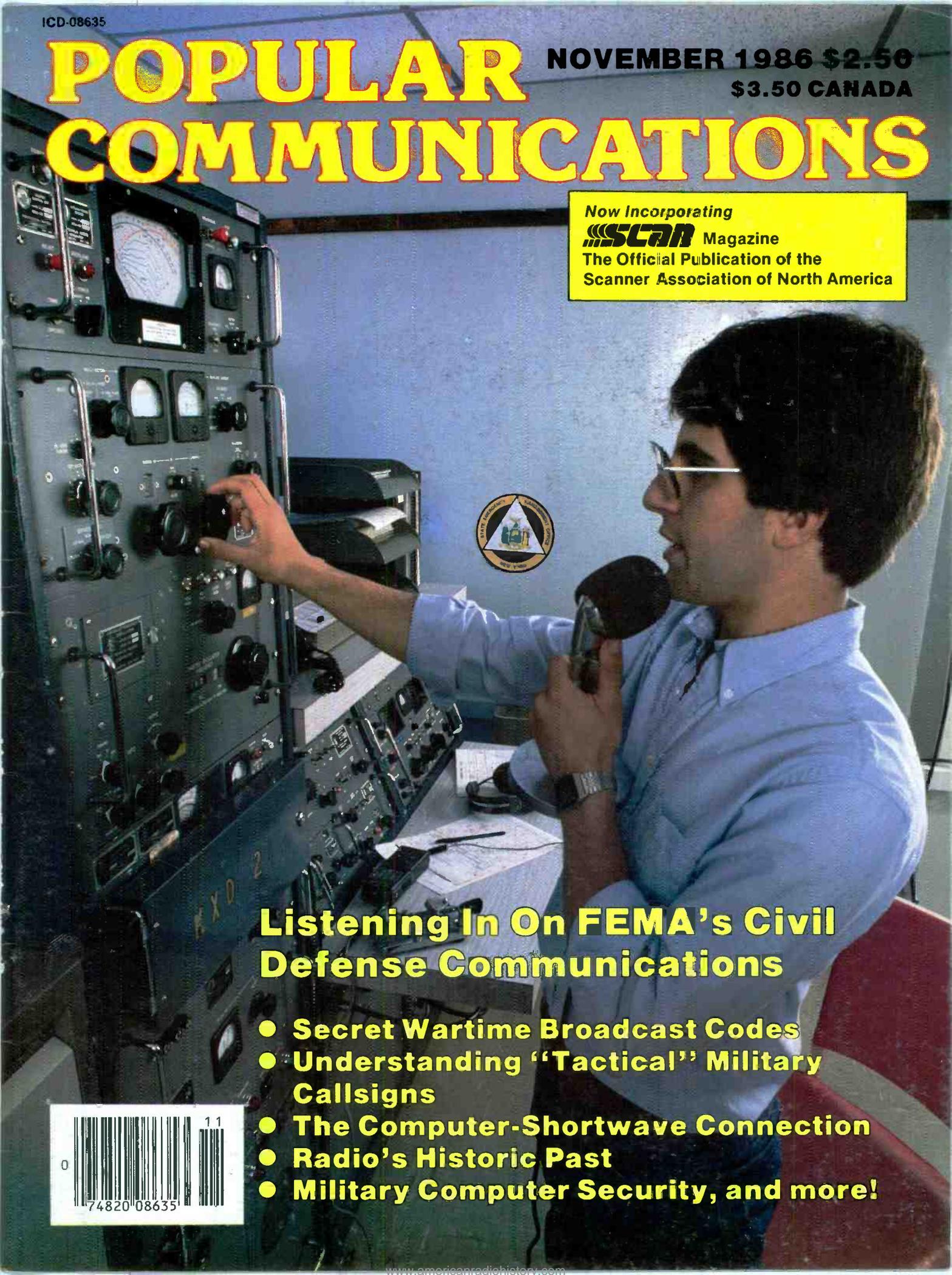


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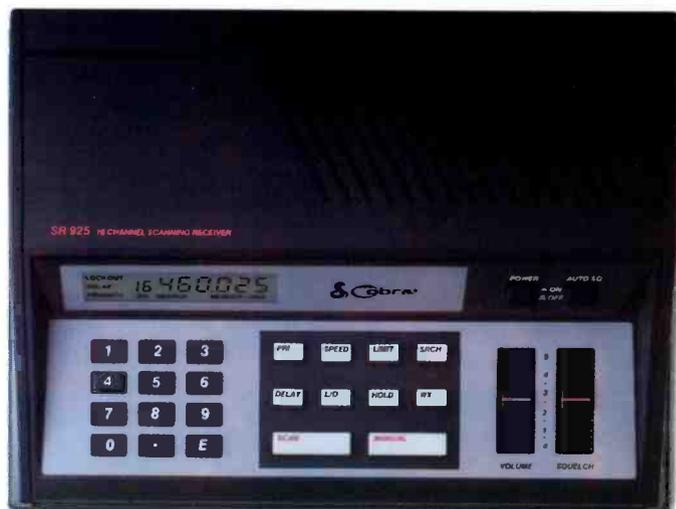
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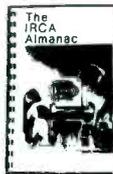
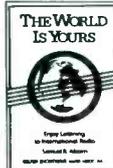
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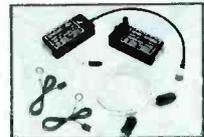


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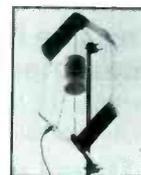


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Scanning The New Michigan State Police 55
Here's the revised MSP communications system, in detail! *by Rick Maslau, KNY2GL*

This month's cover: Doug Sharp operating a general coverage 1.30 MHz, 1000 watt transceiver used at the Emergency Management Communications office for New York State in Poughkeepsie, NY. Photo by Larry Mulvehill, WB2ZPI.

