In 1934, when it began, MBS was called the Quality Network. Soon afterwards, the operation took the MBS name. The original network consisted of WXYZ, Detroit; and 50 kW clear channel stations WOR, New York City/Newark; WGN, Chicago; and WLW, Cincinnati (which was then beginning 500 kW test broadcasts).

The first big attraction MBS had was *The Lone Ranger*, which came from WXYZ. While NBC and CBS owned and operated its major stations, and had affiliates under contract, MBS was different. The four MBS stations were independently owned, and

cooperatively run by MBS. In 1936, WXYZ decided to join NBC, and its spot in MBS was taken over by Windsor's CKLW. At that time, a number of regional networks and independent stations around the nation began affiliating with MBS. Some of the new MBS affiliates were basically affiliates of the other two major networks and relied upon MBS for programming only on a secondary basis.

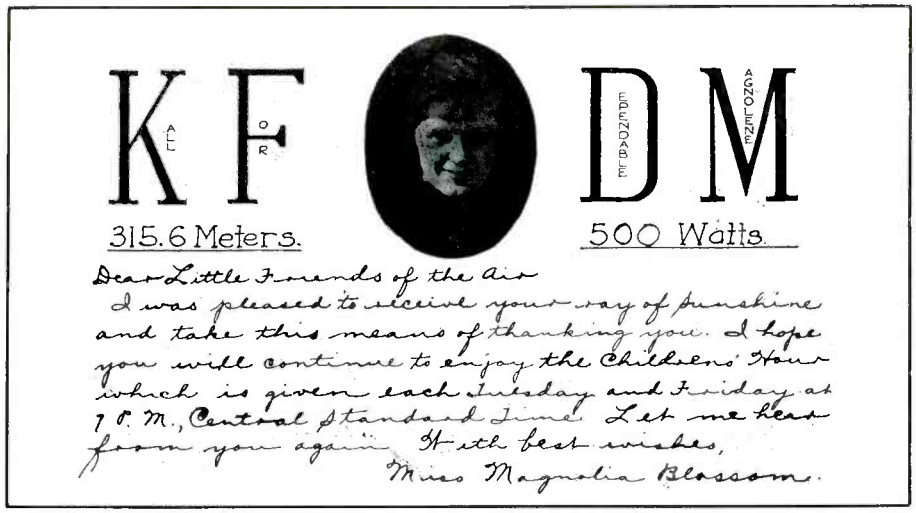
Few, indeed, of the MBS stations were the stations with the highest power or the largest audiences during the 1930's in their respective areas. MBS did not achieve national equality with CBS or NBC, neither could it deliver the same amount of daily programming. Although MBS had a good Network News Division, it couldn't attract the same top entertainment talent, nor advertisers, nor audiences that NBC/CBS were able to garner.

Initially, at least, MBS treated its affiliates a bit more liberally than did the two major networks. That lasted only until 1938 when MBS felt the need to become more demanding of its affiliates in order to keep them from drifting out of the network as competition for affiliates became tougher. As time went on, however, MBS, did acquire many affiliates and had become the network with the largest number of affiliated stations.

The years were unkind to traditional network radio as the 1950's and TV came along. The old radio programs were either on TV or else they were gone. Many radio stations let their network affiliations lapse, or else retained only the networks' news feeds. CBS, NBC, and ABC began pouring their efforts into TV during the 1950's.

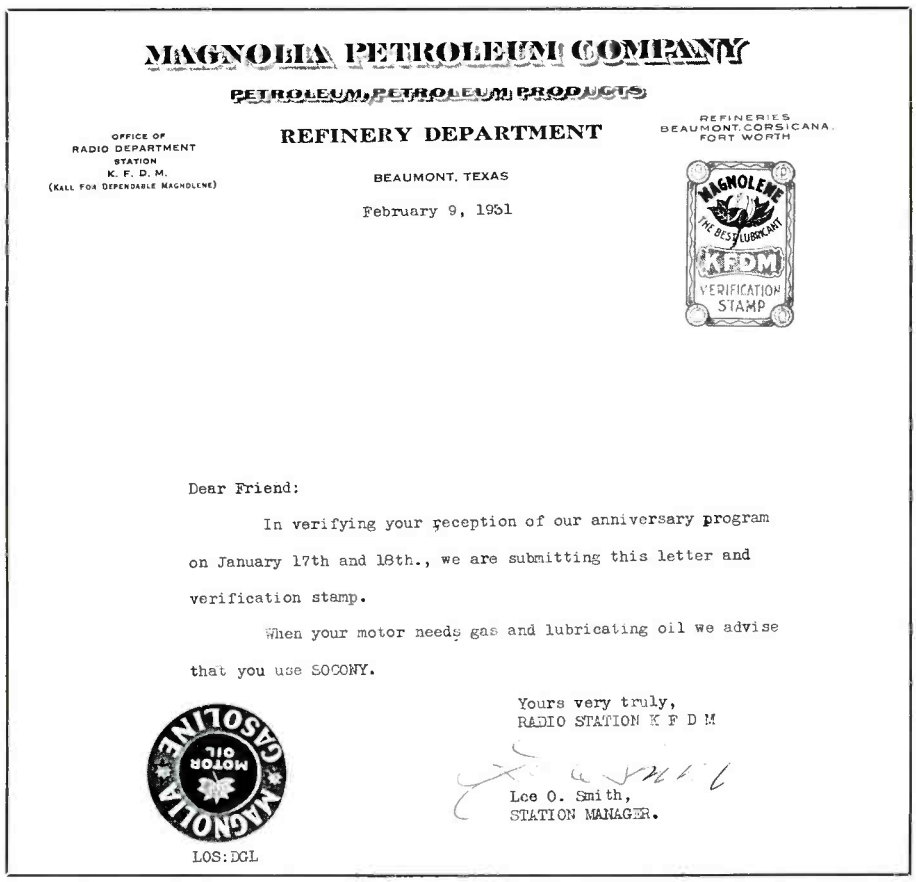
The 1950's, however, saw MBS itself sold no less than six times in a three year period. Nearly 150 MBS affiliates pulled out of the network at that time. Some of the 1950's management teams were less than the best, one being found guilty of manipulating the company stock. Another owner was charged with asking Dominican dictator Trujillo to pay the network for mentioning him in glowing terms during news broadcasts.

MBS continued to function, however, and was popular in some markets. As the 1960's came along, networks began to again pay attention to building their radio operations. They did this by offering to supply a variety of different types of program formats. This cut into MBS' market, and a suit brought by MBS to end the practice because it violated the FCC's "duopoly" rule was thrown out of

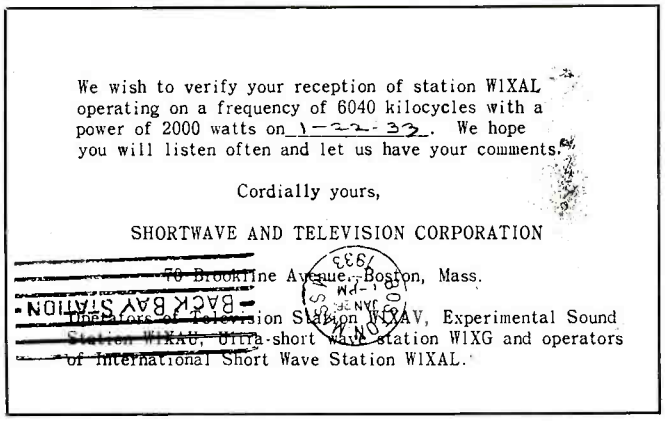


This isn't a personally handwritten card from KFDM. It just looks like one. (Courtesy Rebecca Krench, Ill.)

One of the early participants in MBS was WXYZ, Detroit, home of "The Lone Ranger."



A 1931 QSL letter from Beaumont's KFDM displays the station's own custom veri stamp in the upper right, plus an (applied upside down) company sticker at the lower left.



We wish to verify your reception of station W1XAL operating on a frequency of 6040 kilocycles with a power of 2000 watts on 1-22-33. We hope you will listen often and let us have your comments.

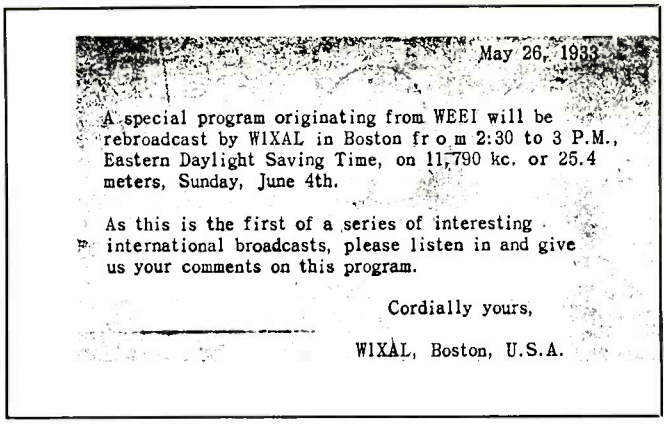
Cordially yours,

SHORTWAVE AND TELEVISION CORPORATION

70 Brookline Avenue, Boston, Mass.

Operators of Television Station W1XAV, Experimental Sound Station W1XAU, Ultra-short Wave station W1XG and operators of International Short Wave Station W1XAL.

This QSL from W1XAL dated 1933 was found in a flea market. (Courtesy Tom Mooneyham, Md.)



May 26, 1933

A special program originating from WEEI will be rebroadcast by W1XAL in Boston from 2:30 to 3 P.M., Eastern Daylight Saving Time, on 11,790 kc. or 25.4 meters, Sunday, June 4th.

As this is the first of a series of interesting international broadcasts, please listen in and give us your comments on this program.

Cordially yours,

W1XAL, Boston, U.S.A.

Another 1933 W1XAL postcard advised that the station would be relaying a program from mediumwave WEEI. (Courtesy Tom Mooneyham, Md.)

court. MBS did make some headway with offering classic radio programs to stations.

Eventually, MBS was purchased by Amway Products. In 1985, Amway sold MBS to Westwood One (owners of NBC) for $39-million. Westwood One now owns and operates NBC, the Westwood One Network, and also MBS.

An excellent source of information on radio networks is the book *Stay Tuned: A Concise History of American Broadcasting, 2nd Edition*, by Christopher H. Sterling and John M. Kittross (1990, Wadsworth Publishing Company, Belmont, Calif.).

Another Flea Market Find!

Looks like lots of people are now converging on flea markets to look for radio goodies. Next thing on top of our stack of mail is from Tom Mooneyham, Maugansville, Maryland. He picked up 300 old ham radio QSL's at a flea market, and also two cards that were obviously not from hams. He thought that we would find them of interest, and that was a good guess.

Both cards are from 1933, and relate to Experimental Station W1XAL, Shortwave and Television Corporation, 70 Brookline Ave, Boston, Mass. One card mentions that they operated TV video station W1XAV, TV audio station W1XAU, ultra shortwave station W1XG, and International Short Wave Station W1XAL.

As it turns out, W1XAL was a well known station in its day. The QSL card Tom sent notes that W1XAL ran 2 kW on 6040 kHz. Our files indicate that the station also operated on 11790, 15250, and 21460 kHz, and was running 5 kW by 1935 when it was being operated by the World Wide Broadcasting Corp.

This station was financed by the famous

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Radio Monitors Newsletter
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Display	10 Digit LCD w/Function Annunciators	10 Digit LCD w/Function Annunciators	10 Digit LCD	10 Digit LCD	10 Digit LCD	8 Digit LED	8 Digit LED
RF Signal Strength Indicator	16 Segment Adjustable Bargraph	16 Segment Adjustable Bargraph	16 Segment Adjustable Bargraph	•	•	•	•
Hold Switch	Yes	Yes	Yes	Yes	Yes	No	Yes
Price	$579.	$375.	$325.	$259.	$225.	$179.	*$99.

Sensitivity: <1 to <10mV typical. Time Base: ± 1.ppm.; ±.2ppm add $100. - LCD Models only. Nicads & AC charger/adapter included except for 2300. *For 2300, available with NiCad installed & AC charger/adapter, complete package $128.
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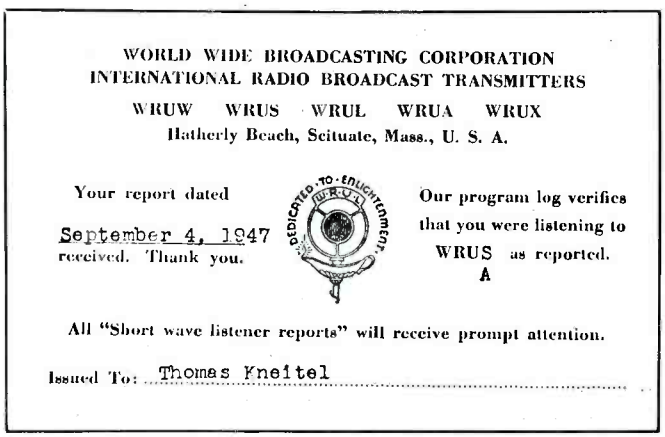


WORLD WIDE BROADCASTING CORPORATION
INTERNATIONAL RADIO BROADCAST TRANSMITTERS
WRUW WRUS WRUL WRUA WRUX
Hatherly Beach, Scituate, Mass., U. S. A.

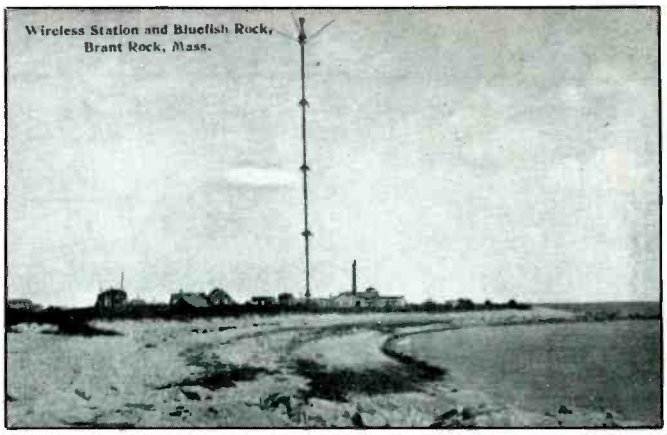
Your report dated September 4, 1947 received. Thank you.

Our program log verifies that you were listening to WRUS as reported.
A

All "Short wave listener reports" will receive prompt attention.

Issued To: Thomas Kneitel

Shortwave broadcaster WRUL evolved from W1XAL. This QSL is from 1947, long before WRUL became history. (Courtesy Tom Kneitel, NY.)



Fessenden's tubular transmitting tower at Brant Rock, Mass. was razed about 1912 or 1913.

Rockefeller family, and presented educational features, college courses from the Harvard campus and also the station's studios. Classical music programs were also presented. Other special programs were broadcast as well, as indicated by the second card sent to us by Tom, which tells about W1XAL's relay of a 30-minute program from medium-wave station WEEI.

World Wide Broadcasting Corp. evolved W1XAL into shortwave broadcaster WRUL, with transmitters at Scituate Mass. This station later got a new owner and became WNYW, then eventually was sold again and turned into modern-day WCSN.

Let's Not Forget Fessenden

What with assorted stations insisting that they were the first to make a broadcast, we sometimes get to think that maybe they ought to remember that Reginald Fessenden seems to have done it ahead of everybody.

It was on Christmas Eve, in 1906 that he sent out the sounds of *Silent Night* on the airwaves, thereby astonishing wireless operators aboard United Fruit Company ships a thousand miles distant. At the time, it made world headlines. He sent out a similar broadcast a week later, on New Years Eve.

Reginald Aubrey Fessenden's 1906 broadcasts not only contained seasonal music, but also operatic arias, and his own voice. They were sent out from Brant Rock, Mass., and directed at wireless operators of the banana fleet. Until then, all they had ever heard were raspy code signals from spark gap transmitters.

Despite this amazing 1906 broadcast by Fessenden, the Canadian radio pioneer seems to have gotten lost in the shuffle of other names and personalities the public now thinks of in connection with early broadcasting, which formally began on a commercial basis in 1921.

Fessenden's first broadcast was in December of 1900, and took place at Cobb Island, Md. Using an antenna consisting of a mile of wire strung 45 ft. above the ground, he transmitted his voice. This was a year before Gugliemo Marconi transmitted a single code letter across the Atlantic.

Marconi was colorful and outgoing, and knew how to promote himself and his work to the public. Fessenden was no less colorful, but not in a way that would ensure him Marconi's commercial success, fame, or place in history. He was a temperamental eccentric, who wore flowing capes and who loved cats. He was so brilliant that in grade school, he taught himself Hebrew, Arabic, and Sanskrit.

His career ranged from working as a chemist for Thomas Edison to designing electric generators for George Westinghouse, from developing insulation for electric wires to inventing machine-gun tracer bullets.

Of all the things Fessenden was, one thing he wasn't was a businessman. His violent temper scared away most potential backers for his inventions. Those who didn't get scared off either failed in backing Fessenden, or were later sued by him.

He had many of his own patents, but had to constantly fight to protect them from being infringed upon by others. In 1928, after years in court, he agreed to a $25-million settlement from the Radio Trust of America, representing major equipment manufacturers.

Fessenden died in 1932, at age 66, in Bermuda. In 1987, Canada honored him with a postage stamp. Other than that, he has received scant public attention or recognition.

Engraved in Egyptian hieroglyphics on Fessenden's tombstone is: "I am yesterday and I know tomorrow."

Thanks to Rene A. Matthijssen, Edmonton, Alberta, for suggesting this one-of-a-kind pioneer and his 1906 broadcasts as a topic to cover here.

We are out of here until August. We appreciate questions, suggestions, comments, old QSL's (originals or photocopies), old radio photos and postcards, station directories, and all other items sent for our use here. ■

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BY R.L. SLATTERY

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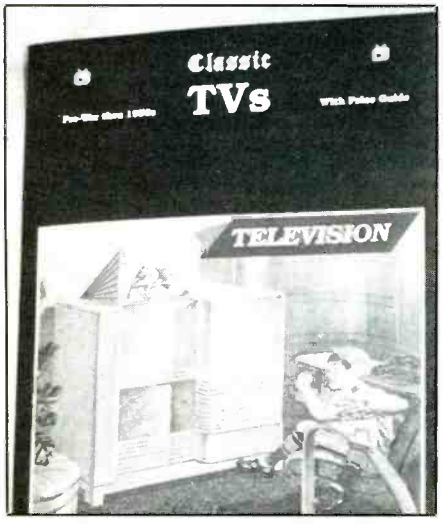


tackles the job in a frequency-filled 100-page book that provides an enormous amount of information.

Tony covers a wide range of things to monitor, including signals from communications satellites, weather satellites, navigation satellites, the Space Shuttle program, space probes and telescopes, and other miscellaneous pieces of cosmic hardware, plus the terrestrial equipment used for keeping in touch.

More than just a straight frequency listing, the book explains the radio systems in use for each of the various types of satellites and probes that you can hear. Past and future launch dates, orbits, and other useful information is provided. There's a lot of excellent information on how to monitor NASA, such as the types of receivers and antennas that produce the best results.

At the back of the book, there's a huge 15-page frequency-sort of all known NASA frequencies between 2 MHz and 400 GHz. This includes uplinks and downlinks, and gives information on locations, transmission modes, etc. Ham radio relays of Space Shuttle comms are included in this data.

A concise compilation of communications data that will provide lots of the latest useful information for all HF monitors, scanner owners, and experimenters.

Monitoring NASA Communications, is $14.95, plus $3.50 for UPS shipping to addresses in USA (sent by 1st Class mail to AK, HI, PR, VI, GU, military addresses, and Canada). Order it from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. Residents of NY State, please add $1.48 sales tax.

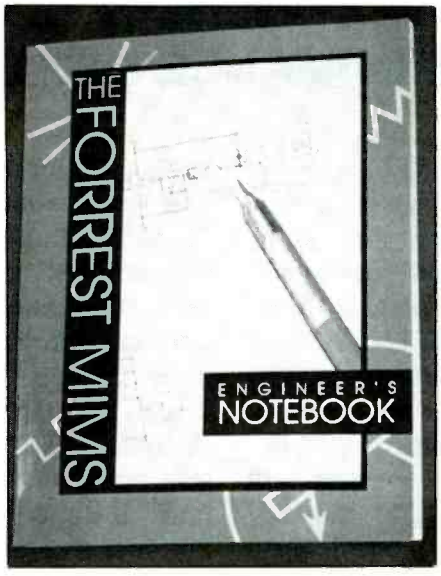
Engineer's Notebook

Those among our readers with an interest in the technical aspect of electronics equipment should recognize Forrest Mims' name. He's written countless magazine articles and many books dealing with circuits.

Forrest's newest book is entitled *Forrest Mims Engineer's Notebook*. Earlier versions of the *Engineer's Notebook* were written by Forrest for Radio Shack, becoming best sellers. This latest, completely revised and updated edition, is from HighText.

Essentially, it's a workbook of IC applications, with schematics. There is additional information relating to tips, parts substitutions, and (often) Forrest's personal observations regarding how the devices performed when he worked with them.

The circuit designs provided in this 155-page book are numerous and diverse. The range from simple digital logic networks and amps to rhythm pattern generators, tone decoders, temperature sensors, digital to analog converters, counters, and many other useful ideas. IC pin numbers are included, supply voltages are indicated, values of other components are given. A listing of parts sources

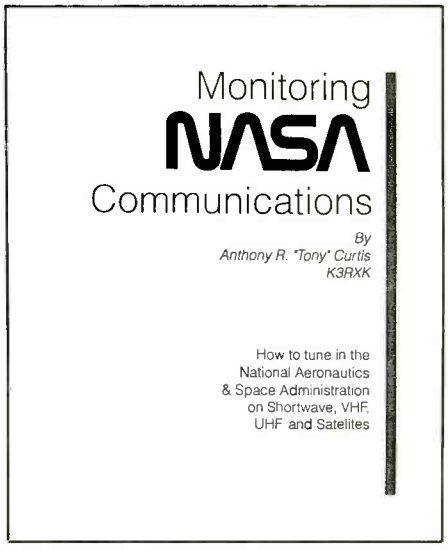


is included in the front of the book. At the back of the book, there's a complete index.

Here's a real hands-on book for the tinkerer, filled with all sorts of interesting and useful circuits. The book is $14.95. It comes from HighText Publications Inc., 7128 Miramar Rd., Suite 15, San Diego, CA 92121.

Hooray For The Hallicrafters Model 509

TV sets are part of our throw-away society. As you drive down the street, it's not uncommon to see gutted old sets put out with the garbage cans. The thing is that in years to come, those old TV sets will interest collectors. That is, those few that manage to survive.



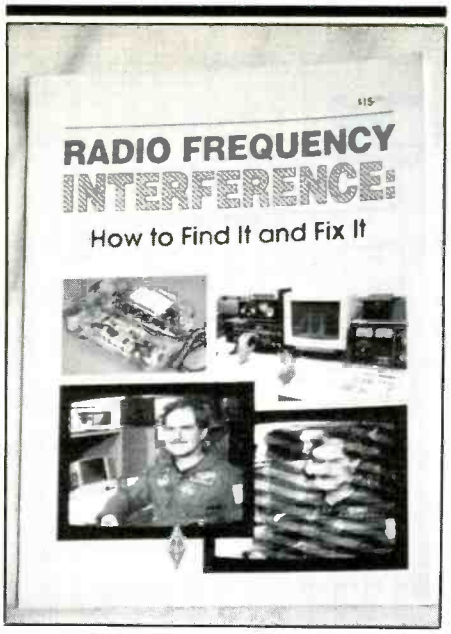
Right now, TV sets from the late 1940's and the 1950's are being sought by people who collect, buy, and sell this equipment. If you have an Andrea Model 1-F-5, or a GE Model HM-225 gathering dust in the garage, they're worth $3,500 or more. Other sets are worth just as much. Most TV sets from those years are still worth well over $100, even if they aren't super-rare. Of course, they aren't expected to be in showroom mint condition, but they sure won't bring top dollar if they've been left sitting out in the rain for the last 35 years.

A fine reference source for those interested in learning more about such things is *Classic TV's*, by Scott Wood. This slick 83-page book covers TV sets made from pre WWII days through the 1950's. It is loaded with beautiful color photos of classic TV sets, each identified by make, model, and year of manufacture, also giving its present collector average-condition value. The front of the book reproduces numerous early print ads for TV receivers, and also provides the names and addresses of several collectors who buy, sell, trade, and repair antique TV sets.

Classic TV's is available at $16.95, plus $2 for shipping and handling, from L-W Book Sales & Publishing, P.O. Box 69, Gas City, IN 46933. Pay by check, Visa, Master Card, or order it C.O.D.

Hello – Buzz-Buzz – Name is – Buzz Buzz

The only thing worse than hearing that important news flash over the AM radio is *trying* to hear it and not being able to because of *buzzing* noises that make copy impossible. Does your shortwave receiver become too noisy to use when the vacuum cleaner is turned on? Or do patterns and rhythmic dark bars sometimes flash on your TV screen?



Does your automatic garage door opener operate according to the dictates of some mysterious unseen force? Does your scanner stop scanning when you switch on your computer? Does a neighbor's CB or ham transmitter come through on your telephone, answering machine, or VCR? Does your touch-controlled lamp go on or off by itself?

These, as well as many other common annoyances are usually the result of interference from radio frequency (RF) signals. RF interference doesn't always come from radio transmitters, it can also be generated by power lines, motors, electric blankets, computers, vehicles, TV sets, VCR's, telephones, stereos, aquarium pumps, defective light bulbs, fluorescent lights, and many other things. The trick is locating the source of the interference (no easy trick for the uninformed), then taking specific steps to stop the interference from being radiated, or at least from messing up the operation of your stuff.

What you eventually find out is that sometimes interference isn't always a clear cut case of dropping the blame at the feet of only one offender. Something could be at fault by radiating the offending RF, but your equipment could also share the blame by interacting with the incoming signal, or else it has a design or manufacturing defect (or a malfunction) that makes it unable to reject the interference it is now experiencing.

All of these topics are amply explored in, *Radio Interference: How to Find It and Fix It*, a book put out by the ARRL. This large book is fully illustrated with photos, diagrams, charts, tables, and schematics. The text is informative, to the point, and well-rounded, covering the subject in considerable depth. While not highly technical, if you're a person who thinks an ohm is an Englishman's residence, then you're not quite ready to comprehend some of the valuable information presented here.

This useful book could solve your interference problems. It is $15.00, and may be ordered from the American Radio Relay League, Newington, CT 06111. ■

Get ESM Out Of The Closet

Electronic Support Measures: What Do You Know About Them?

BY WILLIAM R. BIGAS

Commanders of surface ships and submarines are overloaded with information that must be assimilated into useful tactics. Passive electronic warfare (EW) sensors (called Electronic Support Measures, or ESM) are often misunderstood as radio room cloak and dagger activities performed by specialists. But ESM is not that mysterious. Modern systems can extend the ship's weapon engangement range without revealing ship's intentions. ESM may be employed for antiship missile targeting against over-the-horizon targets. In fact, a series of tactical doctrine publications, the NWP-64 series, has been developed to provide over-the-horizon targeting (OTH-T), strike warfare tactics, and weapon employment guidance.

Detection ranges as a function of emitter, platform, ESM, and propagation conditions are illustrated for representative tactical situations. Typically, a surface contact can be detected and identified using only ESM at a range of 45-60 nautical miles, often beyond the range of sonar and clearly beyond the range of active radar. Differences between surface-ship and submarine ESM are noted. Wide-open or high-probability-of-intercept ESM designs are described and shown to have both advantages and disadvantages relative to conventional (narrowband) ESM. Problems associated with target classification and data with on- and off-board sensors are discussed in the context of over-the-horizon targeting.

ESM is a passive electronic warfare activity designed to support the ship's missions and operations by spectrum surveillance, receipt and analysis of signals, direction-finding (angle or arrival referenced to ship's heading or true North), signal classification and identification, and in some cases, exploitation of signal information. Physically, an ESM system consists of mast-mounted antennae and usually one to two racks of electronics operated by a dedicated sensor operator or remotely controlled by the ship's combat system. Microwave ESM in the gigahertz frequency range is mostly concerned with radar and radiating weapons, such as surface-to-air missiles and missile seekers. Until recently, ESM was mistakenly called ECM (electronic countermeasures), which today is synonymous with active jamming and chaff.

Table 1
U.S. Navy Shipboard ESM Systems

	RWR	AN/SLQ-32	Upgraded	AN/WLR-(H)
	Type	(Band 2 and 3)	AN/SLQ-32 (Band 1)	AS-899
Sensitivity*	Low	Medium	High	High
Intercept Speed (mainbeam-only signals)	Fast	Fast	Moderate	Slow
DF Accuracy	Fair	Good	Excellent	Good
Receiver Type	Detector (DLVA)	Discriminator (IFM)	Superhet	Superhet
Instantaneous Bandwidth	Full	Full	Limited	Limited
Antenna Type	Spirals (amplitude monopulse	Phased Arrays (multi-beam)	Spirals (phase/amplitude monopulse)	Rotating Dish (high gain)
Instantaneous Field of View	Full	Full	Full	Limited

*Sensitivity is defined as the minimum detectable received signal strength at the ESM antenna, measured relative to a milliwatt and expressed as "dB below a milliwatt" or "dBm." For discussion purposes, low sensitivity is in the range of −40dBm, medium sensitivity in the range of −60 dBm, and high sensitivity in the range of −80 dBm.

Microwave ESM deals primarily with signal externals such as radio frequency and pulse repetition frequency. Submicrowave ESM working in the high frequency, very high frequency, and ultra high frequency range, normally called tactical communications intelligence, intercepts communication—not radar—signals to extract both the intelligible information carried by the signal and the frequency and direction of arrival to track and associate signals. Since a human operator, normally a linguist, is required to copy and exploit non-cooperative communications, tactical communications intelligence is highly specialized, costly and not as widespread in naval use as its microwave equivalent.

This article concentrates on the tactical capabilities and limitations of microwave ESM presented from the viewpoint of command level personnel and users. ESM systems built for the U.S. Navy today are now quite mature in terms of technical state of development and logistics. Nevertheless, what is often confusing to the user is that there are several different technical configurations in use today, with different performance features that influence tactical use. Table 1 lists the primary factors. The upper half of the table shows tactical attributes while the lower half describes the technical factors that determine the tactical attributes.

The ideal ESM system has high sensitivity for long range detection, fast intercept speed for threat reaction, and excellent direction-finding accuracy for reliable tracking and weapon designation. Unfortunately, currently deployed ESM systems excel in only some of these attributes. The user ultimately must select the ESM system with characteristics most suited to his application. Hence, the AN/SLQ-32 Bands 2 and 3 designs are optimized for antiship missile defense, while the Band 1 Upgrade is more closely allied to long-range search and targeting.

Submarine ESM differs from surface ship ESM because only a few physically small antenna types are compatible with submarine operation: omnidirectional bicones, arrays of spirals, and rotating dishes. These antennas differences generally reduce the attainable sensitivity and DF accuracy of submarine ESM but have little effect on intercept speed

Table 2
Tactical Significance of Microwave ESM Capabilities

- Can detect radar signals from hostile and friendly forces at long range.
  - —Normally well beyond the horizon.
  - —Provides "situation awareness."
- Can classify signals and identify specific radar type.
  - —Friend or foe, type of platform.
  - —Radar operating mode provides tip off to tactical intent.
- Direction Finding (angle location) provides a means of:
  - —Targeting weapons and other sensors.
  - —Associating signals with other sensor data (especially radar) for "data fusion."
  - —Tracking emitters.
  - —Geolocating signals over time if either own ship or contact is moving.

Limitations

- Will not work at all if radars are not operating (e.g. emission control).
- Unable to measure range directly.
  - —But does measure signal strength for "ball park" estimation.

and threat reaction.

The officer in command wants to know with confidence:

•What and where are the threats within his sphere of influence—(100-250 nautical-mile radius and growing.)

•What are the threats' intentions at this time—status and current mode of operation.

These operational desires translate into near-real-time surveillance accurate direction-finding, and long-range detection which in turn require a wide-open, high-probability-of-intercept design having both high sensitivity and angular accuracy. Costly multi-channel systems, such as frequency-channelized phased arrays, can in theory approach the ideal system in performance, but to date these have never been realized in a cost effective manner.

Table 2 summarizes the tactical capabilities and limitations of microwave ESM for surface ships and submarines.

Microwave ESM detection ranges against radar can be easily predicted knowing the technical characteristics of the ESM and radar and assuming free-space propagation conditions. The key to effective ESM utilization, however, is knowing how well it performs on your ship at sea with realistic—non-free-space—propagation conditions.

The U.S. Navy has developed a significant tool for accurately predicting propagation conditions for both radar and ESM equipment. Called IREPS, for Integrated Refractive Effects Prediction System, the Navy system computes propagation losses and radiation patterns using stored data bases and key physical variables such as surface ducting which enhances the detection range to low-altitude targets by trapping the rays in a layer.

Other computer-based propagation models exist that do a good job of predicting realistic non-ducting conditions. These static models cover a vast majority of conditions at sea, though not with the specific accuracy of IREPS. But, since enhanced propagation is an unreliable condition on average, it is best that the user design his tactics around more conservative ranges such as predicted by conventional methods.

Figure 1 shows the detection ranges of the three classes of ESM systems (previously described in Table 1) against three generic warship radars covering the frequency range from ultra high frequency to X-band. These detection ranges are keyed by reliability at sea. Note that a high-sensitivity system is needed for organic over-the-horizon targeting to fully exploit the capabilities of the Harpoon missile.

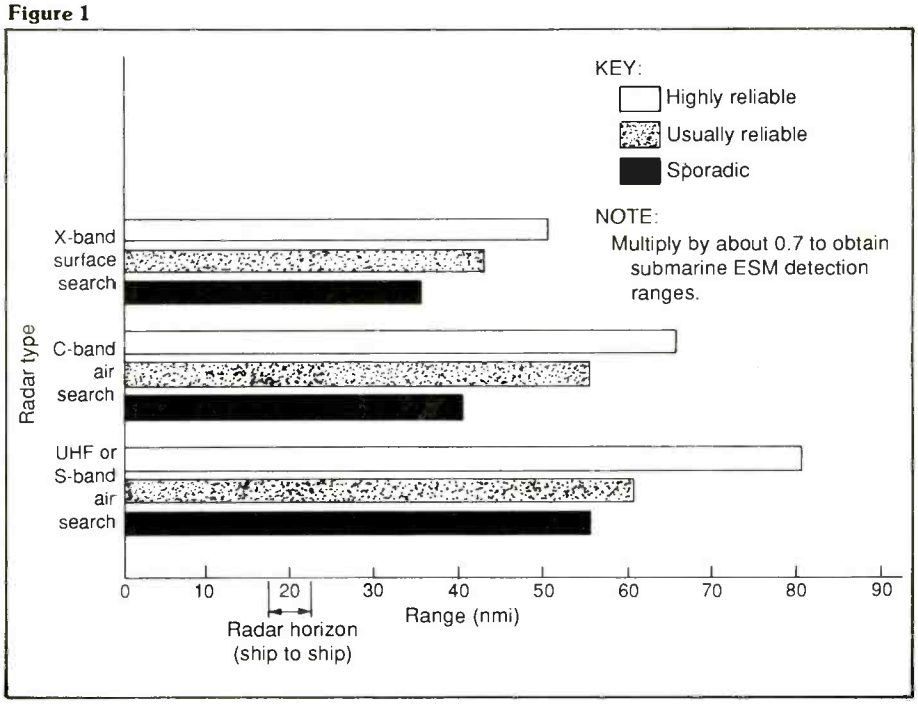
The requirement for direction-finding (DF) accuracy of organic targeting is related to the uncertainty area that the missile seeker must search through to acquire the target. Using simple geometry, a one-nautical-mile certainty would require a 1° DF accuracy at 50 nautical-miles; a 5-nautical miles uncertainty would require a 6° accuracy, and so on. Obviously, the better the DF accuracy, the more selectively the missile can be targeted.

Reconnaissance from offboard sources plays a critical role in over-the-horizon targeting. Availability and timeliness of this data is an issue that must be considered. Resources that can be controlled by the surface task force directly may include helicopters, such as SH-60B Seahawks which are equipped with the AN/ALQ-142. This airborne ESM system feeds a parent AN/SLQ-32 system on the ship. Helicopter-borne ESM can be used for triangulation with ship's own ESM data without revealing launch intentions.

Submarines at periscope depth use ESM for quick, reliable detection of anti-submarine warfare threats, and potentially also for long-range OTH targeting for weapons such as encapsulated Harpoon. Submarine operational requirements sometimes result in a hybrid ESM system technical approach that contains both wide-open, high-probability of intercept receivers and narrowband receivers, fed by small antennae. The current trend for OTH targeting is away from rotating DF antennas such as the AN/BLA-4 to phase interferometers, such as the AN/BLD-1. Interferometers may improve DF accuracy and intercept speed due to wider field of view, but this is at the expense of some detection range and increased cost and complexity.

The submarine antenna at periscope depth is exposed only 2 to 3 feet above sea level. On surface ships, in contrast, ESM antennas are mounted from 30 to 90 feet high. The low antenna height for submarines decreases the ESM detection range by 20-50% (a function of frequency) relative to a surface-ship's ESM system having equivalent sensitivity. This loss of detection range results primarily from cancellation of direct-path signals by reflected rays from the sea surface. Rough seas may

Figure 1



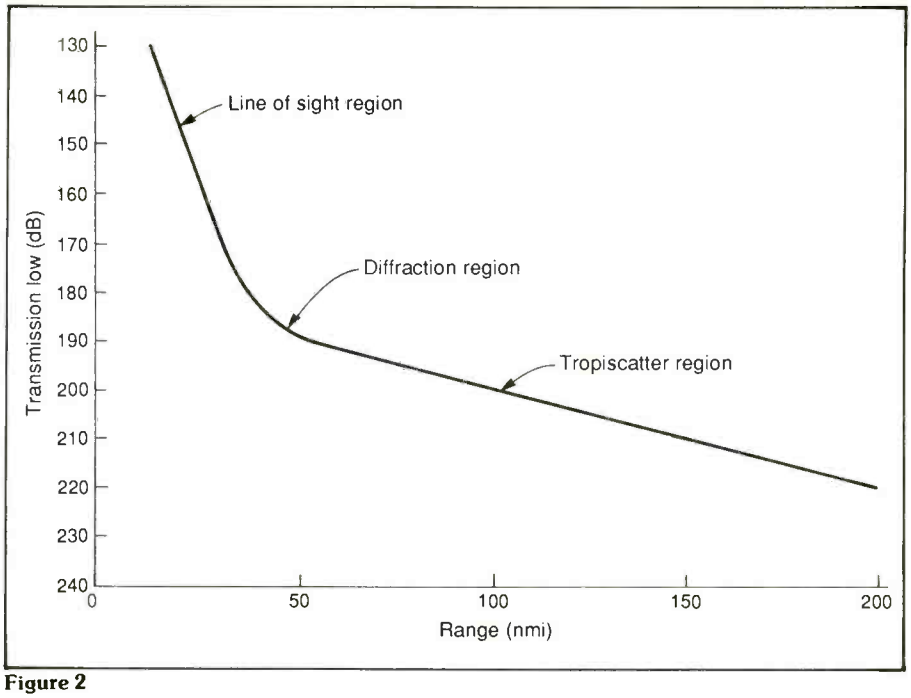


Figure 2

actually improve the ESM detection range from a submarine versus smooth seas due to diffuse, rather than specular, reflection of rays from the sea surface.

The ESM received-signal strength equals the radar's effective radiated power (ERP) minus the propagation loss. The maximum propagation loss attainable therefore equals the ERP minus the ESM sensitivity. Tolerable propagation losses for microwave ESM are in the area of 160 to 180 decibels (dB) (e.g. 100-120 dB emitter ERP and -60 dB ESM sensitivity. If ESM sensitivity is increased by 30 dB or more, however, greatly extended detection ranges can be obtained through forward tropospheric scattering. Tropospheric scattering is a weak but fairly reliable over-the-horizon phenomena in the UHF to S-Band frequency range. This phenomena can extend microwave ESM capabilities out to the range of long-range antiship cruise missiles such as the Tomahawk. Figure 2 shows an example path loss chart for a radar frequency of 850 megahertz in the mid-Pacific Ocean area. Including long-term and short-term fading effects, losses are less than shown 90% of the time for a transmitter height of 60 feet and a receiver height of 30 feet.

If, for example, a microwave ESM system could be deployed with a sensitivity of -95 dBm, an air-search radar could be detected at 200 nautical miles or more. Is this feasible? For surface-ship ESM, the answer is "yes" and for submarines, "maybe." What is required is a DF antenna having at least some gain at low frequencies, and specialized (very narrowband) digital signal processing designed to intercept the spectral lines of coherent radar signals. Experimental work being performed currently on this subject tends to verify these theoretical predictions.

An ESM system is tactically only as good as the quality of its library data. But generating and maintaining accurate library data is not an insignificant problem. For example, modern radars may have ten or twenty modes of operation, each of which must be accurately characterized as a library entry. Libraries of 2,000 and even up to 10,000 modes—are now being used in tacticals systems.

Unfortunately, with the proliferation of new radars and the continued use of older radars all over the world, more and more overlaps in parameters are occurring, resulting in ambiguities in identifying signals. Methods developed to handle this problem include confidence ranking of potential identities using statistical measures or *a priori* knowledge, single or multiple emitter-to-platform correlation tecniques, and/or fusion of multiple types of sensor information. Data fusion, as this latter procedure is called, generally relies on correlating multiple sensor information together using kinematic data (e.g., target bearing or location) and attributes (e.g. radar types) to arrive at an identification and to facilitate tracking and prediction. Once again, the need for high DF accuracy in the ESM system is stressed.