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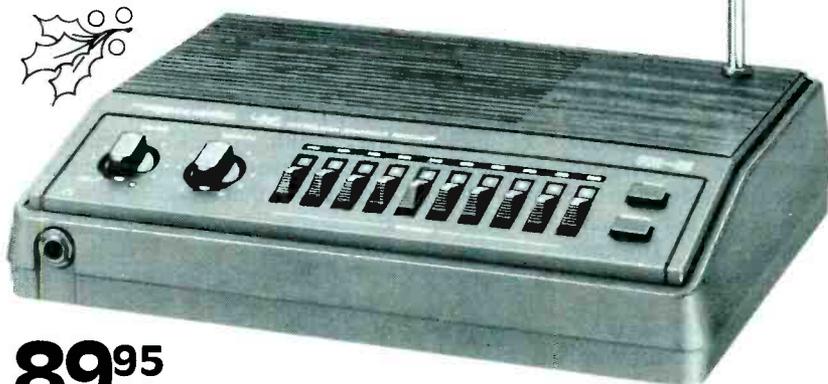
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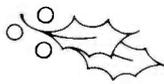
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Fiddling Around While Radio Burns

As I write this, the fate of the Electronic Communications Privacy Act is still uncertain. That's the legislation that's now known as HR-4952 in its Congressional version and as S-2575 on the books of the Senate. There are some differences between the House and Senate versions.

The House version seems to have made it through Rep. Peter Rodino's Courts, Civil Liberties, and Administration of Justice Subcommittee. The Senate version is headed towards consideration by Senator Strom Thurmond's Subcommittee on Patents, Copyrights and Trademarks where I suspect it will come through relatively unscathed.

These bills both seem to have been inspired by lobbyists for the Cellular Mobile Telephone (CMT) industry that is dying to be able to tell CMT users that the devices offer as much privacy as landline telephones. In an effort to disguise the rather preposterous concept of the notion, original versions of the proposed legislation sought to criminalize reception of virtually all signals with the exception of broadcast, Amateur, Police, and CB stations. For good measure, they blended in some hogwash about intending to prevent unauthorized federal electronic snooping into data transmission systems. This was done in order to scare the hell out of the public and further bury the commercial point of the whole mess.

After the original versions had been written down it became immediately apparent that those legislators who introduced the bills knew virtually nothing about communications practices, nor the enormously negative implications of their proposals. Looks to me like they'd been sold a bill of goods by a couple of fast-talking slickers who neglected to point out far too many salient facts.

Some amount of flap went up from various areas of the communications camp, but all of the talk about ending government snooping served to lessen the outrage that really should have shown. To many members of the general public, it didn't sound like a bad idea to toss a couple of barriers in the way of Big Brother and his snooping. The ACLU supports this Act!

Eventually the Act had to be put into the form of a new draft when some within the fields of communications pointed out how patently absurd much of the bill was. In the most recent incarnation, it seems to mainly forbid the unauthorized reception of mobile telephone calls (including, but not limited to, CMT), FM subcarrier (SCA) programming, certain point-to-point data transmissions, deliberately scrambled transmissions,

and reception of transmissions from remote broadcast pickup stations. This list could still be modified before a final version is put up for passage. They're tossing around penalties of up to a year in jail and a \$10,000 fine for violations, but half the jail time and half the fine for monitoring CMT calls.

During the Congressional hearings, Rep. Michael Dewine (R-Ohio) suggested that the jail sentence for CMT monitoring violations be dropped inasmuch as the Dept. of Justice said that it had no intention of enforcing that aspect of the law. His proposal was defeated.

The Electronic Communications Privacy Act is dumb, also it's useless. If passed, even in its present diluted form, it would achieve its basic goal of permitting the CMT industry to make a hollow and misleading claim that the privacy of CMT calls is now protected and assured by a new law. In actuality, about the same level of privacy had already been assured under the Communications Act that has been in effect for more than 50 years! But it should mollify them and maybe they'll crawl back into the woodwork and leave us alone. Passage of such a law will also give Motorola a chance to peddle a few more of their overpriced scramblers; of late they seem to have once again trotted out their old "Let's Stamp Out Scanners" scare campaign.

Underbudgeted, understaffed, and already too overworked for some of its existing duties, it's naive to think that the FCC can or will be doing very much enforcement of an Electronic Communications Privacy Act. Will they be sending engineers around to homes having shortwave and scanner antennas to randomly check on possible violations? They'd have to get a search warrant and then see that the receiving equipment was tuned to an "off limits" frequency while it was in actual use. Then, they'd have to somehow figure out how to turn that information into evidence before handing it over to the Dept. of Justice—hoping that the Justice Dept. was going to prosecute someone for listening to a remote broadcast pickup station. Do you see such a scenario ever taking place? Not likely! The Justice Dept. is already fighting a losing battle in enforcing immigration, drug, organized crime, and smuggling laws!

A Washington friend advises that the law books are brimming over with similarly useless and virtually unenforceable laws passed primarily to appease the politically connected. Once on the books, such laws are seldom heard from or of again, although every now and then somebody collects them

for a humorous book—like those laws that forbid you to eat peanuts while tap dancing on an airplane wing.

The Act was not conceived with the intention of interfering with the normal monitoring habits of the average hobby listener; we seem to be little more than innocent bystanders caught up in someone else's "thing." Should it be voted into law, it will turn into a meaningless curiosity enforced only upon receipt of a formal complaint filed about specific persons charged with gross and highly publicized misuse of protected communications. Doubtful that it would ever directly interfere with your daily activities, or mine. But that's really not the point.

Doesn't it make you wonder about what the hell some of those Congressional legislators are doing to justify those \$75,000+ annual salaries we are paying them to figure out ways to solve problems related to hunger, the MIAs, education, the homeless, the national debt, drugs, pollution, environmental toxins, the balance of trade, public health, organized crime, continuing injustices to Native Americans, the elderly, veterans, the disabled, farmers? When they get through with those and a few other problems such as national defense, then they can sit around and pass junk legislation that tells people what they can't hear on their radios. They've already wasted far too much time on this boondoggle.

You and I are sitting here with our lakes and forests awash in acid rain; illegal immigrants are crossing our borders in brigades; terrorists plot to kill American tourists and military personnel while these people are in deep debate over a law that relates to you hearing remote broadcast pickup stations—a law that can't possibly be enforced!

If you're telling yourself that they might as well vote the damned thing into law for all the difference it will make, think about how it is one more traditional freedom chipped away by an administration that makes much out of claiming that we have too much government in our daily lives. It's one step closer to censorship of the many by the few who have already gone too far with classifying and restricting information from public view. It's one more time and money-consuming project that keeps our legislators distracted and therefore unable to throw their full efforts into many serious and immediate national problems all on behalf of one more

(Continued on page 72)

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REGENCY MA-917 Ni-cad Battery for HX1000/1200	24.99	(.00)
REGENCY HX-CASE Hvy Leath. case for HX1000/1200	34.99	(.00)
REGENCY MA-256 Drop in charger for HX1000/1200	69.99	(3.50)
REGENCY R-1060 Programmable 10 chan. AC Scanner	94.99	(5.00)
REGENCY HX-2000 Digital Hand-Held	159.99	(7.00)
REGENCY MX-3000 AC/DC Digital Scanner	198.99	(6.50)
REGENCY MX-4000 AC/DC Digital Scanner	179.99	(7.00)
REGENCY MX-5000 AC/DC Digital Scanner	329.99	(6.50)
REGENCY MX-7000 AC/DC Digital Scanner	399.99	(7.00)
REGENCY Z-30 AC/DC Digital Scanner	129.99	(5.50)
REGENCY Z-45 AC/DC Digital Scanner	159.99	(5.00)
REGENCY Z-60 AC/DC Digital Scanner	178.99	(5.50)
Mobile Mounting Bracket for Z Scanners	5.99	(.00)
REGENCY D-810 AC Digital Scanner	178.99	(5.50)
REGENCY ACT-R-1 AC/DC Cryst. Single Channel	75.99	(4.00)
REGENCY RH-256 High Band Transceiver	429.99	(7.75)
REGENCY UC 102 Hi-VHF Hand Transceiver	119.99	(5.50)
REGENCY RU150B UHF Transceiver	439.99	(7.75)
Book "Top Secret Registry of Gov't Frequency"	12.95	(.00)
Book "Covert Intelligence, Electronic Eavesdropping"	8.95	(.00)
Book "Betty Bearcat Frequency Directory"	14.95	(.00)
Book "Rail Scan Directory"	7.95	(.00)
Book "Air Scan Directory"	12.95	(.00)
RCD MRP-1 Single Channel Hand-Held	38.99	(3.00)
JL SX-200 AC/DC Digital Scanner	189.99	(6.75)
FANON M8HLU DC Crystal Scanner	99.99	(5.00)
FANON PSK-1 AC Adapted for M8HLU	12.99	(.00)
FANON Slim-6 HLU Crystal Hand-held Scanner	98.99	(5.00)
FOX BMP-1060 AC/DC Digital Scanner	129.99	(5.50)
FOX Mounting Bracket for BMP-1060	9.99	(.00)
WHISTLER Spectrum Radar Detector	199.99	(5.00)
WHISTLER Remote Spectrum Radar Detector	199.99	(5.00)
ANT-1 Magnet Mount Mobile Scanner Antenna	29.99	(3.00)
ANT-6 Base Scanner Antenna w/50' cable	29.99	(3.00)

MAILBAG LETTERS TO THE EDITOR

The most interesting questions we receive will be answered here in each issue. Address your questions to: Tom Kneitel, Editor, Popular Communications magazine, 76 North Broadway, Hicksville, NY 11801.



I snapped this photo in the cockpit of airship G-SKSA. The communications gear is in the center. The several airships in this U.S.-based Airship Industries fleet operate on 122.85 MHz. Used for aerial advertising, they currently are connected with Fuji Films, McDonald's, Resorts International and CitiBank.

May The Fourth Be With You

Living in the "Big Apple," I thought I'd hear plenty of activity from the tall ships, international naval vessels, and blimps that attended the big Statue of Liberty celebration last July 4th. I did hear a few U.S. Navy vessels on 2716 kHz, a frequency often used around harbors. I didn't hear any of the several blimps, although I listened on 132.0 MHz which is supposedly a frequency used for that purpose.

I was wondering where the international gabbing festivals took place in the shortwave spectrum.

Burt van Hoeck,
New York, NY

Frequency 132.0 MHz is the Goodyear Blimp's frequency, but the major participants in last July's activities were four craft from the British company Airship Industries (the company prefers the word "airships" to "blimps" to describe the craft). When I visited one of them (callsign: GSKSA), the pilot told me that they normally used 122.85 MHz. As for the maritime aspects of the celebration, I had a scanner aboard my boat anchored in the general vicinity of the lower harbor. I'd say that the most interesting frequency I monitored was 164.125 MHz. This was a security communications network channel with the net control station calling itself "1 Police Plaza" and participating stations aboard virtually all of the attending naval vessels and tall ships from around the world. The frequency was going full tilt around the clock and offered a fascinating behind-the-scenes portrait of the activity

aboard these vessels. A good frequency to keep handy for similar international shindigs in the future. — Editor

Batting .500 on Back Issues!

The August issue of POP'COMM contained a very helpful index of the contents of your publication. I have a library of issues of POP'COMM that I use for reference and your index more than doubled my access to information. Enclosed is my order for the July '85 and February '86 issues. I loaned them out and they weren't returned.

Harry Wendt
Anniston, AL

The August index mentioned that we were out of stock on the August '83 issue and were running low on several others. Looks like many readers were inspired by our index to fill in the gaps in their POP'COMM libraries. As a result, we have now also gone completely out of stock on the issue dated February 1986. Those who are hoping to assemble complete libraries would be well advised to keep in mind that our supplies of back issues aren't increasing and several issues are now on the threshold of being sold out. As for your loaned February '86 issue, Harry, better try to shake it loose from the creep that borrowed your copy! — Editor

Just For The Record

At one time, disc recordings were meant to operate at 78 RPM. In the late 1940s, 78 RPM recordings were replaced by 33 RPM discs. Not long after that they came out with 45 RPM discs. Don't you think that it's kind of funny that if you total up the speeds of the 33 RPM and 45 RPM discs, the total is 78 RPM?

Richard E. Wahls
Hannibal, MO

A coincidence? Maybe. Funny? No. A custard pie in the face, a guy slipping on a banana peel, that's funny! — Editor

Wrong To Write?