On- and off-board data may arrive at different times from different sources with varying quality. Robust computer algorithms, including artificial intelligence approaches, are continuously being conceptualized and tested to deal with fusion problems. Multiple-sensor, multiple-target tracking is a complex subject and implementation depends on the approach towards centralization—observation processing; or distribution—sensor level tracking of processing. The evidential reasoning method, that is a generalization of classical Bayesian theory, seems particularly suited for fusion of ESM and radar data.

The Navy mission display system is a computerized planning system for targeting the Tomahawk cruise missile. Installed on battleships, aircraft carriers, and at shore-based fleet headquarters, intelligence information is automatically updated via a secure communication system, operating in a network configuration.

Three major operational roles for ESM have clearly emerged:

- Defensive quick-reaction threat warning.
- Long-range situation awareness.
- Offensive weapons initialization/targeting at over-the-horizon ranges.

The importance of ESM as a long-range target acquisition, classification and tracking sensor for over-the-horizon operations is increasing as confidence in its capabilities is obtained by command users. Realistic tactical training is key to the smooth application of ESM resources. Rules of engagement may even be modified as higher levels of ESM proficiency are obtained.

Microwave ESM is fairly straightforward. The capabilities and limitations are well known to experienced users. Nonetheless, the ideal microwave ESM system has yet to be fielded, and complexities in the evolving signal environment are forever stressing the capabilities of these systems. We should not let our diligence in EW and ESM decline, even in these times of tight budgets. As the old adage goes: "He who plays the EW game last, will win." ■

Scan Delay For The R-7000

It Is A Simple Addition To This Worthwhile Receiver

BY RONALD M. VACELUKE, W9SEK

The ICOM R-7000 is a worthwhile upgrade to a good receiver for monitoring wide band of VHF and UHF frequencies. Besides manual tuning, it has provisions for several modes of scanning and it is in this type of service that it has a design omission. That flaw shows up when the "Scan Delay" switch is in the "Off" position. When in this position, the receiver will stop scanning when a signal is received and will stay on that frequency until the signal disappears. It is at this moment that the design omission shows up because the instant that the signal goes, the receiver starts to scan again without the pause all other "normal" scanners have. This can be very disconcerting when you are listening to one side of a discourse and the receiver starts scanning again when the transmitting station stops for a reply from the other party. Even worse is listening to a mobile station that might have flutter and have the receiver start scanning again in the middle of a transmission because the signal faded out for the briefest of moments. The only way to overcome this was to turn the scan function off when a desired signal was encountered and re-set the scan function when ready to listen to something else. Having gotten tired of this hands on method of scanning, I decided to do something about it.

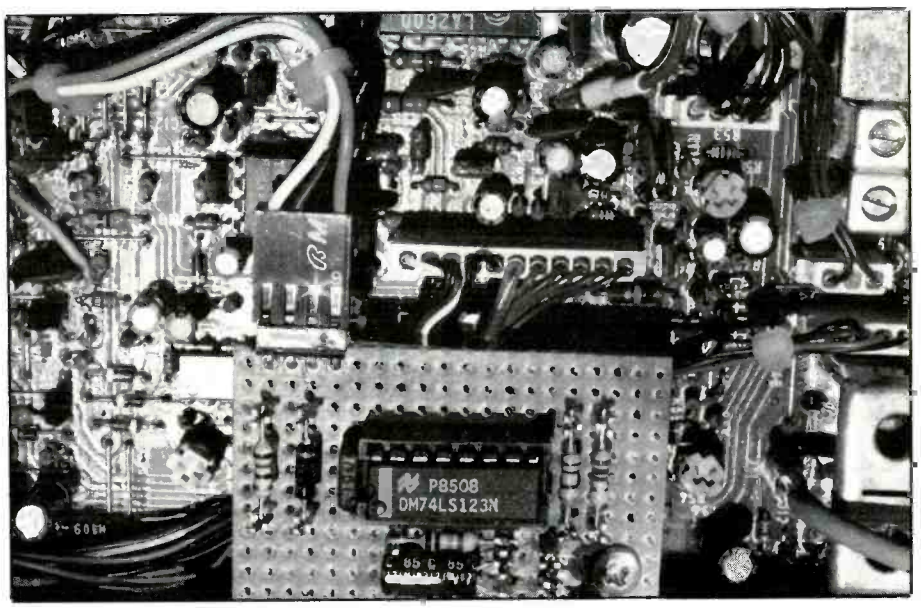


Photo 1 - The added circuit board installed in R-7000.

Circuit Description

A study of the schematic shows that a "stop" scanning signal is generated on the "Main Unit" circuit board by transistor Q11 and Q10. This "stop" signal goes to the "Logic Unit" circuit board to instruct it to stop scanning when this signal is approximately 2.5 volts or greater. When this voltage drops down to a lower level (around 0.0 V in this case) the logic circuitry begins the scanning process again.

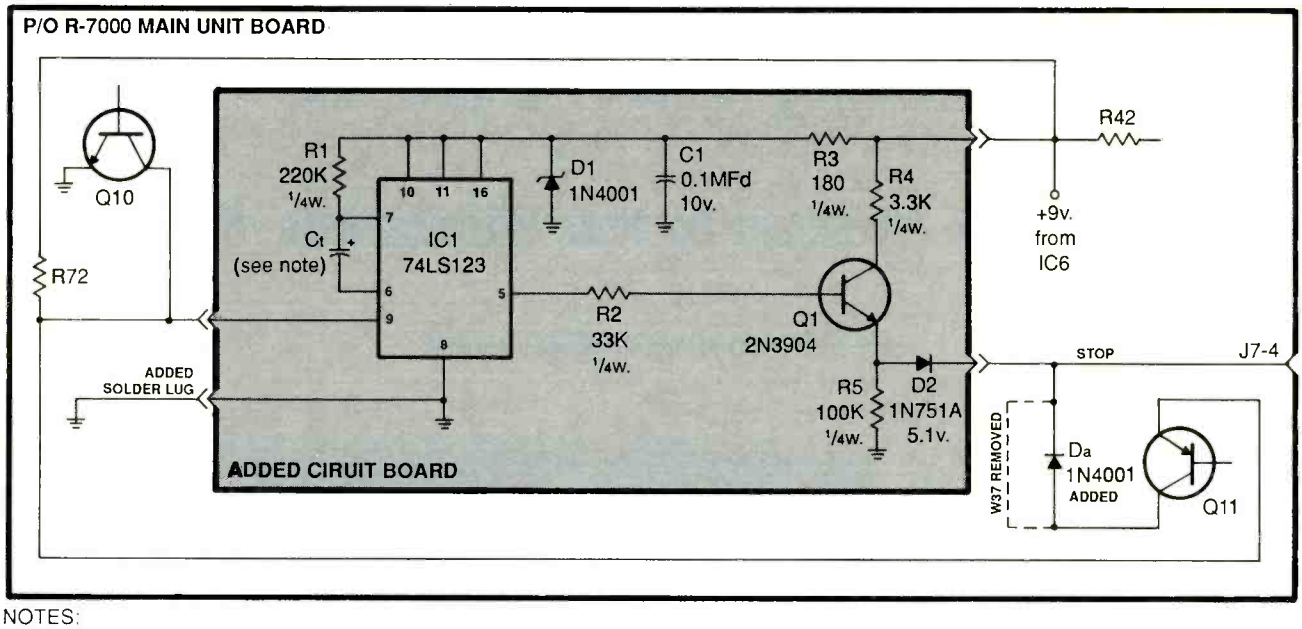
What is needed is an artificial or added stop signal that will replace the signal generated by Q11. This added stop signal must remain for a predetermined length of time after the original stop signal drops off. This delayed stop signal must have the same duration no matter how long or how short the transmission is that we have been listening to. The device chosen to perform the task is a 74LS123 dual re-triggerable mono-stable multivibrator (only ½ is used in our circuit). A 2N3904 transistor was added as a buffer amplifier. The trigger pulse for the LS123 is generated by Q10. The new delayed stop signal is combined with the stop signal of Q11 through an OR gate made up of two diodes. One of these diodes, Da, is mounted on the Main Unit circuit board and the other is on the new circuit board which holds the remaining circuitry.

Construction

I built my new circuit board on a piece of 2″ × $1\frac{11}{32}$″ perforated Vector board. A 16 pin wire wrap socket is used for the LS123 and wire wrap terminals are used for the other components. I chose to use a four pin connector on the board so that easy connect or disconnect was possible when needed; however, connectors are not mandatory. If a connector of the type shown here is used, I strongly recommend that eyelets be swaged into the board for the connector pins to go through and be soldered to. This is the only practical way that this device can be firmly anchored. A hole must also be drilled into a corner of the board so that it can be mounted to the receiver using a M3-20 screw and a ½″ long spacer.

Wiring can be done using wire wrap or other point to point methods. When this board is mounted above the main circuit board in final assembly, there is not an abundance of clearance in some places. For this reason, when wire wrapping, use only a couple of turns around each post and then solder the wrap. The posts must then be cut as short as possible. There is nothing critical about wiring this circuit, just be sure that you are accurate and shorts are averted. Although this is a simple circuit, as circuits go, to some less technically inclined persons it may seem a formidable task. To these persons I recommend finding a technician to help you out. Your local radio club might suggest someone capable of assistance.

The time delay is determined by Ct. The time delays shown for the values given are those I obtained with the capacitors I had available. Because of component tolerances, you may get slightly different time delays but should not deviate much from those shown. I personally chose the 3 second delay for my receiver.



NOTES:

1. Ct = 22 MFd ≅ 2.5 sec delay
   33 MFd ≅ 3.0 sec delay
   47 MFd ≅ 4.0 sec delay

2. 1 ea. = GC Electronics # 41-084, 4 pos. header (male)
   GC Electronics # 41-124, 4 pos. connector (female)
   Vector board 2" x 1 11/32"
   M3-20 screw
   1/2" spacer drilled to clear M3 screw
   Solder lug
   Vector T49/Klipwrap terminals

Installation

After disconnecting the power and all other connections to the receiver, remove all the retaining screws (qty 18) which hold the top and bottom covers of the receiver. Next remove the top cover slowly and unplug the speaker lead from the top board and then remove the bottom cover. Place the receiver so that you may conveniently and comfortably work on the Main Unit circuit board. This is the board on the left side of the receiver. Unplug all connectors from the board (note that some leads are permanently soldered—do not remove these!) as well as the six mounting screws. Note: All parts are clearly marked on the circuit board. In regard to parts location on the Main Unit board, the top of the board is the same as the top of the receiver, the right side of the board is toward the front of the receiver, etc.

Locate a jumper wire designated W37. It is located near the right middle end of the board, just to the left of trimmer potentiometer R124. Unsolder and discard. Now install and solder Da. This diode is mounted vertically with its anode (un-banded) end in the hole closest to the top of the board. The cathode (banded) lead will be bent over and go to the bottom hole. The board may now be re-installed on the chassis using 5 screws. Do not replace the upper middle screw. Install a solder lug under the mounting screw of voltage regulator IC6 which is on the heat-sink, bottom, near right side of the board.

The four leads that will connect the delay board will wired next. If a connector is used, wire it in first. In any event connect the wires as follows: (See photo 2) Ground lead to the previously installed solder log; plus 9 volts to resistor R42 which is above and to the right of IC6. The connection is made to R42's left lead (the one closest to IC6). (See

(Continued on page 74)

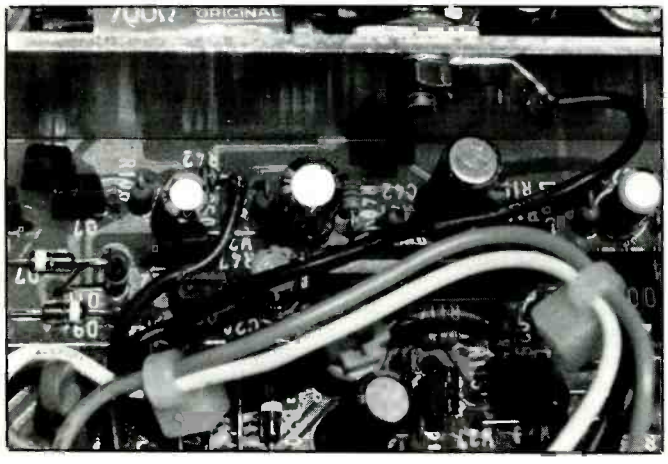


Photo 2 - Showing power lead connected to R42 and ground lead on newly installed solder lug.

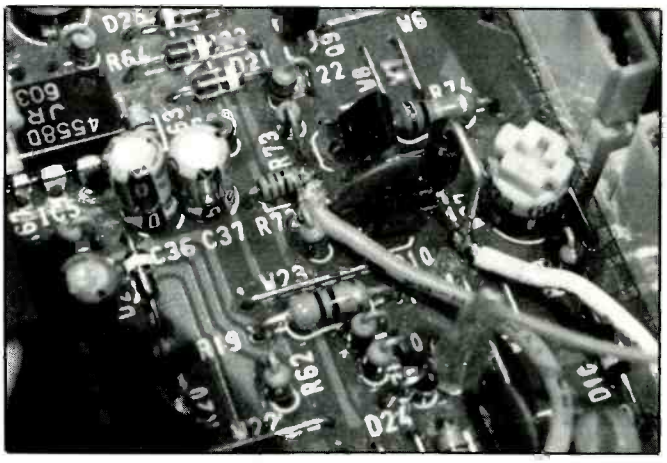


Photo 3 - Showing input lead on R72 and output lead on added diode Da.

HOW I GOT STARTED

We invite our readers to submit, in about 150 words, how they got started in the communications hobby. Please send them typewritten or otherwise easily readable. If you have a photo of yourself, please include it with your story. We can't return or acknowledge material, whether or not it is used. Your story need be submitted only once, we'll keep it on file to consider it for future issues. All submissions become the property of *Popular Communications*.

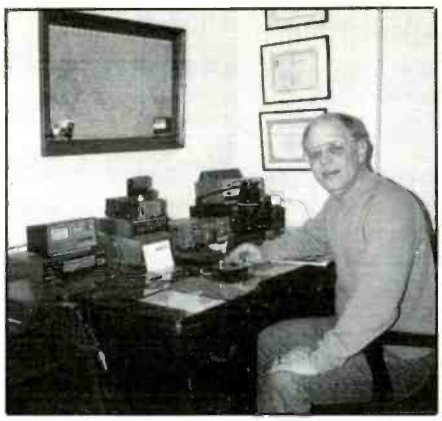
Entries will be considered on the basis of their story being especially interesting, unusual, or even amusing. We reserve the right to make any editorial changes we deem necessary to improve style or grammar.

Each month, we will select one winner. The author will receive a 1-year gift subscription (or subscription extension if already a subscriber) to *Popular Communications*.

Address all entries to How I Got Started, Popular Communications, 76 North Broadway, Hicksville, NY 11801.

Our Winner For July

This month, our winner is Billy B. Johnson, WB5RYB, Crossett, Ark. He told us:



Here's Billy B. Johnson, WB5RYB, of Crossett, Arkansas.

"When I was 8, my father gave me a Zenith table model radio. Although I used it for listening to *The Shadow*, *Gang Busters*, and other programs, it also got me interested in roaming the dial for distant stations.

"In high school, I built a crystal set, then a few simple shortwave receivers. When I was in college, I had a Hallicrafters S-85 which opened the way for real shortwave listening and the thrill of hearing exotic DX. That's when I decided that ham radio might be fun, and I might study for the Novice license.

"The unexpected hitch in that plan came when I met Ruth Anne, a distraction from which I have never fully recovered. We have been married for 26 years.

"When CB became popular in the 1970's, my interest in radio was rekindled. In 1976, I finally went out and got my 2-year non-renewable Novice ham ticket (WN5RYB), and I built a Heathkit HW-16 transceiver. I had so much fun operating that I almost forgot about upgrading before my license expired.

"Presently, I hold an Amateur Extra Class license (WB5RYB). I like to chase DX on 40 and 15 meters, 'phone and CW. I still enjoy SWL'ing, and have also begun listening for mediumwave DX. Radio of all kinds has provided many hours of enjoyment for the past 40 years." ■

SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

Summertime is scanning time. Most of those who own handheld scanners like to take them along on vacation: to fairs, amusement parks, etc. Whenever there's a crowd, there's bound to be two-way radios in use. Those with scanners at arm's reach will know everything that's going on.

If you're planning on visiting a state or federal park, you may want to check regional scanner directories to see what frequencies are used by park rangers and crews. Rangers aren't the only ones to use radios in a park. You may also find maintenance crews, concessions, security units, lifeguards, front-gate personnel and parking lot attendants using radios during summer months.

Amusements and theme parks are also popular scanner hot spots. Check the 151, 154, and 461-465 MHz business band frequencies for frequencies used by security, ride operators, maintenance, hosts, parades, music shows and programs, admissions, and more. You're bound to hear reports of lost children (or is it the parents who get lost?), crime, undercover operations and other various activities associated with crowds of people on hot summer days.

You'll find business frequencies active at various other summer events, too, such as baseball games (stadium security is a primary user), auto races (hear the drivers talk to their pit crews), Special Olympics (464.500 and 464.550 are favored by these groups), fairs and festivals (support crews and security will use radios a lot) and more.

To find frequencies used at these various events, be sure to check the business band frequencies in the 151.625 to 151.955 MHz range, the 154.515 to 154.625 MHz range and the 460 to 465 MHz range. The frequencies of 151.625, 464.500, 464.550, 469.500 and 469.550 are reserved for itinerant users and you can almost always find folks using these frequencies for everything from surveying to bridge building to football teams and more. No matter where you live in the United States, you are bound to find someone using one of these frequencies at any given time during the year if you keep a constant watch on the channels. In addition, the frequencies of 154.570 and 154.600 MHz are reserved for low-power use (2 watts) and often are used for purposes such as security at stadiums and facilities like museums and more.

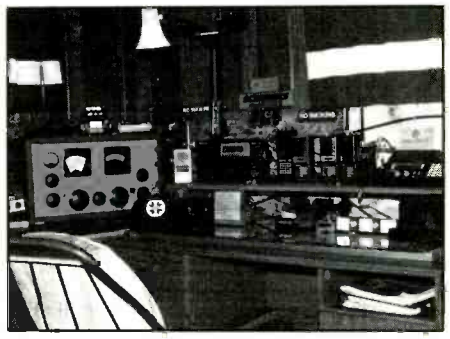
When searching through the 461-465 MHz band, be sure to search in 12.5 kHz steps so you don't miss all the potential activity on the low-power (2-watt) splinter frequencies offset by 12.5 kilohertz from normal full-power channels. The low-power channels can be used for repeaters, phone calls, paging, walkie-talkies, data or telemetry, and any other conceivable use.

R. Vane of Rockville, Maryland, passes along some frequencies of interest for Washington, D.C. area. He says that 460.475 MHz is used by Metropolitan Police in the southeast section of the city, which is a high-crime area; 166.725 is used by national park police on the Washington Mall; the National Institutes of Health in Bethesda, MD., uses 411.450 for police; and bridge police on the Chesapeake Bay Bridge use 453.575.

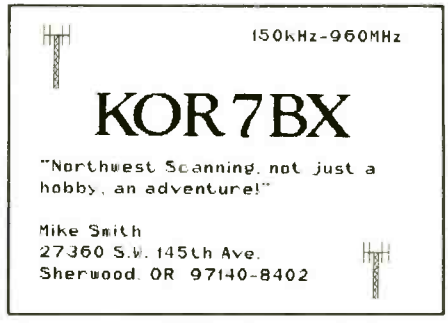
Jean Fillion of St. Blandine, Quebec, wants to know whether it is possible to buy a scanner with an option similar to the Bearcat 250 that would search through a frequency range and log how many hits a signal is heard on a given frequency. The Bearcat 250 was an immensely popular scanner because of its ability to log hits on frequencies. By looking at the number of times a frequency was active during the day while you were at work (the BC250 could log up to 99 hits), you could determine what frequencies were the most active in your area. Thus, you could eliminate dud frequencies from your scanner and only listen to active channels. The feature also proved popular for those searching out active federal government frequencies.

Unfortunately, there are no scanners that still offer this feature. Sometimes you can come across used Bearcat 250's at swap meets and hamfests, but there's always the possibility that because the scanner may be more than a decade old that something may be wrong with the radio. The closest option available would be the search and store option on Radio Shack's Realistic PRO-2006 (and the former PRO-2004 and PRO-2005) scanner. The search and store option on the PRO-2006 searches a given frequency range and will store 10 active frequencies into a special 10-channel memory. By reviewing what frequencies are stored in the 10-channel memory, one could get an idea of some possible active channels, however, you don't get an idea of actual activity on the frequency like the "hits" feature on the Bearcat 250.

Another letter from Canada comes from Deborah Mahoney of Ottawa, Ontario. Deborah says she's been a CB'er for 10 years and has been into scanning for two years. She likes to listen to both police and ham frequencies. Here's a list of some of her favorites: 142.095, Ottawa Provincial Police Channel 1; 142.485, OPP Channel 2; 142.725, OPP Channel 3; 142.635, OPP Channel 4; 142.335, NEPEAN; 149.605, Ottawa Ambulance Co.; 118.800, Ottawa International Airport; 145.410, 146.610, 146.670, 146.700, 146.805, 146.880, 146.940, 147.030, 147.150, 147.300, 443.300 and 443.800, all ham repeaters (the 147.150 and 443.300 repeaters are sponsored by the Mounted Police College); and 155.610, Cumberland Township Fire Department.



Ronald Tull, VY1RT, of Whitehorse, Yukon Territories, Canada, has a variety of equipment in his shack, including a barrage of handheld radios. Scanners include a 400 channel Realistic PRO-2004, and AOR AR3000 (not shown), a PRO-30, two PRO-36s and a PRO-32.



Station card of Mike, Registered Monitor, KOR7BX, of Sherwood, OR.

Rod Souza of Wailuku, Hawaii, says a few of his fellow scanning hobbyists on the island of Maui were wondering what frequencies the space shuttle uses when talking with Houston or Cape Canaveral, especially if they are over Hawaii. While most shuttle transmissions take place on microwave frequencies through satellites out of range of scanners, you can definitely hear the shuttle when it tests its UHF frequencies, usually right after launch and before landing again in California. Frequencies used by the shuttles include 296.8 MHz primary and 259.7 MHz secondary. While listening to these frequencies (which cannot be tuned in on all scanners), set the radio to the AM mode. In addition, 279.0 (again, AM

mode) has been used by astronauts to communicate among themselves while working outside the spacecraft.

The first trick to hearing the shuttle is patience, as an expert space communications listener constantly tells me. Tune your receiver to listen to only the shuttle's frequencies (if you're listening to police and fire calls at the same time, you're bound to miss the shuttle). If you can't maintain 24-hour watch on the frequencies, set up a tape recorder to catch the transmissions. Also, remember that the 200-MHz stuff is tested right after launch and right before landing. If the shuttle experiences some satellite communications troubles, they'll revert to the 200 MHz frequencies temporarily. That's when you might catch them on the air.

It also should be noted that during Defense Department flights, the shuttle may not use the 200 MHz frequencies at all because of the secure nature of the flight. In fact, the actual launch time is even considered classified information. However, during scientific flights, you will hear the crew loud and clear, if you are within range.

If you are a computer user, you may want to check out some of the satellite tracking programs available for downloading on some bulletin boards or available through advertisements in ham publications. By plugging in the Keplerian elements available through ham-related and NASA-related bulletin boards, you can let the computer track the shuttle's flight for you automatically. The program will tell you where the shuttle is at any given time and will offer other information helpful in trying to catch communications while in flight.

Wayne S. Burbage of San Diego, CA says he's been searching for frequencies used by the San Diego MTDB light rail vehicles for some time, and says his perserverance has paid off. The line, which runs from the Tijuana border of Mexico to El Cajon, uses these frequencies: 160.665, F1, main line-south; 160.380, F2 east line; 160.710, F3, maintenance; 160.905, F4, maintenance; 161.565, F5, maintenance; 160.935, F6, maintenance.

As a personal aside, you never know what you'll hear on the railroad channels in the 160 and 161 MHz ranges. I work right next to a rail yard and workers' walkie-talkies are abuzz with activity all day long, whether it's to right a derailed car on the tracks or to notify a crew that the tracks are blocked. In fact, one day I heard an engineer operating along a main line request police be notified because he saw a body alongside the tracks. It later turned out that the woman was murdered and left in a wooded area along the tracks. Like I said, you never know what you'll hear.

What are hearing on your scanner? We invite you to send in your questions, comments, frequency lists, tips and photos of listening posts and antenna farms to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 North Broadway, Hicksville, NY 11801. ■

SATELLITE VIEW

BY DONALD E. DICKERSON, N9CUE

INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

Skyhooks

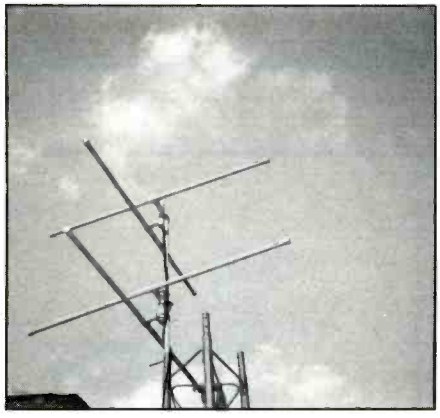
In any communication station, the antenna system is perhaps the most important system of all. You may own a Sangean ATS-800 or a Sony CRF-V21, a Cobra 901 or an AR-3000, a Kenwood 1,000 or a NDR-535 and yet in large part your antenna and feedline will determine what and how well you hear the target station. This is especially true when dealing with satellite signals (as you TVRO people know all too well) or any VHF/UHF signal for that matter. Let's take a look at antennas for satellite operation and feedlines while we are at it.

The 10 meter satellite band is the easiest to deal with. It does not require much in the way of special attention. 10 meters is the home of the Soviet RS series satellites. Here you can use a dipole, an 11 Meter CB Beam, a vertical, a discone or a lowband scanner groundplane with good results. The discone happens to be my favorite because of its wide frequency coverage and ease of installation and its small size. Its horizontal elements are great for intercepting signals from overhead.

Most Amateur Satellites are spin stabilized. They rotate with a left hand spin or a right hand spin. This spin stabilizes the satellite's orbit and provides cooling for the satellite. Cooling is necessary because any object subjected to sunlight in the the vacuum of space is exposed to extreme heat, in the neighborhood of several hundred degrees. Spinning is the most economical way to cool a space craft.

This motion also produces what is called *spin modulation*. This can be identified by the slow deep fades or rapid flutter of the signal from the satellite. This is due to the constant polarity changes of the downlink signal. Most spacecraft in Amateur service use dipole or whip antennas. The faster the spin on the spacecraft, the faster and more troubling the effect on the signal.

There are other reasons for signals from space to fade, but the only effect we can improve is the change in polarization. Twist or circularly polarized antennas and good coax cable help. Remember, satellite communications, like most VHF/UHF DX'ing, involve weak signals and it takes quality receivers to recover them. It is not like listening to BBC World Service or HCJB or even a 1,000 watt utility station. Some people will only work with strong signals so they buy pre-amps, the best coax and twist antennas. This becomes more desirable the higher the frequency we go. I think most people bring their HF communications expectations to both satellite and 2 meter SSB operation and often go away unhappy because they don't take the time to learn the system.



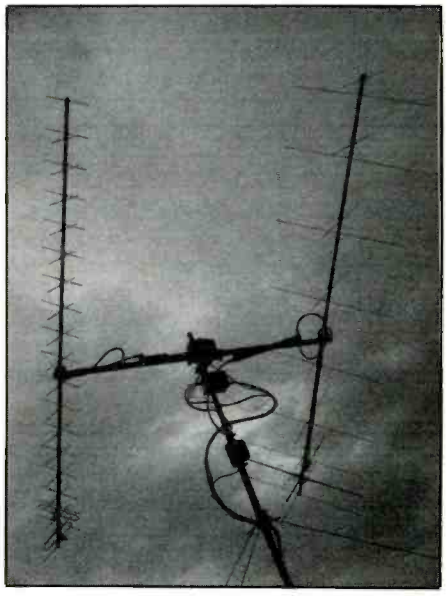
A two element twist for satellite work. Courtesy Ron Burke KB9DJA.

When buying coax a simple rule applies, by the best coax you can afford. Above 150 MHz you want a coax with less then 3 dB loss per 100 foot.

There are currently 4 packet satellites in orbit. Packet is the latest data mode in use on the Amateur bands. As on the 10 meter satellite band, simple antennas work well on receive. Dual band verticals are common, like the Cushcraft AR-270 or the Hustler G6-270, which operate on both 2M and 70 CM which happen to be the bands the Packet satellites use.

If you want a good, inexpensive antenna that you can build yourself, I have a suggestion. Try a single element twist. It is a two meter cross dipole using a 1/4 wavelength phase shift tuning stub. It can be made of ridged wire or aluminum. You can even make it out of small gauge wire (for listening only). Ron Burke, KB9DJA, (see the attached photo) built his inside PVC pipe. The antenna can be put in the attic or mounted outside if you build it from ridged material. Start by cutting a dipole for 145 MHz. It would be 36.3 inches long. Remembering your formula for half wavelength is 468/145 MHz. To figure the 1/4 wave phasing stub use 234/145. The two dipoles are phased 90° apart.

When using the antennas for transmitting, you may find you need to do some trimming in the elements' lengths. Try to cut it for the specific frequencies you plan on using. With some experimentation you could make a dual band antenna of this configuration by adding elements for 435 MHz and a 1/4 wave phase loop. You simply attach the other elements



An example of a 145 and 435 MHz (RHCP) twist antenna. Courtesy Jean Marc Gigot F6IAL.

What kind of antenna is buried in this photo? First correct answer gets something for their wall from NASA.

First person with the closest count and correct ID of antennas will win a NASA photo. Take a guess!

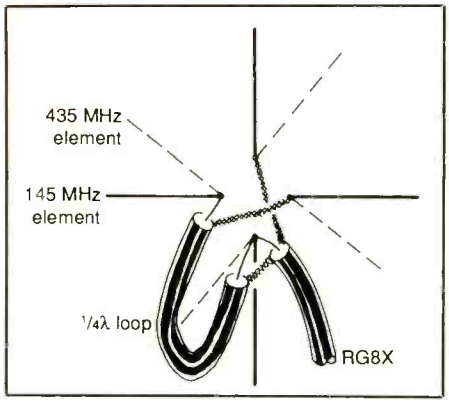


Figure 1 - Omni-twist satellite antenna.

to the same corresponding points and you'll have an antenna like the one shown in figure 1. With some luck it should work like a curtain or fan dipole. I have not yet added a pair of 435 MHz dipoles to my twist yet but expect to have to do some fine tuning when I do. Either way it will work as a great receive antenna. It has great omni-directional characteristics for overhead satellite operation and works very well on packet satellites. The polarity of the antenna, from RHCP to LHCP, can be changed by altering or reversing the connection points on one of the dipoles. Reverse the ground shield and center the wire connections. Of course, you could always go up to the attic and simply flip the antennas over, HI.

You will find the home-made dual band twist antenna or a discone will work well on the 137 MHz weather satellite band and the Fleetsat military satellites can be heard on either antenna. Because these satellites are over the equator and some 22,000 miles out, some gain would be appropriate here. It can be had by pointing a yagi or twist beam in the direction of the satellites or using a pre-amp. The government and military lease commercial satellites called Gapsats and use transponders on the Marisat. All use a geo-stationary orbit. These satellites use frequencies between 200 & 400 MHz. Most of the unencrypted voice traffic is found near 260-263 MHz.

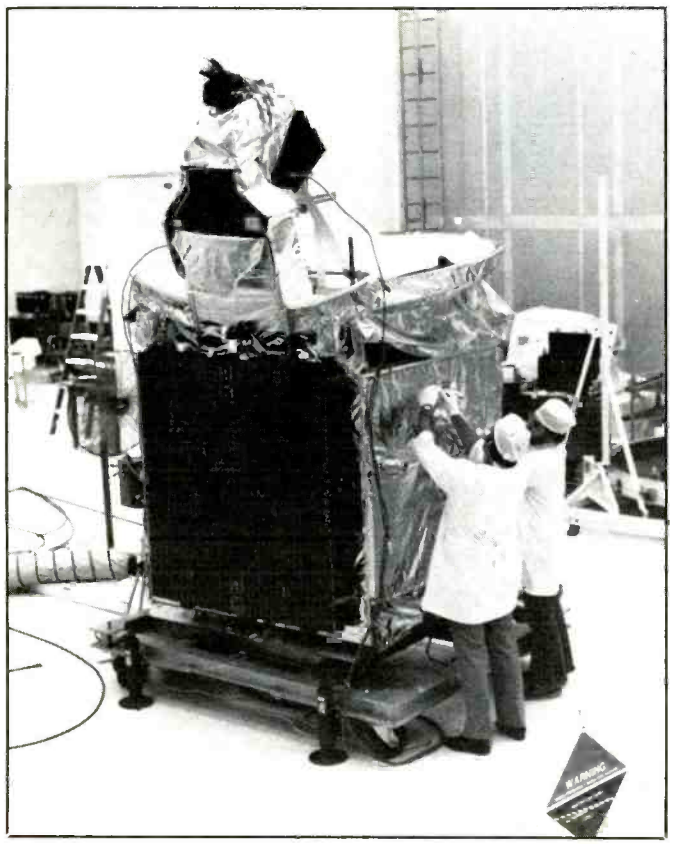
This brings me to a letter I got recently from a Satellite Sleuth in New Orleans. Mark Burkart, KB5GVK, wants to know why the voice activity on Fleetsatcom 7 has just about dried up. Mark says his best luck on 7 has been on 249.125, 250.350, 262.300 and 263.825 MHz. He mentions that one of his favorite groups identified as Raymond 24 on the satellite seems to jump between the Fltsat and Marisat spacecraft. Well, Mark, there are probably several reasons for the decreased activity. 1. Things may simple be relatively quiet on the military front. 2. We are reducing the number of military bases and personnel nationwide and worldwide. 3. As this is done it opens up some of the secure satellite channels and secure landline links. Remember that over 80% of all miliary, diplomatic and intelligence traffic is routed through secure telephone lines or fiber optic lines. Whatever is left will go via satellite (secure) the rest go in the open. I should mention that when it comes to the military satellites Mark is loaded for bear! He uses a Yaesu FRG-9600 a 5 turn (element 262 MHz Helix and a 10dB pre-amp. Keep us posted on your monitoring, Mark.

Now we hear from Michael W. Csontos of Lima, New York. Micheal asks about Goddard Spaceflight Centers Radio Station WA3NAN. He happened onto a shuttle rebroadcast and could not write down all the frequencies in time. I hope you caught the April issue Michael, we gave you a lot more than the WA3NAN freqs: 3.860, 7.185, 14.295, 21.395, 28.650 and 147.450 MHz. Good to hear from you, Michael.

I also heard from the National Oceanic and Atmospheric Administration this week. Ms. Bethany E. Theilman was kind enough to inform us of a address change. In the March issue I gave you an address from which you could get a TIROS-N USER'S Guide. The New Address: National Oceanic and Atmospheric Administration, Data Collection and Direct Broadcast Branch, World Weather Bldg, Room 806, 5200 Auth Road, Camp Springs, MD 20746. Thank you Ms. Theilman, I appreciate the update, as I am sure do our readers.

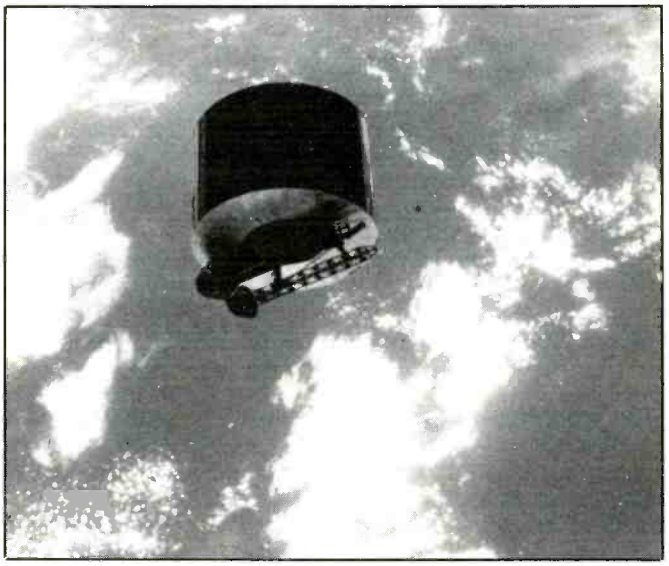
Two final notes. Things are ever changing

(Continued on page 74)



An RCA SatCom being readied for launch. (Photo courtesy NASA)

This is a Lesat, also known as a Syncom by the military. It is a leased satellite to supplement Fleetsatcom. (Photo courtesy NASA)



TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

Cellular service suppliers have taken their share of hits, what with the economic conditions of past months. People have lost their jobs, companies have gone bankrupt, and the result is that lots of cellular bills may never get paid. But there's more.

Efforts to cheat, swindle, and defraud the cellular companies look to be on the upswing. Craig J. Moyer, KB7OIH, of Bountiful, Utah, sent in a clipping from Salt Lake City's *Deseret News*. A story by Jay Evensen and Wil Grey told of a typical example.

It seems that an auto body shop owner fired an employee, putting the former employee's cellular phone in a cabinet until someone else was hired for the job. Even though the phone had stayed in the cabinet, the body shop owner got a bill for $150 worth of numerous calls charged to the phone.

The body shop owner came to learn that he had become a victim of "roamer fraud," so called because it is based on roaming agreements between different cellular service suppliers.

When a cellular phone is used beyond its normal service area ("roams"), it must be accommodated by various service suppliers. At such times, when a call is attempted, the call handling equipment tries to match up the permanent serial number ("ESN") of the calling cellular phone with the unit's assigned identification ("NAM"), or phone number. The call will be put through only if it's a good match.

Cellular hackers use specialized equipment that randomly attempts to match numbers to discover a working pair. When such a match is found, a storefront operation is opened to offer cellulars with pirated chips. A supply of chips is obtained and programmed to do the job. Communications technology calls for the use of chips in just about every circuit of a transceiver, so it's just a matter of finding which ones to pirate. This equipment is usually sold to those who exist on the fringes of society. Drug dealers like to use these services because their calls can't be easily traced back to them, especially since the call is being charged to a subscriber who may be hundreds or even thousands of miles away.

When the body shop owner complained about his bill to US WEST, the cellular service supplier, they checked out all of the called numbers on the bill. They all belonged to family members of the former employee's ex-wife.

The former employee denied any knowledge of the calls, but agreed to pay for them anyway. Nobody thought he really would inasmuch as he was originally fired for stealing from his employer.

The body shop owner has gotten a new number assigned to his cellular. He figures that his former employee is either a cellular hacker, or else has a friend who is one. The former employee already knew the unit's ESN and its NAM, so all he needed was a chip programmed with this information for use in another cellular phone. The body shop owner suggests all cellular owners check their bills carefully for roamer calls that were never made.

Chips are used in virtually every circuit of modern transceivers. Chips programmed with deliberately misleading data have found a vexing and illegal place in the cellular phone realm, thanks to fly-by-night pirates. (Photo courtesy Texas Instruments.)

The New York City Housing Police equipped its Mobile Command Bus with cellular phones, thanks to donation of the equipment by NYNEX Mobile Communications. This allows processing suspected criminals at the scene of the crime. At the dedication of the bus were reps of the New York City Housing Police, New York City Housing Authority, New York City Transit Authority, and NYNEX Mobile Communications.

In another instance, according to what US WEST tells me, five Middle Eastern nationals were arrested in Phoenix by the Secret Service for cellular fraud involving calls placed to Middle East countries.

The arrests resulted after the Secret Service raided two residences and found more than 35 cellular phones, 10,000 chips used for encoding legitimate cellular access numbers, plus other cellular equipment, and logbooks of overseas calls.

Suspicions were originally stirred when lots of international calls started coming from cellular phones in Phoenix. This skewed the known calling pattern for Phoenix and triggered the investigation. Again, cellular telephone and microchip technology was being used to clone the phone and serial numbers of legitimate cellular users.

The equipment here was so sophisticated that it could intercept cellular calls and get an instant decoded read-out of ESN's and NAM's. Apparently, the suspects would drive around town with this device in their car, monitoring for short-range cellular mobile-unit signals on the mobile-only channels. Information obtained in that manner could then be transferred to chips used in the 35 confiscated phones.

This investigation was aided by NewVector, a nationwide task force organized by the cellular phone industry, and the work of the Guidry Group, a Houston-based high-tech investigative firm. Since September of last year, NewVector has been responsible for more than one hundred arrests and confiscation of hundreds of stolen cellulars, or phones with bootleg chips installed.

Cellular Security Matter

With all of the flap over cellular privacy and voice security, who'd have thought that the fight to increase this privacy (which is one of the favorite time wasters of Congress) would cause consternation in other areas of the federal government?

Some new models of cellular phones to be marketed here and abroad will have built-in digital scrambling circuits to thwart casual eavesdropping. But how much privacy protection is *too much* privacy protection? That's what the National Security Agency wants to know. This "Big Brother" agency eavesdrops on phone calls in overseas nations, so they appear to be wondering if the new scrambled cellulars (at least, the ones sold overseas) will still be able to be monitored by their agency. Like, will the NSA be able to get the descrambling codes, or what?