I have been a POP'COMM reader for more than two years. During that time I have sent you at least eight letters that I demanded (and expected) to have printed in your reader mail column. I would have settled for six being published, the ones that were especially important. Not one of those letters has appeared in POP'COMM. Eight letters is my limit and with my last letter I gave up trying. This note is more in the way of a personal memo to you, Mr. Editor, to tell you that I'll still be reading POP'COMM, but you won't be receiving any more letters for use in the "Mailbag" column. But just for the record, I'd like to know what I did wrong?

Albie Franks,
Carson City, NV

Some letters have "it," some letters don't. Obviously the "memo" you wrote (above) had whatever it took to add you to the glory roll. You'd be better off trying to figure out what you did right than where you went wrong. Right? — Editor

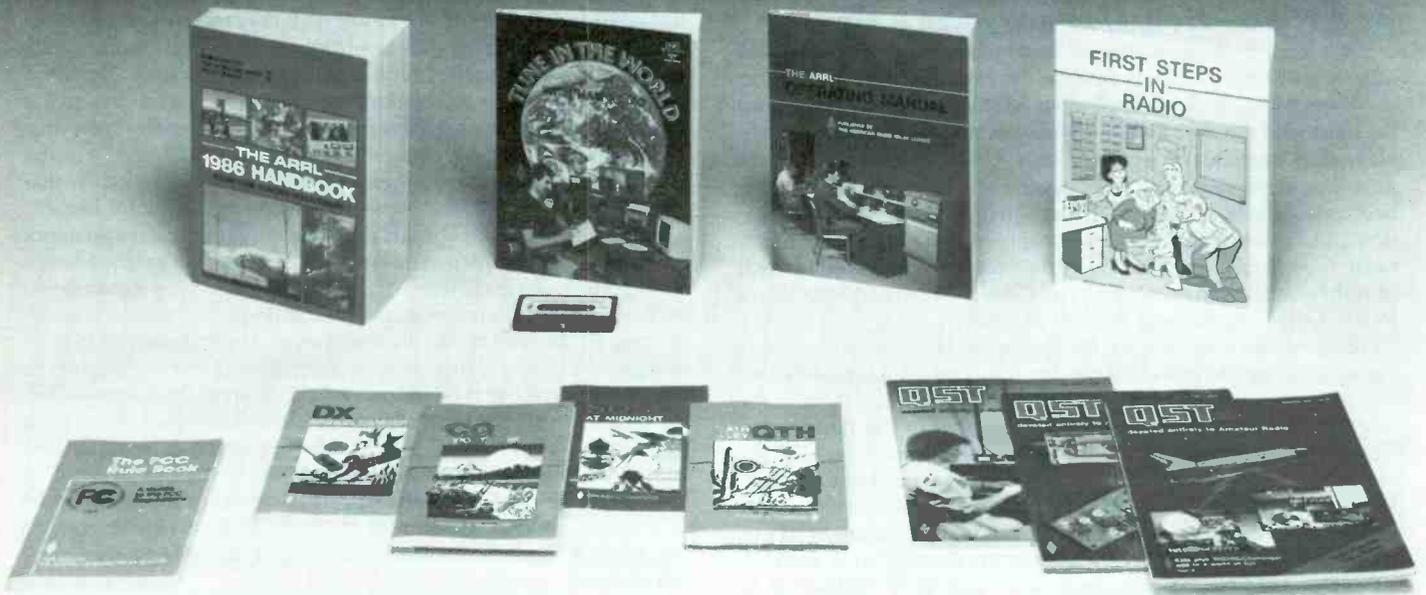
Guess Our Story Fell Flat!

A member sent me a copy of article in June issue ("The Flat Earth Radio Station"). Stranest thing I have ever seen or heard of! Steady stream of info has come from International Flat Earth Research Soc for 14 years! We are known world wide! Members in at least 30 countries. I have done dozens of live Radio interviews in England and Australia, and untold Hundreds and hundreds of them in USA! Ever major Newspaper in USA most minor, Science Mag Newsweek etc etc front page LA Times Examiner Washington Star etc etc etc etc, National TV several times. Yest this article does not even mention us . . . VERY strange! I cant see how it could be by chance. The work did not die with death of Voliva . . . Samuel Shenton till his death, 1971 and mantle on me since then. We have at last brought the fake shuttle to a halt, we will be around when the Space hoax is long gone. You have did us a great disservice . . . leading reader to think Flat Earth work is dead! Or a JOKE! Sound like you are not in your right mind . . . or a ploy to damage this work. Your article was such a mess! Some real bum info you got. Right here is the only Flat Earth Society in existance! And let me tell you its not tongue in cheek. In fact the fact earth is flat is about the only thing that can be known for sure about earth! Enclosed is a copy of our newspaper, Flat Earth News.

Charles K. Johnson, President
The International Flat Earth
Research Society of America
Box 2533
Lancaster CA 93534

It's knowing that among my readers there are even a few of these people that gives extra sparkle to life. Years ago I could have (and some feel should have) sailed off to Tahiti to watch the coconuts grow, but then I'd miss out on receiving letters like this one; it was so priceless that I left the spelling and grammar intact. The quarterly Flat Earth News is, I can assure you, beyond your wildest dreams, offering articles proving that the planet is flat, plus stories about how "major TV networks are Nazi," how "NASA really means Nazi," plus other gems I don't have words to describe without making them seem less than they are. Even Voliva (founder of the "Flat Earth Radio Station" described in the June issue) would finally have been left speechless if he was still around to see the current state of serious Flat Earth thinking. — Editor

ARRL BOOKSHELF



JOIN THE FUN - BECOME A HAM!

FOR THE BEGINNER HAM ADVENTURES ON THE AIR!

Our basic beginner's package is **Tune In the World With Ham Radio** which tells you how to obtain your Novice Amateur Radio License. It consists of a 208 page book which breaks the instructional material down into easy-to-learn bite-size chunks. A cassette is provided which teaches the code letter by letter. Thousands of hams owe their first licenses to the material learned from this package. For individual or classroom use. **First Steps in Radio** tells in simple terms in 95 pages how radio receivers and transmitters and their components work. **The FCC Rule Book** explains the regulations that all amateurs must follow in an easy to understand style. Every licensed radio amateur needs a copy of this book!