NSA claims their only concern is whether new scrambling methods to be used will be compatible with the scrambled cellular phones that are already in use by some government agencies. You buy that?

This new Sony CM-H1 handheld is a real beauty!

Panasonic's KX-T9000 is a 900 MHz cordless telephone with a built-in digital voice scrambler.

Cellular In The Hole

If you've driven around Boston and used your cellular, you know there are two famous dead spots. These are the Callahan and Sumner Tunnels, which are used between Boston and Logan Airport and the North Shore.

Weep no more. NYNEX installed specially designed devices to allow full cellular operation from the entire length of these mile-long holes in the ground.

NYNEX tells me that this system is designed around a slotted coaxial cable that extends the length of each tunnel. It's a mile-long antenna, but operating in the 800 MHz band. This system design is the first of its kind for cellular use in North America.

The one thing they haven't yet worked out is that only calls you ever get in these tunnels are from trolls.

Dual Digital/Analog Cellular Unit Announced

Nokia Mobile Phones introduced the Nokia 6000, a transferable mobile phone that can operate in the standard analog (AMPS) mode and also the new digital (TDMA) mode. The unit incorporates the CTIA I5-5A Revision B standard to provide voice privacy and authentication. The unit has all of the standard cellular phone features.

The basic configuration of the Nokia 6000, with transceiver, handset, and cradle has an MSRP of $1,199. The transferable kit for car-to-car configurations has a bag adapter, cigarette lighter adapter, a hands-free microphone, carry bag and clip-on antenna. Accessories include a voice recognition unit, data/FAX adapter, and two external hands-free speakers.

It should be available by the time you read this. For more information, contact Nokia Mobile Phones, Inc., 2300 Tall Pines Drive, Largo, FL 34649.

New 900 MHz Cordless Phone

Panasonic has brought out the KX-T9000 cordless phone operating in the 900 MHz band, which the company claims offers "significantly better reception, greater range, and better security." We assume this means in comparison to the 46/49 MHz band cordless phones, although this isn't specifically stated.

The phone will scan through its 30 available channels until it finds the one with the least amount of interference for use. The range is only described as "almost twice that of most cordless phones," so we would guess this to mean around 3,000 ft. to 3,400 ft.

As for security, the "900 MHz frequency bandwidth" is represented as offering "greater security than conventional cordless phones." Probably what this double-talk intends to imply is that there are more potential eavesdroppers on 46 MHz than on 900 MHz. More importantly, the KX-T9000 has a built-in digital security system with up to 1-million possible automatic security codes.

The early data they sent me on the unit was one step beyond being no information at all, however this does look like it's an emerging technology. Panasonic's stuff is good, so this is undoubtedly a worthwhile device. The MSRP is $499.95. Check with dealers who sell Panasonic products. By now they may have more than the skimpy preliminary info that Panasonic provided me.

Sony, So Neat!

Sony brought out its first handheld cellular. Weighing in at 11 oz. (with battery), the CM-H1 has a noise canceling mike, and that makes it ideal for use aboard your boat, or at job sites, or other locations where the background noise level is high.

The battery offers more than an hour and a half of talk-time, or 20 hours of standby operation. Plenty of nifty features in the small unit, too. Some are a 99-number alphanumeric directory, last number redial, access tones for devices using DTMF signaling (such as answering machines, voice mail, etc.), VOX, security locks, call timer, volume control, and more.

A wide range of accessories are available for the hopeless gadgeteer who will not only want this cheeky little unit, but all of the trinkets and extras that you can get with it. We fell in love with this thing at first sight. The MSRP of the basic unit is $999.00. It is being offered by cellular and autosound dealers.

It's put out by Sony Corporation of America, Sony Drive, Park Ridge, NJ 07656.

We always welcome input from readers, manufacturers, and service suppliers—cellular, maritime, IMTS, and beepers. ■

YOU SHOULD KNOW

BY HARRY HELMS, AA6FW

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Uncle Harry Explains It All For You

Yes, I've gotten more letters since my last "mailbag" column, and once again I'm going to answer some of the more interesting (or strange) ones here. Let's get rolling.

Which is better—the XXXXX antenna tuner or the ZZZZZ antenna tuner?

Again, I haven't tried every item of SWL gear available, so I can't comment on items I haven't used. I find it hard to believe there is much difference between one passive (that is, unamplified) antenna tuner and another. Sure, some models are bigger and more expensive than others, but those models are designed to tune transmitting antennas and handle hundreds of watts of power. For SWL'ing, a simple random wire tuner will do fine.

I keep hearing this really strong signal from about 450 to 460 kHz. There's never any modulation, except for a "squeal" at times, and the signal's on whenever I check. What station it this?

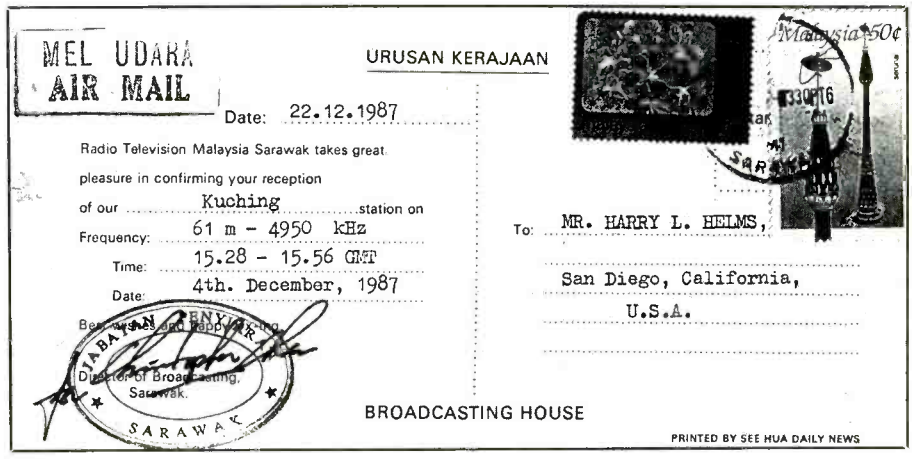
Guess what? It's not a station you're hearing, it's your receiver's 455 kHz intermediate frequency amplifier signal that's "leaking" through. A lot of less expensive receivers have design shortcomings like this. If you're wondering if your receiver is producing a weird signal, disconnect all antennas or fully collapse any telescoping ship antennas. If the signal's still there, it's your receiver that's the culprit.

How can top DX'ers spot weak signals right at the noise level?

Spotting a faint signal or carrier in the AM mode is often difficult. Try this—put your receiver in either the USB or LSB mode when looking for faint signals. The carrier from any faint signal will "beat" against the replacement carrier your receiver produces in the USB or LSB mode and produce a heterodyne (or "whistle"). That heterodyne will be your clue that something interesting is happening on a frequency. When top DX'ers find such a weak carrier, they reach into their bag of tricks (preamplifiers, synchronous detection, exalted carrier reception, etc.) and try to bring the signal up to readability. Even if they can't immediately produce readable audio, they stay put on the frequency for a few minutes in case the signal manages to fade up.

Hey, that's a neat trick! Got any others???

Okay, thunderstorm season is now in full swing and those static crashes can really make night reception on frequencies below 5 MHz a pain. One way to minimize the effects of lightning static is to reduce your receiver's RF gain control somewhat. The exact amount varies depending on the situation, but the lower receiver gain can make a big difference in how badly the static interferes with the signal you want to hear. The desired signal is weaker, but so is the static, and the net result can be more usable signal and less snap, crackle, and boom.



Why won't stations answer my reception reports?

There are a lot of possible reasons. Some of them you can do something about, while others are beyond your control.

A lot of reception reports forget to include essential things like the time, date, and frequency you heard the station. Other reports are really vague on details, often so much so that the station can't be sure if you really heard them. The fact that you can't understand the language used by the station isn't any excuse for skimpy details. Suppose the broadcast is in Spanish, and you don't understand Spanish. You could simply tell the station "Announcement in Spanish by a man" or "30 second long announcement in Spanish by deep-voiced man." Which one do you think is more likely to convince a station that you really heard them?

There are lots of other things you can do to increase the number of QSL's you get, especially from smaller broadcasters not beaming programs to North America. Try giving the time both in UTC/GMT and the local time of the broadcaster. An even bigger help is to write your reception report in the main language used by the country where the station is at. Remember to include return postage either in the form of mint stamps or one U.S. dollar. Finally, your report has to reach the correct address. *Passport to World Band Radio* added a list of shortwave station addresses to its latest addition, and this is probably the most accurate such list around.

Don't forget a little courtesy and good will in your report. You're asking a complete stranger to do a favor for you, and making demands and ultimatums will get you nowhere. Politely ask for a QSL if your report is correct, tell them a bit about yourself and your interest in their country and culture, and throw in a picture postcard or other souvenir from your area.

Unfortunately, you're not going to get a 100% reply rate to your reports even if you do everything right. A certain percentage of your reports will get lost or stolen in the mail (in some parts of the world, letters from developed countries like the USA, Canada, and Britain are assumed to contain money). At many stations they may not have the item or staff to answer your report. The only way to deal with this situations is *persistence*. Some of my very best QSL's have been the result of follow-up reports. If you haven't gotten a reply after six months, try to hear the station again and send them a new report. If you can longer hear them, send a copy of your original report. Mention in your follow-up report that you've sent them a previous report, but that since you haven't heard from them you assume the original one was lost in the main. And keep trying—some top DX'ers have sent over a dozen reports before getting a desired QSL!

The big news is that numbers stations continue to be heard despite the collapse of the USSR! Even German language stations are still around, even though their supposed sources—East Germany and the Soviet Union—aren't. Maybe a lot (most of?) these stations were (are) coming from "our" side??? Check 6840 kHz during the evenings. It's still the hottest frequency around for various numbers stations, and if you check at various times for a few evenings you're bound to hear unusual signals there.

7415 kHz is a popular frequency with pirate radio operators. Recently, that frequency has become sort of an "intercom channel" for

pirate operators to use after or in between broadcasts. While most pirate activity is AM, these "intercom" transmissions are in USB. (I've heard a couple of pirate broadcasters who use AM for their broadcasts show up here afterwards on USB.) These transmissions are mainly gossip and chatter ("is Radio Anarchy planning to be on next weekend?") relating to pirates and pirating. Check here late on Friday and Saturday nights as well as nights on various holidays such as the Fourth of July and the Labor Day weekend.

If you're interested in pirate broadcasters, numbers stations, or covert communications, then you need to belong to the Association of Clandestine Radio Enthusiasts (ACE). ACE is the only club around that is devoted exclusively to the "twilight zone" of radio, and is really the only way to keep up with the fast moving world of pirate radio. They publish a monthly bulletin, the *ACE*, and I write a monthly column on the latest covert station loggings for the *ACE*. Several pirate operators are apparently ACE members (one member of the ACE editorial staff was actually busted by the FCC last October for pirate broadcasting!). The FCC also reads the *ACE*—a couple of FCC personnel have commented to me about things I have written in my *ACE* column! Membership is currently $18 in the U.S. and $19 in Canada; a sample copy of the bulletin is $2 from the Association of Clandestine Radio Enthusiasts, P.O. Box 11201, Shawnee Mission, KS 66207-0201. ■

POP'COMM'S World Band Tuning Tips

July – 1992

Freq.	Station / Country	UTC	Notes
2310	VL8A, Alice Springs, Australia	1000	
2415	Wenzhou PBS, China	1200	CC
3200	Trans World Radio, Switzerland	0300	
3205	R. West Sepik, P. New Guinea	1230	
3200	HCJB, Ecuador	0500	SS
3235	R. Clube Marila, Brazil	0200	PP
3240	Trans World Radio, Swaziland	0345	close
3250	R. Luz y Vida, Honduras	0230	SS
3255	BBC, Lesotho	0300	
3270	Ecos del Oriente, Ecuador	1030	SS
3285	La Voz del Rio Tarqui, Ecuador	1000	SS
3290	R. Centro, Ecuador	0900	SS
3300	R. Cultural, Guatemala	0200	SS
3315	SLBS, Sierra Leone	0600	
3320	R. Orion, South Africa	0245	
3365	R. Rebelde, Cuba	0300	SS
3377	R. Nacional, Angola	0430	PP
3381	Malawi Broadcasting Corp.	0330	
3395	R. Catolica, Ecuador	1030	SS
3905	R. New Ireland, P. New Guinea	1100	SS
3955	BBC	0530	
3995	Deutsche Welle, Germany	0330	GG
4212	R. Tucuban, Ecuador	1100	SS
4473	R. Movima, Bolivia	0000	SS
4605	R. Baghdada, Iraq	0225	sign on, AA
4735	Xinjiang PBS, Tibet, China	1200	CC
4740	Radio Moscow (ex-R. Afghan relay)	0300	
4770	R. Nigeria, Kaduna	0430	sign on
4783	RTV Malienne, Mali	0530	FF
4800	La "N," Dominican Republic	0500	
4810	R. San Martin, Peru	0930	SS
4815	RTV Burkina, Burkina Faso	0600	FF
4815	Rdf. Londrina, Brazil	0130	PP
4850	CRTV, Cameroon	0430	FF/EE
4855	R. Centenario, Bolivia	0000	SS
4865	La Voz del Cinaruco, Colombia	0300	SS
4865	Gansu PBS, China	1130	CC
4870	ORTB, Benin	0457	sign on, FF
4875	Super Radio, Brazil	0235	PP
4885	Ondas del Meta, Colombia	1000	SS
4890	ORTS, Senegal	2345	FF
4895	LV del Rio Arauco, Colombia	0430	SS
4900	R. Centinela del Sur, Ecuador	1100	SS
4904.5	R. National, Chad	0427	sign on, FF
4910	Radio One, Zambia	0300	
4920	R. Tropical, Peru	1000	SS
4939	R. Continental, Venezuela	1000	SS
4950	R. Nacional, Angola	0400	PP
4965	R. Santa Fe, Colombia	0400	SS
4976	Radio Uganda	0400	
4990	Hunan PBS, China	1230	CC
5011	Escuelas R/fonicas, Ecuador	0225	sign off, SS
5015	R. Pioneira, Brazil	0230	PP
5020	SIBC, Solomon Islands	0800	
5025	ORTB, Benin	0600	FF
5030	R. Catolica, Ecuador	0200	SS
5035	R. Aparecida, Brazil	0030	PP
5035	RTVC, Central African Rep.	0428	sign on, FF
5040	R. Ala, Russia	0330	s/on
5040	La Voz del Upano, Ecuador	0445	SS
5066	R. Candip, Zaire	0430	FF
5260	R. Alma Ata, Kazakhstan	2230	RR
5275	WYFR, Florida	1500	via Taiwan
5560	R. Miskut, Nicaragua	0200	SS
5935	R. Prague Int'l, Czechoslovakia	0100	
5935	R. Riga, Latvia	0400	sign on
5950	GBC, Guyana	0900	
5905	R. Kiev, Ukraine	0300	EE
5995	R. Melodia, Peru	1000	SS
6005	CKFX, Canada (relay CICO)	0600	
6006	R. Reloj, Costa Rica	0700	SS
6010	R. Mil, Mexico	0300	SS
6010	R. Mil Cuarenta, Venezuela	0830	SS
6010	R. Mil, Mexico	1200	SS
6015	R. Austria Int'l	0530	via Canada
6020	R. Netherlands	0030	
6040	Deutsche Welle, Germany	0130	via Antigua
6050	Caracol, Colombia	0100	SS
6050	R. Nigeria, Ibadan	2230	
6055	Spanish National Radio, Spain	0430	SS
6060	R. Australia	1500	
6100	INBS, Iceland	0715	Icelandic
6105	Su Pantera, Mexico	1130	SS
6116	La Voz del Llano, Colombia	1000	SS
6120	R. Globo, Brazil	0900	PP
6130	R. Portugal	0700	sign off
6135	R. Santa Cruz, Bolivia	1000	SS
6135	Swiss Radio Int'l	0230	
6140	Australian Bc. Comm.	1100	
6160	CKZU, Canada	1300	
6185	R. Educacion, Mexico	0130	SS
6190	Sender Freis Berlin, Germany	0430	GG
6210	Croatian Radio	0000	Croatian/EE
6245	Vatican Radio	0430	
6299	Sani Radio, Honduras	0400	SS
6515	Tadzhik Radio, Tajikistan	0100	
6576	R. Pyongyang, N. Korea	1100	
6670	R. Santa Monica, Peru	1100	sign on, SS
6900	V of Meterology, Turkey	0530	TT
6910	R. Russia (feeder)	0230	RR
7125	IRRS, Italy	0500	
7165	R. Free Europe	0600	Romanian
7185	Voice of Turkey	2300	sign on
7185	RTM, Mali	2130	FF
7190	Rep of Yemen Radio, Aden	0300	sign on, AA
7200	Somali Bc. Service, Somalia	0259	sign on
7203	R. Lubumbashi, Zaire	0430	FF
7215	Voice of the UAE	2300	
7220	All Union Radio, Russia	0100	RR
7235	Deutsche Welle, Germany	0400	AA, via Malta
7240	Croatian Radio, Croatia	0300	
7255	V of Nigeria	0500	
7265	Voice of America, Botswana relay	0258	s/on
7305	Vatican Radio	0250	
7315	Croatian Radio	0000	via WHRI
7315	R. Free Croatia	0330	via WHRI
7345	R. Prague Int'l, Czechoslovakia	0100	
7375	R. For Peace Int'l, Costa Rica	0200	USB
7390	Deutsche Welle	1200	via USSR
7400	R. Yerevan, Armenia	0338	
7400	R. Belarus, Belarus	0030	Byelorussian
7445	Voice of Asia, Taiwan	1100	
7475	RTV Tunisienne, Tunisia	0400	AA
7500	R. Baghdad, Iraq	0400	AA
8000	JJY, Japan	1100	JJ, time stn
9022	VOIRI, Iran	0030	EE
9265	Icelandic Ntl Bc Svc	0730	EE
9280	Voice of Asia, Taiwan	1000	CC
9325	R. Pyongyang, N. Korea	1300	
9395	V of Greece	1900	GG
9420	R. Europe Int'l, Italy	1000	II
9445	Voice of Turkey	2300	TT
9455	WCSN, Maine	0200	
9475	R. Cairo, Egypt	0200	
9480	TWR, Monaco	0645	
9486	R. Tacna, Peru	0400	SS
9505	R. Yugoslavia	2230	to Europe
9520	R. Veritas Asia, Philippines	1200	
9530	Spanish National Radio	0500	
9535	Trans World Radio, Bonaire	0300	
9540	R. Nacional, Venezuela	1100	SS
9545	R. Tirana, Alabania	0530	sign on
9555	R. Portugal	0230	
9560	R. Finland Int'l	0230	
9565	R. Universo, Brazil	0500	PP
9570	R. Romania Int'l	0300	SS

Freq.	Station/Country	UTC	Notes
9570	R. Korea, S. Korea	1400	
9575	R. Medi Un, Morocco	0030	AA
9580	R. Tirana, Albania	0230	
9580	Africa No. One, Gabon	1900	FF
9590	FEBA, Philippines	0130	QRM'd
9600	HCJB, Ecuador	0300	RR
9605	Vatican Radio	0300	
9610	R. Norway Int'l	0200	
9625	CBC No. Quebec Service, Canada	2100	
9635	R. Portugal	2200	PP
9635	R. Afghanistan	1230	
9645	R. Norway Int'l	0300	
9655	TWR, Swaziland	0256	sign on
9660	BBC relay, Cyprus	1445	
9665	R. Marumby, Brazil	2300	PP
9690	R. Beijing, China	0330	via Spain
9695	R. Sweden	0330	
9700	R. Sofia, Bulgaria	2000	GG
9700	R. New Zealand	1100	
9710	R. Centras, Lithuania	0600	(last Sat/mo)
9720	VOIRI, Iran	0030	EE
9725	Adventist World R., Costa Rica	1250	
9735	R. Oman	1945	AA
9735	Cyprus Bc. Corp	2230	wkdns, Greek
9745	R. Cairo, Egypt	0200	
9746	R. Bahrain	2000	AA QRM-HCJB
9750	R. Korea, S. Korea	1245	EE
9760	R. Tirana, Albania	0330	
9765	V of Mediterranean, Malta	0600	
9765	VOIRI, Iran	0100	EE
9770	R. Beijing, China	0000	via Mali
9815	KNLS, Alaska	0900	RR
9830	Croatian Radio	0600	
9840	Voice of Vietnam	1500	
9875	Spanish National Radio	1900	
9885	BSKSA, Saudia Arabia	2200	AA
9905	BRT, Belgium	2100	
9910	All India Radio	0115	s/off
9942	La Voz del CID (clandestine)	1330	SS
9950	All India Radio	2200	
9985	WCSN, Maine	2355	sign off
10000	R. Jordan	2000	AA
10260	CPBS, China	2100	CC
11455	R. Kisangani, Zaire	0400	s/on, FF
11470	Iran's Flag of Freedom (clandestine)	0329	s/on
11530	V of Hope, Lebanon	1400	
11550	RTT Tunisia	1800	AA
11595	RS Makedonias, Greece	1400	Greek
11620	All India Radio	2000	
11620	Vatican Radio	0145	
11655	R. Netherlands	1930	FF
11685	BSKSA, Saudia Arabia	2200	AA
11695	BRT, Belgium	0600	Dutch
11700	IBRA Radio, Portugal	1800	sign on
11710	RAE, Argentina	0100	
11715	R. Beijing, China	0330	via Mali
11720	R. Sofia, Bulgaria	0300	
11725	VOA relay, Botswana	0200	
11734	R. Tanzania, Zanzibar	1730	
11735	R. Japan, via Gabon	2300	
11740	R. Baghdad, Iraq	1700	AA
11755	R. Baghada, Iraq	1930	AA
11760	R. Vedo, Russia	1600	RR
11780	R. Nacional Amazonia, Brazil	2030	PP
11790	R. Kiev, Ukraine	0000	
11790	R. Vilnius, Lithuania	2300	
11795	UAE Radio	1600	
11795	Cyprus Bc. Corp.	2213	s/on weekends
11805	R. Globo, Brazil	2300	PP
11810	R. Korea, S. Korea	0600	
11810	R. Jordan	1400	AA
11822.5	R. Nacional, Colombia		
11830	R. Baghdad, Iraq	2300	EE/NA
11830	R. Anhanguera, Brazil	2200	PP
11840	R. Japan	0130	via Sri Lanka
11855	R. Beijing, China	1300	
11870	Adventist World Radio, Costa Rica	2330	
11870	R. Denmark	1530	via Norway
11880	R. RSA, So. Africa	1615	
11885	R. Yugoslavia	9023	
11895	VOA Botswana relay	2300	sign on
11920	R. RSA, South Africa	0300	sign on
11940	R. Romania Int'l	0200	
11940	VOA Botswana relay	0300	
11950	R. Havana Cuba	0000	
11955	Voice of Turkey	0400	TT
11960	R. Sweden	1130	
11960	RTV Malienne, Mali	0900	FF
12000	R. Australia	1400	
12015	R. France Int'l, via Gabon	1600	
12055	Deutsche Welle, via tx in ex-USSR	0156	s/on
12095	BBC, England	2100	
12085	R. Damascus, Syria	2110	
12160	WWCR, Tennessee	2300	
13605	Capital Radio, via Voice of UAE	2230	
13605	R. Australia	1600	
13630	R. For Peace Int'l Costa Rica	0200	
13635	Swiss Radio Int'l	2130	
13650	R. Pyongyang, N. Korea	0000	
13655	BRT, Belgium	2330	
13670	R. Canada Int'l	0245	
13675	UAE Radio, Dubai	2000	AA
13685	Swiss R. Int'l	0700	
13700	Radio Havana Cuba	0200	
13855	INBS, Iceland	2300	Icelandic
14917.8	R. Kiribati	0600	
15020	All India Radio	1300	
15060	BSKSA, Saudi Arabia	0400	AA
15084	VOIRI, Iran	0430	Farsi
15090	R. Damascus, Syria	2115	
15100	Kol Israel	2130	EE
15110	Spanish National Radio	2000	SS
15115	R. Austria Int'l	2145	
15140	R. Nac. del Ecuador	1630	SS, via HCJB
15170	R. Beijing, via Mali	1600	
15180	R. Vilnius, Lithuania	2300	
15185	R. Finland Int'l	2300	
15195	R. Japan	0500	
15200	R. Bangladesh	1230	EE
15205	V of Palestine via R. Algiers	1700	AA
15208	R. Bangladesh	1230	
15215	V du Sahara Libre (clandestine)	2200	via R. Algiers
15235	V of Great Arab Homeland, Libya	2000	AA
15260	VOIRI, Iran	0230	sign on
15260	BBC, Ascension Island relay	0300	
15320	UAE Radio, Dubai	2300	
15325	R. Japan	1500	via Fr. Guiana
15325	Spanish National Radio	2230	SS
15345	RAE, Argentina	2200	SS
15345	Trans World Radio, Bonaire	1230	
15345	RTM, Morocco	1400	Berber
15350	R. Luxembourg	1900	EE
15365	R. RSA, S. Africa	0300	sign on
15425	R. Portugal	1500	
15430	R. Australia Int'l	1330	
15400	Radio Finland Int'l	1500	
15445	VOA relay, Botswana	2100	
15470	R. Tashkent, Uzbekistan	1330	
15485	R. Vilnius, Lithuania	2300	
15505	R. Kuwait	2245	AA
15525	R. Kiev, Ukraine	0000	
15530	R. France Int'l, via Hungary	0630	FF
15550	Central People's Bc Stn, China	0230	CC
15575	R. Korea, N. Korea	0245	
15650	Voice of Greece	1200	Greek
15670	Brit. Forces Bcsting, via Cyprus	1400	USB
15750	R. Russia	1800	RR
17525	Voice of Greece	1515	
17595	RTVM Morocco	1630	
17605	R. Vilnius, Lithuania	0000	
17665	R. Kiev, Ukraine	0000	
17690	R. Minsk, Belorus	0030	
17710	R. Norway Int'l	1200	NN/EE
17730	Swiss Radio Int'l, via Brazil	0200	
17740	R. Yugoslavia	1200	
17740	R. Sweden	1300	
17740	R. Jamahiriya, Libya	2200	AA
17745	RTV Algerienne, Algeria	2000	AA
17770	R. New Zealand Int'l	0445	
17810	R. Japan	2330	
17850	Radio France Int'l	1600	
17860	Qatar Bc Service	1300	AA
17870	R. Sweden	1530	
17870	VOA Botswana relay	0400	
17890	Spanish National Radio	1200	
21460	R. Moscow, Russia	1330	
21500	R. Sweden	1530	
21510	V of UAE, Un. Arab Emirates	0630	AA
21515	Radio Portugal	1630	
21580	R. Pilipinas, Philippines	0230	
21690	R. Moscow	0800	RR
21705	R. Denmark, via Norway	1255	s/on, DD
25730	R. Denmark, via Norway	1255	s/on, DD

RTTY

BY ROBERT MARGOLIS

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

The Ministry of Foreign Affairs, Lisbon, Portugal, was monitored last February as it was sending RTTY traffic over HF Radio. This is the first time, I believe, that this station has been recorded with such a transmission.

I monitored the transmission in ARQ mode on 23818.6 kHz at 1314 UTC. Traffic was sent to the Portuguese embassy in Luanda, Angola (see figure 1).

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 XRSCIXRSCXRSCXRSCXSCXRSCRFFO
)75 LISBOA P
2-07 QCQXXXX
DE NESTRANGEIROS
PARQPARA EMBPORT EM LUANDA
TELEGRAMA NR. UU
QOOWXPU
P R I
///////
YCKST RJBJKW ZSZI NHEAY JFSTS
XRSCXRSCXRSCXSCXRSCXSCXRS':/;
) UT LISBO
92-0-2-07 QECHW
XXXX
DE STRANGEIROS
PARAMO
QOOWXPU
P R I
//////
YCKST RJBJK ZSWZI NHEAY JFSTS VZBWP NFW YGFVA HJPLP IFGJX
ELJLF ZOIA KRD MNODM HLYIG EVNZA OVRJLCYPD OOFY FCAO
ZHH RFZWL CZXKC IELNT VXKNM OJA EAUWKFV OAIGY QTY
BBOBZBBBOMBZVKBKTXIGLOFBBLU EVMB FONSDLZDBQZJIGNWMZE DCYNS PKEQI VIRV D YOK CKAL
QH
BEXBWCXBAWEBAITTEDWJIPB VHF

ANP SR
UHL NICHIRHU EZEXWOD TUKEJ NNAHLYS OFXOX LAFNS PPYG
 BBQLI SETKU WESZL VNJYZ AIGJMJHJM ZACD ZMRMYMRZ FDPRMHYXLF
HCWYTBXJZFHDGHP ZLHUJ UXLUT FD LRRLH YRDBY XD FU
NA DPWCO  SOSKC LJUZX PUDADXAM UDFLV IRZTFCISUHK V
SOXPT OTHJP EZEPIAXDXAXR NOZTUETFLBGO XZNK
KPEOIWL GGNHG KGREF OXZCU FAHFY SSHX GNKYL DSWMJ XSUGW Y
VVTW PBFMJ GAHKO TSIQC UPCBJ YIQZB NDHAK YOBKC UTWWP DCUOS
CQX VBQ ESBKJ FAHWG UGCRU ODHAH OIBCU LCERI IWKQB BRVFM
ADMSR MHSZE MBEWBBHAOJ VOMVGMCSCSFK CAJKZ FNMM QFUZH YMRII
EESQR WUM IEWZY AAXQL LNADNLNNUXA UAMSCPYTB WYXEU KXMDM HJJHV
WWGTU UEBLDKZQZ GBCFGR ZYHYM VTZUH WUNMQ IZFEN OL ENHVL
ZDSIG TSTWGVTDI VRDK
EVZIBL GGMMY RMY FVDXS HABAXJDJX CALBCACI PTIBHTDWSO
JEGBWGXA WKUDLWSWE 63 DCIUB BDPAI STM KFRNZ YPJDS ZLRDU
RYDYB RPA UEYWL LYUUQ DRAGI WUHFP GEAQA INQ JSYKUM VVYU UUVUU KXXGJ TWANR MREMBM
RETV QMAXF BZU MGCAO
HBZHT ZMAUO AEION LXOLXDII GFZMJ GQDAS VFCRB HDIMR QACIM AKEZV
JQWWZ OTELO JAMHKWNN ZQXYIWADZX NZISWIQLMIFTYM YMYM OLPTOLPD
XWBM ULCDP FGZMD ZJD SQF RCFRI JUFS ITLIF MOYWBMO
ROZBK JNCE BOCIY QFHKW XBSNO SWQLK BDDT UQP
BERNB BWMBT GWBTG JVYRT ZCETG VZVXS GCJEHBAYREND KFOA
XWUXI SLMFD HPFEXILIJ ULAM WHGBJ XXMLD KSOJI LNHF F
HXCMBIYDZTGPAXBFURCPPBNY RYHPV OQIEC MAEMF
MERENEGBBCJG ZCLGC EUJBC EDCUW BHBVFRG
OBPBLPTOVZOMWWBBB QODVBNBABGBAMABYGBIBOKEWDBAI
ZKLS YINF VSAZV LDRNC LTXTVOUOYUCGK WMGRX
DZZQKCMMEXMEOR
LYRHQ KGEYVELKNUICAUOCT ZXVZQ TJWZV DDTMO WHZE UYSIC AYSFJ MBTQR THAW
OGMLJ SXMZC JYDJSOZITEQKNUKXMHSIYIKDXOUWZYCVATUAMURCMNLX ARHXD
HRRUV LXLAGZS XEAUK VPWIAXDGKAGR ACTMR PEMKJ RCFNF
XNOA KULYA IOTKK FCVGTMBWO RDKGL BQJUE BEI MOWHC IHTI
VVVT QIGYZB BLZJU WGIW ZYKQAWUXB CHDZ WIMYI EKFDP
FZK YTHCF MVWQV SEUFC RIIZLCEZBZ KEXPKKFDO YKZTNQ
ZBDBDBAZPWG UXHAD TTFWPKSMD OFPKKJIRI CDJJD
OXJOYBGOAX DHUSI KVHVM ERMDA
////;/
GR 475
07130-$3;2
LBAL
"27
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Figure 1

Checking all the standard RTTY reference guides, my own database, and past loggings from other monitors, I found no listing for MFA, Lisbon. Therefore, it appears that this was a first-time logging.

Several new cruise ships have begun passenger service this year and some others will be making their debuts later this year. Here is the list for those readers who tend the RTTY channels of merchant ships:

Club Med 2, Club Med, 386 passengers, South Pacific routes. It's a tall ship with computer-operated sails.

Costa Allegra, Costa Cruise Lines, 810 passengers, Caribbean-Europe route.

Costa Classica, Costa Cruise Lines, 1,300 passenger, Caribbean-Europe route.

Crown Jewel, Crown Cruise Line, 820 passengers, Europe-Caribbean route. Its home port is Palm Beach, FL.

Dreamward, Norwegian Cruise Line, 1,246 passengers. Caribbean routes.

Majesty of the Seas, Royal Caribbean Cruise Line, 2,354 passengers, Caribbean routes.

Mayan Prince, American Canadian Caribbean Line, 90 passengers, East Coast-Canada-Caribbean route.

Radisson Diamond, Diamond Cruise, 354 passengers, Europe-Caribbean route. It has a twin hull design for greater stability.

Renaissance VIII, Renaissance Cruises, 114 passengers, worldwide routes.

Royal Majesty, Majesty/Dolphin Cruise Line, 1,056 passengers, Caribbean routes.

Royal Viking Queen, Royal Viking Line, 212 passengers, worldwide routes.

Star Clipper, Star Clippers, 180 passengers, Europe-Caribbean route. It's a four-masted sailing ship.

Statendam, Holland America Line, 1,250 passengers, Caribbean-Alaska route.

Zenith, Celebrity Cruises, 1,374 passengers, Caribbean route.

The coastal station at Murmansk, Russia, has changed its callsign on 17140 kHz from UMV to UMN7, it was noted last February. Morse Code and 50-baud RTTY are the transmission modes.

I was pleased to receive in the mail from the "Gal of Liberia" a floppy disk containing that person's RTTY loggings in a database file. I will be signing those loggings in the RTTY intercepts section using as an alias, "Gal of Liberia." I made up the alias using an anagram, which is a transposition of letters, on his name. This was done to protect his identity, at his request. He's from Italy, where RTTY monitoring of utility stations is taboo.

I've got an anagram for my name, too, in case I ever have to go undercover. I rearranged the letters in Robert Margolis to get "almost big error." Gee, I wish I hadn't done that.

"Merci beaucoup" to "Monsier P. Loo" of Montreal, PQ, Canada, for sending a lot of information that I requested in January's column about analyzing some of the newest RTTY modes. It was very thoughtful of him. It'll take some time to digest all the details. His material has steered me in the right direction toward finding more information.

Chris Anders Oklahoma sent us a copy of a letter (see figure 2) he received from the U.S. Air Force regarding its HF Radio radiofax operations. It adds more detail to what I discussed last month. This letter convinced me that the radiofax station on 23197 kHz is coming from the RAF base at Croughton, England, where the USAF has some personnel stationed. This station, therefore, is the sister of the RTTY station on 23193.5 kHz

```
2 0433 SVA GR
220800 SVA GR
COMPUTER MESSAGE PLS DON'T INTERRUPT
21      ATHINAI RADIO
220433 SVA GR
PRESS
     CQ CQ CQ DE SVA SVA SVA ; PRESS;
Y E N
DELTIO ENIMEROSIS NAFTILLOMENON APO
AKROASI RADIOFONIKON EKPOPON ERT KAI
EPISKOPISI IMERISIOU ATHINAIKOU TYPOU
PEMPTI 6.2.92
DYSARESKEIA TIS E EFRASE ELLINIKI KYVERNISI MESO YPOURGOU DIKAIOSYNIS
PROS ALVANO OMOLOGO TOU GIA APOKLEISMO APO ALVANIKES EKLOGES TOU
KOMMATOS TIS ELLINIKIS MEIONOTITAS OMONOIA. POLYDORAS TONISE OTI
EKTOS DIAVIMATOS DIAMARTYRIAS POU EGINE PROS ALVANIKI KYVERNISI KAI
YPOMNIMATA POU YPOVLITHIKAN PROS DASE KAI SYMVOULIO EVROPIS CHORA MAS
ANAPTYSSEI DIPLOMATIKI DRASTIRIOTITA OLA EPIPEDA GIA NA KATANGEILEI
APOKLEISMO OMONOIAS APO EKLOGES STOP
23 VOULEFTES ND ME EPISTOLI TOUS PROS PROEDRO VOULIS ZITOUN APO
ELLINIKI ANTIPROSOPEIA KATADIKASEI PROSFATI AP FASI ALVANIKIS VOULIS
POU PA AVIAZEI KATAFORA POLITIKA DIKAIOMATA ELLINIKIS MEIONOTITAS
STOP
ME PS FISMA TOUS EVROPAIKO KOI OVOULIO EVROVOULEFTES PASOK ZITOUN APO
YPEX TON 12 PAREMVOUN APOFASISTIKA PROS ALVANIKI KYVERN SI OSTE
SCHEDIAZOMENO NEO EKLOGIKO NOMO DIASFALIZETAI ELEFTHERI SYGKROTIS
 KAI
LEITOURGIA KOMMATON CHORIS DIAKRIS I  SE VAROS ME ONOTITON STOP
SYMPLOKI EGINE CHTES SYNORA SE CHORIO MAVROPOULO IOANNINON METAXY
1OMEL US SYMMORIAS ENOPLON ALVONON KAI ELLINIKIS PERIPOLOU. KATA
ANTALLAGI PYROVOLISMON SKOTOTHIKE ENAS ALVANOS STOP
PROSTI A APO 5000 EOS 200000 PROVLEPONTAI APO NEO KOK OPOIOS
KATATETHEI VOULI FEVROUARIO. ENDEIKTIKA GIA PARAVIASI ERYTHROU
SIMATODOTI PROVLEPETAI PROSTIMO 45000 DRCH GIA PARAVIASI DAKTYLIOU
PROSTIMO 45000 DRCH GIA YPEVASI ORIOU TACHYTITOS 35000 KAI GIA
 PARANOMO
PARKARISMA 20000 DRCH. EPISIS EISAGETAI METHODOS DAGKANAS GIA
 PARANOMA
STATHMEFMENA AFTOKINITA KAI THESPIZETAI THESMOS SCHOLIKOU
 TROCHONOMOU STOP
DEN YPARCHEI KANENAS KINDYNOS GIA YGEIA KATOIKON LEKANOPEDIOU ATTIKI
APO NERO LIMNIS MARATHONA ANAKOINOSE YPOURGEIO YGEIAS. ANAKOINOSI
TONIZETAI OT  APO DEIGMATOLIPSIES POU DIENERGEI EFDAP PROKYPTEI OTI
DEN YPARCHEI PROVLIM  STIN POIOTITA NEROU STOP
KANENAS KINDYNO  DEN YPARCHEI ELLINIKA PELAGI APO NARKES TOU V
PAGKOSMIOU POLEMOU DIAVEVAIOSE GEN KAI TONIZEI OTI SYMFONA ME EPISIMA
[illegible] STOP
 MITSOTAKI
NTEMIREL STO NTAVOS SE OTI AFORA KYPRIAKO STOP
EPAFES ME EKPROSOPOUS KOMMATON GIA RADIOTILEOPTIKA MESA ARCHI E
KOUVELAS STOP
IERA SYNODOS EKKLISIAS ELLADOS EMMENEI THESI TIS OTI ROLOS PAPIKIS
EKKLISIAS VALKANIA APOVAINEI SE VAROS ORTHODOXON EKKLISION STOP
EKPROSOPOS AGIAS EDRAS DILOSE OTI VATIKANO DEN SCHOLIAZEI AITIMA  IA
DIAKOPI DIPLOMATIKON SCHESEON KAI OTI KATIGORIES EINAI AVASIMES STOP
NEO PROGRAMMA DANEIODOTISIS ERGATOUPALLILON GIA KATOIKIA XEKINA TO
1992 ORGANISMOS ERGATIKIS KATOIKIAS STOP
ELPIDES OTI SYZITITHEI KYPRIAKO PROVLIMA KATA  PIKEIMENI SYNANTISI
BOUS-NTEMIREL EXEFRASE AMERIKANOS GEROUSIASTIS STOP
ANISYCHIES GIA MELLON KOINOPOLITEIAS EXEFRASE GKORMPATSOF STOP
STO PARISI GINONTAI SY OMILIES METAXY MITERAN-GIELTSIN GIA ELENCHO
PYRINIKIS ERGOSTASIOU PROIN E SSD STOP
EKPROSOPOS YPEX GERMANIAS ANAKOINOSE OTI KATA DIIMERI EPISKEPSI
PROTHYPOURGOU SKOPION GERMANIA  EN PROK ITAI YPARXEI SYNANTISI ME
 Y EX
GKENSER STOP
OUASIGKTON DEN THA ANAGNORISEI AKOMA SLOVENIA-KROATIA EOS OTOU
 VRETHEI
TROPOS SYNOLIKIS EPILYSIS GIOUGKOSLAVIKOU STOP
STOUS SERVOUS ETHNIKISTES KAI KROATES IGETES APODIDEI EFTHYNES OIE
 GIA
KATHYSTERISI APOSTOLIS KYANOKRANON STIN GIOUGKOSLAVIA STOP
5 NEKROI KAI 9 TRAVMATIES EINAI APOLOGISMOS EPITHESIS ENOPLON STO
BELFAST V IRLANDIAS STOP
PREVDA THA KYKLOFOREI EFEXIS 5 IMERES TIN EVDOMADA LOGO AFXISIS TIMIS
CHARTOU STIN MOSCHA STOP
OLYMPIAKOS NIKISE STO VOLEF PARTIZAN 3-1 SET KAI PROKRITHIKE TELIKOUS
POU GINOUN STADIO EIRINIS KAI FILIAS STON PEIRAIA STOP
APOTELESMATA AGONON KYPELLOU
ETHNIKOS DOXA 0-4   APOLLON OFI 0-1   PAOK KORINTHOS 4-1
XANTHI OLYMPIAKOS 2-1   CHAIDARI ATROMITOS 0-0   ARGOS PAO 1-2
IRAKLIS AEK 1-1. EPANALI TIKOI AGONES DIEXACHTHOUN 26-2-92 STOP
TYCHEROI ARITHMOI LOTTO 27- 1-35-9-18-32. DEN VRETHIKE KAMMIA STILI
 ME 6
E ITYCHIES STOP
TRA EZA ELLADOS
 1. 180,964    2. 113,937    3.  33,433    4. 326,409    5.   5,504
 6. 100,695    7.  15,223    8.  29,243    9.  31,025   10.  28,876
11. 151,145   12. 132,744   13. 144,540   14.  41,325   15. 231,290
STOP ; DE SVA SVA SVA ;"
T ELOS  YXCH
```

Abbreviations Used In The RTTY Column

AA	Arabic
ARQ	SITOR mode
BC	Broadcast
EE	English
FEC	Forward Error Connection mode
FF	French
foxes	"Quick brown fox . . . "test tape
GG	German
ID	Identification/ied
MFA	Ministry of Foreign Affairs
nx	News
PP	Portuguese
RYRY	"RYRY . . . "test tape
SS	Spanish
tfc	Traffic
w/	With
wx	Weather

which broadcasts "EGWR" aeronautical weather data from Croughton.

RTTY Intercepts

123.7: DCF42, PIAB, Bonn, Germany, w/nx, FEC-A/96 at 1345. (Ary Boender, NLD)

129.1: DCF45, VWD, Frankfurt, Germany, w/financial nx, 300 baud at 1355. (Boender, NLD)

147.3: DDH47, Pinneburg Meteo, Germany, w/coded wx at 1845, 50 baud. (Boender, NLD)

518: GNI, Niton, R., England, w/a Navtex b/c at 0824; GCC, Cullercoats R., England, w/Navtex rpt about a helicopter crash, at 1252; GPX, Portpatrick R., England, w/Navtex navigational warnings at 0930; & PKB, the Dutch Coast Guard, w/Navtex navigational warnings, at 1548. All were in FEC mode. (Boender, NLD) NMN, USCG, Portishead, VA; & NMG, USCG, New Orleans, LA; & NMA, USCG, Miami, FL; w/notices to mariners at 0130, 0300, & 0400 respectively. The mode in all cases is FEC. (Ed.)

2137.5: WLC, Rogers City R., MI, w/a Lake Superior wx forecast, FEC at 0132. (Harold Manthey, NY)

2845: GYA, Royal Navy, London, England, w/an availability report at 0220, 75 baud. Also seen on 2892.4 at 0225. (Fred Hetherington, FL)

3803: RFFS, French Mil., Metz, France, idling, ARQ-E/96 at 2047. ("Gal of Liberia")

3864: FMV, French Navy, Lyon, France, w/msgs to Paris, ARQ-E/72 at 1965. (Boender, NLD)

4178.5: UTRO, ship Dovgoe, w/msg re used car lot near me. The head salesman has shifty eyes, smokes a big stogie, and wears a huge diamond ring on his pinkie finger. He'll have a good deal for the entire crew—Ed.

4362.7: CCM, Punta Arenas Navrad, Chile, w/5L grps at 0407, 50 baud. (Robert Hall, RSA)

4489: GFL26, Bracknell Meteo, England, w/coded wx, 50 baud at 0425. ("Bunky," IL)

4570: Un-ID w/coded wx, 100 baud at 0420. ("Bunky," IL) It's HZN46, Jeddah Meteo, Saudi Arabia—Ed.

4583: DDK2, Pinneburg Meteo, Germany, w/RYRY at 0415, 50 baud. ("Bunky," IL)

4768.1: CCS, Santiago Navrad, Chile, w/5L grps at 0414, 100 baud. (Hall, RSA)

4880.2: GYA, Royal Navy, London, England, w/RYI's & foxes, 75 baud at 0153. (Manthey, NY)

5106.5: IBA5, Italian Navy (Napoli?—Ed.), testing w c/s IAEF, 75 baud at 0205. (Manthey, NY)

5117.4: TYE, ASECNA, Cotonou, Benin, w ??? at 0440, ARQ-M2/96, (Hall, RSA)

5160.2: IER20, Italian Customs, Rome, w ???, ARQ-M2/96 at 0457. (Hall, RSA)

5287.2: FBSK, Gaborone Aero, Botswana, w/RYRY, 50 baud at 0500. (Hall, RSA)

5740: HZN, Jeddah Meteo, Saudi Arabia, w/coded wx, 50 baud at 0410. ("Bunky," IL)

News broadcast in Greek sent by SVU5, Athens Radio Greece, on 12603.5 kHz at 0300 UTC, in FEC mode (from Robert Margolis).

5795: FDY, French Air Force, Orleans, France, w/RYRY & le bricks, 59 baud at 0127. (Manthey, NY)

5847.7: TUH, ASECNA, Adiđjan, Ivory Coast, w/RYRY at 0512, 59 baud. (Hall, RSA)

5888: IMB32, Rome Meteo, Italy, w/a solar storm report at 0400, 50 baud. ("Bunky," IL)

5904.5: AFS, Offutt AFB, Elk Horn, NE, w/KAWN wx data, 75 baud at 0207/ Pffitt also has a radiofax b/c on at the same time on 5980 kHz, 120/576. (Ed.)

6835.2: GFL22, Bracknell Meteo, England, w/coded wx, 50 baud at 0232. (Hall, RSA)

6902.3: TLO, ASECNA, Bangui, Central African Republic, w/coded wx, 75 buad at 0240. (Hall, RSA)

6941.3: TRK, ASECNA, Libreville, Gabon, w ???, ARQ-M2/96 at 0243.(Hall, RSA)

7592.1: YZD6, Tanjug, Belgrade, Yugoslavia, w/nx in FF at 2107, 50 baud. (Ed.)

7626: TZH, ASECNA, Bamako, Mali, w/RYRY, 50 baud at 0242 (Burkhart, LA), and at 0450. (Hall, RSA)

7983.7: RFTJ, French Navy, Dakar, Senegal, w/"controle de voie," ARQ-E3/48 at 0528. (Hall, RS)

7998.4: Un-ID w/tfc in SS under heavy QRM, ARQ at 0150-0205. (Hetherington, FL)

8031: RFFXL, French Mil., Beirut, Lebanon, w/le bricks, RYRY & 10 count, ARQ-E/72 at ??? (Hetherington, FL)

8051.5: WOO, Ocean Gate R., NJ, w/a radiotelephone tfc list, FEC at 0320. ("Bunky," IL)

8087: KMI, Dixon R., CA, w/a radiotelephone tfc list, FEC at 0315. ("Bunky," IL), and at 2340. (Bjorn Vaage, CA)

8215: Un-ID sends many different selcals, ARQ at 0521. (Ed.)

8297.5: Un-ID w/telegrams in SS, ARQ at 0436. (Ed.)

8428.5: PCH46, Scheveningen R., Netherlands, w/a tfc list at 0115, FEC. (Ed.)

8514: WLO, Mobile R., AL, w/wx, FEC at 2351. (Vaage, CA)

9190.7: RDZ75, Moscow Meteo, Russia, w/coded wx at 1252, 50 baud. (Ed.)

9312: Un-ID w/very garbled text which was not encryption, 50 baud at 1237. (Ed.)

9328.4: XVN26, VNA, Hanoi, Vietnam, w/RYRY foll by nx in FF at 1207, 50 baud. (Hetherington, FL) Same sta. on 9330.2 w/nx in EE at 1240, also 50 baud. (Ed.)

10150: SUA246, MENA, Cairo, Egypt, w/RYRY at 0530, 75 baud. (Ed.)

10162.5: YIL71, Baghdad, Iraq, w/nx in AA, 50 baud at 2031. ("Gal of Liberia")

10168.5: Un-ID idling at 0527, ARQ-E/72. (Ed.)

10215.3: HZN48, Jeddah Meteo, Saudi Arabia, w/coded wx, 100 baud at 2359 (Hall, RSA), and at 0555. (Ed.)

10231.8: "LYNX" w ID in CW & ARQ phasing sig at 0000. Also heard on 11198.8 at 0210. (Hall, RSA). Interesting to hewar that Lynx's sig can be copied by you. It comes in strong here in the U.S. Still need to determine its QTH—Ed.

10417.3: ETD3, Addis Ababa Aero, Ethiopia, w/RYRY + "How do you read?" (usually with eyeglasses—Ed.). Was 50 baud at 0425. (Ed.)

10600: VNA25, VNA, Hanoi, Vietnam, w/nx in EE at 1605, 50 baud. (Manthey, NY)

10610: SUA251, MENA, Cairo, Egypt, w/nx in FF at 2023, 50 baud. ("Gal of Liberia")

10654.8: MKK, RAF, London, England, w/RYI's, foxes & 10 count on all FDM channels, 75 baud at 0620. (Ed.)

10893.9: LRB39, Telam, Buenos Aires, Argentina, w/nx in SS, 50 baud at 0105. (Hall, RSA)

11039: DDH9, Pinneberg Meteo, Germany, w/CQ foll by plaintext wx in GG, 50 baud at 0831. (Ed.)

11133.1: BZG41, Xinhua, Yuryumqi, China, w/nx in FF at 1634, 50 baud. (Ed.)

11139: DFZG, MFA, Belgrade, Yugoslavia, w nx, 75 baud at 0840 (Mark Burkhart, LA).

11171: Un-ID sta w "RCF" c/s w RYRY & CQ at 1732, 75 baud. ("Gal of Liberia"). At the time you monitored it, it was the c/s of MFA, Moscow, USSR—Ed.

11242: Un-ID Egyptian diplo w/5L grps, ARQ at 0305 (Paul Scalzo, PQ, Canada).

11335.5: Un-ID w/coded wx, 50 baud at 0229. Do you have a callsign and a location for this sta? (Burkhart, LA) You've got me stumped—Ed.

11476: HMF52, KCNA, Pyongyang, North Korea, w nx at 0529, 50 baud (Burkhart, LA). Same w/nx in EE at 2043 ("Gal of Liberia")

11486.3: TUH, ASECNA, Anidjan, Ivory Coast, w/aero wx at 0702, 50 baud (Ed.).

11506.7: Un-ID idling in ARQ mode, 0132-0136 (Ed.).

11538: Un-ID w/encryption, ARQ at 0752 (Ed.).

11604: YZJ3, Tanjug, Belgrade, Yugoslavia, w/nx in EE at 0756, 50 baud (Ed.).

11638: DDK8, Pinneberg Meteo, Germany, w/RYRY at 0830, 50 baud (Burkhart, LA), and w/coded wx at 0415. ("Bunky," IL).

12097: HXV67, Hanoi Meteo, Vietnam, w/RYRY at 0041, 50 baud (Manthey, NY).

12517.5: Un-ID using an undetermined synchronous RTTY mode at 125 baud, at 2358. Got no sync trying ARTRAC mode (Ed.)

12579: NMF, USCG, Boston, MA, w/navareas & hydrolants, FEC at 0149 (Ed.), and w/wx at 2037. (Vaage, CA)

12594: PPR, Rio de Janeiro R., Brazil, w/ARQ phasing sig + CW ID at 0225 (Ed.).

12597: SPB62, Szczecin R., Poland, w/FEC synchronization sig & ID in CW at 0227 (Ed.).

12600.5: HEC23, Berne R., Switzerland, w/ARQ phasing sig & CW ID at 0235 (Ed.).

12603.5: SVU5, Athens R., Greece, w/nx in Greek at 0300, FEC (Ed.).

12605: LGJ4, Rogaland R., Norway, w/a tfc list at 0500, FEC (Ed.)

12615: UXN, Arkhangelsk R., Russia, w/ARQ phasing sig + ID in CW at 0345 (Ed.).

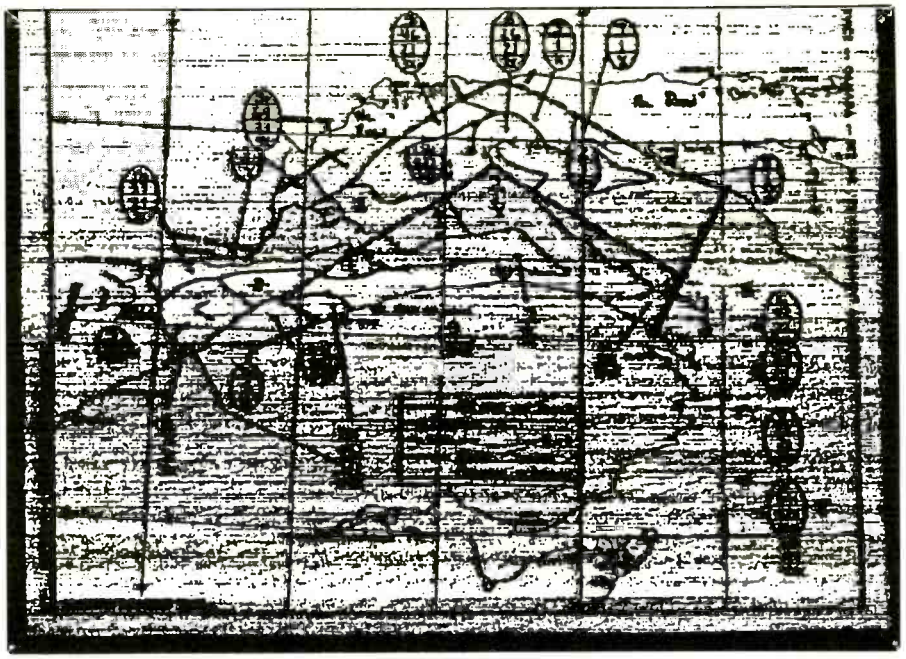
12639.5: OST50, Oostende R., Belgium, w/ARQ phasing sig & ID in CW at 0403 (Ed.).

12902.6: RBSL, Bombay Navrad, India, w/RYRY, 50 baud at 1045 (Hall, RSA).

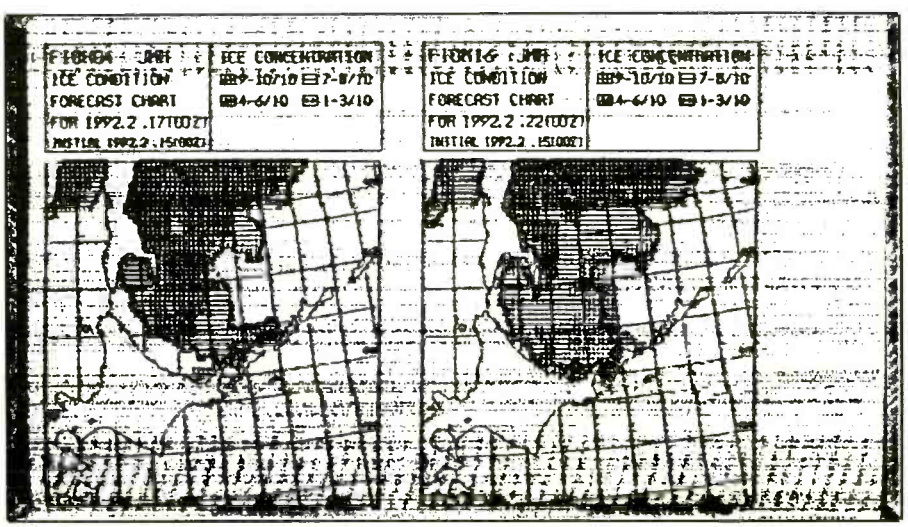
13392: DFZG, MFA, Belgrade, Yugoslavia, w/Tanjug nx in SC, foll by crypto after XPXPXP. Was 75 baud at 2230 (Hetherington, FL)

13865: RUZU, SAAM, Molodezhnaya, Antarctica, w/RYRY, 50 baud, 1530-1555 (Boender, NLD).

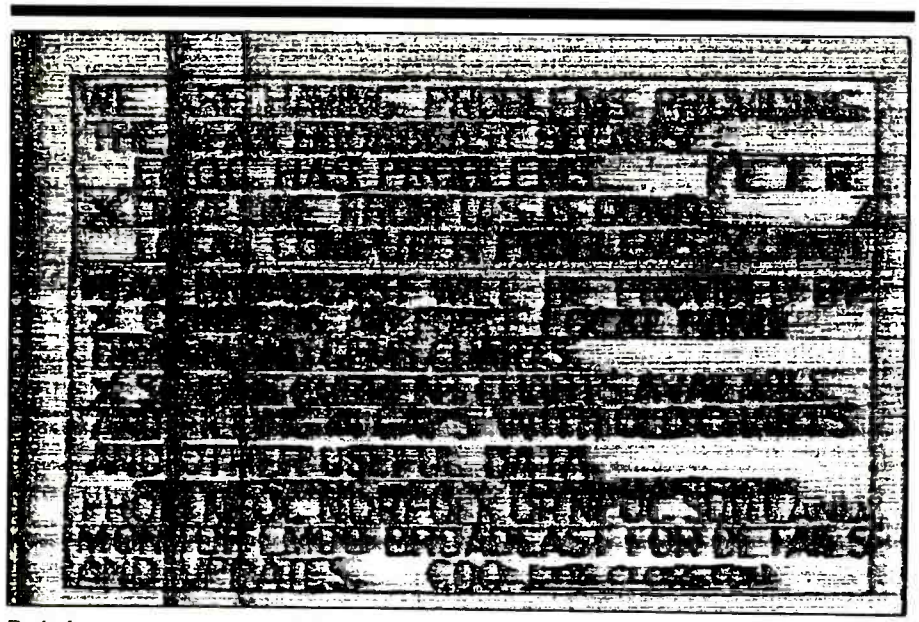
13867.7: Un-ID idling in ARQ mode, 0653-0718, then w/clerical msgs in FF, foll by a telex. Went QRT at



CZW, Maritime Air Group, Halifax, NS, Canada, sent this radiofax weather chart at 1600 UTC on 14626.5 kHz, 120/576 (Printout from Robert Margolis).



Ice concentration radio fax chart from JMH6, Tokyo Meteo, Japan (Logged by Robert Margolis).



Radiofax transmission reads, "We are having problems providing the NFAX broadcast because "F__QC has problems. Data line from U.S. is down. Local computer problems. Fax broadcast will be provided by compiling Air Force local hand drawn and GEMS charts. Strong current charts available and filling in gaps with old charts and other useful data. Pro_____Norfolk CRNPOC S_____land monitor MOC broadcast for details and updates." Sent Jan. 22, 1992 byu AOK, U.S. Navy, Rota, Spain, on 5785 kHz at 0227 UTC, 120/576, and logged by the RTTY columnist.

0755. Did not appear to be diplo (Ed.).

14359: SNN299, MFA, Warsaw, Poland, w/5L grps, 75 baud at 0820 (Burkhart, LA).

14531: USAF MARS stas AGA3HG & AGA6LA w MARSgrams, packet radio at 0607 (Scalzo, PQ)

14547.5: JAL44, Kyodo, Tokyo, Japan, w/nx in EE, 50 baud at 0800. Heavy QRM from an un-ID sta xmtng in ARQ (Burkhart, LA). Italian diplo stas using ARQ are found to xmit on 14546.5—Ed.

14573: 9HC67, Jana, Malta, w/nx in AA at 1630, 50 baud (Manthey, NY)

14597: SOO259, PAP, Warsaw, Poland, w/nx in Polish, FEC at 1757 ("Gal of Liberia"), and at 1815 (Scalzo, PQ, Canada).

14767: Un-ID idling for several hrs before going QRT. No wds ever seen. Was ARQ-E/72 at 0131 (Ed.).

14772.5: VER, Canadian Forces, Ottawa, ON, w/encryption on all FDM channels, 75 baud at 2032 (Ed.).

14786: 9PL, Kinshasa Aero, Zaire, w/RYRY, 50 baud at 0755 (Burkhart, LA).

14810: GXQ, Royal Army, Stanbridge, England, w/RYI's & foxes at 0002, 50 baud (Scalzo, PQ, Canada).

14860: CLP1, MFA, Havana, Cuba, w/5L grps & crypto after ZZZZZ to Zambia, 50 baud at 0722 (Scalzo, PQ, Canada).

14880: JMG4, Tokyo Meteo, Japan, w/coded wx, 50 baud at 0710 (Burkhart, LA). Same at 1546 ("Gal of Liberia").

14915: 5KM, Bogota Navrad, Colombia, w/RYRY & a msg in SS, 75 baud at 2038 ("Gal of Liberia").

14928: CLN452, PL, Havana, Cuba, w/nx in SS at 2113, 50 baud ("Gal of Liberia").

16298.1: Appeared to be Tanjug nx in SC from Belgrade, Yugoslavia, 75 baud at 0210. Looked for but could not find no // freq. Sta. ID came at 0230 but could not reade it. Too much misprinting due to distortion (Hetherington, FL). This was DFZG, MFA, Belgrade, according to my database—Ed.

16670: UUBL, ship Moris Bishop (Latvian tanker—Ed.), wkg Riga Radio at 1110, ARQ (Boender, NLD).

16673: Y5EJ, ship Riesa (German bulk carrier—Ed.), wkg Ruegen Radio, ARQ at 1230 (Boender, NLD).

16684: DUBF, ship Sea Bell (Philippine cargo—Ed.), w/telex tfc at 1024, ARQ (Boender, NLD).

17036: UXN, Arkhangelsk R., Russia, w/telegrams in RR to ships, 50 baud at 1321 (Ed.).

17080: UAI3, Nakhodka R., Russia, w manual TTY xmsn, 50 baud at 0730 (Burkhart, LA). What was being sent?—Ed.

17114.7: Un-ID Egyptian diplo (ID's as "CFUW" on Latin keyboard from an Arabic one) w "kds lkzgcg jg cfuw ods 06161 066161 06161 ky ky." Was FEC at 1951. Was sent to the Egyptian embassy at Washington, DC (ID'd as "lkzgcg") (Ed.).

17131.7: MFA, Cairo, Egypt, w/5L msgs & diplo texts in AA to the Egyptian Embassy, Washington, DC. Was ARQ at 1738 (Ed.).

17138: URB2, Klaipeda R., Lithuania, w/telegrams in RR at 1844, 50 baud. Wonder when they're going to start sending telegrams in their native lang? (Ed.)

17140: UMN7, Murmansk R., Russia, w/RYRY & telegrams in RR, 50 baud at 1906 (Ed.).

17141: UFN, Novorossisk R., Russia, w/telegrams in RR at 1903, 50 baud (Ed.)

17141.6: UBN, Zhdanov R., Ukraine, 50 baud at 0721 (Burkhart, LA). What tfc did you see???—Ed.

17163: RNO, SAAM, Moscow, Russia. w/???, 50 baud at 0740 (Burkhart, LA), and w/msgs at 1600 (Boender, NLD).

17454.7: Un-ID French diplo w/a 5L msg, ARQ6-90/200 at 1410 (Ed.).

17532.3: HDN, Quito Navrad, Ecuador, w/RYRY & SSG + msgs in SS to YWM. 75 baud at 2114 (Ed.).

17532.3: HZN49, Jeddah Meteo, Saudi Arabia, w/coded wx, 100 baud at 1927 (Ed.).

18007.8: Egyptian Embassy, Harare, Zimbabwe, w/a lengthy 5L msg to Cairo at 1104, ARQ (Hall, RSA).

18035.3: JAT28, Kyodo, Tokyo, Japan, w/nx in EE at 0309, 50 baud (Ed.).

18129.6: JMJ5, Tokyo Meteo, Japan, w/coded wx, 50 baud at 1558 (Hall, RSA).

18164.5: STK, Khartoum Aero, Sudan, w/coded wx & Notams, 50 baud at 1538 (Boender, NLD).

18173.6: STK, Khartoum, w/RYRY at 2054, 50 baud. New freq (Ed.).

18212: "TDXZF" w/RYRY at 1417, 50 baud (Boender, NLD).

18341.7: Egyptian Embassy, Bamako, Mali, w/5L grps, ARQ at 1715 ("Gal of Liberia").

18496: CNM80, MAP, Rabat, Morocco, w/RYRY & skeds, 509 baud at 1150 (Boender, NLD).

18598: Un-ID diplo sending tfc from embajada Amman" to "embajada Teheran, Tel Aviv, Bonn," ARQ at 0900 (Boender, NLD).

18755.8: JPA24, Interpol, Tokyo, Japan, w/police bulletins, ARQ at 0213 (Ed.).

19171: CNM85X11, MAP, Rabat, Morocco, w/nx in FF at 1637, 50 baud ("Gal of Liberia").

19444.8: CLP1, MFA, Havana, Cuba, w/encryption at 1953, 50 baud ("Gal of Liberia").

19529: JMG5, Tokyo Meteo, Japan, w/coded wx, 50 baud at 1810 (Scalzo, PQ, Canada).

19592: IRR35, ANSA, Rome, Italy, w/nx in II, 50 baud at 1538 (Ed.).

19649: Un-ID w/5F grps, 75 baud, foll by "QRU SK" at 1450 (Hetherinton, FL) My database shows only RCF, MFA, Moscow, ex-USSR, listed on this freq at 75 baud—Ed.

19685.5: WLO, Mobile R., AL, w/an ARQ phasing sig & ID in CW at 155 (Ed.).

19698: OST69, Oostende R., Belgium, w/an ARQ phasing sig & ID in CW at 1556 (Ed.).

19748: 6VU79, Dakar Meteo, Senegal, w/coded wx, 50 baud at 1438 (Ed.).

19821.5: Un-ID United Nations post b/foxes & 10 count, + clerical msg, 1916-1932, ARQ. On another day, the UN sta at Monrovia, Liberia, w msg re the storming of Monrovia's police sta during violence there, ARQ at 1838 (Ed.).

19865.6: YZJ4, Tanjug, Belgrade, Yugoslavia, w/nx in SC at at 1801, 50 baud (Ed.).

19980: 9BC33, IRNA, Teheran, Iran, w nx in EE at 1715, 50 baud (Ed.).

20101.2: Un-ID Egyptian diplo w tfc in AA, ARQ at 1341 (Ed.).

20132: DFZG, MFA, Belgrade, Yugoslavia, w/nx in SC, 75 baud at 1524 (Ed.).

20233.2: Un-ID w/several 5L & 5F msgs at 1350, 50 baud (Ed.).

20418: Un-ID idling at 0551, ARQ-M2/96 (Burkhart, LA) My database shows this freq. to be a German diplo channel using ARQ-E/96—Ed.

20446: CXR, Montevideo Navrad, Uruguay, w/RYRY & SGSG to YWM, 75 baud at 1950. Appeared to be a spur of 20470, along with one on 20494. Both spurs were 24 kHz on either side of the fundamental freq., which had the weakest sig of the three (Hetherington, FL).

20628: CLP9, Cuban Embassy, Aden, Yemen, w/5L grps & tfc in SS, 50 baud at 1445 (Burkhart, LA).

20838: Either MFA, Sofia, Bulgaria, or the Bulgarian Embassy, Washington, DC, w/crypto after DDDDD, 75 baud at 1500 (Hetherington, FL).

20907.5: Un-ID North Korean diplo w/text in KK, 50 baud at 2053 (Manthey, NY).

20986.8: SAM, MFA, Stockholm, Sweden, w/nx in Swedish to its embassy in Washington, DC. Was SWED-ARQ at 1515 (Hetherington, FL).

21729.7: Cuban Embassy, Lima, Peru, w/5L msgs at 1600, 50 baud (Joe Palkovic, FL, via Hetherington, FL).

21734.5: CLP1, MFA, Havana, Cuba, w/5L grps at 1625, 50 baud (Palkovic, FL via Hetherington, FL).

21828.5: MFA, Madrid, Spain, w/diplo tfc in SS, ARQ at 1612 (Ed.).

21844.6: Un-ID w TVPX & TVPQ selcals in ARQ at 1651 (Ed.).

21856: Un-ID idling in ARQ mode, 1656-1717, then gives QSL & goes QRT. 2nd sta. then heard on this freq. before it went QART a few seconds later. The 1st sta. must've been receiving tfc from the 2nd (Ed.).

21927.2: Un-ID French diplo w/encryption, ARQ-90/200 at 1638 (Ed.).

22193: 5LWH, ship Dragonland (Liberian bulk carrier —Ed.).

22295.7: KGWU, Thomas Washington (U.S. oceanographic research ship), w/msgs to WWD, Scripps Bucom Fisheries, La Cholla, CA. Was ARQ at 1744 (Ed.).

22376: NMA, USCG, Miami, FL, ending some kind of b/c at 2053, FEC. NMO, USCG, Honolulu, HI, w/hydropac b/c at 2230, FEC. This is a worldwide maritime safety info freq (Ed.).

22422: GYA, Royal Navy, London, England, w/availability report, 75 baud at 1150 (Boender, NLD).

22880: Un-ID in ARQ6-90/200 mode at 1730. Sig was buried under loud buzz saw, non FDM, type noise (Ed.).

22897: "6XMB" w/RYRY to "C37A," foll by "QSY25," a pause, and "R R R." Was 100 baud and went off the air at 1614 (Heherington, FL).

23006.7: Egyptian Embassy, Kampala, Uganda, w/tfc in AA to Cairo, ARQ at 1431 (Ed.).

23037.3: Un-ID Egyptian diplo w a s/off msg in AA, ARQ w/an 850 Hz shift, at 1357 (Ed.).

23040: KNY32, Bulgarian Embassy, Washington, DC, w/tfc in Bulgarian & 5F grps, 75 baud at 1511 (Ed.).

23051.5: CLP25, Cuban Embassy, Maputo, Mozambique, w/crypto after ZZZZZ, 100 baud at 1524 (Ed.).

23561.7: PCW7, Dutch Embassy, Damascus, Syria, w/msgs in Dutch, ARQ at 1450 (Ed.).

23564.3: Un-ID North Korean Embassy, w/text in KK & 5F grps, 50 baud at 1520. Sig begins fadeout at 1547 and is gone a minute later (Ed.).

23602.7: Un-ID w/encryption, ARQ at 1435 (Ed.).

23697.7: Un-ID w/encryption, 96-baud asynchronous mode at 1438. Had an S9 sig (Ed.).

23772: Un-ID idling for over an hour in ARQ-E/96 mode. Tuned in at 1541. Could be an Italian diplo because of next item on neighboring freq (Ed.).

23773: Italian Embassy, Buenos Aires, Argentina, w/telexes in II & 5L msgs to Rome, ARQ-E/96 at 1556 (Ed.).

23818.6: MFA, Lisbon, Portugal, w/5L msgs to Luanda, Angola, at 1314, ARQ (Ed.).

23972: JMG6, Tokyo Meteo, Japan, w/wx rpts from commercial airliners, 50 baud at 0020 (Ed.).

23977: LOL, Buenos Aires Navrad, Argentina, w/crypto & msgs to LOR, 75 baud at 1335 (Ed.).

24077.2: CLP45, Cuban Embassy, Luanda, Angola, w/nx in SS at 1600, 75 baud (Ed.).

24101.2: DFZG, MFA, Belgrade, Yugoslavia, w/Tanjug nx in SC, at 1442, 75 baud. Also found w/a nx b/c in SC on 24102 at 1536 on another day (Ed.).

24171.4: Un-ID, but possibly SPW, Warsaw R., Poland, w telegrams in Polish at 1616, ARQ (Ed.).

24790.1: ISX24, ANSA, Rome, Italy, w/nx in EE, 50 baud at 1546 (Ed.).

25012.6: MTO, Royal Navy, Rosyth, England, w/an availability report at 1609, 75 baud (Ed.).

25022.1: DFZG, MFA, Belgrade, Yugoslavia, w/nx in SC at 1615, 75 baud (Ed.).

23079.2: SAM, MFA, Stockholm, Sweden, w/text in Swedish, SWED-ARQ at 1414 (Ed.).

23084.5: CLP1, MFA, Havana, Cuba, w/5F grps & diplo tfc to African embassies, 50 baud at 2119 (Ed.).

23112.3: Un-ID w/crypto that ended w "QRU QSL? OK GB HKC AS SK." Was 75 baud at 1341 (Ed.).

23116.7: Egyptian Embassy, Conakry, Guinea, idling in ARQ mode at 1418. On another day, un-ID Egyptian diplo w/tfc in AA to Conakry, FEC at 1406 (Ed.).

23165: North Korean Embassy, Paramaribo, Surinam, w/telegrams in KK, 50 baud at 1652 (Ed.).

23181: MFA, Oslo, Norway, w/diplo nx in Norwegian, ARQ at 1308 (Ed.).

23191.7: Un-ID idling in ARQ-E3/96 mode at 1306. Off the air at 1410 w/o saying a word (Ed.).

23193.6: Possibly RAF, Crougton, England, w/"EGWR" wx data, 75 baud at 1307. Have been seeking an ID for more than a year (Ed.).

23349.3: CLP8, Cuban Embassy, Conakry, Guinea, w/diplo9 tfc to Uganda, 50 baud at 1850 (Ed.).

23355.2: CLP18, Cuban Embassy, Dar-es-Salaam, Tanzania, w/RYRY, foll by 5F grps & msgs in SS to CLP1. Was 50 baud at 1832 (Ed.).

23390: LOL, Buenos Aires Navrad, Argentina, w/msgs in SS at 1857, 75 baud (Ed.).

23451.7: Un-ID s/off w ". . . moyen ezali e awa nil rl 5/5 svp." Was ARQ at 1439. Any thoughts, gang? (Ed.).

23509.7: Un-ID North Korean diplo w/5F msgs & diplo txt in KK at 1559, 59 baud (Ed.).

23513.5: Un-ID North Korean diplo w/5F msgs at 1509, 50 baud (Ed.).

23554: IPG20, MFA, Rome, Italy, w/tfc in II to Brasilia, Brazil, ARQ-E/96, 1526-1550 (Ed.).

25227: HBD20, MFA, Berne, Switzerland, w/text in FF & GG, ARQ at 1448 (Ed.).

25460.2: Un-ID French diplo w/5L grps, ARQ6-90/200 at 1506 (Ed.).

26122.4: Kalingrad R., Russia, w/ "LYCO de UJY" in ARQ at 1634 (Ed.). ■

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE GLOBAL WEATHER CENTRAL
OFFUTT AIR FORCE BASE, NEBRASKA 68113-5000

17 OCT 1991

Dear Mr Anders

The High Frequency Regional Broadcast (HFRB) system is an Air Force communications system consisting of 10 KW transmitters at eight sites worldwide. It was designed as a contingency and exercise communications system that broadcasts facsimile and teletype data continuously and simultaneously. Two sites (Elkhorn, Nebraska and Homestead AFB, Florida) cover the continental US; the other sites are located overseas and in Alaska. Facsimile data are broadcast on the upper sideband and teletype data are broadcast on the lower sideband. Broadcast range is approximately 2,000 miles, depending on wave propagation conditions. Air Weather Service periodically directs that the data be encrypted. Operating frequencies for the Elkhorn HFRB are 3231, 5096, 6904, 10576, 11120, and 19326 Khz. Frequencies used depend on mission requirements and atmospheric conditions affecting HF propagation. Frequencies are normally changed at sunrise and sunset to compensate for diurnal fluctuations in HF propagation.

For your information, Air Force Global Weather Central (AFGWC) is not responsible for operation of the HFRB system. AFGWC is a source for some of the fax products transmitted by HFRB. Any other questions you have should be directed to: Air Weather Service, Public Affairs Office, Scott AFB IL 62225-5008.

Sincerely

James P. Millard

JAMES P. MILLARD, Major, USAF
Chief, Current Operations Branch

Figure 2

THE HAM COLUMN

BY KIRK KLEINSCHMIDT, NT0Z
AMERICAN RADIO RELAY LEAGUE HQ

GETTING STARTED AS A RADIO AMATEUR

Getting Started in Digital Communications—Part 1

Falling equipment prices and increased hardware availability have dramatically increased the number of hams who are "digitally active." This month's column takes a brief look at the hardware and software required to get started, and an upcoming column will examine what you can do with today's digital modes.

The first digital mode that comes to mind for most new hams is packet radio. Next come RTTY and AMTOR, but how many will remember to include Morse code? After all, Morse is the granddaddy of digital communications! Like many other digital modes, Morse code can be sent at high speeds and it makes efficient use of available spectrum.

In the not-too-distant future, hams will even transmit digital audio signals and a host of modes that are only experimental today. The bottom line is: digital modes are here to stay, so why not get a jump on the future and start having fun right now?

The Gear You'll Need

For HF operation, you'll find that most modern transceivers easily accommodate the digital modes. If you're considering Mode-A ARQ AMTOR (that *chirp-chirp-chirp* sound you hear below the SSB subbands), make sure your rig can switch from transmit to receiver very rapidly. Mode-A AMTOR requires a transmit/receive turnaround time of 20 milliseconds or less.

If you're interested in RTTY, you'll need a rig that can tolerate *high-duty-cycle* transmissions for extended periods of time. (CW and SSB are *low-duty-cycle* modes because they cause the transmitter to produce full output for only brief intervals.) Most modern rigs are rated for high-duty-cycle use, but some must be operated at reduced output.

Older rigs are often less tolerant of high-speed switching and high-duty-cycle transmissions. Mode-A AMTOR is impossible on many vintage radios. Most older SSB transmitters and transceivers should be RTTY compatible—although you'll have to be careful not to exceed their specifications for continuous output power!

Here's an easy rule of thumb for selecting an HF transceiver for digital applications: If you intend to operate packet or Mode-A AMTOR, buy a rig that was manufactured within the last five to ten years. If your only interest is RTTY, almost any good-quality radio made within the last 20 years will do the job.

VHF/UHF Radios

On VHF and UHF, packet is the king of digital communications. Because packet transmissions are relatively brief, you don't have to be concerned about duty cycles and output-power ratings.

Although FM transceivers are designed to transmit and receive human speech, most models also function well as packet radios. Nearly any VHF FM transceiver—base, mobile or hand-held—will work just fine.

The Computer

With all due respect to owners of Apple, Commodore, Atari and other computer brands, it's fair to say that IBM PC compatible computers have become the *de facto* standard in Amateur Radio. This doesn't mean that other models are unusable for digital communications, though. If you can get a terminal-emulation program for your computer, you're halfway there.

The second hurdle involves getting your computer to talk to you TNC or MCP (short for terminal node controller, the interface that lets you computer "speak" packet; and multimode communications processor, a term that describes a modern interface that allows you to work packet, RTTY, AMTOR, SW and so on with one "box"). Most TNC and MCP manufacturers provide information to assist you in wiring your computer to their devices.

Virtually any personal computer is sufficient to get you off and running. There are few factors to consider before making your choice, however:

I/O (input/output): Does the computer have an RS-232C serial port? Most digital interfaces require one.

Software: Is there a terminal-emulation program available for the computer?

Memory: How much random-access memory (RAM) is available? When it comes to RAM, the more the merrier.

Data Storage: Does the computer offer some form of reliable data storage (preferably floppy disks or a hard disk)?

Interference: Does the computer bombard your receiver with RF of its own making? How does it respond to *your* radio signals? Interference can be a major headache!

Support: If your computer suddenly becomes demented, is there anyone on the planet who remembers how to fix it?

The computer that's best for you will ultimately depend on your budget and your goals. If you're a little unsure about digital communications, start small and work your way up.

The Analog/Digital Interface

Getting your computer to talk to your radio is the job of the interface, which must accept digital data from the computer and translate it into audio signals (or on/off keying) for the transceiver, and vice-versa. Whether your talking about a packet-only TNC or the latest whiz-bang MCP, you're really talking about a modem—much like the ones used to link computers via telephone.

Multimode Communications Processors

As digital technology evolved, it wasn't long before someone said, "Why should I have to use one interface for packet and another for RTTY? Why can't they all be together in one box?"

Not only did manufacturers place packet and RTTY together in the same box, they added several other modes for good measure. The result was the *multimode communications processor* (or *MCP*)—probably one of the most popular pieces of equipment for the digital ham today.

Like packet TNCs, MCPs incorporate microprocessor design and internal memory. By issuing a single command from the computer keyboard, you can switch the MCP from packet (HF or VHF), to AMTOR, to RTTY or even CW. Some models also add fax, ASCII, NAVTEX and SSTV to their list of modes.

MCPs have brought a smorgasbord of operating modes within the reach of average hams. Their sheer convenience is addictive!

Digital Signal Processing

Now that you've been introduced to MCPs, it's time to tell you about an exciting new technology called *digital signal processing* or *DSP*—an entirely digital approach to decoding and encoding signals for various modes. Its main advantage is its flexibility.

For example, you can add a new digital mode to a standard MCP by replacing an IC chip that has been programmed with new software. This is fine as long as the unit can support the new mode. But what if you want the processor to perform a task that's beyond the capability of its existing hardware?

With a DSP processor, you can add virtually *any* mode to the unit by simply adding new software. Unlike standard communications processors, DSP units use software to directly encode and decode signals without depending on specialized hardware. The finer details are well beyond the scope of this column, but you'll be hearing a lot more about DSP in the months to come.