- Tune In the World With Ham Radio .. \$10
- First Steps in Radio \$5
- The FCC Rule Book \$4

Tommy Rockford, K6ATX is back on the trail of high adventure! In **Death Valley QTH**, what starts as a typical field day operation becomes a matter of life and death for K6ATX and the Santa Bonita Amateur Radio Club. **SOS at Midnight** finds Tommy up against the Purple Shirt Mob and ham radio saves the day! The beachcomer seemed like a harmless character, but what did he have to hide in **CQ Ghost Ship**? Underwater adventure and ham radio join together to form the exciting conclusion to **DX Brings Danger**. The author of this series is Walker Tompkins who is K6ATX in real life. He is noted screenwriter, newspaper columnist, historian and biographer. His knowledge of the areas where these stories take place makes them even more true-to-life. You'll want to read all of these classics in Amateur Radio Fiction.

- SOS at Midnight \$5
- CQ Ghost Ship \$5
- DX Brings Danger \$5
- Death Valley QTH \$5
- All Four Adventures \$15

What makes ham radio fun are all of the different things you can do. **The ARRL Operating Manual** tells about emergency communications, how to talk through satellites, QSLing and awards, message handling, contesting and data communication including the use of computers. **The ARRL Handbook** has been updated every year since 1926 and over 5.7 million copies have been sold. It has 1186 pages and 40 chapters of practical technical information and projects that most hams can build. It is widely used by students, technicians and engineers. **ARRL Membership** isn't limited to hams alone. Each month you will receive **QST**, which is packed with articles and features on rf communication, operating and Amateur Radio "happenings".

- The ARRL Operating Manual \$7
- The ARRL Handbook for the Radio Amateur
- Paper edition \$18 US, \$19 elsewhere
- Cloth edition \$27 US, \$29 elsewhere
- ARRL Membership, 1 yr. \$25 US, \$33 elsewhere

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THE AMERICAN RADIO RELAY LEAGUE
225 MAIN ST., NEWINGTON, CT 06111

OFFICIAL NEWS COLUMN OF THE SCANNER ASSOCIATION OF NORTH AMERICA

Be A Hero – Help Us Recognize A Hero

Your local firefighters, police, emergency medical teams, and other public safety officials deserve the recognition that only you can bring them. They are the heroes on the "front lines." They are the ones who risk their lives and the ones that must confront horrible human tragedies on a regular basis. Often they are paid far less than they deserve for the sacrifices they must make in their daily lives and in the lives of their families. They deserve public recognition and, by bringing them that recognition, you too can be a true hero. The Public Service Award winners you read about each month have all been nominated by SCAN members and readers of *POP'COMM*. It's easier to do than you think . . .

To nominate someone for the Public Service Award you don't necessarily have to know the person. You need not have been involved in the event that you are writing about. In fact, most of the nominations have come from stories spotted in the newspaper. There's nothing stopping you from doing the same thing, and the rewards may surprise you. Though the person may have received local awards, your part in bringing *national* attention can be very important to that man or woman and to your community. If you wish, we can arrange to have you make the award plaque and cash award presentation. Often, members have been astounded to learn that the local press, the mayor, and other public officials will want to attend. Suddenly, they are celebrities in their own towns! But if you don't wish to do that, we can handle all the details by mail with the award winner. Both the award winner and you, as the nominee, receive a very handsome award plaque. Mounted on walnut, the solid brass plate is custom engraved . . . a very special memento that only a few people have the privilege to own.

To make your nomination, send a newspaper clipping or written details about the person and why he or she deserves the award, together with your own name, address, and phone number. A glossy photo from the newspaper story and a snapshot of yourself will speed things along, but are not necessary to get the ball rolling. Each month the SCAN award committee meets to decide which of the nominations is most deserving. Often second place entries are held over for consideration in future months. You are invited to send us your entry! Just mail to: SCAN Award Nomination, P.O. Box 414, Western Springs, IL 60558.

Antenna Time!

In many parts of the country we are reaching the season of the year when it is no longer practical to put up antennas . . . the snow, ice and winter winds make the job uncomfortable and dangerous. But a cool autumn day is just about perfect anywhere in the country to put up that scanner antenna. There are lots of things to decide before you start, of course, including the question, "Do I really need one?" For most scanner enthusiasts the answer is eventually, "Yes!" Typical reasons include wanting to clear up the noisy communications sometimes heard from vehicles and especially portable units. Or you may want to be able to hear neighboring towns more clearly. Or you may have caught the dreaded "DX bug"—that insatiable desire to see how far away you can hear a distant ("DX") signal. Each activity requires a different antenna strategy. Take "DXing" for example. You will probably want a directional antenna, similar to a TV antenna that "points" in the direction you want to receive. In fact, you can make a fairly good scanner beam by simply shortening the elements on a TV antenna a bit and feeding the coaxial cable line to your scanner. The reasons for wanting directivity include the need to capture the maximum amount of energy from weak, far-away signals (antennas work better when they concentrate reception from one direction) and eliminating overload and "intermod" problems (we'll touch on that in a minute). On

the other hand, if you want to just generally increase your noise-free reception coverage area in all directions, a good commercially available "ground plane" type antenna does the trick. By being both higher in the air and by directing its reception area close to the horizon, it will make a big difference over the whip antenna on your scanner. If you monitor more than one band, you'll need a multi-band ground plane. Several good brands are on the market. Watch the ads in *POP'COMM* or contact your scanner dealer for help.

Often scanner users are surprised that antennas can create minor problems. Usually this occurs when the new outside antenna brings in too much of a good thing. If there is already a very strong signal nearby and the antenna makes it even stronger, the scanner receiver may not be able to handle it properly. Then all sorts of strange things may happen, such as broadcast stations coming through or the same signal being heard on several different frequencies. The beam antenna tends to be self-corrective in this regard, if the weak signals you want to hear are in a different direction from the very strong local ones. With either the directive beam type antenna or the all-direction ground plane type, there are easy solutions should a problem pop up. A scanner interference filter can be used to "notch out" (reduce the signal strength) of the strong local signal, for instance.