For detailed information on operating the digital modes, check out Chaper 9 of *The ARRL Operating Manual*. It's available from your favorite distributor or from ARRL HQ.

ANTENNAS & THINGS

BY JOE CARR, K4IPV

SIMPLE ANTENNAS AND ACCESSORIES FOR SIGNAL IMPROVEMENT

This is the first installment of a new bimonthly antenna column in *Popular Communications*. In future installments I will take a look at different antennas that operate in various popular bands from DC to daylight (well, maybe not quite that broad!) for shortwave listeners, VHF/UHF monitor/scanner listeners, BCB and VLF DX'ers, and others. I will also do a few product reviews of both antennas and antenna related accessories. There may even be a construction project or two . . . antenna related, of course.

What the column will *not* cover are non-antenna related topics and ham radio antennas. There is plenty of material around on ham antennas, including articles in *CQ* magazine, so we will not cover antennas for these bands. The thrust of the articles in this column will be practical. Antennas theory will be kept to a minimum (in fact, a deep null), while "how-to" build-it will be covered in depth. Most of the antennas that I will cover in this column either I personally, or any of several close friends, have built and tested. I welcome your input: suggestions, brickbats, kudos or bribes can be sent to me either c/o the editor, or at P.O. Box 1099, Falls Church, VA 22041. Now let's get down to brass tacks.

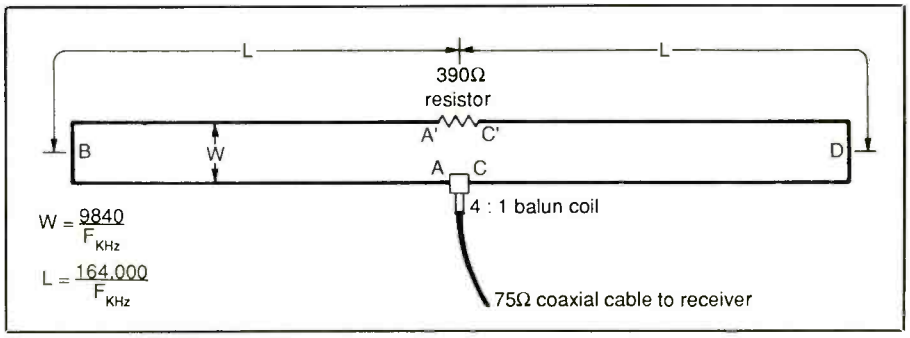


Figure 1

Build the TCFTFD Dipole

Several different "standard" high frequency (HF) antennas are used by shortwave listeners, but random length wires and dipoles are by far the most common. Both of these antennas are susceptible to noise pick-up from the local environment, with the random length wire being more susceptible than the half wavelength center-fed dipole. In addition, the dipole is rather long at low frequencies. For example, a 49-meter (≈6000kHz) dipole antennas is on the order of 77 feet long. The *tilted, center-fed, terminated, folded dipole* (TCFTFD, also sometimes called the T²FD or TTFD) is an answer to both the noise pick-up and length problems (the over-

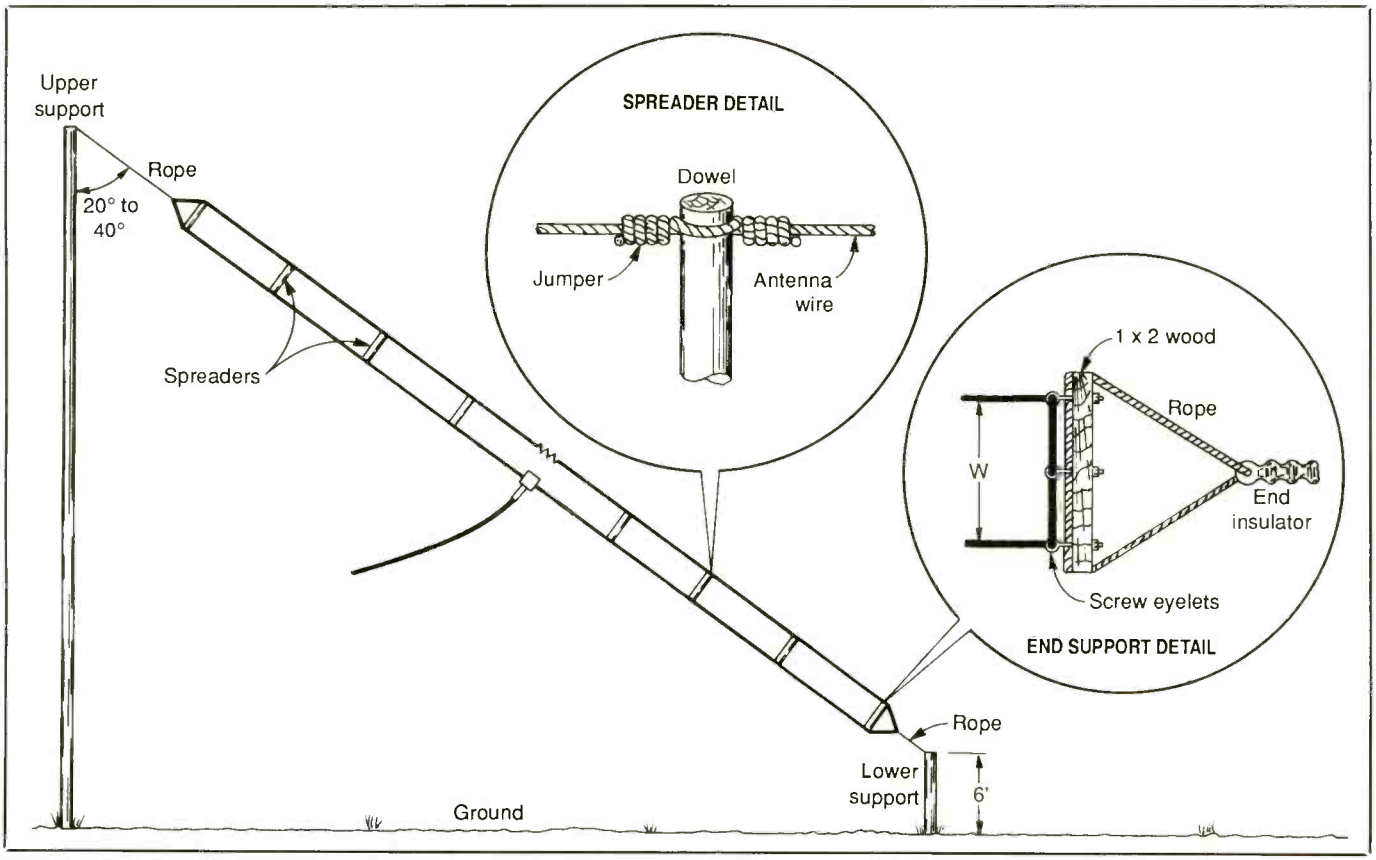


Figure 2

Table 1
Dimensions For Other Bands

Band	Length (L)	Spread (W)
41-m	23″	16.5″
31-m	16′11″	12″
25-m	13′11″	10″
22-m	12′	8.6″
19-m	10′8″	7.75″
16-m	9′3″	6.75″
13-m	7′7″	5.5″

all length for a 49-meter TCFTFD antennas is 54 feed). This antenna was first described in public in 1949 by Navy Captain C.L. Countryman, although the U.S. Navy tested it for a long period in California during World War II. The TCFTFD can offer claimed gains of 4 to 6 dB over a dipole, depending on the frequency and design, although 3 dB is probably closer to the mark.

In addition, the TCFTFD can also be used at higher frequencies than its design frequency. Some sources claim that the TCFTFD can be used over a five or six to one frequency range, although my own observations are that four to one is more likely. Nonetheless, a 49-meter antennas will work over a range of 6,000 kHz to 25,000 kHz, with at least some decent performance up into the 11-meter Citizen's Band.

The basic TCFTFD antenna, shown in Fig. 1, resembles folded dipole in that it has two parallel conductors, of length "l," spaced a distance "W" apart, and shorted together at the ends. The feedpoint is the middle of one conductor, where a 4:1 BALUN coil and 75-ohm coaxial cable transmission line to the receiver are used. A non-inductive, 390-ohm resistor is placed in the center of the other conductor. This resistor can be a 1-watt or 2-watt carbon composition or metal film resistor, by MUST NOT be a wirewound resistor. The TCFTFD can be built from ordinary #14 stranded antenna wire.

For a TCFTFD antenna covering 49 through 11 meters, the spread between the conductors should be 19½ inches, while the length (L) is 27 feet. Note that length L includes one-half of the 19-inch spread because it is measured from the center of the antenna element to the center of the end supports.

Construction of the antenna is shown in Fig. 2. The FCFTFD is a sloping antenna, with the lower support being about 6 feet off the ground. The height of the upper support depends on the overall length of the antenna. For a 49-Meter design the height is on the order of 50 feet.

The parallel wires are kept apart by spreaders. At least one commercial TCFTFD antenna uses FVC spreaders, while others use ceramic. You can use wooden dowels of either 1-inch or 5/8-inch diameter, although a coating of varnish or urethane spray is recommended for weather protection. Drill two holes, or a size sufficient to pass the wire, that are the dimension "W" apart (19-inches for 49-Meters). Once the spreaders are in place, take about a foot of spare antenna wire and make a jumper to hold the dowel in place. The jumper is wrapped around the antenna wire on either side of the dowel and then soldered.

The two end supports can be made of 1x2 wood treated with varnish or urethane spray. The wire is passed through screw eyes as shown in the inset to Fig. 2. A support rope is passed through two holes on either end of the 1x2, and then tied off at an end insulator.

The TCFTFD antenna is noticeably quieter than the random length wire antenna and somewhat quieter than the half wavelength dipole. When the tilt angle is around 30 degrees, the pattern is close to omnidirectional. Although a litter harder to build than dipoles, it offers some advantages that ought not be overlooked. The dimensions given above will suffice when the "bottom end" frequency is the 49-Meter band, and it will work well on higher bands. For other bands (and higher) use the dimensions in Table 1.

Joe Carr is a well-known technical writer with a quarter century of experience. He is employed as an electronics engineer, and worked for 16-years as an electronics technician. He is a ham radio operator, and has held the callsign K4IPV since 1959. His shortwave listening activities go back to 1957 when he used a Knightkit regenerative shortwave receiver, which was soon replaced by an aged Hallicrafters S-20R. Today, his equipment is a bit better. Joe is the author of Practical Antenna Handbook (TAB Books, Blue Ridge Summit, PA 17294-0850; Catalog no. 3270, $21.95; 1-800-233-1128) and the forthcoming Joe Carr's Receiving Antennas Handbook *(HighText Publications, Inc. 7128 Miramar Road, #15, San Diego, CA 92121.)*

BROADCAST DX'ING

BY ROGER STERCKX, KVT1JH

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

Gone, But Not Forgotten: Last year, two related broadcasters in Herkimer, New York, went dark. These were WYUT/1420, and WMYL/92.7 (ex-WYUT-FM). These stations played old favorites and big band hits, but eventually they ran into rough financial problems. It ended up with $240,000 in liens and judgments from the landlord, the stations' news service, and the tax collector. That's when operations ceased.

These stations did have an a devoted audience, though. One couple, former listeners from nearby Middleville, has been trying to arrange to put the stations back on the air. They said they aren't interested in making any money, just returning this type of music to the airwaves for the many area people who enjoyed it so much.

Last February they were attempting to see if they could take over the licenses of the stations without also having to assume the previous owner's debts and liens. With prompt FCC and court approval, the stations might even be back on the air by the time you read this.

Plans included upping the AM power to 5 kW, and putting up a new AM tower north of Herkimer, on Steuben Hill. Both stations would simulcast on a 24-hour basis, retaining the same format of music from the 1940 to 1970 era.

Temporary studios were being planned in the new owner's home in Herkimer. Some of the former deejays were being asked to return to work at the revamped station in the event all of the pieces of the deal fall into place as planned.

We appreciate this information from Gary K. Hamlin, N2OHO, and Registered Monitor KNY2AAW, of Utica, NY.

Format Matters: As you may know, American stations have been known to change formats practically on the spur of the moment. It's a matter of audience and advertiser response, ratings, and what management decides. You may not know that Canadian broadcasters must face their formats with considerably more respect.

According to a piece by Fred Langan in *The Christian Science Monitor*, stations in Canada have their formats listed with the federal government. It used to take more than six months of paperwork to get a format changed, but recently relaxed regulations have made format changes a little easier.

At least a station can mix soft and hard rock now and not run afoul of the rules. On the other hand, if a rock or a country station decided to run out too much folk music, or classical music, they could easily tangle with even the most liberalized rules. Under the present rules, a station is obligated to play at least 70 percent of its music from within its registered format. The other 30 percent can be from any format.

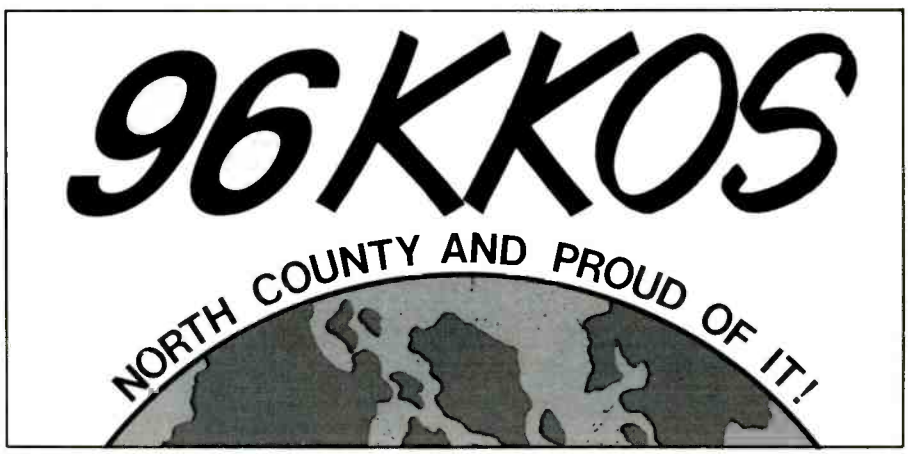
But that's not all, according to Langan. He mentions that the revised rules call for an increase in Canadian program content to 30 percent. It used to be 20 to 25 percent, which depended on the location of the station. Stations are unhappy about this change, which they see as restrictive, complex, and confusing.

The specific definition of what music counts as Canadian isn't always clear to station owners. Canadian Bryan Adams has an album regarded by the government as not being Canadian because the songs were co-authored by the recording's British producer. A song recorded by American Bonnie Raitt is considered Canadian because it was written by a Canadian. A number of smaller stations needed to hire an extra staff member especially to keep up with such matters, because the government watches for violations.

Other regulations do not allow computer-operated stations, and restrict small independently-owned stations from linking up to do network programming.

"3WE" isn't in Australia, it's really WWWE/1100, Cleveland, with a big-big signal heard from coast-to-coast. (Courtesy J.J. Bial, OH.)

Here's a station that you've probably heard, Louisville's WHAS/840. (Courtesy R.C. Watts, KY.)



KKOS, of Carlsbad, Calif., has a bumper sticker with environmental ideas printed on the reverse side. (Courtesy Steven O. Sellers, News Director KIOZ, San Diego, CA.)

Applications For AM Facility Changes

KDBS	Eugene, OR	960 kHz	Drop nites to 215 watts.
WNWZ	Germantown, TN	1430 kHz	Drop days to 2.5 kW.

Changed AM Facilities

KFLG	Bullhead City, AZ	1000 kHz	Dropped to 1 kW.
KTIM	Wickenburg, AZ	1250 kHz	Dropped to 350 watts.
WCEG	Middleborough, MA	1530 kHz	Increased to 1 kW.

Applied For FM Frequency Change

KDBH-FM	Natchitoches, LA	97.7 MHz	Move to 97.3 MHz.
KSAY	Ft. Bragg, CA	97.7 MHz	Move to 98.5 MHz.
WRLS-FM	Hayward, WI	92.1 MHz	Move to 92.3 MHz, 6 kW.

Changed FM Frequencies

KSSA-FM	McKinney, TX	95.3 MHz	Moved to 106.9 MHz.
KXKX	Knob Noster, MO	105.5 MHz	Moved to 105.7, 13.5 kW.

Applications For New FM Stations

CA	Middletown	98.7 MHz	
IL	Danville	105.5 MHz	2 kW
IL	Pittsfield	89.3 MHz	42 kW
IN	Loogootee	88.7 MHz	2 kW
KY	Harold	104.9 MHz	
NM	Eunice	100.9 MHz	3 kW
NM	Grants	105.5 MHz	100 kW
OH	Richmond	104.3 MHz	
PA	West Chester	91.7 MHz	100 watts
SC	Belton	88.5 MHz	50 kW
TN	Tusculum	103.1 MHz	
WI	Goodman	91.3 MHz	422 watts

Permits Issued For New FM Stations

AR	Eudora	101.5 MHz	3 kW
CA	Baker	101.5 MHz	4.6 kW
CA	Rio Dell	107.1 MHz	3 kW
FL	Inverness	90.1 MHz	4.5 kW
FL	Vero Beach	99.7 MHz	50 kw
HI	Hilo	95.9 MHz	50 kW
ID	Eagle	107.9 MHz	1 kW
ID	Wallace	100.7 MHz	52 kW
KS	Clearwater	98.7 MHz	6 kW
KY	Stamping Ground	99.1 MHz	3 kW
MO	Ottervill	107.7 MHz	6 kW
NC	Atlantic	107.3 MHz	6 kW
NC	Hatteras	94.3 MHz	6 kW
NC	Monroe	91.9 MHz	17.5 kW
NC	Roanoke Rapids	88.5 MHz	3 kW
NE	Norfolk	90.9 MHz	50 kW
NH	Manchester	91.7 MHz	Low power
NJ	Bridgeton	89.3 MHz	4 kW
NY	Monticello	99.7 MHz	6 kW
PA	New Philadelphia	91.5 MHz	3 kW
SC	Pawleys Island	98.5 MHz	6 kW
TN	Dyersburg	90.7 MHz	100 kW
TN	Newport	92.9 MHz	6 kW

Cancelled; Call Letters Revoked

KKOO	Caledonia, MN	94.7 MHz
KLEI	Kailua, HI	1130 kHz
KPDN	Pampa, TX	1340 kHz
KZOX	Macon, MO	99.9 MHz
WFTJ	Inez, KY	
WKZX	Presque Isle, ME	950 kHz

An interesting insight. We appreciate Elmer Wallesen, of LaGrange Park, Illinois, for passing it along.

Call Home: Broadcasters like to use call letters that somehow tie in with their station's location, program format, slogan, a local industry, meaningful initials, or similar. It's become quite fashionable to change call letters when a station changes its format. To accommodate the many stations wishing to change call letters to ones they feel relate to their true identity, or are at least easier for the announcers to say, and for the listeners to remember, there are companies that have database information on all currently available broadcast call letters. This information is constantly being updated, and it isn't at all uncommon for one station to discard a set of call letters only to have them immediately sought by another station.

The new 14th Edition of the FM Atlas is here!

Interestingly, broadcasters aren't always aware of the heritage of the call letters they assume. Not that it means a lot, but you'd think they'd be curious enough to have the whole story.

Lou Felton, of Easthampton, New York, sent in a news clipping to the effect that station WCTO/94.3 (ex-WGSM-FM) in Smithtown, New York, had changed its call letters to WMJC to go along with its new soft rock sound, and its slogan, *Magic 94.3*. The station manager was said to have mentioned that WMJC had been given up by an Indiana man who had hoped to open a station there.

The impression we got from that was that the planned Indiana station had been scrubbed. A little checking, though, revealed that what was once WMJC, in Bremen, Indiana, is still hoping to get on the air using 96.9 MHz. The difference is that now they want to be known as WYEZ, hence the availability of their previously assigned call letters. The Indiana station officially relinquished WMJC on February 10th. The recycled call letters were in use and on-the-air at the former WCTO on February 24th, 1992. That's fast!

Call letters that are often rather unappealing tongue-twisters that cause no end of headaches for announcers include those that come out sequentially from the FCC's license computer. You can see them every month in our new call letter assignment listings. This month, they include WXEA to WXEF, and WZJU to WZJX. *Ugh!* This is what stations get when they don't ask for a specific available call, or can't have what they asked for.

Some broadcasters are hip, or at least lucky. Their stations drew reassignments of some famous historic call letters. That preserves call letters like WENR, WCFL, WBOS, KFNF, WGAR, and many others that might otherwise have been assigned to ships. And how about WOLD, of Marion, Virginia? Their call letters were immortalized in Harry Chapin's song "W-O-L-D," about the burned out deejay who worked at a station with that callsign.

College Station: We got some good information from David Jessop Sage, of Aerocom Radio, Registered Monitor KMA1CW, of Boston, Mass. He let us know about WERS/88.9, Operated by Emerson College, in Boston.

WERS has 4 kW ERP, and uses an antenna about 900 ft. up on top of the Prudential tower. The station operates from 6 a.m. to 2 a.m. with plenty of folk music, jazz, and other varied programming for all tastes. David especially likes the Monday night program (8 to 11 p.m.) hosted by Athena Matsikas.

New "FM Atlas" Edition: The 14th Edition of the *FM Atlas* is now available. This 192-page directory is an up-to-date reference to

New Shortwave Call Letters Issued

WRMI	Miami, FL

New AM Call Letters Issued

KVSF	Santa Fe, NM

New FM Call Letters Issued

KAGM	Strasburg, CO
KCLM	Newport, OR
KPNO	Norfolk, NE
KWYA	Haliimaile, HI
WDAI	Pawleys Island, SC
WIVH	Christiansted, VI
WNPC-FM	Newport, TN
WQCX	Manchester, NH
WXEA	Broxton, GA
WXEB	Chateaugay, NY
WXEC	Nekoosa, WI
WXED	Morristown, NY
WXEF	Millbrook, AL
WXTM	Monticello, NY
WZJU	Wauseon, OH
WZJV	Glencoe, AL
WZJW	Norris City, IL
WZJX	Englewood, OH

Call Letter Requests & Assignments Withdrawn

KZPP	New Orleans, LA
WCRJ	Colonia Heights, TN
WWIU	Roanoke, VA

Requested AM Call Letter Change

Now	Seeks	
WMAX	WGVU	Kentwood, MI

Changed AM Call Letters

New	Was	
KBID	KBAD	Bakersfield, CA
KBSU	KUCL	Boise, ID
KCPX	KUTR	Salt Lake City, UT
KGLW	KATY	San Luis Obispo, CA
KHNR	KORL	Honolulu, HI
KLUP	KISS	Terrill Hills, TX
KMCL	KZID	McCall, ID
KSSM	KTUN	Santa Barbara, CA
KWHI	KTTX	Brenham, TX
KYYG	KYNG	Coos Bay, OR
KZUS	KTDO	Toledo, OH
WBZT	WPBG	W. Palm Beach, FL
WDJX	WXLN	Louisville, KY
WEZI	WODZ	Memphis, TX
WHBY	WYNE	Kimberly, WI
WIQB	WNRS	Saline, MI
WJIG	WDFZ	Tullahoma, TN
WPXY	WKQG	Rochester, NY
WXOL	WLKE	Oshkosh, WI

Requested FM Call Letter Changes

Now	Seeks	
KPAH	KHWK	Tonopah, NV
KQEM	KBRD	Seaside, OR
WHP-FM	WRVV	Harrisburg, PA
WRIP	WXCH	Versailles, IN
WTUB	WSCA	Georgetown, SC

Changed FM Call Letters

New	Was	
KFRQ	KELT	Harlingen, TX
KGLD	KROZ	Tyler, TX
KHCR	KWVB	Potos, MO
KINE-FM	KHFX	Honolulu, HI
KMBV	KNAV	Navasota, TX
KMCL-FM	KMCL	McCall, ID
KRCI	KOUG	Avalon, CA
KRXX	KLXK	Minneapolis, MN
KSET	KAMA-FM	El Paso, TX
KTSW	KQEJ	New Braunfels, TX
KTTX	KWHI-FM	Brenham, TX
KWRV	KFTN	Sun Valley, ID
KZQQ-FM	KRPN	Roy, UT
KZUS-FM	KZUS	Toledo, OR
KZZP	KNVR	Paradise, CA
WBDK	WOMA	Algoma, WI
WBPP	WESI	Strasburg, VA
WCMM	WTIQ-FM	Gulliver, MI
WCTW	WQKZ	Catskill, NY
WDJX-FM	WDJX	Louisville, KY
WDSP	WZQF	Lecanto, FL
WFNN	WLQE	Villas, NJ
WIQB-FM	WIQB	Ann Arbor, MI
WJWV	WYHD	Ft. Gaines, GA
WKDW-FM	WSGM	Staunton, VA
WKLK-FM	KOUV	Cloquet, MN
WLET-FM	WZLI	Toccoa, GA
WMJC	WCTO	Smithtown, NY
WODZ-FM	WFGI	Germantown, TN
WRTM-FM	WYHF	Ripley, TN
WVRI	WSTF	Cocoa Beach, FL
WYEZ	WMJC	Bremen, IN
WYZM	WIMN	Waunakee, WI

the FM broadcasters of the USA, Canada, and Mexico. The new edition has 94 pages of maps to help pinpoint some 7,250 FM stations. The station directory sections are arranged by geography and by frequency. Information provided includes program formats, stereo and tech data, "non-ID's," multicity ID's, and stations carring "hidden" programming on their subcarriers. FM translators and boosters are covered in a special section. There are also a number of worthwhile editorial features on various topics such as improving your FM reception, etc.

This new edition is $10.95, plus $3.50 for UPS shipping (sent by First Class mail to military addresses, AK, HI, PR, GU, VI, and Canada). It may be obtained by mail from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725. Residents of NY State please add $1.15 tax.

Freedom of Speech Issue: FCC broadcast regulations allow for programming aired in the evening hours to be more adult-oriented than those broadcast during the day. Even within those rules, it's still the FCC's call as to what they'll consider acceptable adult-oriented programming and what they won't accept. For daylight hours, though, they have a short fuse when programming goes out that they feel is beyond their standards for acceptable language.

At 5:10 p.m. on March 30, 1987, and between 2:30 and 4:30 p.m. on August 19, 1987, the FCC decided that the programming of Chicago's WLUP/1000 (50 kW) was "indecent." The FCC declared that it was a

violation of Section 1464 of the Communications Act which prohibits utterances of "any obscene, indecent or profane language by means of radio communication." Subsequently, the FCC imposed a monetary forfeiture of $6,000 on WLUP.

WLUP didn't pay this, and denied liability. A follow-up reminder from the FCC about the payment did not bring forth the desired payment, and the FCC has now decided that the station's desire is to settle the matter in court.

The US Supreme Court agrees that the FCC can impose limited hours when "indecent" programming may be broadcast. The problem has long been for anybody to come up with a clear determination of indecency, what with uneven and constantly changing community acceptance of such things. Furthermore, it's difficult to be too specific since a certain word used by a deejay or in a joke would be considered indecent, but might well be found acceptable when used in readings from the works of classic authors like James Joyce, Shakespeare, and others whose language was uninhibited.

The FCC is at its best when establishing tech standards, licensing broadcasters and sorting out problems of interference. The agency, as representative of the federal government, begins to get in over its head when it seeks to regulate free speech and to set community standards for "acceptable" language. People (including children) aren't likely to hear anything via a broadcaster that they haven't already heard elsewhere. Tuning dials and on/off switches are put on radios for people who don't like what stations have to say. Audiencies don't want these decisions made for them by the government.

We wish WLUP luck in their efforts to determine their own programming. Broadcasting is a tough enough business these days, as it is, without it being made all the more difficult.

Meanwhile, KFMH, of Muscatine, Iowa, and WWZZ, of Karns, Tenn., were recently sent FCC letters asking for more information relating to the possibilities that they may have violated the agency's indecency regulations. Reportedly, the FCC is interested in learning more about a allegedly told on KFMH, and a station promo used on WWZZ.

Bring Back The "Good Guys": Long ago, New York City's WMCA/570 was a rock station known far and wide as the home of the "WMCA Good Guys." That was many years, many formats, and several owners ago. More recently, WMCA has run a mostly religious-oriented format. That didn't stop the station from getting hit with an FCC notice of apparent liability for $12,500.

The forfeiture stems from a complaint alleging that a weekly program, *Healthline*, was a paid-for program but not identified as such. In response to FCC inquiries, WMCA stated that the Dr. Stuart Berger purchases the entire block of time from the station for this program, using it to discuss health issues and promote his medical practice, also selling time to sponsors promoting products.

The FCC decided that the content of the program alone does not make it clear that *Heathline* is paid for by Dr. Berger. Although WMCA has taken steps to correct the situation, the FCC penalty was for past violations.

Opening Up The Market: FCC regs long limited single licensee ownership of a maximum of a dozen AM and a dozen FM stations, with no more than one of each in any given market. The FCC has now changed this to permit 30 AM and 30 FM stations to be owned, with multiple stations in a single market.

We will be at this spot on the dial next month. Hope you will, too. Let us hear from you with news clippings, photos, bumper stickers, recent AM/FM QSL's, format changes, station info, and what-have-you.

NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

Multiband, Multimission VHF/UHF Radio

New from Harris RF Communications Group is a multiband VHF/UHF radio transceiver designed to meet the multimission, multiwaveform requirements of modern international defense forces.

The AN/PRC-117D(E), which was introduced by Harris specificallly for export markets, provides multiple frequency bands in one compact lightweight manpack radio set. The AN/PRC-117D(E) operates in VHF-FM, VHF-FM/AM and UHF-FM/AM frequency bands and provides for line-of-sight (LOS) operation in all bands, giving complete mission flexibility for ground-to-air, ship-to-ship, ship-to-shore and ground-to-ground communications.

The AN/PRC-117D(E) is interoperable with most tactical radios, including fixed frequency VHF and UHF systems. Waveforms include AM and FM modulation, and Harris' proprietary ECCM frequency hopping. ECCM capability is available in all bands in all line-of-sight modes, and is interoperable with fielded AN/PRC-117A and AN/VRC-94A(V) series radios.

When used with the built-in RF-3995 digital encryption option, the An/PRC-117D(E) provides advanced communications security in the voice and data modes. The RF-3995 uses a proprietary pseudorandom key-generator algorithm with up to 10^{52} possible combinations.

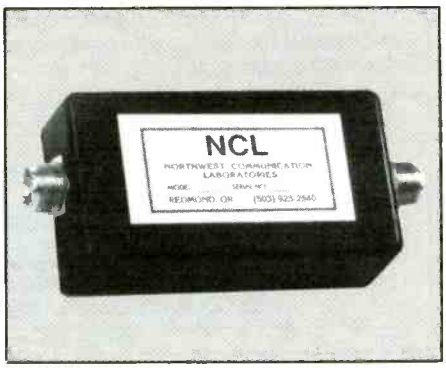
The unique combination of multiple frequency bands and waveforms available in the AN/PRC-117D(E) effectively reduces the number of radios needed to provide the same communications capability.

The AN/PRC-117D(E) is available in manpack and vehicular version. The complete manpack radio set weighs only 15.2 lbs (6.8 kg), including battery, antenna and handset. The vehicular version is available with either 10 or 50 watt output.

For more information, contact Harris Corporation, 1680 University Ave., Rochester, NY 14610.

Broadcast Interference Filters

Northwest Communications Laboratories has developed Broadcast Band Interference Filters for the monitoring enthusiast who is plagued with the hash, splatter, and noise typically present when trying to monitor the spectrum above and below the AM broadcast band. This interference can be particularly troublesome if your station is in close proximity to the AM broadcast transmitter. In some cases, Very Low or High Frequency reception is impossible.



The Model 100 and 200 allow frequencies below and above the AM broadcast band to pass freely while blocking broadcast band energy from reaching the receiver. If these large signals are allowed to reach the receiver input, they would overload the preamplifier and mixer stages. This causes the problems typically referred to as Broadcast Band Interference (BCI). The Model 100 allows clean reception below the AM broadcast band while the Model 100 is used for reception above.

These filters employ Chebychev design circuits that provide 40 dB of broadcast band attenuation. They are compatible with all tuners, preamplifiers, and lightning arrestors. Their input and output impedance is 50 ohms, allowing for direct connection to most communication receivers with a shielded jumper cable (not supplied).

Their construction gives the user great flexibility in choosing a mounting location that best suits the station. The case is cast aluminum with a weather sealed interlocking cover to eliminate stray RF energy or moisture. The circuitry is encapsulated for immunity from either shock or vibration, and provides additional moisture protection. In addition, NCL offers a variety of mounting brackets, connector styles and shielded jumpers to make installation even easier.

If your are not lucky enough to live in an area free of AM broadcast transmitters, or just want to have an extra measure of receiver selectivity, the Model 100/200 family of Broadcast Interference Filters is for you.

For info contact: Northwest Communications Laboratories, 813 SW Highland, Suite C-310, Redmond, OR 97756.

Attenuator Box For Transmitter Hunters

Electron Processing announced a necessary tool for everyone involved in the fun of transmitter hunting. Reducing the signal received to a meterable level is easy with our SGR-1 attenuator box. Accurate signal comparisons of strong signals and a simple tool to aid in receiver alignment are two of many uses for this handy device.

The SGR-1 is a three section 50 ohm attenuator box that allows you to switch in or out up to 50 dB of attenuation in 10 dB increments. Easy operation via three toggle switches. Ruggedly constructed and compact, the SGR-1 is ideal for hunting down interference sources. Connection is easy via the two female BNC connectors provided.

The SGR-1 is priced at $50, plus shipping for additional information, contact Electron Processing, Inc., at PO Box 68, Cedar, MI 49621 or circle 101 on our Readers' Service.

Hi-Tech British Radios Now Available

Lowe receivers are now available in the U.S. and Canada. High quality design, construction and performance are the trademarks of these British radios. HF150 is the latest Hi-tech receiver, covering 30 kHz to 30 MHz, AM, SSB, and Synchro detection. It is equipped with 2.5 and 7 kHz filters, 60 memories, and a large LCD readout. It accepts three antennas, balanced wire, whip and 50-ohm. Optional keypad entry, 10-15 VDC power 150-250MA, opt 8 NiCad or ALK AA batteries, and opt. AC adapter. All metal alloy case, only 7.3″ × 3.2″ × 6.3″ and weighs less than three pounds.

This dynamite package performs with the big boys yet has a small price tag—under $700. HF225 and HF235 are also available.

For more details call/fax or write EEB, (800) 368-3270, FAX (703) 938-6911, 323 Mill Street, Vienna, VA 22180.

PIRATES DEN

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

The deck's awash in reports again so let's get right at it, again giving emphasis to the newer stations.

WEFR - Worldwide Free Earth Radio was noted by Shawn Miller, Georgia, on 7412 from 0341 with hard rock and claiming to be in the Yucatan Peninsula. QSL via Blue Ridge Summit.

Paul Ecke in Louisiana found **The Voice of Anarchy** with "Leonard Longwire" on 7451 8 to 0208 close, giving a Chicago location. Skip Harwood, California had them at 0135 on 7419. Mark Mayhew had them on 7415 at 0145 with "Larry Longwire". Greg Martin, Michigan, found them with "Woodstock" excerpts at 0758. Mac Woodman, Georgia had them on 7415 at 0015.

DC Radio showed for Janet Whitney, Virginia, on 7416LSB at 1800 with the "Al Sikes Show" and an interview with a claimed former CIA agent. Pat Murphy, Virginia had them at 1925, requesting reports to the ACE bulletin

William T. Hassig, Illinois, had **RFM** on 15050 at 2207 in French and English, with the POB 109, Blue Ridge Summit address.

WFRC International, heard on 7415 at 0733 by Anthony Doriguzzi, Pennsylvania, with hits, fake commercials and mentions that it was a New Year's Eve, 1989, so perhaps a rebroadcast?

RCVN on 7416 at 0328 giving an address of: RCVN, Attn: QSL Manager, POB 17534, Atlanta, GA 30316. Carrying the "Good Time Radio Hour" of country western and rock, says Walter Talbot in Pennsylvania. Mac Woodman ID'd this as RBCN (Bob's Communications Net). Harwood had this at 0330 with Radio Bob and the Voice of Shakerag, later stepped on by three other operators.

Voice of the Night, noted by Woodman at 0250 on 7415 with humor and classic rock, Slinky Toy theme song, Pittsburgh address. Murphy heard this on to 0400 close with commentary on the state of pirate radio, old movie themes. Woodman found this at 0015.

Harwood had **Rastifarian Radio** on 7419.5LSB at 0500, reggae music, address of POB 25302, Pittsburgh, 15242. Robert Ross, Ontario had them on 7417.5LSB at 0138, announcing 7416 and "the only pirate station that plays reggae music."

EXPR - Experimental Propagation Radio, on 7416 at 0416, reports Talbot who heard "John" mention 100000 microwatts of power. Harwood had them at 0420.

WQRV, the Rock Radio Network, with Dr. John Thomas, humorous commercials, classic rock. Off at 0437 says Woodman.

KCMR - Magic Carpet Radio, heard by Harwood at 0310 on 7416 with talk show, "Magic Mike, "Wanda" and new YL child as DJ. Skip had them another time on 7420 at 0255.

Greg Martin heard **Radio Gloria International** on 7415 via "a special North American relay station" at 2023. Address given as 23 South Beechwood, Edinburgh, Scotland, EH125 YR.

Harwood heard **WJFK** on 7415 at 0130 with loop tape of "Loony Tunes" theme.

Another Harwood log was **KQRPP** at 0135 on 7416, stepping on WJFK a few times.

Q-102 noted by Murphy on 7420 at 0535 with lots of transmitter problems, commercial spoofs, no QSL info.

Murphy also head **WRPD** on 7415 at 2140 with mostly heavy metal rock, ID "This is WRPD, our initial broadcast" and reports to Blue Ridge Summit. Pat says the announcer had a "laid back whisper" style.

Another Murphy log was **WCYC** at 0027 on 7415, claiming a Kentucky location and giving the Blue Ridge address and offering a special QSL for detailed reports.

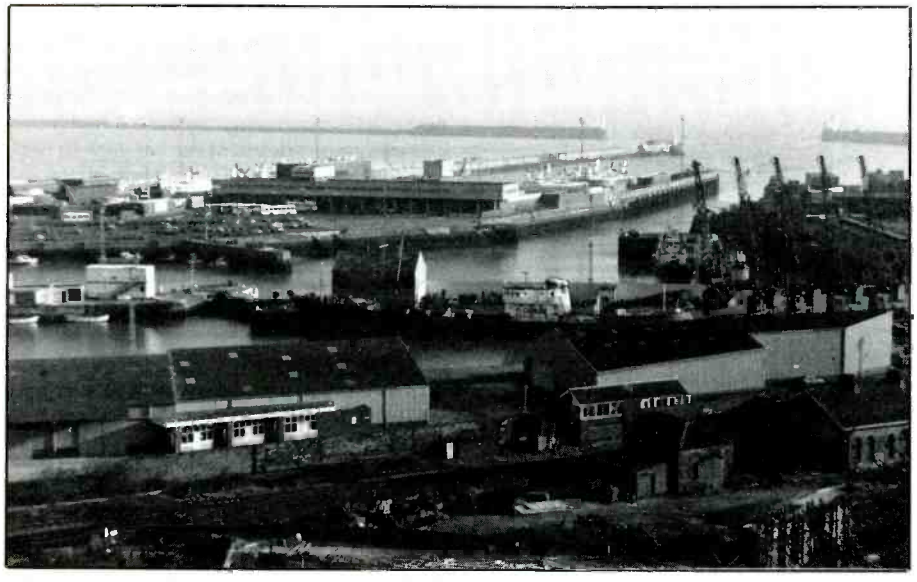
Harwood had **KRPP** 7415 at 0235 with talk, **Radio Underground** on 7415 at 0400 with a humor program and **Action Radio** on 7416 with rock songs at 0315.

East Coast Beer Drinker was logged by Murphy on 7415.95 at 0402 - "This is the East Coast Beer Drinker" and "Emergency Beer Drinking System test", relay of Radio Gemini. Harwood had this at 0410.

Other stations reported this time: KXKVI - Interplanetary Radio, 7415 at 0335 by Harwood; WLIS, 7415 to 2336 by Murphy; WQRV-7415 to 0513 (Murphy); WSKY-7415 to 0308 (Murphy) and 0230 (Woodman). CBOR-7415 at 0145. (Woodman). There were many reports of Radio USA, including those from new reporters Gary Heindnen, Minnesota; Chris Thompson, Connecticut; and Shawn Miller, Georgia.

POINT OF ORDER - I am never sure when "LSB" or "USB" are included in your reports just whether you mean the broadcast was in that mode or you used that receiver setting to improve reception. "T'wud help if you could specify.

Out of space. Thanks for your reports - keep 'em coming! See you next month! ■



This is a photo (center) of the famous Radio Caroline ship, the Ross Revenge, now in the port of Dover, England. The last broadcast from the ship was in the fall of 1990. It remained anchored in international waters until late November last year when it broke free and was towed to Dover where it faces an uncertain future. (Thanks Mike Smith, Cambridge, England).

CB SCENE

27 MHz COMMUNICATIONS ACTIVITIES

BY BILL SANDERS, SSB-295

We always like Cobra's products, not only because they're excellent, but because Cobra goes back a very long way in CB radio and has continued to produce for the field long after many other manufacturers quit CB. Cobra has supported CB, and that's given them a special place with us, and with many operators.

One of the Cobra rigs we particularly like is their Model 25LTD Classic. Here's a good looking rig with an MSRP of about $160. Its got that distinctive Cobra look, but the important thing is that it's small while having big performance.

If you prefer an actual meter on your rig's front panel to LED's for your S/RF-meter, this rig has one. It has separately switchable ANL and NB circuits, plus a large channel switch knob. There's an RF gain control, and a mike gain control, a dimmer switch, and big green LED channel read-out.

The unit is approximately 6 inches wide, 2 inches high, and 8 inches deep. It weighs less than 4 lbs.

Ask about it at any of Cobra's many dealers.

Pop an eyeball on Cobra's Model 25LTD Classic. We have always appreciated Cobra's loyalty to the CB'er.

Tram was one of the few CB manufacturers ever to achieve truly legendary status. This is their Model TR-70, from 1963.

Lynwood Geddings' beautiful collection. The set at the upper right is a Hallicrafters S-40A receiver, but everything else is pure Tram, and just great.

Oldies

In the history of CB radio, there have been a mere handful of companies that became legends because of their exotic, high-priced, high-quality equipment. Browning was one of them, and Tram Electronics was certainly also on every list. This was a small company in Winnisquam, New Hampshire. Run by Ron O'Callahan, it came on the CB scene about 1963 and was active until at least the late 1970's. It produced beautiful equipment.

One of Tram's first units was the the TR-70, which came out in 1963. This mobile rig had six transmit and receive channels, plus all-channel tunable receive. The dual conversion receiver had a switchable series gated NL. The transmitter had a pi-network, plus a built-in low pass TVI filter in the days when they weren't necessary. The circuitry equaled 17 tube performance, plus a transistorized 6 and 12 VDC power supply. It sold for $225, which was a lot more money 30 years ago than it is today.

Trams have become quite collectible. One of our readers, Lynwood Geddings, of South Carolina, has been lucky enough to assemble representative samples of the Tram 2, Tram TR-2A, Tram 4, Tram TR-27D, Tram D201, Tram D-201A, and Tram D-300. Lynwood is still looking for a Tram TR-27E. If anybody has one for sale, contact Lynwood at RR 7, Box 315, Sumter, SC 28150.

Dr. DX, Unit 198, also known as Dave (location unknown), wrote to ask why we bother to devote any space here to "old equipment." Otherwise, he likes the column a lot.

The reasons why are simple. Readers asked for this feature, and it attracts a considerable amount of favorable mail. Who was it that once observed that without knowing where you've been, you can't know where you're heading?

From The Mail Sack

Another letter has arrived from *Black Sheep*. We mentioned him a few issues back. He's the fellow who told us that several of the legal bordellos in Nevada are CB equipped for communicating with passing motorists, especially truckers.

This time, *Black Sheep* snapped a photo of *The Cottontail Ranch*, at Lida Junction, Nevada. This is in the middle of nowhere, at the junction of US 95 and Nevada 266, which is not far from the California border.

In the photo, it looks to be a *Big Stick* antenna mounted on a few sections of TV mast anchored to the front of the building. We thought of a couple of clever CB handles they might use, but won't mention them here.

A note from Jerry M. Stuart, Box 2652, Lawton OK 73502, questions the warranty policy of Midland International. He returned his set to the company because it had a circuit problem. They sent the set back to him without fixing it, advising that any scratches on the top or the bottom of the case void the warranty. He didn't ask them to fix the scratch on the case, just to make the set work again.

We have never heard of this problem before, Jerry, and we can't understand why they wouldn't repair the unit solely because of a scratch on the case. Perhaps other readers can come up with some expertise on this; there must be more to it than the information we have been given.

Thanks came this way from Paul S. Ryan, Marlborough, Mass., who liked the home-brewed CB apartment antenna we showed here in March. His landlord doesn't allow CB antennas, and that had Paul off the air for four years. Our antenna saved the day!

Day Of The Computer

From a hidden location in Massachusetts,

A photo QSL of the shack at Unit 876, operated by Dan MacNeil, North Vancouver, British Columbia, Canada.

Izzat Tom Cruise? Nah, it's Dave, "Dr. DX." Watch out Dave, the class monitor will see that odd looking box on your shelf and we'll get another letter telling us to watch our step.

a letter arrived via E-mail and FAX from Michael C. Tiernan. It had no less than six E-mail computer return addresses, but not one postal reply address was provided with the name of a place where people live. Mr. Tiernan observed that in the March issue we ran a CB QSL card showing a DX contact. He guesses that Hungary might be more than 150 miles away. Therefore, he noted, unless the FCC has changed its CB "laws," he wished to put us on notice that we were therefore promoting violation of those "laws." He suggested that we "watch the way" we write such things up.

We do watch the way we write such things up. That's because we type with only two fingers and need to continually look at the keyboard while we write. However, we would like to remind Mr. Tiernan that we did not invent DX CB operation, and it was the FCC's sole decision to locate the CB service in the DX-rich 27 MHz band. DX'ing on CB has been heavily done without stop since late 1950's, though it has always been forbidden by FCC regulations. Furthermore, FCC regulations are not "laws," as Mr. Tiernan claimed.

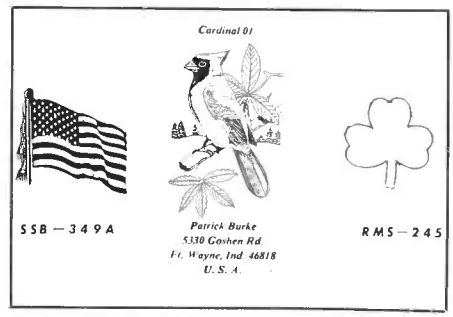
We don't promote, endorse, encourage, or instruct in the practice of CB DX'ing. Even though we are not an arm of the FCC, we nevertheless mention what their regulations are, no matter how unrealistic and ineffective those regulations might be.

We do have our limits. We don't enforce the FCC's CB regulations, nor bash our readers over the head with them, nor lay a guilt trip on any readers who elect to deal with them in their own way. That's between each individual reader, his or her own conscience, and the FCC.

Is there any logic in the idea that by our ignoring certain unauthorized practices, we can make them cease to exist? Or, on the other hand, when we mention the practices, we are promoting them? Our readers want to know what's happening on the band. As the only national CB news medium, we feel it is easily within the scope of our coverage to mention DX in our coverage as appropriate. When newspapers and broadcast media either lose the right or voluntarily stop mentioning unauthorized practices, for sure, we'll reconsider our own position.

In the mean time, we are thankful for at last

"Black Sheep" tells us this is the Cotton Tail Ranch, in Nevada. That's a CB antenna to the right of the telephone pole.



New QSL from Pat Burke, SSB Network member SSB-349A, and RMS-245, of Ft. Wayne, Ind. Good to hear that you're feeling better after the surgery, Pat!

having a class monitor. Just what CB needed.

Base Station Antenna Brainstorm

Setting up a temporary or emergency base station antenna usually involves either a lot of work, or else making do with a jury rigged *Mickey Mouse* antenna that loads up only slightly better than a piece of damp string. Here's an idea for getting you on the air with a minimum of time and trouble and very little outlay of *greenstamps*.

That makes it just the thing for vacationers, hunters, campers, or even commercial users at temporary sites. It's good for command posts, or for CB'ers who lost their base station antenna due to a storm. It's even a possibility for CB'ers who have just moved into new digs and haven't gotten around to putting up that new antenna. In other words, it's a wonderful cure-all for a wide range of base station antenna problems. Yet, it is very basic.

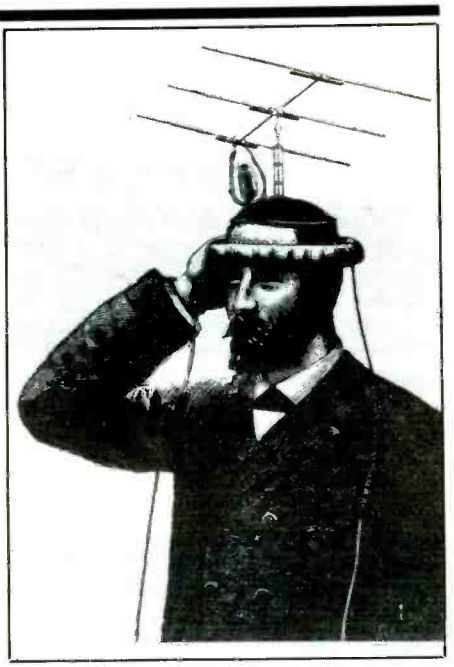
The point of the idea is to set up your base station and then use the antenna on your regular mobile installation for your base station. Why not? You spent time and money on the mobile antenna installation, and it probably does a good job. It's a professionally built and designed antenna, even having its own ground plane (the vehicle itself). So, it's got the makings of a base station antenna, and you can take it with you everywhere you go. Mostly it just sits there doing nothing while you make do with some temporary or less-than-fully-effective contraption.

If you have a rear mounted mobile vehicle antenna, open the trunk of your car. You then take a pair of wire cutters and snip the coaxial cable about 6 inches from the connection with the antenna. On the piece of cable that goes to the antenna, solder an SO-239 coaxial receptacle.

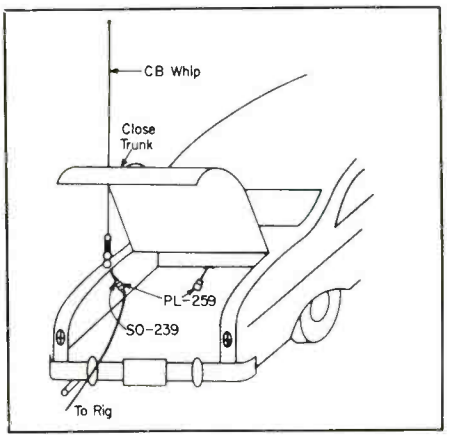
On the remaining piece of cable, the one that runs to the mobile CB in your vehicle, connect a PL-259 coaxial plug. When the mobile rig is to be operated, this PL-259 must be connected to the SO-239 receptacle on the antenna lead.

All that is left to do is to secure a length of coaxial cable of sufficient length to reach the vehicle from the location of your base station rig, and then attach a PL-259 to each end of that cable. You may wish to simply purchase a precut length of coaxial cable with the PL-259 connectors already installed. Radio Shack offers 50 ft. of RG-58 with connectors (catalog number 278-971) for $13.99, also 50 ft. of RG-8 with connectors (catalog number 278-980) for $32.99.

When using the mobile antenna for your base operations, park the vehicle as far from the transceiver as the cable length and other considerations will allow. Then, open the vehicle's trunk and connect one end of the coaxial cable to the mobile whip, the other to your CB rig. It may be necessary to use some duct tape in a couple of places to bear the weight of the coaxial cable so that this burden isn't borne by the connectors, the CB radio, or the coaxial lead from the mobile antenna.



We are thankful for having a class monitor who just became aware of what's happening on the band. With the FCC so busy, and the media so indifferent, it's just what CB needs!



Rear mount for hooking up a base station to the mobile unit's antenna.

It's going to be difficult, if not impossible, to shut the vehicle's trunk with the coaxial cable in place. An open trunk lid isn't good while you're operating, though. Get some sort of weight on the lid to (or rope) to hold it closed as much as possible.

Mobile mount CB whip? OK! Put it on the vehicle's roof and connect it to your 50 ft. length of coaxial through a type PL-258 coaxial coupler (Radio Shack 278-192).

Just one last thought. Don't forget to disconnect your base station from your mobile antenna before you use the vehicle. A CB rig makes a rather large hole in the window when tugged hard by a moving vehicle.

Hey, come back on channel in August. Send in your QSL or station photo, your comments and questions, and we'll be standing on the side till then. ■

BY GERRY L. DEXTER

CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

Radio Free Bougainville, which had just gone on the air in support of Bougainville's independence from Papua New Guinea, was off the air soon after it began. Authorities apparently raided and closed the station and are prosecuting the operator, Sam Voron, a 38 year old Australian from Sydney, who holds ham call VK2BVS. The station, operating from the small town of Arawa was encouraged and supported by the International Amateur Radio Network (operated from Maine by K1MAN). IARN says the station will return to the air.

Another clandestine station which was closed down has returned to the air. La Voz de la Federacion Mundial de Expresos a Politico de Cubanos operated on 7080 for a few brief and sporadic broadcasts last fall. The station was traced to a site in Tampa, Florida and closed down by the FCC. But it has popped up again, this time using 7417, running a so far very limited schedule which seems to be just Friday evenings (Saturdays UTC) at 0130 to 0145. The broadcast consists of Spanish language anti-Castro talks and strings of ID announcements. So far there's no known address for this one.

The Voice of the Democratic Alliance of Burma continues to be scheduled at the useless (for North Americans) time of 0130-0330 to 7137.5. The other Burmese clandestine offers more chance but we don't know of any logs for this one, either. Check for the Voice of the People of WA State on 5110 at 1300-1330.

The Voice of China, a freedom-type program being aired on shortwave via the Broadcasting Corporation of China (Taiwan) is announcing an address in the United States: P.O. Box 11696, Berkeley, CA 94701.

The Colombian clandestine station, Radio Patria Libre, is now said to have an "international service". But it airs only two times a month! It's scheduled at 2030-2040 and 0130-0150 on the first and 15th of the month on 14951.

Radio Free Croatia broadcasts on WHRI with a non-QSL letter which gives times and frequencies for the WHRI broadcasts as Mondays, Wednesdays and Fridays at 0100-0130 on 7315 and 9495, repeated at 0330-0400 on the same days. The letter says you can direct your reports to Radio Free Croatia, in care of WHRI, P.O. Box 12, South Bend, IN 46624. The letter also provides the current schedule for Croatian Radio Zagreb, which WHRI also relays Monday through Friday at 0000-0100 and Saturdays 0100-0200, repeated each day at 0400- 0500 on the two frequencies mentioned above. Thanks to R.C. Watts in Kentucky for sending a copy of that letter.

The half-pirate, half clandestine station Voice of Tomorrow has been sending out QSL's again, apparently still via the P.O. Box 314, Clackamas, CO 97015 address. It might be wise to address your letter only to the P.O. Box and not mention Voice of Tomorrow on the envelope. This station makes only three or four appearances per year. When it shows it has always been on 6240 or 7410.

RESISTÊNCIA NACIONAL MOÇAMBICANA
RENAMO

Renamo is back on the air with its Voz de Renamo station (The Voice of the Mozambique National Resistance).

The Voice of the Mozambique Resistance station (Voz da Renamo) has returned to shortwave and is reportedly using 9990 at 1500 to 1600 and 0500-0530. It still has not been reported by any monitors in North America. Vito Echevarria, who keeps a close eye on the Mozambique situation says he hasn't seen any info on the station in his various database sources. He suspects it may be broadcasting from South Africa, or possibly Kenya which, he notes, has been providing sanctuary and training for Renamo for the past couple of years. He notes that the original station, Voice of the Mozambique National Resistance was, according to a former member of the South African military, broadcasting from the Hillbrow Tower in Johannesburg.

Incidentally, the Voice of Taiwan, another clandestine which appeared using 9990 the same month as did Renamo has not been heard lately either.

The Voice of Palestine program, carried by Radio Algiers, has doubled in length, and now airs from 1700 to 1900 on 17745. The program is also carried via Radio Damascus, Syria, on 12085 and 15095 at 1630 to 1730, although this one is aired only irregularly.

Excellent reception of the Voice of Free Sahara, via Algeria, was being noted as this was being written. Check 15215 between 2200-2300. Programming is in Spanish.

That will cover things for this month. Remember that we welcome your clandestine station loggings, QSL news, address information, news clippings and so on. It's helpful if you put your clandestine information on a separate sheet from reports for the *Listening Post* column. Thanks.

Until next month, good hunting! ■

BY GORDON WEST, WB6NOA

Tone Call

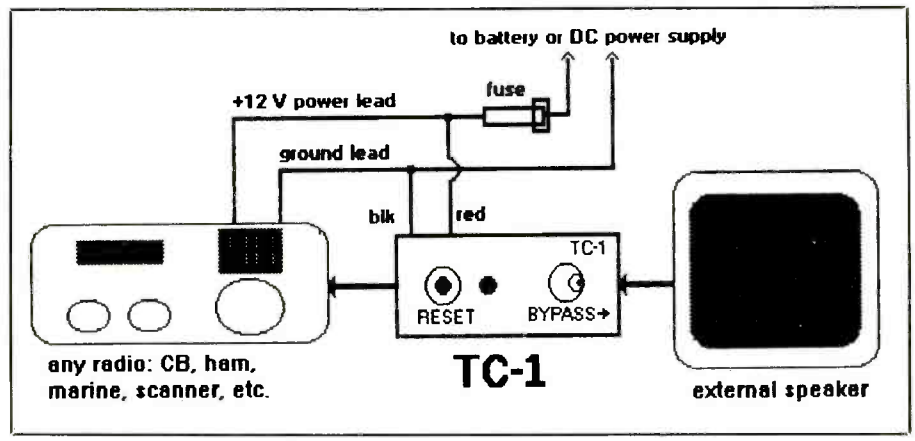
Two-way radio handheld transceivers are now small enough to work as pagers. Instead of carrying both your portable pack set, as well as a pager, a first responder might now have an all-in-one handheld transceiver.

Many rescue squads and emergency response teams still use the tried and proven two-tone selective signaling system. Two-tone calls normally take about 5 seconds to send, and as soon as your silenced receiver picks up your specific tone combination, it opens squelch and allows you to listen to the ensuing call. Base stations might also use the incoming tones to activate an alarm, flash a light, or even raise the automatic doors to your emergency vehicle garage.

While two-tone alerting and paging is still in use throughout the United States, many emergency response organizations are switching over to DTMF paging. "DTMF" stands for dual tone multi-frequency", and is also known by its trademark name, "Touch Tone® ". These are the exact tones you hear when you push the buttons on your home phone. Each button represents a pair of simultaneous tones, so the words "dual tone" mean two tones at the same time.

DTMF microprocessor chips were soon developed for not only sending out tones, but also receiving these tones, and activating a circuit. Amateur radio operators have been using DTMF to patch through to telephone systems for years, but it wasn't until recently that DTMF decode capabilities could also be available with just the inclusion of one more tiny chip inside the set.

Some ham manufacturers called it selective signaling, yet others called it digital squelch calling, still others called it dial tone signaling. Regardless of what name it goes by, a "DTMF" sequence could trigger a handheld, mobile, or base station to open squelch, and allow the operator to hear the incoming call. At all other times, regardless of channel activity, the radio would be absolutely silent.



Typical hookup of external decoder.

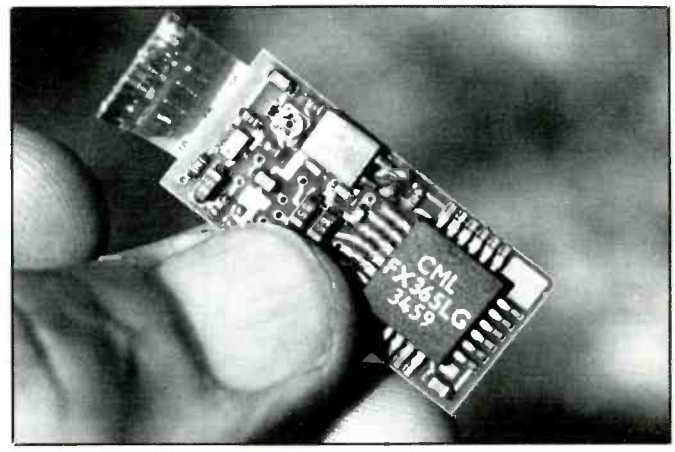
DTMF should not be confused with subaudible tone—subaudible tone mutes the receiver until that specific tone is intercepted on the airwaves. Subaudible tones are commonplace on both emergency radio bands and ham radio frequencies, and it keeps your receiver silent until your particular system comes up on the air. Until your receiver hears that single subaudible tone, it remains silent.

It is the DTMF sequence that holds the greatest utility for paging your emergency personnel as an entire group, or in specific groups, specific teams, or as individuals. The DTMF system is universal, and it makes no difference whether or not you all have the same brand of radio or not. As long as it has "DTMF" decode capabilities, you are all set.

Some equipment requires plug-in circuits for DTMF decode. Almost all mobile, portable, and base units have encode capabilities, but it's usually a $50 option for the little decode board module. It usually plugs right into newer pieces of equipment that may have decode capabilities.

On older equipment, as well as on most scanner receivers, DTMF decode capabilities are not available. But external add-on DTMF decoders are an easy way to add some new capabilities to your present equipment. Just unplug your external speaker, and plug in the decoder device to the external speaker output jack. Now plug your external speaker in-

The decode number for personal or group calling is key-pad entered in seconds.



Decode DTMF board may simply plug into your handheld transceiver.

This DTMF decode device adds to any radio receiver, transceiver, or scanner.

to the decoder output jack, and you are ready to enjoy full decode capabilities.

The Amateur Radio Engineering (PO Box 169, Redmond, Washington 98073) "Silencer" is a two to four digit DTMF decoder that adds to any scanner radio, any business radio, or any ham radio. It is an external box, and conceivably could even be used on a handheld set in a base charger.

The unit runs on 12 volts DC, and simply plugs into your radio equipment's external speaker jack. It programs up through a series of internal jumpers and dip switches. As supplied by the factory, the ARE-10 is programmed to decode the DTMF tones C, 5, 6, and 9. The C is fixed, and cannot be changed. The 6 is jumper programmable for any digit, and the 5 and 9 are programmed with a 10-position dip switch and can be set to any digit you want. Programming takes about 5 minutes.

When the toggle switch is in the "monitor" position, the decoder acts as an external speaker and the DTMF decoder is not active. When the toggle switch is in the "decode" position, the decoder is activated, and the speaker is muted until the proper DTMF sequence is received.

When the programmed sequence of DTMF codes are received, the speaker turns on for 10 seconds, to enable the user to hear a voice call. After this time, the speaker will again be silent, but the call indicator LED will stay illuminated so you know that you have received a call.

On equipment that has the decoder built in, setting up your own personal number requires some careful reading of the instruction manual. Let's say you are working with a local rescue squad, and they have split 10 radio operators into two 5-person teams. Let's call the teams "Team 1" and "Team 2".

Each member of Team 1 has a DTMF number group code of 111. Each member of Team 2 has a group code of 222.

If the dispatcher wants to get a hold of Team 1, they would simply send out a DTMF code of 111. All the other radios of Team 2 are silent because they did not receive their own group code.

If you carefully plan your numbers strategy, you could set up a DTMF calling system where you could call any one individual member, a group of 10 individual members, or call them all. This is known as "selective calling", and newer equipment now has this capability built in.

If your base station does not have DTMF encoding capabilities, an inexpensive Radio Shack (TM) DTMF encoder does the trick nicely (Part #43-139). Just hold the little telephone dialer firmly against the microphone, hit the transmit button, and then hit the proper digits.

In the "tone-call" TC-1 tone alerting system from Robert Bellville, PO Box 892, Northboro, Massachusetts 01532, his little $30 TC-1 module will work in any type of radio, and decodes a single DTMF tone picked off of the audio output section. The decode tone single digit is preset by the factory.

The DTMF system appears to be the most popular signaling system for the future. More and more radio sets now have multiple DTMF decode capabilities, and almost all newer radio sets have DTMF encode capabilities as soon as you take the unit out of the box. If it doesn't have a push-button microphone, you can sometimes buy it as an option. Even the little telephone dialer will work nicely through most radio transmitters.

So if you are tired of hearing all of the static on the channel you have been assigned, do consider DTMF decoding. Whether it's built-in, or purchased as an optional add-on box, it will really give your ears a break in the middle of the night. ■

BY DON SCHIMMEL

COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

A reader signing himself as "Listening Post in Winston-Salem, NC" wrote the following: "I like tinkering with old radios, and have recently gotten into 49 MHz. I've been scavaging old baby room monitors for the parts to build a five channel transceiver on the license free hobby band. I found a strange one called a "Baby Minder" made in Hong Kong in 1984. With the transmitter unplugged I heard CW identifier "LZB." When I hooked a longwire (150 ft) antenna to the receiver's ground, the signal level increased to a very clear listening level and some single sideband transmissions were easily heard."

I checked my references and do not have a LZB Beacon listed, but there is a LZB which is the Bulgarian Telegraph Agency in Sofia, Bulgaria operating on 7460 kHz???

Ary Boender in the Netherlands reported he had "close encounter" with the "P" beacon on 3807//4043 kHz. Here is what he said: "I tuned in at 2122 UTC. The beacon transmitted its 'P' marker in CW. At 2125, a transmission in RTTY started with a speed of 75 bauds. The messages were in 5L groups. At 2130 the 'P' marker took over again. I decided to monitor these frequencies for another hour, hoping the whole scene would start again at 2230.

I was lucky because at 2200 the show started again, but slightly different this time. Again there were 5L group messages. The schedule was as follows: 2159 CW 'P' marker. 2215 RTTY, 50 bauds, 5L group messages. 2229 CW 'P' marker.

The following two nights I tuned in at the same time, but only the 'P' marker was there. I heard the 'P' RTTY messages before, but I never noticed two different baud rates and such an extended transmission."

For quite some time I have been of the opinion that the designation of SLHFB for the above type single letter identifiers could be made more definitive by calling such signals SLHFM with the M standing for marker. At the risk of creating a controversy, I plan to label such transmissions in the logging section as SLHFM's in the future.

A note from Perry Crabill, VA indicated he is very satisified with his new Drake R-8 receiver. "I have logged five LW beacons not previously logged, including un-ID station GRT on 518 kHz. I use the same tuning technique I followed with the Kenwood R-5000; i.e., USB mode with the 0.5 Hz filter and Passband tuning. The R-8 notch filter skirts seem a little steeper. The Noise Blanker is very good, on a par with the R-5000."

Retired FAA Supervisor Ralph Craig, OH was the first to identify the mystery installation which Ernie Rice, OH had photographed. Ralph described the site as a LOM (Locator Outer Marker) combined with a OM (Outer Marker). "The antenna that is 'vee' shaped (B in Fig. 1) is a dipole backed by a reflector with a director in front. It is the antenna for the Outer Marker. The beam projected by the antenna is a fan shaped pattern, wide in width and narrow in thickness. The beam is orientated perpendicular to the centerline of a runway. The transmitter operates on 75 MHz and is modulated with continuous dashes at an audio frequency of 400 Hz.

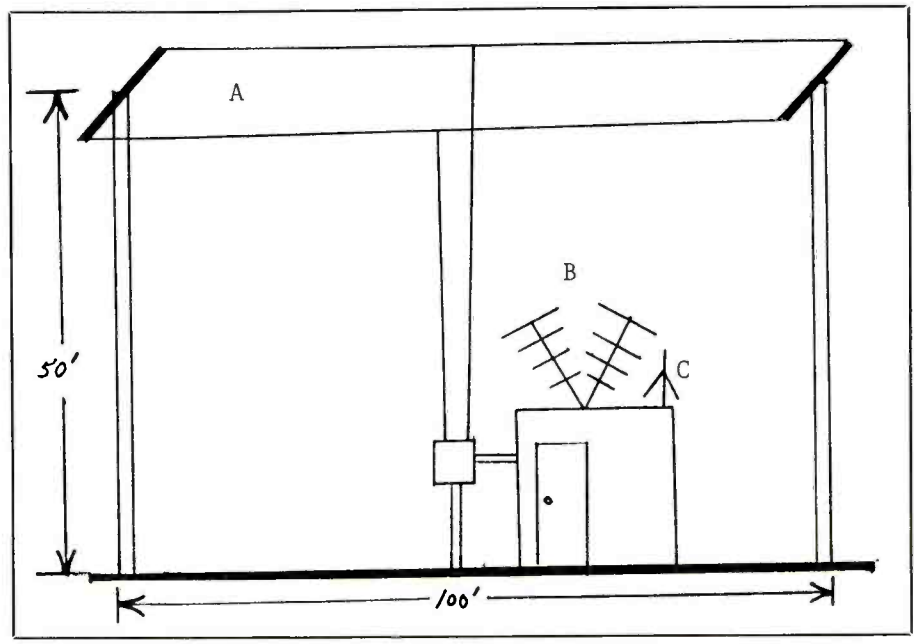


Figure 1

The other antenna (A in Figure 1) which is supported by 2-50' towers separated by 100' is the antenna for the LOM. It operates in the low frequency range from 200 to 400 (or sometimes above) kHz. It is modulated with 1020 Hz tone keyed with the 3 (or 2) letter identifier for the site.

The ground plane antenna mounted on the shack (C in Fig. 1) is for use when communicating with a flight check aircraft.

The LOM/OM is associated with a ILS (Instrument Landing System) located on a runway at an airport. Typical distances for the OM/LOM to be located from the end of the runway is 5 miles. If the runway is a full ILS there will be a second station called a MM (Middle Marker) with the 'vee' antenna but with no LF beacon, located about 1300 feet from the end of the runway. If the ILS is a partial system there will be only a OM and may or may not have a LOM depending on the airport."

Our thanks to Ralph for his informative letter and thanks also to Roger Pience, Wash., DC and Daryll Symington, OH. Both of these readers also supplied similar details regarding the aeronautical installation.

When Dan Grote, IL received his QSL from the Boston, MA Coast Guard station, it was accompanied by a copy of the Broadcast Schedule for NMF/NIK and some technical information describing the receiving and transmitting installations.

"Communication Station Boston has its primary receiving and operations site on 57 acres of land in Marshfield, MA., about 35 miles south of Boston. The transmitter site covers 542 acres within the Otis Air National Guard Base on Cape Cod. Additionally, the station operates an unmanned microwave site at Manomet, MA and an unmanned remote-controlled receiver site at East Moriches, Long Island, New York. The various sites are interconnected by microwave and landline links.

Communication Station Boston uses 30 Harris R-2368/URR LF/MF/HF receivers at Marshfield. They are connected to a Hermes aperiodic loop array (MF/HF omni directional antenna).

At the Cape Cod transmitter site there are twelve state of the art Collins HF-80 HF transmitters capable of 10,000 watts and two Nautel NX2500 TT/6 MF transmitters. They can be patched to 18 antenna: 10 fixed directional, horizontal log periodics; four omni-directional, horizontal log periodics, 1 omni-directional vertical inverted cone (HF); 2 omni-directional horizontal flat-tops (MF) and 1 omni-directional vertical dipole (MF)."

Gary Hamlin, NY wrote "It's been a while since I last sent in a report. My interest hasn't faded, but other business has unfortunately kept me away from the receiver too much of

NMMJ

UNITED STATES COAST GUARD CUTTER SHERMAN (WMEC 720)

THIS WILL VERIFY YOUR RECEPTION OF STATION **NMMJ**
ON 6200 KHZ USB AT 0515 Z ON 13 SEPTEMBER 1989.

TRANSMITTER/POWER: ITT MACKAY MSR-1626 / 250 WATTS

ANTENNA: LONG WIRE (FAN)

LOCATION: INDIAN ISLAND, WASHINGTON

VERIFYING OFFICIAL AND STAMP:
TIM [illegible], RMC, USCG
RADIOMAN-IN-CHARGE

This will verify your reception of vessel:

CASON J. CALLAWAY

Type: Bulk carrier Tonnage: 13,304.5 (2052 Tons)

Frequency: 4077 Khz Call sign: WE4879

Date: Sept. 20, 1991 Time: 2244 EDT

Antenna: Random 40 Ft of Wire Power: 150 watts

Signature: Russ Hill 2nd Mate

Ship's stamp:

CASON J. CALLAWAY

Russ Hill, MI used this PFC for this reception verification of a maritime vessel.

This Prepared Form Card was made up by Dave Sabo, CA.

the time. Preparing for an eventual change of address has kept me busy, as has finally earning my ham license, callsign, N2OHO.

The YL/GG with 3/2F groups on 7375 kHz is undoubtedly the same one as reported by Simon Mason in the February 1992 column; she's the one who says 'noyner' for 'nine.' I wasn't quite able to place the accent of the YL/EE on 6810 kHz. Her pronunciation of 'five' sounds something like 'fuy-vuh,' and she really rolls her R's."

Thanks to Gary and glad to have your loggings again.

Sergeant John Benson IV is on duty with the U.S. Army and stationed in Germany. "I am writing to the magazine for the first time. I read it quite often but have never really had any time, in the past, to contribute to the columns. Recently, I have had much more free time to spend with hobby SWL'ing. I am fairly new to the SWL hobby. I have had my set for about three years now and at first I used it just to listen to the BBC or Radio Canada International and such. Now I enjoy all aspects of the spectrum. For my listening pleasure I have a Yaesu FRG-8800 hooked up to a sixty foot random wire antenna. For the non-voice stuff I have a PK-232MBX hooked up to my IBM PC/286."

Welcome to the column, John, and we are looking forward to receiving loggings from you.

Ed Rausch III, NJ uses a DX440 with an Eavesdropper Antenna and he advises he says his very first verification from KMI High Seas station. The QSL letter included a color postcard of the transmissions site with station information, a booklet which described the AT&T High Seas Radiotelephone Service, and a business card. Ed added that he plans to get a PC to copy CW and RTTY.

John Bryson, PA sent in some beacon loggings and indicated he was a first time contributor to the column. He uses a Realistic DX-440, and an old Zenith Trans-Oceanic receiver.

John asked, as did a number of other readers, for a source of information on beacon identification.

The reference I use is the *Aero/Marine Beacon Guide*. It's put out by Ken Stryker, 2856-G West Touhy Avenue, Chicago, IL 60645.

Before closing for this month I want to mention an unidentified signal I just recently observed. The frequency was 13487.3 kHz and the time was 1603-1612 UTC. Two tones were noted (a low tone followed by a higher tone) these were followed by a burst of 6-7 seconds. Sometimes in the background I could very faintly hear a similar transmission. Perhaps this was a response? The pauses between transmissions varied in length. I can use some help on this one.

Ute Intercepts. All Times Are UTC.

201: Beacon APF, Naples, FL at 0020. (Ed., FL)
206: Beacon VNC, Venice, FL at 0021. (Ed., FL)
215: Beacon ARU, Alturas Municipal, CA at 0856. (Vaage, CA)
216: Beacon CLB, Wilmington (Carolina Beach), NC at 0618. (Bryson, PA)
242: Beacon CX, Cranbrook, BC, Canada at 1254; Beacon ZT, Port Hardy, BC, Canada at 1443. (Arens, BC, Canada)
257: Beacon SQT, Melbourne, FL at 2358. (Ed., FL)
260: Beacon OLZ, Oelwein, IA at 1155. (Crabill, VA)
269: Beacon HLX, Hillsville, VA at 0445. (Crabill, VA)
271: Beacon TKW, Tillamok, OR at 1208. (Arens, BC, Canada)
272: Beacon XS, Prince George, BC, Canada at 1104. (Arens, BC)
286: Beacon OE, Dry Tortugas LS, FL at 0028. (Ed., FL)
290: Beacon AOP, Rock Springs, WY at 1113; Beacon YYF, Penticton, BC, Canada at 1149. (Arens, BC, Canada)
305: Beacon X, Passage Island LS, MI at 0132. (Crabill, VA)
306: Beacon Y, Main Duck Island LS, Ont, Canada at 0856. (Crabill, VA)
311: Beacon H, Devils Head, Nfld, Canadad at 0029. (Ed., FL)
317: Beacon DC, Princeton, BC, Canada at 1230; Beacon XJ, Fort St. John, BC, Canada at 1129. (Arens, BC)
328: Beacon LD, Chibougamau, Que., Canada at 0358. (Crabill, VA); Beacon BZJ, Indiantown Gap, PA at 0624. (Bryson, PA)
335: Beacon PV, Providence, RI at 1444. (Caldicott, MA)
338: Beacon PBT, Red Bluff, CA at 1218. (Arens, BC, Canada)
341: Beacon FM, Ft. Myers, FL at 0031. (Ed., FL)
342: Beacon O, Ottawa, Ont., Canada at 1335. (Crabill, VA)
347: Beacon Z8, Rivere Ouelle, Que., Canada at 0453. (Crabill, VA)
353: Beacon LWT, Lewiston, MT at 1105. (Vaage, CA); Beacon LLD, Lanai, HI at 1143. (Arens, BC, Canada)
356: Beacon HIX, Hopkinsville, KY at 0518. (Crabill, VA); Beacon PB, West Palm Beach, PL at 0035. (Ed., FL)
357: Beacon IM, Asheville, NC at 1416. (Crabill, VA)
364: Beacon CKK, Miami, FL at 0036. (Ed., FL)
366: Beacon YMW, Maniwaki, PQ, Canada at 0627. (Bryson, PA)
376: Beacon ZIN, Great Inagua, Bahamas at 0630. (Bryson, PA)
379: Beacon SF, San Francisco International, CA at 1110. (Vaage, CA); Beacon GKQ, Newark, NJ at 0631. (Bryson, PA); Beacon TL, Tallahassee, FL at 0010. (Ed., FL)
380: Beacon BBD, Brady, TX at 0625. (Crabill, VA)
381: Beacon BM, Bloomington, IN? at 0633. (Crabill, VA)
382: Beacon YE, Fort Nelson, BC, Canada at 1259. (Arens, BC, Canada)
382: Beacon SZY, Selmer, TN at 1205. (Crabill, VA)
388: Beacon AM, Tampa, FL at 2332. (Ed., FL)
391: Beacon DDP, San Juan, PR at 0634. (Bryson, PA); Beacon MMS, Marks, MS at 1213. (Crabill, VA)
392: Beacon CLY, Worcester, MA at 1448. (Caldicott, MA)
395: Beacon SB, San Bernadino, Norton AFB, CA at 1121. (Vaage, CA)
396: Beacon GOL, Gold Beach, OR at 1308. (Arens, BC, Canada); Beacon ZBB, South Bimini, Bahamas at 0038. (Ed., FL)
398: Beacon FTT, unidentified. (Benson, Germany)
402: Beacon LW, Lawrence, MA at 1442. (Caldicott, MA)
406: Beacon FLR, Fall River, MA at 1440. (Caldicott, MA)
414: Beacon RTB, unidentified. (Bensen, Germany)
415: Beacon CBC, Cayman Brac, BWI at 0012. (Ed., FL)
435: Beacon BR, unidentified. (Benson, Germany)
472: NMF, USCG, Boston, MA in CW kat 1525 w/notice re 21 blue drums containing arsenic troxin which is a danger to anyone exposed to it. Mariners off the coast of Virginia, Maryland, Delaware and New Jersy advised keep a sharp lookout for these drums. Notice indicated no attempts should be made to recover the drums but rather notify the Coast Guard immediately. (Caldicott, MA)
482: Beacon SWH, unidentified. (Benson, Germany)
489: VAU, Yarmouth, NS, Canada in CW at 2330 w/notice to mariners of location of extinguished light

Abbreviations Used For Intercepts

AM	**Amplitude Modulation mode**
BC	**Broadcast**
CW	**Morse Code mode**
EE	**English**
GG	**German**
ID	**Identifier/ied/ication**
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)**

houses & rezoned buoys. (Caldicott, MA)

516: Beacon YWA, Petawawa, Ont., Canada at 0639. (Bryson, PA)

2180: Disabled fishing vessel Cape Shark issues distress call. First contact with CG Fort Macon, NC then comms established with CG Group Woods Hole, MA. QSY to 2738 at 0240 to continue comms with Group Woods Hole. Position of Cape Shark was 70 miles off coast of Rhode Island. Hrd first at 0230. (Rausch, NJ)

2670: CG Group Mayport in contact w/NOAA ship Oregon II re mysterious lights and flare sightings. Comms continued until a CG Helo was dispatched from CG Air Station Clearwater. USB from 0229-0400. (Grote, IL); CG Group Woods Hole, MA in USB at 0245 assisting disabled fishing vessel Calypso. At 0312 CG Cutter Escanaba established comms w/Calypso & made schedule of comms every hours. (Rausch, NJ)

2900: Ganda in LSB at 0459 wkg several airlines. Very noisy freq. (Garcia, OH)

3417: YL/EE in RCS w/5L grps at 0220. (Willmer, MI)

3807: SLHFM "P" in CW at 2200. Sent RTTY tfc of 5L grps at 50 baud. Simulcast w/4043 kHz. (Boender, Netherlands)

4350: TBB5, Navy, Ankara, Turkey in CW at 2217 w/VVV DE TBB5. (Boender, Netherlands)

4415: OM/EE in LSB at 0824 w/coded msg. ID as Juliet 33. Down at 0830. (Garcia, OH)

4417: Chatter between fishing vessels WRC 5245 and WYW 7185. WRC 5245 was docked in San Juan, PR awaiting repairs on blown engine. (Rausch, NJ)

4427: ComSta San Francisco in LSB at 0845 clg F3N, to standby and shift to 4296 kHz. Checked but no comms there. (Garcia, OH)

4585: CAP, Division 2 in USB at 0500. Training session rdo operation. (Rausch, NJ)

4646: Unid Russian in USB at 2225. 1 minute tape, same msg for hours. (Boender, Netherlands)

4665: YL in AM rptng phonetic VLB2 at 0246. Israeli Mossad. (Hamlin, NY)

4722: MVV, RAF London in USB at 0029 w/flight wx. Bad QRM. (Lish, FL)

5015: YL/GG in USB at 0036. Tones then numbers. (Lish, FL)

5437: YL rptng ART3 at 1905. At 2000 changed to ART2. Presumed Mossad station. (Mason, England); YL/EE w/English accent in AM at 0146 w/5L grps. Off at 0152 "End of Message. End of Transmission." At 0202 same YL was rptng ART2. Off at 0204. Same YL w/5L format hrd on 4880, 7445 and 7918 kHz between 0400-0500, and on 13579, 17410 and 19715 kHz between 1300 & 1800. (Johnson, NY)