Don't let potential problems worry you. Get one in the air and hear what you have been missing. Just be sure that you use low-loss coax cable, not the CB radio type. The white TV coaxial cable is a good choice. And don't take chances near power lines—each year many learn that lesson too late. Other than that, the rule is generally "the higher the better." Also, be sure to have a good multi-state frequency directory at hand. The frequency cross-reference list will be invaluable when unknown signals suddenly pop in. We'd like to see photos of your antenna installation along with your listening reports, so drop us a line after your antenna is up in the air.

Speaking Of DX . . .

One of the more fascinating hobbies of shortwave listeners and Amateur Radio operators is the collection of verification cards for reception reports or two-way contacts made. They are called "QSL" cards because in the international "Q" codes, "QSL" means "I confirm . . ." Collecting cards is a fascinating hobby. It not only produces a colorful display (some cards are quite elaborate), but it is also a record of distant DX signals heard. There is a small, but growing, group of scanner enthusiasts who are also collecting verification QSLs. And as tough as getting a rare DX contact is for the Ham operator, or prying a card out of a clandestine broadcast station is for the shortwave listener, scanner QSLs are even harder to come by. For one thing, Section 705 of the Communications Act presents some problems in divulging the contents of communications heard on public safety and other land mobile frequencies. For another, almost none of these broadcasters knows what a verification or QSL is. Yet I have seen some impressive collections of verification letters on official city letterheads, or improvised QSL cards made from tourist postcards. We'd like to hear from members and others who enjoy this rare activity in scanning.

Charter Member Pins Again Available

If you've been a member of SCAN for some time, we are pleased to announce that the popular black/gold "SCAN Charter Member" pins are again available. The cost is just \$5 postpaid. Add \$1 for shipments outside of the United States. Many of you have written to us requesting a replacement for a lost pin, as a spare, or because you did not receive one originally. We have been unable to

(Continued on page 52)

NEW! Lower Price Scanners

Communications Electronics™, the world's largest distributor of radio scanners, introduces new lower prices to celebrate our 15th anniversary.

Regency® MX7000-GP

List price \$699.95/CE price \$469.95
10-Band, 20 Channel • Crystalline • AC/DC
Frequency range: 25-550 MHz. continuous coverage and 800 MHz. to 1.3 GHz. continuous coverage. The Regency MX7000 scanner lets you monitor Military, Space Satellites, Government, Railroad, Justice Department, State Department, Fish & Game, Immigration, Marine, Police and Fire Departments, Broadcast Studio Transmitter Links, Aeronautical AM band, Aero Navigation, Paramedics, Amateur Radio, plus thousands of other radio frequencies most scanners can't pick up. The Regency MX7000 is the perfect scanner to receive the exciting 1.2 GHz. amateur radio band.

Regency® Z60-GP

List price \$299.95/CE price \$179.95/SPECIAL
8-Band, 60 Channel • No-crystal scanner
Bands: 30-50, 88-108, 118-136, 144-174, 440-512 MHz. The Regency Z60 covers all the public service bands plus aircraft and FM music for a total of eight bands. The Z60 also features an alarm clock and priority control as well as AC/DC operation. Order today.

Regency® Z45-GP

List price \$259.95/CE price \$159.95/SPECIAL
7-Band, 45 Channel • No-crystal scanner
Bands: 30-50, 118-136, 144-174, 440-512 MHz. The Regency Z45 is very similar to the Z60 model listed above however it does not have the commercial FM broadcast band. The Z45, now at a special price from Communications Electronics.

Regency® RH250B-GP

List price \$659.00/CE price \$329.95/SPECIAL
10 Channel • 25 Watt Transceiver • Priority
The Regency RH250B is a ten-channel VHF land mobile transceiver designed to cover any frequency between 150 to 162 MHz. Since this radio is synthesized, no expensive crystals are needed to store up to ten frequencies without battery backup. All radios come with CTCSS tone and scanning capabilities. A monitor and night/day switch is also standard. This transceiver even has a priority function. The RH250 makes an ideal radio for any police or fire department volunteer because of its low cost and high performance. A 60 Watt VHF 150-162 MHz. version called the RH600B is available for \$454.95. A UHF 15 watt version of this radio called the RU150B is also available and covers 450-482 MHz. but the cost is \$449.95.

NEW! Bearcat® 50XL-GP

List price \$199.95/CE price \$114.95/SPECIAL
10-Band, 10 Channel • Handheld scanner
Bands: 29-54, 136-174, 406-512 MHz. The Uniden Bearcat 50XL is an economical, hand-held scanner with 10 channels covering ten frequency bands. It features a keyboard lock switch to prevent accidental entry and more. Also order part # BP50 which is a rechargeable battery pack for \$14.95, a plug-in wall charger, part # AD100 for \$14.95, a carrying case part # VC001 for \$14.95 and also order optional cigarette lighter cable part # PS001 for \$14.95.

NEW! Scanner Frequency Listings

The new Fox scanner frequency directories will help you find all the action your scanner can listen to. These new listings include police, fire, ambulances & rescue squads, local government, private police agencies, hospitals, emergency medical channels, news media, forestry radio service, railroads, weather stations, radio common carriers, AT&T mobile telephone, utility companies, general mobile radio service, marine radio service, taxi cab companies, tow truck companies, trucking companies, business repeaters, business radio (simplex) federal government, funeral directors, veterinarians, buses, aircraft, space satellites, amateur radio, broadcasters and more. Fox frequency listings feature call letter cross reference as well as alphabetical listing by licensee name, police codes and signals. All Fox directories are \$14.95 each plus \$3.00 shipping. State of Alaska-RL019-1; State of Arizona-RL025-1; Baltimore, MD/Washington, DC-RL024-1; Buffalo, NY/Erie, PA-RL009-2; Chicago, IL-RL014-1; Cincinnati/Dayton, OH-RL006-2; Cleveland, OH-RL017-1; Columbus, OH-RL003-2; Dallas/Ft. Worth, TX-RL013-1; Denver/Colorado Springs, CO-RL027-1; Detroit, MI/Windsor, ON-RL008-3; Fort Wayne, IN/Lima, OH-RL001-1; Hawaii/Guam-RL015-1; Houston, TX-RL023-1; Indianapolis, IN-RL022-1; Kansas City, MO/KS-RL011-2; Long Island, NY-RL026-1; Los Angeles, CA-RL016-1; Louisville/Lexington, KY-RL007-1; Milwaukee, WI/Waukegan, IL-RL021-1; Minneapolis/St. Paul, MN-RL010-2; Nevada/E. Central CA-RL028-1; Oklahoma City/Lawton, OK-RL005-2; Orlando/Daytona Beach, FL-RL012-1; Pittsburgh, PA/Wheeling, WV-RL029-1; Rochester/Syracuse, NY-RL020-1; San Diego, CA-RL018-1; Tampa/St. Petersburg, FL-RL004-2; Toledo, OH-RL002-3. New editions are being added monthly. For an area not shown above call Fox at 800-543-7892. In Ohio call 800-621-2513.