5456: At 0349 in USB, 2 OM/EE speculating re next day's wx. One mentioned having hrd forecast for Buzzards Bay, MA. (Johnson, NY)

5470: YL/EE in AM at 0204 w/5F grps. (Margolis, IL)

5562: OM/SS in USB at 1000 clg "Oyeron Cayo Largo, Cinco Cinco Seis Dos" (5562). Also hrd Caribbean Flight 231 on this freq at 1012 hrs. Later at 1035 hrd same subjs. mentioned "Cocaine" and 300 kilos, and Havana. Very short and broken language comms. No ID. (Garcia, OH)

5598: A/C N900J wkg NY Radio w/Selcal check in USB at 0242. (Hamlin, NY)

5599: Gander & NY Radio in USB at 0125. Both wrkng vsrious aircraft. (Lish, FL)

NMF/NIK BROADCAST SCHEDULE

TIME	TYPE	MODE	FREQUENCY
0030Z	SITOR 6312.3/8414.8/12577.3KHZ	FSK	
0045Z	"NAVTEX" MARINE INFORMATION BROADCAST *Marine weather, navigational warnings distress and urgent broadcasts*	FSK	518KHZ
0050Z	INTERNATIONAL ICE PATROL BROADCAST 5320/8502/12750KHZ *Ice patrol bcsts are sent by NIK between the months of March and July*	CW	
0130Z	CW MARINE INFORMATION BROADCAST *Marine Weather, notices to mariners, distress and urgent broadcasts* *Marine weather, navigational warnings*	CW	472KHZ
0440Z	MARINE INFORMATION BROADCAST *Marine weather, Navigational warnings, distress and urgend broadcasts*	USB	2670KHZ
0445Z	"NAVTEX" MARINE INFORMATION BROADCAST	FSK	518KHZ
0530Z	NATIONAL WEATHER SERVICE RADIOFACSIMILE *Wave and wind charts*	USB	3242KHZ
0845Z	"NAVTEX" MARINE INFORMATION BROADCAST	FSK	518KHZ
1040Z	VOICE MARINE INFORMATION BROADCAST *Marine weather only*	USB	2670
1218Z	SITOR INT'L ICE PATROL BROADCAST 8414.8/12577.3KHZ	FSK	
1245Z	"NAVTEX" MARINE INFORMATION BROADCAST	FSK	518KHZ
1250Z	INTERNATIONAL ICE PATROL BROADCAST 8502/12750KHZ	CW	
1350Z	NOTICE TO FISHERMEN BROADCAST *Fixed fishing gear notices*	CW	472/8502KHZ
1450Z	MARINE INFORMATION BROADCAST	CW	472KHZ
1600Z	INTERNATIONAL ICE PATROL RADIOFACSIMILE 8502/12750KHZ *Ice charts*	USB	
1630Z	"SITOR" MARINE INFORMATION BROADCAST 8414.8/12577.3/16804.8KHZ	USB	
1640Z	VOICE MARINE INFORMATION BROADCAST *Content same as 0440Z broadcast*	USB	2670KHZ
1645Z	"NAVTEX" MARINE INFORMATION BROADCAST	USB	518KHZ
1730Z	NATIONAL WEATHER SERVICE RADIOFACSIMILE	USB	7530KHZ
2045Z	"NAVTEX" MARINE INFORMATION BROADCAST	USB	518KHZ
2150Z	NOTICE TO FISHERMEN CONTINUATION BCST *Only sent in the event the 1350Z notice to fishermen bcst overlaps into the 1450Z scheduled bcst*	CW	472/8502KHZ
2240Z	VOICE MARINE INFORMATION BROADCAST *Marine weather only*	USB	2670KHZ
2245Z	"NAVTEX" MARINE INFORMATION BROADCAST	FSK	518KHZ

5696: Slingshot wkg Pinball 40 and 41 re vectors to target. Chase went on until pilot of the plane bailed out over the Gulf of Mexico. USB at 2323. (Grote, IL); CG Helo Rescue 1720 in USB at 0215 wkg ComSta Miami re tug towing barge which is taking on water. (Rausch, NJ); USCG Helo 2130 to ComSta Boston indicating major elec failure. Helo 1493 cld Helo 2130 to ask what was his destination. Helo 2130 responded that power was restored and he heading back to Otis from NFA (?) traffic patterns at Brunswick. (Caldicott, MA); ComSta Miami clg ComSta Boston in USB at 0536. Rescue 1435 had comms w/both, and was asked to go to 3123 kHz at 0602. Other ID hrd was PBQ-1 requesting new freq as unreadable on this one. Re rescue attempt on burning vessel, could not find it, only debris and continuing searching for vessel. Stated later that vessel had burned. (Garcia, OH)

5735: OM/Rumanian at 0312 in AM w/Skylark melody and ending with "Terminat" x3. (Willmer, MI)

5781: YL/GG rptng 649 x3, 000 from 2100-05. Then off. (Mason, England)

6501: CG ComSta NMN, Portsmouth, VA in USB giving offshore wx forecast. (Grote, IL)

6508: YL/GG in AM at 0410 w/5F grps x2. (Mazanec, OH)

6683: AF-2 wkg Andrews AFB in USB at 0121. (Grote, IL)

6697: 4EU clg 5QM in USB at 0031. 4EU asking if 5QM recd figures "0120 on Oscar Net." (Fenlon, OH)

6730: 5269 wkg Lockheed Flight Test w/emitter tests in UISB at 2324. (Willmer, MI)

6738: Royal Air Force Strike Command at 0530 w/coded msg. (Rausch, NJ)

6761: Texco 34 clg Doubleup in USB at 0600 requesting pp to Blacknight Control. Texco 34 advising BC of 0800 eta & that Texco 34 and 35 have been pre-cleared for customs and agriculture. (Fenlon, OH)

6802: YL/SS in USB at 0200 w/4F grps. (Hamlin, NY)

6810: YL/EE w/uniden accent w/3 + 2F grps. USB at 0130. (Hamlin, NY)

6817: Executive 1 Foxtrot wkg Andrew AFB w/pp to SAM Command in USB at 2043. (Designates commercial a/c carrying members of President's family. (Hamlin, NY)

6824: Rumanian Skylark melody playing from 2100-2112 interspersed by OM rptng Terminat x3. Diff OM's used on various evenings. Parallel w/7387 kHz. (Mason, England)

6835: YL/SS cld 005 then 257 4F grps sent 0400-0452. My longest nbrs bcst. (Mazanec, OH)

6843: YL/SS in AM at 0600 w/5F grps. (Mazanec, OH)

6889: YL/ss in AM at 0509 w/5F grps. (Margolis, England)

6924: YL/EE in USB at 2307 rptng 265. At 2310 5F grps read slowly. Ends at 2315 w/00000. (Margolis, England)

7375: YL/GG in USB at 2000 w/3 + 2F grps. (Hamlin, NY)

7417.4: OM/EE in LSB at 1850-1855 announcing "Lar Main this is Camp Lejeune, Over." Msg rptd 20 times w/fast freq hopping and PCM interspersed. (Whitney, VA)

7420: YL/SS in AM at 0001. Tones at 0010 foll by 185 185 Gruppo 51 and into 4F grps. At 0018 Fini, two tones, and down. Xmtr pulled at 0020. (Rice, OH)

7421.6: Mayport CG Group wkg V41 advising them of deteriorating wx conditions at 2144. USB mode. (Willmer, MI)

7423: YL/SS in AM at 0230 w/5F grps. Msg rptd at 0330. (Fenlon, OH)

7450: Air National Guard training net in LSB at 1436. 65T was net control. Net incl 51P, 54D, 65I, 63A, 65U, 70L, 64H, 57AB, 63M and 57T. (Margolis, IL)

7522: Unid stn in MCW at 0800 w/5L grps. (Mazanec, OH)

7532: YL/GG ending 3 + 2F grps at 2348. USB. (Hamling, NY)

7627: KWS78, US Embassy, Athens, Greece in CCW at 2341 w/QRA/QSX mkr. (Margolis, England)

7655: YL/EE in AM reading 3x8 format figure grps. Simulcast on 9090 kHz. (Grote, IL)

7662: KWL90, US Embassy, Manila, Philippines in CW at 1237 w/QRA/QSX mkr. (Margolis, IL)

7695: 5 dots, 1 dash rasper at 0200. (Mazanec, OH)

7695: YL/GG in AM at 0400 w/813 813 813, 1-0 count rptd. At 0410 10 tones, Gruppe 179 x2 and 3/2F grps. Rptd 0426 & off at 0442 w/Ende. Sounds like she says "dru" instead of "zwei" for 2. (Johnson, NY)

7724: KRH50, US Embassy, London, England in CW at 0954 w/QRA/QSX mkr. (Margolis, England)

7887: YL/EE w/British accent in USB at 1929 w/5F grps. (Hamlin, NY)

7888: 63 wkg 68 in USB at 1941. Later incl 78. Were helping 68 solve his problem of running RTTY xmsn. (Margolis, IL)

7909: CG 2131 advising USCGC Mohawk (WMEC-913) in USB at 2102 re sighting two ships. One a 40′ Haitian freighter w/insignificant nbr of people aboard. (Willmer, MI)

8178: 5 dots, 1 dash Rasper at 0400. (Mazanec, OH)

8244.6/8768.5: High Seas telephone network. DAN Norddeich, Germany in LSB handling tfc between Jamaica & Germany., (Rausch, NJ)

8296: Tidewater Marine, Morgan City, LA in USB at 0605 wkg several offshore supply vessels re supplies on board. (Rausch, NJ)

8465: YL rptng SYN2 India 1030 at 2033. Also on 5629 kHz. (Mason, England)

8478: VIS, Sydney, Australia in CW at 1305 w/navigation aids & warnings. (Note: This a working freq). (Caldicott, MA)

8571: UFN, Novorossiysk rdo, USSR w/ DE UFN mkr in CW at 1838. (Boender, Netherlands)

8632: XFQ, Salina Cruz, Mexico in CW at 2315 w/CQ mkr until 2323. (Margolis, IL)

8698: "B" rptd in buzzy sounding morse. (perhaps FSK) Hrd at 0430. (Mazanec, OH)

8713: Two OM/EE (fisherman) in USB discussing coastal hurricane that headed north NJ & was expected to hit George's Band but veered out sea. Most fishermen w/smaller vessels went into port w/small catches but larger vessels stayed out at sea to fish for the next 14 days. Contact terminated & OM's said they would look for each other at 1200 local next day on 4082 kHz. (Caldicott, MA)

8764: CG San Francisco in USB at 0430 w/wx & global satellite positioning update. (Rausch, NJ)

8848: NY Radio wkg American 665, United 166, American 657 in LSB at 1625. Lots of a/c tfc here. (Garcia, OH)

8912: Flytrap 31 wkg Slingshot at 0114 in USB. (Grote, IL)

8936: Berne, Switzerland advising TWA 3732 if London Gatwick visibility does not improve to divert to Frankfurt. (Rausch, NJ)

8957.5: Shannon Volmet stn bcstng in USB. (Bensen, Germany)

8967: Lajes AFB Azores in USB at 0825 w/pp to Yokota AFB, Japan. Also Hickam AFM HI w/coded msg at 0840 in LSB. (Rausch, NJ)

8972: Hotel (USN) in USB at 0039 clg & contacting Foxtrot and Tango w/various coordinates. (Lish, FL); Ghost-01 wkg India reporting progress on tracking a/c. USB at 0214. "Target was non-squaker, altitude unknown." Bluestar wkg 4JS and OFX w/scrambled tfc in USB at 1841. (Hamlin, NY) Restraint clg Fox Tango & Reporter in USB at 0200. Restraint stated he not receiving data relay & cud not understand why. Fox Tango asked Restraint "do you have Hershey plus 34 entered into your uniform?" Restraint responded negative, negative. I have negative Ping Pong at this time. (Fenlon, OH)

8984: ComSta Portsmouth, VA wkg CG Rescue 1500 in USB at 0207. Group Corpus Christi wkg ComSta New Orleans in USB at 0211. (Hamlin, NY)

8993: MAC 75431 (C-141 Lockheed Starlifter) in USB at 0430 wkg Andres Command Post. Gave position and altitude. Reported status as "mission capable however trust reverser was deactivated." (Fenlon, NY)

9043: USCGC Northland (WMEC-904) in USB at 1308 with King 1, and King 2. All wkg DOD Cape w/launch support for shuttle Discovery. (Willmer, MI)

9090: YL/EE rptng 1-0 count and 588 from 2100-2105. After ten tones, count 78, and into 3 + 2F grps. Also parallel w/7654.5 kHz (Mason, England); YL/EE rptng 458 x3 w/1-0 count at 2100. Then count 64 x2 and into 3/2F grps at 2105 in AM mode. (Hamlin, NY)

9092: "Walking Man" sound at 0715. (Mazanec, OH)

9122.5: Many USACE units hrd in USB net at 1525. This freq is channel 8. Moved to channel 10 on 12070 kHz but due to QRM from VIA bcst, they moved to channel 13 on 16382 kHz to continue w/net tfc. Net closed at 1635. (Margolis, IL)

10046: Unid CW net w/calls FF/2, FFL/4, FFAE5/ w/coded coms. (Fenlon, OH) FFL4 is St. Lys, France, a marine coastal station. (Ed.)

10051: Dakar, Senegal in USB at 0050 making contact w/various flights. (Lish, FL)

10177: YL/GG "Charlie Delta" xmsn w/3 + 2F grps. USB at 0000. (Hamlin, NY)

10448: Rolling code speech inversion (voice scrambler) in USB at 1741. (Margolis, England)

11108: YL/GG "Papa November" xmsn. 3/2F grps in AM at 1800. (Hamlin, NY)

11062: Unid CW stn sending 555 x3, 817 x3, and 23 x1 at 1900 then into 5F grps at 1905. Full nbrs, not cut. (Hamlin, NY)

11190: YL/EE with 997 x3, 20127, 048 from 2100-21087. Then five tones and into 5F grps. Also on 14930 kHz. At some time YL/GG using some voice on 7375 kHz with with 868 x3, 08338, 111 foll by five tones and into 5F grps. Sked every Friday. (Mason, England)

11214: Chalice Bravo at 1731 in USB w/pp's via Trenton to Sleekness (101st Tactical Control Squadron), Roadsteed (102nd TCS) and Footrope (103rd TCS) trying to setup JtIDS training. (Willmer, MI)

11245: MAC 00467 in USB at 1405 wkg McDill AFB for landing instructions and wx for 1700. P/P comms ended at 1409. (Garcia, OH)

11255: Zero Lima Foxtrot in USB at 1623 w/coded msg. (Margolis, IL)

11300: Tripolis Aeradio in contact w/Khartoum Aeradio in USB at 0252. (Grote, IL)

11387: Sydney, Australia w/flight wx for Sydney and Melbourne. USB at 1331. (Lish, FL)

11396: NY Radio wkg American 665, American 1400, USB at 1533. 8846 kHz given as secondary freq. Continental 024 wkg NY. (Garcia, OH)

11451: Bell Telephone net in USB at 1606 wkg WNFT 417, Wash., DC, WNFT 417 Unit 2, Red Bank, NJ, and WNIC 426, Chicago, IL. Later QSYed to 15603 kHz (Ch.8). (Willmer, MI)

11634: Andrews AFB in USB at 1624 in comms w/unid stn. (Lish, FL)

12210: KWA80, unid CW at 1530 w/QRA/QSX mkr. (Margolis, IL) Several contributors in past have placed location as either Korea or Japan?? (Ed.)

12256.9: GBTT, Queen Elizabeth II in USB at 2057 w/pp via WOM. At 2107 3EKU5, Panamanian dry cargo ship "Channel Commander" clg Madrid radio. (Margolis, IL)

12615: UBN, Zhdanov rdo, Ukraine in CW at 1735 w/CW mkr & ARQ phasing. (Boender, Netherlands)

12984: VNG, Lyndhurst, Australia time station w/CW ID over time pips at 1945. (Hamlin, NY)

13101: Capetown radio w/id in USB. (Grote, IL)

13201: MAC 60194 wkg Thule at 1449 in USB w/pp to unid. Pilot said flt was due in over two hours but due to wx conditions he may request diversion. Will call back in 2 hours. (Caldicott, MA)

13207: AF-1 comms in USB at 1748 w/Andrews AFB re problems w/PP panel but to maintain the patch. Departure from Kansas City, KS within minutes & ETA to Crown 1 hour 45 min. President on board. (Garcia, OH)

13240: Gander radio in USB at 1322 w/Canada flight wx. (Lish, FL)

13253: 7 raspy dots, 1 raspy dot. Hrd at 2030. (Ed., FL)

13330: Houston ARINC wkg Challenger 300S in USB at 2336. (Grote, IL)

13351: Air France company freq. All comms in French. Hrd at 2135. (Rausch, NJ)

14295: Shuttle Discovery launch comms in USB at 1350 via WA3NAN, Goddard Space Flight Center, Greenbelt, MD. QRM from adjacent freqs but readable. Also using 7185, 3860 kHz. (Garcia, OH)

14494: T4C, unid in CW at 1620 sending 120 grp msgs. Each msg sent twice then DTG changes from 1030 to 1100 and new text sent twice, etc. (Margolis, IL)

14703: YL/EE in AM at 1500 w/916 x3 and count 1-0. Warblers on at 1508. Checked freq at 1515 YL was off air. Warblers hrd on & off til 1525. At 1527 YL started xmsn again. 916 x3, count 1-0 etc. Count 225, 3/2F grps and rtpd at 1557. Off 1617. No warblers after 1525. (Johnson, NY); YL/EE w 1-0 count and 989 from 1300-1310. After ten tones into 3/2F grps. Also on 10265 kHz. (Mason, England)

14945: YL/Yiddish in AM at 1442 w/5F grps. (Margolis, IL)

15682: YL/EE w/5F grps each rptd twice at 1618. Faint warblers also QRM fm WWCR on 15690 kHz. Simulcast on 14487 kHz which had loud warbler jamming. Same day at 2045 same YL hrd on 9251 kHz, barely audible, simulcast on 8464 kHz which came in better. 7887 kHz too noisy to hear anything. (Johnson, NY)

16372: "Vive la Comagnie" tune in USB at 1704 foll by YL/EE w/5F grps. Parallel w/14487 kHz. (Margolis, IL)

16459: YL/EE in USB at 1421 w/4F grps. Very weak sig & voice QRM on top of sig. (Ed. WV)

16923: OFJ7, Helsinki, Finland in CW at 1125 w/QSX. (Boender, Netherlands)

16949: UPW2, Liepaja, Lativia in CW at 0938 wkg unid ship in cyrillic text. (Boender, Netherlands)

16986: CTP, NATO Lisbon, Portugal in CW at 1052 w/QSX. (Boender, Netherlands)

17015.8: SLHFM "P" in CW at 1005. (Boender, Netherlands)

17016: SLHFM "C" in CW at 0956. (Boender, Netherlands)

17245: Portishead, England in USB w/msg fm Minister of Defense that no registered vessel of Great Britain is allowed inside the waters of Algeria. Note: This msg was rcvd during internal crisis between the Algerian Govt and dissidents. (Caldicott, MA)

17251: OM/EE in USB at 2209 w/wx forecast prob for North Altantic Ocean. Prob CG stn. (Long, WV)

17479.8: A2, DE D1 Y42 AAA MSG NR 90834 BK WMF ZPS VAH OGX RZJ K. This recd at 2214. After short pause same heading sent but with msg serial nbr increased by 1. Text of diff trigraphic grps. Short pause and then same heading again with serial nbr up by 1 and new text. Continued this way until about 2220 when went down. (Ed., WV)

17520: Dwarfish in USB at 1426-1511. Oprs OM/EE & YL/EE mentioned Ft. Bragg & info re C-130 mission. (Lish, FL)

17995: Bubble sound comms, no voices then Dandelion in USB at 1752 saying "nothing heard, this is on LSB." 1807 hrd German Air Force calling. (Garcia, OH)

19987.4: CLP5, Cuban Emb, Moscow DE CLP1, Havana, Cuba. Sends V's then sez QSV. Other end not hrd. CW at 1413. (Ed., WV)

19595.5: Importer (overseas) in USB running pp's w/Doorfish Alpha (stateside) mornings for a few weeks. (Willmer, MI)

20753: HBC88, ICRC, Geneva, Switzerland in USB at 1453 wkg unid w/ICRC tfc in French. (Margolis, IL)

20936.8: MARS stns NNN0CSW clg NNN0PRQ w/priority call. NNN0NIP clg PRQ, NNN0NXN clg PRQ. All between 1430-1500. (Benson, Germany)

22042: WOM, High Seas Pensuco, FL w/Captain of unid vessel 1955 notifying ship office they diverted to Surinam because crew member had heart attack. Vessel now on way to Argentina. (Rausch, NJ)

22330.5: D3E, Luanda, Angola in CW at 1850 on ship RTTY channel 92.?? (Margolis, IL)

22619.5: VCS, Halifax CG, NS, Canada in CW at 1722 w/VVV-CQ mkr. (Margolis, IL)

22711: Coast Guard ComSta Honolulu wkg unid aircraft. Hrd at 1025. GKT, High Seas Portishead, England trying work vessel GYXG then works tfc w/ELNP4. Remark made by coast stn "believe it or not, somebody calling the Coast Guard in Hawaii is covering you up." Rausch, NJ)

22780: EHY, Madrid, Spain in USB at 1900 w/phone tfc. (Lish, FL)

22807: PPR, Rio de Janeiro, Brazil in USB at 1922 w/phone tfc. (Lish, FL)

23104: YL/EE in AM at 1714 w/3 + 2F grps. (Margolis, IL)

23165: North Korean Embassy, Paramaribo, Surinam in CW at 700 w/msgs sent after RTTY xmsn. (Margolis, IL)

23760: Protocol in LSB at 1735 wkg Utah while making xmtr adjustments. (Margolis, IL)

24140: YL/SS hrd at 1407 w/444 x3, 1-0 count rptd. Then 10 tones Grupo 163 x2 and into 4F grps. Rptd at 1424 and off at 1437 w/"Fin". Slight echo on xmsn. (Johnson, NY) ■

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

Owners / Masters Of Cargo Vessel Notified Of Forfeiture

The Commission notified the owners and masters of the cargo vessel Kodiak Enterprise of an apparent liability for a forfeiture in the amount of $50,000 for violation of the Communications Act. Further, the Commission notified the masters of the vessel, Jim Thill and James C. Cox, of an apparent liability for a forfeiture in the amount of $1,000 each for willful violation of the Act. The Kodiak Enterprise was navigated on the open sea for 31 days during the period February 20, 1991, to March 23, 1991, without an annual inspection by the FCC in violation of the Act.

The Kodiak Enterprise is a United States cargo vessel of 1,584 tons, call sign WAF5936, and is subject to the radiotelephone equipment provisions of the Communications Act. It therefore must be inspected at least once each year by the FCC. The vessel may not be navigated in the open sea without meeting this requirement. The statutory forfeiture amounts for navigation without an annual inspection are $1,000 for a ship master and $5,000 per day for a ship owner.

From February 20, 1991, to 0500 hours on March 6, 1991, the master of the Kodiak Enterprise was Jim Thill. During that time, the vessel was navigated on the open sea for 15 days. From 1330 hours on March 6, 1991 to March 23, 1991, the master of the vessel was James C. Cox who navigated the vessel on the open sea for 16 days.

The Commission stated that inspection of the vessel is a key element in providing for the safety of life of all crews and passengers of vessels on the open seas, and that the acts of the masters to leave port and remain on the open sea on those dates without required inspection, constitutes a willful violation of the Communications Act.

Notified Of Apparent Liability For Forfeiture For Unlicensed Operation and Misuse Of Marine Safety Channel

The Commission notified Geof L. Bowser of an apparent liability for a forfeiture in the amount of $8,000 for unlicensed operation and misuse of a safety channel in the Maritime Mobile Radio Service.

A vessel identified as SUND was found transmitting on Marine Channel 70, 156.525 MHz, a marine safety channel reserved for digital selective calling (DSC) use. Washington State records show a commercial fishing license issued to Bowser for the vessel and list Bowser as its registered owner. Following questioning by FCC field personnel, Bowser admitted that he did not have a radio station license, but had assumed that the previous owner's license was automatically transferred to him.

The Commission stated that any operation of SUND's radio station without a license was unauthorized and in violation of Section 301 of the Communications Act and the Commission's rules. Also, operating on Marine Channel 70 was in violation of the FCC's rules since that channel is reserved for DSC. Therefore, pursuant to its *Policy Statement, Standards for Assessing Forfeitures*, the base forfeiture amount for operating a private radio station without authorization is $8,000. The Commission stated that there appeared to be no factors which would warrant adjustment of that amount.

Private Coast Radio Station Notified Of Apparent Liability For A Forfeiture For Use Of Unauthorized Frequency

The Commission notified Aquatic Technical Services, Inc., of an apparent liability for a forfeiture in the amount of $5,000 for operating on an unauthorized frequency. Aquatic is the licensee of private coast radio service station WHW856 in Eastsound, WA.

The station was observed transmitting an analog-type frequency-modulated emission on frequency 156.525 MHz (Channel 70). This is a safety frequency used only for Digital Selective Calling. Aquatic violated Section 301 of the Communications Act by transmitting on this frequency on August 11, 1991.

Pursuant to the Commission's *Policy Statement, Standards For Assessing Forfeitures*, the base forfeiture amount for transmitting on an unauthorized frequency is $5,000. The Commission said there appeared to be no factors which would warrant an adjustment of that amount.

Seven NALS Issued For $8,000 Each For Unlicensed Operation Of Radio Stations In The Maritime Mobile Radio Service

The Commission notified seven entities that they are apparently liable for a monetary forfeiture of $8,000 each for unlicensed operation of a ship radio station in the Maritime Mobile Radio Service.

The seven entities are:

Thomas J. & Nancy A. McIlraith, Puyallup, WA
John B. Hooper, Seattle, WA
Astoria Cruise and Charter, Astoria, OR
Mrs. Michael W. Schifsky, Eastsound, WA
Paul J. Troka, Concrete, WA
San Juan Marina, Friday Harbor, WA
Maryann McCarty, Hammond, OR

Commission rules specify that ship radio station licenses are not transferrable. Whenever a ship radio station is sold, the station license must be returned to the Commission for cancellation and the new owner must apply for a new station authorization. Any operation of the station after transfer of ownership and prior to granting of a station authorization to the new owner is a violation of the FCC rules.

23 NALS For $8,000 Issued For Failure To Light Antenna Towers

The Commission issued 23 Notices of Apparent Liability (NALS) for $8,000 each to 23 Private Land Mobile licensees. The notices were issued for failure to comply with FCC's rules regarding the lighting of antenna towers.

The following licensees appear to have willfully and/or repeatedly violated the FCC's rules prescribing FAA notification regarding malfunctioning lights and the painting of towers:

Basic Service, Inc., Churchville, MD
William Suit, Churchville, MD
Ronald Davis, Churchville, MD
Astro Sheet Metal, Inc., Churchville, MD
GBC Contractors, Inc., Churchville, MD
Aberdeen Florist, Inc., Churchville, MD
Magness Plumbing & Heating, Inc., Churchville, MD
Paul's Utility Co., Churchville, MD
Mid Atlantic Installation Services, Inc., Churchville, MD
Dispatch Communications of the Mid Atlantic, Inc., Churchville, MD
North American Teletrac: Location Technologies, Inc., Churchville, MD
Kenneth M. Smithson, Churchville, MD
Whiteford Construction Co., Inc., Churchville, MD
Central Atlantic Contractors, Inc., Churchville, MD
Corun & Gatch, Inc., Churchville, MD
McGuire Refridgeration, Inc., Churchville, MD
McGlothlin & Betham Electric Company, Inc., Churchville, MD
Hartford Sands, Inc., Churchville, MD
Genstar Stone Products Company, Churchville, MD
Harry Fitzgerald, Churchville, MD
Jaeger, Inc., Churchville, MD
Central Power and Lighting Co., Alice, TX

City of Alice, TX, Alice, TX

The FCC noted that it has the authority to regulate the illumination of radio towers and that it requires licensees to observe antenna towers on which they are licensed once every 24 hours to insure that the lights are functioning properly. If lights malfunction, licensees are required to notify the FAA within 30 minutes of discovery. Furthermore, licensees are required to paint towers to maintain good visibility.

It is the Commission's policy to hold each FCC licensee on a tower individually responsible for complying with the rules relating to radio antenna towers. This policy applies even if the licensee does not own or control the tower or has contracted with another person to maintain the tower. A licensee may not delegate its obligation to comply with the FCC's antenna rules to another person.

The Commission pointed out that failure to comply with its antenna rules is an especially serious matter because of the potential dangers to aviation created by such violations.

PLMS License Apparently Liable For $40,00 Forfeiture

The Commission notified Dial-A-Page, Inc. (Dial), licensee of station KUC891 in the Public Land Mobile Service at Mt. Pleasant, TX, that it is apparently liable for a forfeiture of $40,00 for unauthorized operation.

On January 12, 1989, Dial filed an application for authority to add a transmitting location to Station KUC891 to operate on frequency 152.24 MHz at Mt. Pleasant. Dial constructed the Mt. Pleasant station after a competing mutually exclusive application was dismissed by the Commission in October of 1990. Dial never received authorization from the Commission to operate the site. On April 2, 1991, an engineer from the Commission's Dallas Field Office, who as inspecting Dial's antenna tower in the Mt. Pleasant area contacted Dial regarding operation of the facility.

Dial claimed that it activated the transmitter on February 28, 1991, because of internal miscommunications when a technician mistakenly thought he was given permission to activate the transmitter.

The Commission found that Dial's operation of the facility without authorization constituted willful and repeated violation of the rules and assessed the forfeiture.

Two One-Way Paging Companies To Pay Forfeitures Totalling $8,000

The FCC affirmed a decision by the Common Carrier Bureau's Mobile Services Division (MSD) and ordered PJB Communications of Virginia, Inc. (PJBVA), and PJB Communications, Inc. (PJB), to forfeit $5,000 and $3,000, forfeiture after they violated the FCC's rules by failing to notify the Commission that they had completed construction of facilities.

PJBVA requested reinstatement of authorizations for five one-way paging facilities for Stations KPE333 and KPE335 in Northern Virginia. PJB requested reinstatement for three of its one-way paging facilities for Stations KPE33 in Maryland. Both companies sought reinstatement because they failed to notify the Commission of the completion of construction for each station as required by the Rules. The companies operated for more than six months without the required notifications. Consequently, the MSD issued notices of apparent liability for forfeitures. Both companies filed a consolidated request for remission or reduction of the forfeitures and the request was subsequently denied by the MSD.

Seeking review, PJBVA and PJB argued that the MSD failed to consider their contention that the public interest was not harmed as a result of the rule violations. They also cite economic hardship, and claimed that their voluntary disclosure of the violation and flawless FCC record should justify remission of the forfeitures.

Denying review, the Commission stated that the arguments put forth by PJBVA and PJB were insufficient to justify cancellation or reduction of the forfeitures.

FCC Proposes To Add San Francisco To List Of Coast Guard Vessel Traffic Service Systems; Proposes Using Marine Channel 14

The Commission proposed adding the San Francisco, CA, port area to the United States Coast Guard's designated radio protection areas for mandatory Vessel Traffic Services (VTS). The Commission also proposed establishing marine VHF Channel 14 (156.7 MHz) as the VTS frequency for the San Francisco port area.

A VTS system is used as an advisory service to coordinate vessel movement and prevent collisions in large, busy port areas. VTS systems use VHF radios to provide communications in the Coast Guard designed VTS areas.

This proceeding was initiated by the Coast Guard as part of its program to protect the marine environment by preventing vessel collisions and groundings. Designating San Francisco as a VTS area will allow the Coast Guard to manage vessel traffic in that area more efficiently. Although the Coast Guard currently operates a voluntary VTS system in San Francisco on marine VHF Channel 13, it expressed concern that Channel 13 may become congested once participation in the VTS system becomes mandatory. It therefore requested that marine Channel 14 be allocated for VTS operations in San Francisco.

Teton Communications Notified Of An Apparent Liability

The Commission notified Teton Communications Incorporated of an apparent liability for a forfeiture in the amount of $15,000 for failing to file a notice of completion of construction and commencement of operations. Teton is the permittee of station KNKD736 in the public land mobile services at Idaho Fall, ID.

Teton constructed the facilities and commenced operation prior to the October 23, 1985 expiration date of its construction permit without notifying the FCC of completion of construction for the station as required by the Rules. By letter dated June 27, 1991, the Common Carrier Bureau's Mobile Services Division notified Teton that its authorization for station KNKD736 had expired. On July 26, 1991, the Commission received a request by Teton for Special Temporary Authority (STA) to continue operating the station pending FCC action on an application for reinstatement of the expired authorization filed with the STA request. Teton operated the station from October 23, 1985, the date of expiration of the construction permit and its going on the air and operating until July 26, 1991, the date of its request for STA and application for reinstatement without having notified the Commission when it completed construction.

Pursuant to the Commission's *Policy Statement, Standards for Assessing Forfeitures*, the base forfeiture amount for failing to file required forms is $30,000. Consistent with this Policy Statement, the Commission adjusted the amount downward to $15,000 because failing to notify the Commission of completion of construction is a relatively minor violation.

Reconsideration Of Order Establishing A Codeless Class Amateur Operator License Denied

The Commission denied various requests for reconsideration of various aspects of its decision to establish a codeless class amateur operator license.

On December 13, 1990, the Commission adopted a Report and Order which established the Technician Class amateur operator license as the codeless class of amateur operator license. The purpose was to offer an entry-level license opportunity to otherwise qualified persons who find a telegraphy requirement an unnecessary barrier to pursuing the purposes of the amateur service.

The Commission received a number of objections to its Order. A number of the letters received argued that the FCC should have created a new sixth class of license so that codeless licensees could be readily distinguished from those having passed a Morse code examination. Other asked the Commission to reconsider the privileges of the codeless Technician Class license and that the Commission require stations where the control operator is a codeless Technician Class licensee to use a distinctive suffix after the station's call sign when the station is transmitting on the high frequency bands. A few letters disputed the need for a codeless license in any form.

The Commission stated that none of the letters met the standards of a petition for

reconsideration and presented no facts or raised any issue not already considered in the Order.

The Commission took this opportunity, however, to correct a minor error in footnote 33 of the Order called to its attention by the American Radio Relay League, Inc. The Commission correct footnote 33 by changing the phrase "the entire 23 centimeter band" to 1270-1295 MHz."

Conditional Licensing Program In Private Land Mobile Services Upheld

The Commission upheld its decision to implement a conditional licensing program for certain qualified applications in the private land mobile radio services below 470 MHz and in the 929-930 MHz band.

The Commission dismissed reconsideration petitions seeking to exclude the proposed direct access alternative method of frequency coordination under consideration in PR Docket 88-548 from the conditional licensing procedure.

The question of exclusion of the Railroad Radio Service was addressed in the original order in this proceeding. At that time the Commission said that, although land mobile applicants were not required to participate in conditional licensing, applicants in all radio services should have an equal opportunity to benefit from the program.

The Commission noted that, although it stated in the conditional licensing order that contemplated conditional licensing to alternative methods of coordination under consideration in the frequency coordination rulemaking proceeding, the exact nature of any frequency coordination method, including direct access, has yet to be decided. Consequently, conditional licensing may or may not be appropriate for any alternative coordination procedure that may be adopted. The applicability of conditional licensing to any alternative under consideration should be considered and decided based upon the comments filed in the frequency coordination rulemaking proceeding.

The question of exclusion of the Railroad Radio Service was addressed in the original order in the proceeding. At that time the Commission said that, although land mobile applicants were not required to participate in conditional licensing, applicants in all radio services should have an equal opportunity to benefit from the program.

Commission And Canadian Department Of Communications Agree On Interim Channeling Arrangement For The 136-137 MHz Aeronautical Mobile (R) Service Band

On May 2, 1991 the Commission released a Memorandum Opinion and Order in GEN. Docket No. 89-295. Among other things, it indicated that the proposed frequency sharing arrangement of the 136-137 MHz band, shown in Part 87 of the Rules (Aviation Services) would be discussed with Canada. Those discussions have now been completed. Mr Ralph A. Haller, Chief of the Private Radio Bureau of the FCC and Mr. Michael Binder, Assistant Deputy Minister of Research and Spectrum of the DOC, have signed a Confirmation of Acceptance concerning the coordinated use of the 136-137 MHz frequency band.

The Federal Communications Commission (FCC) of the United States and the Department of Communications (DOC) of Canada have agreed to an arrangement entitled *U.S./Canada Interim Channeling Arrangement for the Aeronautical Mobile (R) Service Utilizing 25 kHz Channels for the Band 136-137 MHz*. This frequency band is allocated for use by the Aeronautical Mobile (R) Service (AM (R) S) on a primary basis. The FCC and DOC have agreed to make no new assignments after January 1, 1992 to stations of the services to which the band is allocated on a secondary basis and to cease operation of any preexisting stations in such secondary services if their operation causes interferences to stations in the AM(R)S.

The Arrangement is of an interim nature pending incorporation into a replacement for the Agreement between the United States and Canada concerning the Coordination and Use of Radio Frequencies Above 39 Megacycles per Second. ■

LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

As you are probably already aware, Radio Kuwait has returned to the shortwave bands! Initially, perhaps still, the service is using a single 500 kW transmitter, carrying the Radio Kuwait main arabic program to Europe and North America at 1800-2300 on 15505, 0400 to 1305 to the Gulf area on 6055 and 1315 to 1745 to the mideast on 11990. Programming in English is almost certainly in effect now. Welcome back, Radio Kuwait!

Tonga, one of the hardest countries for North American DX'ers to log, went off the air late last year. A cyclone hit the island and KO'd the Tonga Broadcasting Commission's station on 5030. It may be back by now, or it may not. The few logs of this which have been made in North America have usually been in the 0600-0800 time period.

The long-silent Dallas, Texas station, KCBI, once again has an operational schedule for the "Z-92" (Summer) period. It is listed for 0230-1400 on 9815 and 1400-0230 on 15375, beaming to Canada.

Since the first of the year Radio Afghanistan is no longer relayed by transmitters in the former USSR. Your best bet for hearing Radio Afghanistan now appears to be the external service at 1300 on 9635.

Radio Nacional, Colombia now has a weekly DX program in English. It's on 11822.5 and 17865 on Saturdays at 2330-0000. The 25 meter band frequency seems to be the most widely heard.

The newest USA religious shortwave station, WJCR, should be on the air now, broadcasting from Kentucky. Frequencies to watch are 7485, 7540, 15660 and 15675.

The Voice of Turkey has resumed its broadcasts to North America on its 9445 frequency at 2300 and 0400.

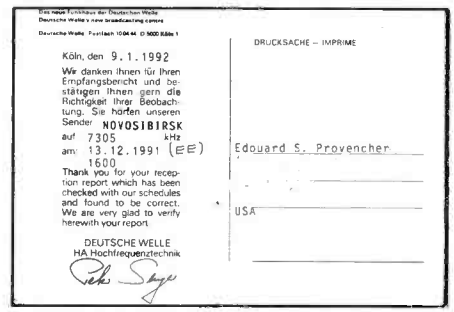
Still another new station in Russia is Radio Polis, located in St. Petersburg (ex-Leningrad) and reported to be using 6045 to 1500, presumably in Russian only.

Fifteen years ago the Romanian government closed down a shortwave transmitter site that had been used for broadcasts by the clandestine station Radio Espana Independiente. Now that site is to return to the air—as a Spanish National Radio relay site! It'll be used for broadcasts to Eastern Europe but we don't know how soon it'll be active.

Radio Canada International's cumbersome QSL'ing procedure is no more. The Canadian International DX Club has taken on the job of QSL'ing reports for RCI. Reports sent to RCI's P.O. Box 6000 address in Montreal will reach the CIDX people. CIDX deserves thanks for making things easier!

Speaking of clubs, if you are looking for a European club to join, you'd have a hard time doing better than the World DX Club of England. WDXC publishes "Contact" each month and it's filled with club news, chit-chat from members, articles, a QSL report, radio nostalgia, an excellent log section and more. Dues for members outside Europe are just $20 per year. That gets you "Contact" each month, via airmail. Dues may be sent to the U.S. rep, Richard D'Angelo, 2216 Burkey Drive, Reading, PA 19610.

Though he uses an Icom R71A, Gary K. Hamlin, N2OHO, of Utica, NY, prizes his RCA Strato-World receiver.



Köln, den 9.1.1992

Wir danken Ihnen für Ihren Empfangsbericht und bestätigen Ihnen gern die Richtigkeit Ihrer Beobachtung. Sie hörten unseren Sender NOVOSIBIRSK auf 7305 kHz am 13.12.1991 (EE) 1600.

Thank you for your reception report which has been checked with our schedules and found to be correct. We are very glad to verify herewith your report.

DEUTSCHE WELLE
HA Hochfrequenztechnik

DRUCKSACHE – IMPRIME

Edouard S. Provencher

USA

Edouard S. Provencher, Biddeford, Maine, got Deutsche Welle to QSL of their new Russian relay sites.

NOTES IN THE MAIL—Edouard S. Provencher of Biddeford, Maine continues his efforts to hear and QSL historical events and the like. He recently confirmed two of the new Deutsche Welle Russian relays (Novosibirsk and Shigulovsk). He has a report out to Radio Moscow for a log on the date on which the agreement dissolving the USSR was signed but is worried because his reply is overdue. Edouard wonders about the stories we hear of mail rip-offs in Russia these days, and whether many letters to Radio Moscow are even reaching the station. Anyone else noticing that Radio Moscow replies take longer, or aren't coming at all? Replies from Radio Moscow used to take only four or five weeks.

Don Frederickson, Cedar Rapids, Iowa has been a reader for about five years and has been listening to shortwave for 40 years. He currently uses a Kenwood R-5000. Your unidentified on 11885 during the evenings is probably Radio Liberty, in Russian, Don.

Thanks to Greg Martin, Fruitport, Michigan for the good info he sent. A few years ago Greg had the super experience of visiting Radio Botswana, Radio Tanzania and Zambia TV. Greg's wondering about a strange letter he got from North Korea, which wasn't a QSL or a mailing from Radio Pyongyang. We've run into several of these over the last few months, Greg, and no one can quite figure what to make of them. Best advice is not to respond at all.

Della Malva in Orleans, Massachusetts wonders about the current status of Radiobras (Brazil) and Vatican Radio's English broadcasts to North America. They're both still active, although Radiobras has moved to a morning schedule. Radio RSA is still on the air with English, though only to Africa (see the log report) and WRNO is still on the air.

A sticker from ORTS, Senegal.

Keep those cards and letters coming! Logs should be by country, with some cutting space between each and your last name and state abbreviation after each. We need shack photos and spare QSL's to use as illustrations. Station schedules, literature, your comments and so on are always welcome!

Here are this month's logs. All broadcasts are in English (EE) except where noted otherwise (GG = German, SS = Spanish, AA = Arabic, etc.) All times are UTC.

SWBC Loggings

Alaska: KNLS, 0900 sign on, 9815. (Martin, IA) 1300 sign on, 7355. (Moser, PA)

Albania: Radio Tirana, 9480 at 1835 with local music, ID, sign off. (Moser, PA)

Algeria: Radio Algiers, 9509 at 1942 in FF; 2000. (Story, TX; Moser, PA)

Antigua: Deutsche Welle relay, 6085 at 0135. (Seefeldt, WI) 9545 at 0318. (Moser, PA) 11810 at 0200 in SS. (Cabellero, Mexico)

BBC relay, 15220 at 1306. (Moser, PA)

Argentina: RAE, 9690 at 0001 with IS, multi-lingual ID. (Zamora, CA) 11710 with ID at 0200. (Martin, MI) 0929 in JJ. (Lamb, NY)

Armenia: Radio Yerevan, 9750 at 0336 with EE

Abbreviation 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**

news. (Rocker, NY) 11605//17690 at 0330. (Miller, GA)

Ascension Island: BBC relay, 15400 at 2237. (Moser, PA) 21660 at 1529. (Lamb, NY)

Australia: Radio Australia, 6020 at 1210, 11720 at 0548. (Carson, OK) 6080 at 1305. 9860//12000//13755//13760 at 1620. (Lamb, NY) 9580 at 1204. (Moser, PA) 9710 with Papua New Guinea service at 0830. (Martin, IA) 11910 at 1755. (Barry, CA) 17795 at 2353. (Zamora, CA) 21740 at 0000. (Cohen, ON)

ABC, Brisbane, 4920 at 0840. (Martin, IA)

VNG time station, 16000 at 0815. (Lamb, NY)

Austria: Radio Austria International, 5945 at 2130. (Gasque, SC) 6015 via Canada at 0530. (Seefeldt, WI) 9875 at 0137. (Jensen, IA) 13730 at 0834. (Moser, PA)

Bangladesh: Radio Bangladesh, 15197 at 1240, subcontinental music. (Story, TX) 15200 at 1230 with news. (Moser, PA)

Belgium: BRT, 5910//9905 at 2209 with DX news. (Moser, PA) 9855 at 1000 with "Brussels Calling." (Martin, IA) New 9930 at 0030. (Pelliciari, CT) 15515 at 2200. (Miller, GA) 21810 at 1400 to Africa. (Borsche, Welle)

Benin: ORTB, 4870 in FF at 0542; 0603. (Story, TX; Moser, PA)

Botswana: Radio Botswana, 3355 at 0412 in SeTswana, US pops. (Lamb, NY) 7255 at 0251 with IS. (Moser, PA)

VOA relay, 7265//11940 at 0249 sign on. Also 15445 at 2010. (Lamb, NY)

Brazil: Radiobras on 117445 at 1205. (Martin, IA)

Radio Nacional Amazonia, 6180//11780 at 0800 sign on, PP. (Barry, CA)

Radio Cultura do Para, 5045 at 0809 in PP. (Caballero, Mexico)

Radio Educacao Rural, 3385 at 1016 with PP ID. (Gasque, SC)

Radio Universo, 9565 at 0720. Quiet music, ID 0731. (Gasque, SC)

Radio Brazil Central, 11815 in PP at 0816 with pops, ID jingles, commercials. (Lamb, NY)

Bulgaria: Radio Sofia, 9560 at 1950. (Moser, PA) 9595 at 0025. (Rocker, NY) 11720 at 0455 and 11765 at 0602. (Carson, OK)

Burma: Voice of Mynamar, 4725, tentative, in Asian language at 1048. (Story, TX)

Cameroon: CRTV, Garoua, 5010 at 0500 with news. (Story, TX)

CRTV Yaounde, 4850 at 2050; 2121. (Martin, MI; Moser, PA)

Canada: CBC Northern Service, 9625 at 1300. (Borsch, IL)

CFCF, Montreal, 6005 at 0630 with discussion. (Story, TX)

CHU time statin, 3330, 0155, EE/FF. (Tucker, GA)

CFRX/CFRB, 6070 at 1255. (Tucker, GA)

CHNX, Halifax, 6130 at 1000 with news, maritime forecast. (Story, TX)

RCI, 9755 at 0220. (Gruber, FL); 15150 at 2129. (Vaage, CA) 11940 in SS at 0000 and 13650 in SS at 2028. (Cabellero, Mexico) 17820 at 2158 to Africa, off 2159. (Zamora, CA)

Central African Republic: Radio Centrafricaine, 5034 at 0542 in FF. (Story, TX)

Chad: Rdf. Tchadienne, 4904.5 in FF at 0444. (Story, TX) Tentative, at 0530. (Gasque, SC)

Chile: Radio Nacional, 15140 in SS at 1905. Tentative. (Moser, PA)

China: Radio Beijing, in RR to 1056 close on 5145. (Gasque, SC) 9690 (via Spain) at 0325. (Scheurell, PA) 0300 with news. (Pellicciari, CT) 9770//11715 (both via Mali) at 0010. (Zamora, CA) 13685 at 0219 in SS. (Lamb, NY) 15170 at 2119. (Moser, PA)

CPBS, 5880 at 1427 with English lessons. (Zamora, CA) 9455 at 1212 with talk in CC. (Lamb, NY)

Colombia: Radio Nacional, 11822 at 0115 in SS. (Caballero, Mexico) 0145, Colombian folk music. (Barry, CA)

Caracol, 6150, 0815 in SS. (Barry, CA) 0340. (Moser, PA)

Costa Rica: Radio Reloj, 4832 with IDs, time and noticias in SS at 0609. (Zamora, CA) 6005 in SS at 0833. (Caballero, Mexico)

Radio For Peace Int'l, 7375 (AM) at 0545 and 21465USB at 0140. (Carson, OK) 15030 at 2309. (Jensen, IA)

Adventist World Radio, 9725 at 0207 in SS. (Scheurell, PA) 11870 at 0001 wiht ID, news. (Zamora, CA)

Cuba: 9620 (new) at 2212. (Rocker, NY) 11930 at 0232. (Carson, OK) 11950 at 0430. (Seefeldt, WI) 13700 (new) 0323. (Lamb, NY) 17705 at 2000. "Radio Havana Cuba, where third world countries still come first." (Zamora, CA)

Radio Rebelde, 3366 in SS at 0445. (Carson, OK) 5025 at 0100, SS ID, lively Cuban music. (Zamora, CA)

Cyprus: BBC relay, 15575 at 1435. (Tucker, GA)

Czechoslovakia: Radio Czechoslovakia (new name) 5930 at 0310. (Carson, OK) 7345 at 2358 with IS, news, modern music. (Tucker, GA) 9505 at 0750. (Lamb, NY)

Ecuador: Radio Nacional Progresso, 5061.9 in SS, mostly talk over background music. "Radio Progresso" ID 0225. (Gasque, SC)

Law Voz del Upano, 5040 at 0100 in SS. News, ID. (Scheurell, PA)

Radio Quito, 4920 at 1135 in SS, mentioning stations on the Ecuadoradio network. (Gasque, SC)

HCJB, 3220 domestic service in SS at 0827. (Lamb, NY) 9745 at 0058. (Gruber, FL) 11925 at 1351. (Zamora, CA) 11960 at 0030 in SS. (Caballero, Mexico) 15155 at 0100. (Seefeldt, WI) 15270 at 1953. (Carson, OK) 17890 at 1201. (Moser, PA)

Egypt: Radio Cairo, 9475 at 0208. (Story, TX) 9900 at 2141. (Moser, PA)

England: BBC, 5975 (Antigua) at 0130. (Rocker, NY) 7325 at 2349. (Cohen, ON) 6175 at 0300. (Seefeldt, WI) 9590 at 2100. (Jensen, IA) 9600//9610 at 0402. (Carson, OK) 9915 at 0204. (Gruber, FL) 15220 at 1158. (Moser, PA)

Ethiopia: Voice of Ethiopia, 9560 at 1500 with brief news, comment, classical music selection. (Story, TX)

Finland: Radio Finland, 9560 at 0236. (Jensen, IA) 0732. (Gasque, SC) 15245//17800 to 0955 in EE, into Finnish. (Stephens, TX) 15400 at 1430. (Martin, IA) 21550 at 1434. (Lamb, NY)

French Guiana: RFO, Cayenne, 5055 in FF at 0625. (Story, TX)

Gabon: Africa Number One, 4890 at 0430 in FF. (Pellicciari, CT) 9580 in FF at 1940 with soccer. (Tucker, GA)

Georgia: Radio Georgia, 12050 at 0408, woman in unidentified language. (Moser, PA) 12070 at 0609 in RR. (Rocker, NY)

Germany: Deutsche Welle, 5545 at 0303 (feeder? editor) 9565 at 0120. (Jensen, IA) 6100 at 0400 in GG and 11765 at 0615 in EE. (Carson, OK) 6120 at 0515. (Vaage, CA) 6145 at 0100. (Pellicciari, CT) 1865 at 0050 and 15205 at 1050. (Labelle, PQ) 15185 at 0635. (Rocker, NY)

Bayerischer Rundfunk, 6085 at 0112 in GG. ID, continuous pops. DW in EE on top. (Scheurell, PA)

Ghana: GBC, 6130 at 0656. (Moser, PA)

Greece: Voice of Greece, 9395 at 0127 in Greek, //9420//11645. (Tucker, GA) 9425 at 2339. (Labelle, PQ) 17525 at 1535. (Martin, IA)

Radio Stathmos Makedonias, 11595 at 0625 with Greek Orthodox religious service. Listed for 0600 sign on Sundays, 1000 other days. (Lamb, NY)

VOA relay, 7205 at 0248. (Gruber, FL)

Guam: KTWR, 11650 at 1539 with religious program, 1554 ID. (Zamora, CA) 11805 at 0900 sign on, mailbag. (Lamb, NY)

KSDA, 11980 at 1613, religious music. (Story, TX)

Guatemala: Radio Cultural, 3300 with religious program 0234. (Story, TX) 0418 in EE/SS. (Carson, OK)

Radio K'ekchi, 1135 in SS with folk music, ID's. Also 0235 with religious music to sign off at 0305. (Lamb, NY)

Hawaii: WWVH time signals, 10000 at 0500. (Seefeldt, WI)

Honduras: La Voz Evangelica, 4820, SS religion at 0400. (Pellicciari, CT)

Hungary: Radio Budapest, 9835 at 0315, DX program. (Rocker, NY) 11910 at 0333, interview, DX news, music to 0358 close. (Tucker, GA)

Iceland: INBS, 9265 at 0120, Icelandic. (Rocker, NY) 13855 at 2317 in Icelandic to sign off at 2334. (Moser, PA)

India: All India Radio, 11620 at 1915; 2108; 2200. (Pellicciari, CT; Moser, PA; Miller, GA)

Indonesia: Radio Republik Indonesia, Ujung Padang, 4753.3, Gamelan/karek music at 1015 tune. (Gasque, SC) 1100 in II. (Story, TX)

Iran: VOIRI, 9022 at 0030 with ID, Koran, prayers, commentary on news items. (Tucker, GA) 15085, domestic first program relay at 1928 in Farsi. (Lamb, NY)

Iraq: Radio Iraq International, 11830 at 0034.3—EE IDs "This is Baghdad Radio Iraq International." AA music, news in EE. (Hunter, PA)

Israel: Kol Israel, 9435 at 2004. (Moser, PA) 11588 at 0500. (Rocker, NY) 15640 at 1430 with news. (Tucker, GA)

Italy: Adventist World Radio (via Sines, Portugal) 9605 in Italian with religious talk. Covered by WYFR 0755. Sundays only. (Lamb, NY)

European Christian Radio, 6210 at 0659 in EE with ID, address, "Rhyme and Reason" program. Into II at 0718, GG 0733 then all three repeated. Multi-lingual on Sundays only. (Lamb, NY)

RAI, 9575 at 0142 with sign on and ID it II to Latin America. (Zamora, CA) 11800 at 0100. (Pellicciari, CT)

RAI, 9575 at 0142 with sign on and ID it II to Latin America. (Zamora, CA) 11800 at 0100. (Pellicciari, CT)

Japan: Radio Japan, 5960 (via Canada) at 0353; 15325 (via French Guiana? editor) 0300. (Jensen, IA) 9685 (via French Guiana) 2249 in JJ. 11735 via Gabon, in JJ at 2250. 11815 in JJ at 2248. (Moser, PA) 11870 at 0535. (Rocker, NY) 17810 at 2159. (Zamora, CA) 15345 via Sri Lanka at 1700; 21635 in JJ at 0001. (Cohen, ON) 17890 at 0758 end of EE to Australia, into JJ. (Lamb, NY)

Radio Tanpa, 3925 in JJ with play at 0826. (Gasque, SC)

Jordan: Radio Jordan, 9560 at 1700 with news, Amman weather. (Story, TX) 2159 in AA. (Lamb, NY)

Kiribati: Radio Kiribati, 14917.5 (SSB) at 0620, very poor. (Story, TX)

Radio Kuwait active again! 15505 at 1817 in AA with news, IDs, local and fusion music, many mentions of Kuwait. (Lamb, NY)

Lebanon: Wings of Hope, 11530 at 2012 "A House of Prayer For All Nations," ID and address. (Martin, MI)

Liberia: ELBC, tentative, 7275 at 0705 with mentions of Monrovia. (Martin, IA)

Libya: Radio Jamahiriyah, 15235 in AA at 0325. Music and presume Koran recitations. (Story, TX)

Lithuania: Radio Vilnius, 7400//17690 at 0010. (Rocker, NY) 9710 at 0025. (Moser, PA) 17605 at 0000. (Barry, CA)

Luxembourg: Radio Luxembourg, 6090 at 0758 in GG. (Rocker, NY) 15350 at 2100 EE news and "Dance Party with Tony Adams." (Miller, GA)

Madagascar: Radio Netherlands relay, 13700 at 1456. (Moser, PA)

Malaysia: Radio Malaysia, Sarawak, 4950 at 1500 with ID, time, orchestra music. (Zamora, CA) 1143. (Story, TX)

Mali: Radiodiffusion du Mali, 4783 at 0620 in FF; 0625 on 5995. (Story, TX) 11960 at 0855 in FF. (Lamb, NY)

Malta: Voice of the Mediterranean, 9765 at 0600 with IDm program lineup over Miller's "In the Mood." Into AA 0650. (Martin, MI)

Deutsche Welle relay, 9565 at 0108. (Moser, PA) 11915 in GG at 0105. (Lamb, NY)

Mauritania Radiodiffusion Mauritania, 4845 at 2320 with AA chants. Tentative. (Moser, PA) 0630 in AA. (Pellicciari, CT)

Mexico: Radio Educacion, 6185 at 0630 in SS. Music and poetry. (Barry, CA)

Monaco: RT Marocaine, 15105 at 2105 in AA with mideast music. (Moser, PA)

VOA Tangier relay, 6110 at 0623. (Lamb, NY)

Namibia: Radio Namibia, tentative 3270//3290 in EE with weather for Namibian interior, ID as "NBC." (Martin, IA) 3290 at 0420 with "Dateline Namibia." (Moser, PA)

Netherlands: Radio Netherlands, 6020 at 0031. (Moser, PA) 13700 at 2048 and 13770 at 1454. (Carson, OK) 11720 at 0348. (Jensen, IA)

Trans World Radio, 9535//11930 at 0320. (Carson, OK)

New Zealand: Radio New Zealand Int'l, 9700 at 1156. (Moser, PA)

Niger: Radiodiffusion du Niger, La Voix du Sahel, 5020 at 0545 in FF with Koran. (Story, TX)

Nigeria: Radio Nigeria, Kaduna, 4770, 0530. (Story, TX)

Voice of Nigeria, 7255, bells, drum IS, anthem, sign on at 0500. (Lamb, NY) 0650. (Martin, IA)

North Korea: Radio Pyongyang at 1300 at 9325//9345. (Borsch, IL)

Northern Marianas: KHBI, Christian Science Monitor, 9530 at 1411. (Story, TX)

KFBS, Saipan, 11650 at 1150, religious programs in RR. (Story, TX)

Norway: Radio Norway Int'l, 9615 at 0200 with EE ID, 11925 with EE ID at 0100. (Vaage, CA) 9645 at 0000, EE ID. (Rocker, NY) 11870 at 1513. Picked up Radio Denmark relay at 1530. (Lamb, NY) 11930 at 2300. (Barry, CA)

Pakistan: Radio Pakistan, 11570 at 1700 with news, comment, local flute music. (Story, TX)

Papua New Guinea: NBC Port Morseby, 4890 in EE at 0830; 1030; 1352 to 1400 sign off. (Martin, IA; Story, TX; Zamora, CA)

Paraguay: Radio Nacional, 9735 at 2342 in SS "Cadena nacional deportiva" with soccer—Brazil vs. Peru. (Scheurell, PA)

Peru: Radio Cora, 4915 at 1045 in SS with IDs, presumed news, folks music, animal sounds. (Lamb, NY)

Philippines: FEBC, 9850 at 1315 in CC. (Northrup, MO) 11685 at 0937 with news, ID, Christian pops. (Lamb, NY) 11995 at 1353 with "Computer Corner" and news. (Martin, MI) 1556 ID and program preview, off 1601. (Zamora, CA)

Radio Veritas Asia, 11710 sign on at 2300 with ID, into Indonesian. (Caballero, Mexico)

VOA relay, 6110//15425 at 1221. (Moser, PA) 17820 after RCI goes off at 2200. (Zamora, CA)

Poland: Radio Polania, 6135//7270 at 0655 in EE with "Postbag." (Lamb, NY) 7270 with news at 0632. (Rocker, NY)

Portugal: Radio Portugal, 9555 at 0253, 9600 at 0243. (Labelle, PQ) 9570//9705 at 0249 with mailbag. Address as Rua Sao Marcal 1, Lisbon. (Zamora, CA) 9635 at 2251 in PP with ID, sports. (Scheurell, PA) 1840 at 0230 sign on in EE. (Moser, PA)

Qatar: Qatar Broadcasting Service, 21555 in AA at 1600 with ID. (Story, TX)

Romania: Radio Romania Int'l, 5990 at 1948 with talk, ID. (Lamb, NY) 6155 at 0207. (Labelle, PQ) 9570 at 0220. (Scheurell, PQ) 11790 at 1410, tentative. (Northrup, MO)

Russia: Radio Moscow, 6000 (Cuba) at 1226, 7115 at 0130, 12050 at 0538 and 21480 at 2315. (Carson, OK) 6945 (Cuba) at 0357, 17770 at 2333. (Jensen, IA) 6060 at 2250. (Seguin, MI) 7260//7345 at 1615. (Zamora, CA) 9180USB feeder at 0805 in RR, 17670//17790 at 1421. (Rocker, NY) 9685 at 0009, 11980 at 2139 and 15375 at 0800. (Labelle, PQ) 11840 (Cuba) at 1701. (Moser, PA)

Bashkir Radio, 4485, tentative in RR at 0800. (Martin, IA)

Radio Rossiy, 9800//11990//15255 at 0650 in RR with ID, organ music, possible anthem, news. (Lamb, NY)

Rwanda: Deutsche Welle relay, 7225 at 0406 with news. (Moser, PA)

Saudi Arabia: BSKSA, 9720 at 1600 with news, ID in EE/AA, off at 1700. (Story, TX)

Senegal: ORTS, 4890 with anthem 0556, news at 0600, in FF. (Gasque, SC) 0630 news in FF. (Pellicciari, CT)

Seychelles: BBC Indian Ocean relay, 15430 at 1315. (Moser, PA) 0401. (Lamb, NY)

FEBA, 15200 at 0315 in Farsi with religion, address in Iran, ID, IS and 15325 at 0418 in AA with presumed religious program, ID, IS. (Lamb, NY)

Singapore: Radio One/Singapore Broadcasting Corp, 1407 with news, ID 1409. (Gasque, SC)

BBC Far Eastern relay, 9740 at 1157. (Moser, PA)

11750 at 1633, 11950 at 0623,, 15360 at 0148. (Lamb, NY)

South Africa: Radio RSA, 4810 at 0330 with news, 0335 rooster crow and morning news program in Afrikaans. (Zamora, CA) 7270//11900 at 0400. (Martin, IA) 9550 at 1500, IS. (Story, TX) 11900 at 0400 sign on. (Carson, OK) 11920 at 0300 in FF. (Barry, CA) 15230 at 0401. (Tucker, GA) 15365 at 0255. (Jensen, IA)

Radio Orion, 4810 at 2300, old pops and standards, ID 2330. (Tucker, GA)

South Korea: Radio Korea, 5975 at 1600 with sign on, ID, frequency schedule. (Zamora, CA) 9750 at 1243, off at 1259. (Tucker, GA)

Spain: Spanish National Radio, 6055 at 0400, 9530 at 0500. (Barry, CA) 9530 at 0015; 0400. (Rocker, NY; Carson, OK) 11880 at 0052. (Labelle, PQ)

Radio Beijing relay, at 0300 with IS, ID, news. (Tucker, GA)

Sri Lanka: SLBC on 9720 at 1700, newscast. (Moser, PA)

Sudan: National Unity Radio, presumed, 9535 at 1500 with ID, news, "peace message," Arabic Press Review. Usually off at 1529 but sometimes as early as 1519. (Martin, MI)

Swaziland: Trans World Radio, 5965 at 0457 with religion. (Moser, PA) 9520 at 1633 with religion in EE and vernaculars. (Story, TX) 9655 at 0408 in unidentified language, EE ID at 0430. (Tucker, GA)

Sweden: Radio Sweden, 11705 at 0140 in SS, into FF at 0145. (Caballero, Mexico) 0210 in EE. (Moser, PA) 17740//21570 at 1342 and 17870//21500 at 1536. (Martin, IA)

Switzerland: Swiss Radio Int'l, 6135 at 0520. (Labelle, PQ) 9650 at 0217. (Jensen, IA) 9885 at 0213. (Carson, OK) 12035 in SS at 0030. (Caballero, Mexico) 13685//21530 at 1553, into FF at 1600. (Zamora, CA) 17730 (via Brazil) at 0206. (Moser, PA) 17830//21695 at 1350. (Martin, IA)

Syria: Radio Damascus, 12085 at 2005. (Martin, IA) 15095 at 2110 with frequencies, ID, news. (Moser, PA)

Turkey: Voice of Turkey, 11827 in FF at 0440. (Carson, OK) 0918. (Martin, IA) 15171 in FF at 0233 with rock, news. Drum IS and into Tahitian at 0302. (Lamb, NY)

Taiwan: Broadcasting Corp. of China, via WYFR 5950//15400 at 2258 in CC. ID and IS are different from VOFC. 11885 at 1501 with relay of local FM 1 program. (Lamb, NY) (Try and get 'em to QSL that, Marie!)

Voice of Free China (direct-not via WYFR) 11745 at 1257 in CC with pops, IS, ID, anthem. (Lamb, NY)

Voice of Asia, 7445 at 1100, definite ID, into EE news. (Story, TX)

Thailand: Radio Thailand, 9655 at 1220 with Thai music, heavy QRM. Tentative. (Moser, PA)

Turkey: Voice of Turkey, 9445//9460 at 2357. (Labell, PQ) 9445 2307-0000. (Scheurell, PA)

Tunisia: RTV Tunisienne, 7475 and 12005 at 0400. (Cohen, ON) 11550 at 0553. (Story, TX)

Ukraine: Radio Kiev, 4825//7400//17690 at 0100 with IS, sign on, frequencies, news. (Moser, PA) 5960//7380 at 2158 with IS, ID, news. (Lamb, NY) 9800 at 1315, unidentified language. (Northrup, MO) 9860 at 0141. (Jensen, IA)

United Arab Emirates: UAE Radio, Dubai, 7215 at 2350. (Moser, PA) 11945//13675//15400 at 0221 in AA with IS, ID, anthem, chants. (Lamb, NY) 21605 at 1332. (Martin, IA) 21560 at 1330 with news. (Story, TX)

Voice of the UAE, Abu Dhabi, 9605 at 2325, ID, news and features. (Carson, OK) 11965 at 1815. (Labelle, PQ) 2330. (Story, TX)

United States: Radio Free Croatia, via WHRI, 7315 to 0131, EE and Croat. (Gasque, SC)

Croatian Radio Zagreb, relay by WHRI, 7315 at 0000 to 0015. (Barry, CA)

WMLK, 9465 at 0644 with Elder Meyer. (Carson, OK)

KGEI, 15280 in SS at 0310, ID "LA Voz de la amistad." (Scheurell, PA)

KTBN, 15590 at 1750. (Tucker, GA)

Radio Marti, SS 9590 at 1246. (Tucker, GA) 11930 at 1400 sign on in SS. (Zamora, CA)

La Voz de la OEA, 11830 in SS at 2345. (Tucker, GA)

WWCR, 7345 with Radio Miami International at 0056. (Lamb, NY)

Uzbekistan: Radio Tashkent, at 1330 on 5945//9540//15470//17745. (Martin, IA) 9540 at 1330. (Borsch, IL)

Vatican: Vatican Radio, 5885 in SS at 2010. (Gasque, SC) 6095 at 0246. (Labelle, PQ) 6245 at 0610. (Rocker, NY) 7305 in SS at 0355. (Caballero, Mexico) 9695 at 0630 with African service in EE. (Moser, PA) 11625 to Africa at 0650 to 0658 close. (Lamb, NY) 15090 at 2003. (Cohen, ON) 15090//17865 at 1545 sign on to sub-continent and southeast Asia. Off 1600. (Zamora, CA)

Venezuela: Radio Rumbos, 4970 at 0310 in SS. (Story, TX) 9660 at 0159 in SS. (Carson, OK)

Radio Continental, 4940 at 0530 in SS, Latin music. (unid reporter)

Radio Nacional, 9540 with EE news at 1140. (Martin, IA) 1139 in EE with rock, ID, sked, address, IS. Into FF at 1145. (Lamb, NY)

Ecos del Torbes, 4980 in SS at 0127 with tangos. (Scheurell, PA)

Vietnam: Voice of Vietnam, 9840 at 1027; 1230. (Story, TX; Borsch, IL) 15010 at 1848 in FF. (Lamb, NY)

Yemen: Republic of Yemen Radio, 7190 at 0300 with anthem, man in AA. (Moser, PA) 9779 at 2050 in AA. (Story, TX)

Yugoslavia: Radio Yugoslavia, 9505 at 2210 with movie reviews. (Rocker, NY) 9580 at 0130 sign on. (Carson, OK) 15140 at 1939 with news. (Lamb, NY) 17740 at 1245 with Yugo rock groups. Now ID'ing as Radio Federal Yugoslavia. (Tucker, GA)

That's the story for this time. A big thank you and tip 'o the hat to the following reporters this month:

Daryl E. Rocker, Frankfort, NY; Marie Lamb, Brewerton, NY; William Moser, New Cumberland, PA; Christian Labelle, St. Jerome, Quebec; Steve Pellicciari, Norwalk, CT; Paul Jensen, Mason City, IA; Larry R. Zamora, Highland, CA; Barry T. Stephens, Austin, TX; Kevin Story, Midland, TX; Greg Martin, Fruitport, MI; Bjorn F. Vaage, Granada Hils, CA; Mike Martin, Monroe, IA; Andreas A. Scheurell, Pittsburg, PA; Darran Gruber, Palm City, FL; Bernadine Seguin, Muskegan, MI; John Carson, Jr., Norman, OK; Patrick J. Barry, Mission Viejo, CA; Murray Cohen, Fonthill, Ontario; Todd Borsch, Princeton, IL; Manuel Fernado Caballero S., Monterray, Mexico; Jeff Seefeldt, Wausau, WI; David A. Gasque, Orangeburg, SC; Stephen R. Hunter, Philadelphia, PA.

Thanks to all and, until next month, good listening! ■

R7000

(from page 30)

photo 3) Output to the cathode end of previously installed Da; input to R72's right lead (closest to front of receiver). R72 is located slightly above and to the left of Da.

Now install the delay board using a M3-20 screw (I bought this item at a local hardware store) and a ½" spacer in the upper middle mounting hole. Be careful that the leads on the bottom of the delay board do not touch any components on the main board. It may be wise to use an insulator between these boards. I used a thin, sturdy card stock I had on hand. You may have to improvise at this point and your local hobby shop may have something usable.

Testing

You will probably want to try your project out before closing the receiver up. If so, be careful. Set the Delay switch to the "off" position and the Scan Start/Stop switch to whatever your pleasure is. For testing purposes an antenna isn't needed. Just start the receiver scanning and then turn the squelch control CCW to "off"—the scanning will stop as if a signal were received. Now turn the Squelch control until receiver goes quiet. Scanning should not start until the time selected with Ct has passed. If problems are encountered, check all wiring carefully. Assuming you have no problems, the covers may now be re-installed after unplugging the power cord! Remember to reconnect the speaker connector before replacing the top cover.

Now sit back and enjoy "real" scanning operation with the R-7000.

Satellite View

(from page 35)

in the former USSR. In fact you may recall that in the November 91 issue I gave you a profile of the Moscow satellite control station RS3A and the new satellite that was to have been launched this year. It would appear that the military control of the station may have ended. The DOSAAF as it was called is no longer funding the launch of the satellites and may no longer have complete control of RS3A. The staff has dwindled from over two dozen to eight souls. There is only one satellite control operator on staff now. So the search is on for a way to get the latest RS off the ground. I also mentioned that Leo Labutin (UA3CR) was connected with DOSAAF. Well, I was wrong. He has, however, worked closely with them in the past. Gee, that's two errors this decade, I must be getting old.

There is one other thing I have been wanting to tell you for some time. If your main interest is Amateur Radio Satellites I suggest you contact AMSAT-UK. They publish the most complete and interesting bulletin on both Amateur (international) Satellites and the Mir space station. The bulletin called *Oscar News* is well worth the membership, and you will be supporting the Amateur Space Program in the process. Write: AMSAT-UK, Secretary R.J.C. Broadbent, 94 Herongate Rd., Wanstead Park, London E12-5EQ, UK. Or call 081-989-6741 or FAX (24 hours) 081-989-3430. Tell them *POP'COMM* sent you. See you next month.

Beaming In

(from page 4)

worthless checks written on overdrawn accounts, then wait for the Congressmen to put money in their accounts. None were charged overdraft fees by the bank. Dozens more former members of Congress are still on the bank's books as having incurred overdrafts. Individual accounts had overdrafts totaling as much as $100,000 to $700,000. One guy handed out almost 1,000 checks that added up to better than $500,000. If it were *you* that had passed hundreds of rubber checks during a 39 month period, where would *you* be right now (other than in Congress)?

Here's the thing, folks. These are the people making laws about what's right and wrong; telling us how to conduct our daily activities. It makes me wonder about several things in relation to the attention they pay to anti-monitoring anti-scanner laws.

For instance, I almost hesitate to bring up the unpleasant matter concerning the state of our national economy and that the employment rate isn't all that good. Neither is the plight of the poor, the elderly, farmers, the hungry, the homeless, nor the care that our veterans receive. And somehow, I get the general impression that the nation seriously needs effective and immediate Congressional action relating to the drug situation, environmental problems, education, national health, urban decay, restoring Native American rights, governmental waste, the S&L scandal, the balance of trade, and reducing the national debt, to name just a few things.

What with the way they handle their own personal finances, how concerned can they possibly be about the national debt? And don't you wonder how really worried the hot check hotshots are about the government's wasteful spending habits? Like the government buying $15 hammers for $435, shelling out $640 for toilet seats, $7,622 for coffee makers, and a steel nut for $2,043. The General Accounting Office (GAO), the federal agency that investigates government waste and inefficiency, recently reported that in only six months, the Navy doled out $9.2-million to repair 7,710 various things that should have, instead, been replaced with new items already purchased for that purpose that have been sitting on shelves in federal supply depots.

Domestic problems either continue in the status quo, or else they grow worse. Yet, it's amazing that members of both houses of Congress feel that they have time enough to spend casually wrestling with pressing dilemmas like which frequency bands scanners should be prohibited from receiving. They had time for dealing with whether old black and white movies may be colorized, and if demonic messages are heard when rock music recordings are played in reverse. Did anybody read in the *Congressional Record* the lengthy dissertations on differences between Oregon and Wisconsin cheeses? Last March, one House member was talking about introducing a bill to stop the Postal Service from issuing its stamp honoring Elvis Presley. Aren't they able to address anything more significant than this?

Forgive me, but I'm less than impressed with this performance from Senators who earn $135,000 per year, and Congressmen who earn $125,000 per year, all of whom also receive numerous perks including cheap medical care and prescriptions, free postage, free first-class air transportation, free offices, free staff members, plus the ability to fix traffic tickets in the District of Columbia.

Somebody ought to hand these people a list of the things going on in the nation, then lock the Senate and House doors and not let them out until they stop playing games and begin doing something actually useful. Which bands scanners should or shouldn't receive would have such a low priority that it wouldn't even be on the agenda. Will scanner manufacturing regulations save as many lives as cigarette manufacturing regulations?

Of course, it's not completely the fault of the members of Congress, even the truly good ones. They're all politicians. As such, they are easily accessed by high pressure professional lobbyists who do the bidding for well heeled interests. Maybe these interests control some campaign contributions, or can influence large blocks of voters. These interests have certain self-serving legislation they want

pushed through. The primary purpose of such legislation, when stripped bare of its window dressing, is intended to increase the income, clout, or image of the legislation's sponsors. This causes the lawmakers to continue shoving junk laws and drivel into the legislative pipeline. It's legal, but unfortunately, fills up much of the House and Senate's available time, clogging it with cost-consuming debates, posturing, speeches, studies, hearings, reports, committee meetings, and votes on absolute piffle that serves no public benefit. It takes away time and attention from other things that need to be accomplished.

The greedy cellular telephone industry already took up several years of Washington's time when they hand-carried their idiotic and useless ECPA through the halls of Congress. You'd think they'd now be satisfied. Not so. And the do-nothing brigade in Washington is now more than willing to again welcome them with open arms. Looks like the cellular industry either doesn't realize or doesn't care that there's anything very important on the national agenda.

There is a great irony to all of this. The fact that the government is willing to go to great extremes and impose harsh penalties to assure privacy to cellular phone calls is, in itself, preposterous. Uncle Sam can't even keep his *own* affairs private. There's a booming black market in your confidential personal data stolen by government clerks from the records of the Social Security Administration. The data on citizens is then openly sold to insurance companies, credit services, and private investigators by professional brokers in information. Under the 1974 Privacy Act, it's merely a misdemeanor to peddle this information. A deputy inspector at the Dept. of Health and Human Services said he didn't think additional security laws are needed.

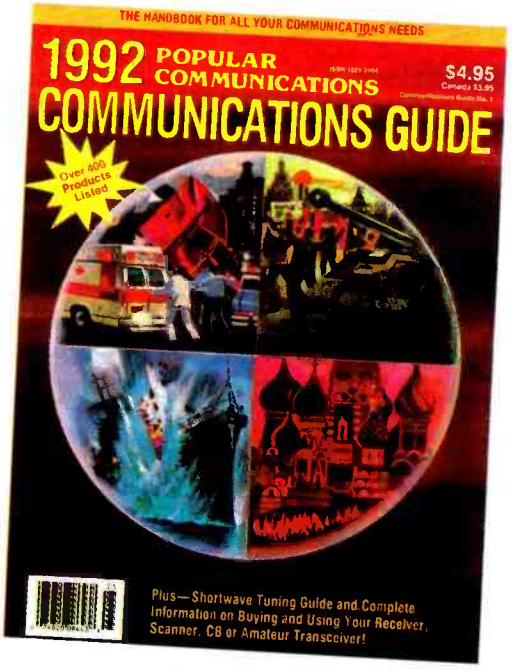
Last winter, the FCC's General Counsel circulated a memo to warn the agency's staff members to stop leaking the FCC's confidential internal memos to the press and others. Similar warning memos have been sent in the past, but without any lasting results.

The GAO is complaining about rampant security lapses within the Drug Enforcement Administration (DEA). This includes unattended computers containing classified information; janitors without security clearance being allowed to work alone in security areas; and classified documents left lying about on desks and in office FAX machines. In one instance, master keys to a DEA office were lost seven years ago, yet the locks were never changed even after 17 other sets of keys to the doors were reported lost or stolen (some clearly marked "DEA").

But, have no fear! Uncle Sam is working hard to ensure that at least the public's cellular telephone calls will definitely be private! Both houses of Congress have been hard at work on this project since 1984. I'm sure they will keep plugging away at it until they can finally figure out a way to lick the ticklish problem. If they ever get it right, maybe then they'll look into other serious matters that have arisen, like what to do with rock stars who lip synch. And, is pro wrestling fake or real?

This is an election year. It's important that you vote for individuals based on what they have or haven't accomplished. Don't vote on the basis of labels, ethnic or religious considerations, handsome faces, slick TV commercials, or party affiliations. Ask incumbent U.S. Senators and members of the House of Representatives to reveal their thoughts and voting records on the ECPA (1986), and the sections of S.1132 or H.R.1674 that related to cellular telephones, equipment, and monitoring. If their answer waffles, or is otherwise unsatisfactory, consider voting for a candidate who is unwilling to give away your rights to private interests. ■

1992 POPULAR COMMUNICATIONS COMMUNICATIONS GUIDES



WINTER

The WINTER Communications Guide is the most up-to-date buyer's guide for communications equipment–from communications receivers and scanners, to CB radio and amateur transceivers!

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An introduction to the fascinating world of communications monitoring with: illustrated articles on scanning, utility monitoring, antenna selection and construction, pirate radio, QSLing and much MORE!

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- Selectable Priority Channel.
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Options:

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Specifications:

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Speed:	20 ch/sec. scan. 40 ch/sec. search
IF:	561.225, 58.075, 455KHz or 10.7MHz
Increments:	5 to 955KHz selectable/ 5 or 12.5 steps.
Audio:	.4 Watts
Power:	Input 9 - 13.8 V. DC
Antenna:	BNC
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100 Channels. Low, Air, High, UHF & 800MHz.

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Specifications:

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Sensitivity:	.4uV Lo,Hi. .8uV Air. .5uV UHF. 1.0uV 800
Scan Speed:	15 ch/sec.
IF:	21.4MHz, 455KHz
Increments:	10,12.5,25,30
Audio:	1W
Power:	12.8VDC, 200MA
Antenna:	BNC
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RS232 Control Package (software & cable) offers spectrum display and database.	SCS2	$295.00
Wide band preamp	G-W2	$89.00

Specifications:

Coverage:	1MHz-1500MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM/SSB/CW
Speed:	38 ch/sec. scan. 38 ch/sec. search
IF:	750.00, 45.0275, 5.5MHz 455KHz
Increments:	5,12,5,25 KHz
Audio:	1.2 Watts at 4 ohms
Power:	Input 13.8 V. DC 300mA
Antenna:	BNC
Display:	LCD, backlighted
Dimensions:	2 1/4H x 5 5/8W x 6 1/2D Wt. 1lb.

AR3000 $1095

400 Channels. 100KHz to 2036MHz.

Standard Features:

- Extremely compact size.
- Continuous coverage.
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- Manual tuning knob.
- Tuning increments down to 50Hz.
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External Speaker. Mobile Mount.	MS190	$19.50
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Mobile Mounting Bracket.	MM1	$14.90
RS232 Control Package (software & cable) offers spectrum display and database.	SCS3	$295.00
Wide band preamp	G-W2	$89.00

Specifications:

Coverage:	100KHz-2036MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM/SSB/CW
Speed:	20 ch/sec. scan. 20ch/sec. search
IF:	736.23, (352.23) (198.63) 45.0275, 455KHz
Increments:	50Hz and greater
Audio:	1.2 Watts at 4 ohms
Power:	Input 13.8 V. DC 500mA
Antenna:	BNC
Display:	LCD
Dimensions:	3 1/7H x 5 2/5W x 7 7/8D Wt. 2lb 10oz.

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Optional Accessories R-2000:

- **VC-10** VHF converter
- **DCK-1** DC cable kit for 12 volt DC use.

R-5000:

- **VC-20** VHF converter
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Specifications, features, and prices are subject to change without notice or obligation.

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