NEW! Regency® HX1500-GP

List price \$369.95/CE price \$239.95
11-Band, 55 Channel • Handheld/Portable
Search • Lockout • Priority • Bank Select
Sidelit liquid crystal display • EAROM Memory
Direct Channel Access Feature • Scan Delay
Bands: 29-54, 118-136, 144-174, 406-420, 440-512 MHz. The new handheld Regency HX1500 scanner is fully keyboard programmable for the ultimate in versatility. You can scan up to 55 channels at the same time including the AM aircraft band. The LCD display is even sidelit for night use. Includes belt clip, flexible antenna and earphone. Operates on 8 1.2 Volt rechargeable Ni-cad batteries (not included). Be sure to order batteries and battery charger from accessory list in this ad.

Bearcat® 100XL-GP

List price \$349.95/CE price \$203.95/SPECIAL
9-Band, 16 Channel • Priority • Scan Delay
Search • Limit • Hold • Lockout • AC/DC
Frequency range: 30-50, 118-174, 406-512 MHz. The world's first no-crystal handheld scanner now has a LCD channel display with backlight for low light use and aircraft band coverage at the same low price. Size is 1 3/8" x 7 1/2" x 2 3/8". The Bearcat 100XL has wide frequency coverage that includes all public service bands (Low, High, UHF and "T" bands), the AM aircraft band, the 2-meter and 70 cm. amateur bands, plus military and federal government frequencies. Wow... what a scanner! Included in our low CE price is a sturdy carrying case, earphone, battery charger/AC adapter, six AA ni-cad batteries and flexible antenna. Order your scanner now.

Bearcat® 210XW-GP

List price \$339.95/CE price \$209.95/SPECIAL
8-Band, 20 Channel • No-crystal scanner
Automatic Weather • Search/Scan • AC/DC
Frequency range: 30-50, 136-174, 406-512 MHz. The new Bearcat 210XW is an advanced third generation scanner with great performance at a low CE price.

NEW! Bearcat® 145XL-GP

List price \$179.95/CE price \$102.95/SPECIAL
10 Band, 16 channel • AC/DC • Instant Weather
Frequency range: 29-54, 136-174, 420-512 MHz. The Bearcat 145XL makes a great first scanner. Its low cost and high performance lets you hear all the action with the touch of a key. Order your scanner from CE today.

TEST ANY SCANNER

Test any scanner purchased from Communications Electronics™ for 31 days before you decide to keep it. If for any reason you are not completely satisfied, return it in original condition with all parts in 31 days, for a prompt refund (less shipping/handling charges and rebate credits).

NEW! Bearcat® 800XLT-GP

List price \$499.95/CE price \$317.95
12-Band, 40 Channel • No-crystal scanner
Priority control • Search/Scan • AC/DC
Bands: 29-54, 118-174, 406-512, 806-912 MHz. The Uniden 800XLT receives 40 channels in two banks. Scans 15 channels per second. Size 9 1/4" x 4 1/2" x 1 1/2."

OTHER RADIOS AND ACCESSORIES

Panasonic RF-2600-GP Shortwave receiver \$179.95
RD95-GP Uniden Remote mount Radar Detector... \$128.95
RD55-GP Uniden Visor mount Radar Detector... \$98.95
RD9-GP Uniden "Passport" size Radar Detector... \$199.95
BC-WA-GP Bearcat Weather Alert" \$49.95
DX1000-GP Bearcat shortwave receiver SALE \$349.95
PC22-GP Uniden remote mount CB transceiver... \$99.95
PC55-GP Uniden mobile mount CB transceiver... \$59.95
R1060-GP Regency 12 amp reg. power supply... \$164.95
MX3000-GP Regency 30 channel scanner \$229.95
XL156-GP Regency 10 channel scanner \$139.95
UC102-GP Regency VHF 2 ch. 1 Watt transceiver... \$124.95
P1405-GP Regency 5 amp regulated power supply... \$69.95
P1412-GP Regency 12 amp reg. power supply... \$164.95
MA256-GP Drop-in charger for HX1200 & HX1500... \$84.95
MA518-GP Wall charger for HX1500 scanner... \$14.95
MA516-GP Carrying case for HX1500 scanner... \$14.95
MA257-GP Cigarette lighter cord for HX12/1500... \$39.95
MA917-GP Ni-Cad battery pack for HX1200... \$34.95
SMMX7000-GP Svc. man. for MX7000 & MX5000... \$19.95
SMMX3000-GP Svc. man. for Regency MX3000... \$19.95
B-4-GP 1.2 V AAA Ni-Cad batteries (set of four)... \$9.95
B-8-GP 1.2 V AA Ni-Cad batteries (set of eight)... \$17.95
FB-E-GP Regency Directory for Eastern U.S.A. \$14.95
FB-W-GP Regency Directory for Western U.S.A. \$14.95
ASD-GP Air Scan Directory \$14.95
SRF-GP Survival Radio Frequency Directory... \$14.95
TSG-GP "Top Secret" Registry of U.S. Govt. Freq. \$14.95
TIC-GP Techniques for Intercepting Comm. \$14.95
RRF-GP Railroad frequency directory \$14.95
CIE-GP Cover Intelligent, Elect. Eavesdropping... \$14.95
A60-GP Magnet mount mobile scanner antenna... \$35.95
A70-GP Base station scanner antenna \$35.95
USAMM-GP Mag mount VHF/UHF ant. w/ 12' cable... \$39.95
USAK-GP 3/4" hole mount VHF/UHF ant. w/ 17' cable... \$35.95
USATLM-GP Trunk lip mount VHF/UHF antenna... \$35.95
Add \$3.00 shipping for all accessories ordered at the same time.
Add \$12.00 shipping per shortwave receiver.
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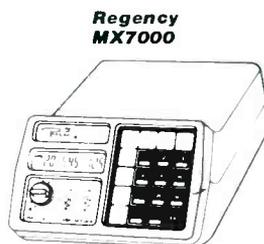
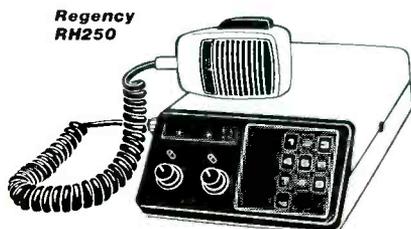
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CIRCLE 82 ON FREE INFORMATION CARD

Secret Wartime Broadcast Codes

In Order To Get News Past Censors, American WWII War Correspondents Devised Elaborate Word Games

BY ANSON MacFARLAND, KVA4EX

When CBS Radio's news correspondent, H.V. Kaltenborn returned home after a visit to London he observed, "I found out more about the European situation here in the United States in one hour, than I was able to discover over there in a week!" Taking into account the American public's voracious appetite for news, it was no wonder that our news media has always figured out how to speed information into print and over the airwaves.

Just before World War II, despite heavy government examination and censorship of all news reports leaving Europe, some of the most important events made it into our headlines days before they were officially released for public consumption in Europe. Many times, information printed or broadcast here was over a week old and was still unreported in the European media. How the information got past heavy censorship was a constant source of speculation in the late 1930s when WWII was in its early stages.

It turned out that our ever-resourceful war correspondents had worked out a series of clever codes that enabled their reports to be filed with very little hassle, and left the censors scratching their heads at how "forbidden" information was being filtered past their watchful eyes. It took the outbreak of war in Europe to elevate broadcast news to heights never before dreamed of by the networks.

Weeks before the sparring nations officially announced that they were at war, radio had kept the entire world abreast of the events that were shaping into a situation with the potential for a worldwide conflagration. In the United States, the three radio networks that existed at that time, NBC, CBS and Mutual, scheduled hourly broadcasts from all of the European capitals. The crisis was covered in great detail from the very first days as each of the governments involved made all of their facilities available in an effort to have their political positions explained to the world.

When war was declared, however, unlimited access to radio facilities and the air of cooperation quickly dwindled as governments turned to more important radio activ-



American radio networks carefully monitored the exact wording used by their overseas reporters in their stories. Even the informal chatter the technicians exchanged with the correspondents before and after the news reports often concealed carefully hidden information! This monitoring installation used two Hallicrafters SX-28 receivers operated by two fellows paying close attention to the traffic.

ities of their own. Propaganda broadcasts of a fanatical and unprecedented nature soon followed. By the time the war was only a few days old, censorship and propaganda became the key words used to describe European radio. By then, many governments regarded foreign news correspondents with suspicion.

Censorship

Censorship is considered vital to a government at war. If propaganda is the presentation of factual or fictitious favorable information, then censorship is the opposite of propaganda. Censorship prevents the dissemination of information about themselves that nations feel is unfavorable. It serves as a handy check valve for the control of news matter, often being established under the guise of reducing espionage and protecting national defense information. Censorship, of course, is a convenient way



Baukage, NBC's man in Berlin, was brought home to analyze war reports filtering in from any areas of Europe.

of controlling the truth at times when it may be unflattering.

News correspondents, right from the Munich crisis of 1938, knew that war was on the horizon and that strict censorship would soon follow. At that time they made elaborate arrangements for sending the actual news out of most of the European countries into the United States. They developed their own means of secret communication—a means that would be unsuspected by even the most suspicious foreign censor.

It was so effective that Americans knew of the signing of the Russo-German Non-Aggression Pact five hours before the news was transmitted over any European broadcaster. After war was declared and more severe censorship was imposed, the American broadcast public was constantly advised as to military activities of all warring nations.

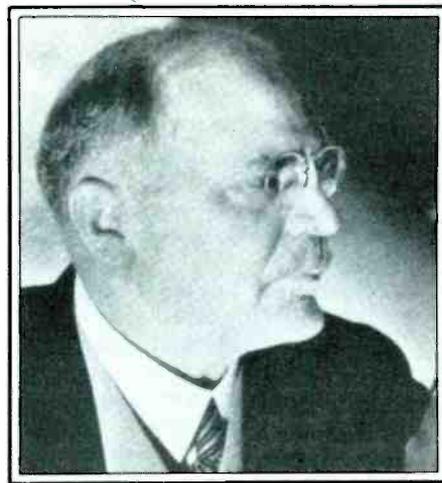
The networks' major news commentators had the ability to analyze events being reported from individual areas, although reporters located in specific cities might not have access to information from areas outside of their own immediate region. For this reason, the networks recalled many of their best analysts from Europe, some even before the war broke out. CBS's expert, H.V. Kaltenborn, was on his way home days before war was declared. In his New York office he could keep in touch with every European capital with greater ease than he could had he been stationed in a European news bureau. NBC's expert, Baukhage, returned to America for the same reasons a few weeks after the war began.

From their New York offices, these (and other) news analysts for the American networks were able to sort through many reports arriving from the field and then combine the information giving a wide-ranging picture of the events taking place in Europe.

The eloquent "word pictures" from Europe were copiously supplied by lesser-known figures stationed in all areas, war



The Mutual Network's distinguished war news analyst, Fulton Lewis, Jr.



Dean of American broadcast network news analysts, H.V. Kaltenborn of CBS.

correspondents employed by the networks, by magazines, and by news services—virtually all using the same type of secret method for confounding the censors, although there were individual versions of the codes in use.

The codes weren't used in each and every news story filed, they were used sparingly and only when necessary. Moreover, when a news story was filed using the code (as with many stories filed when not using the code) the text often contained at least one or two things that were certain to cause the censors to go into action, just to keep them off guard.

The Broadcasters' Code

The coding system used by broadcasters relied upon the substitution of complete words for other words, nouns for nouns, verbs for verbs. Although such a system required the use of a coding/decoding dictionary, it was easier to use than more exotic encryption methods and it was well suited to

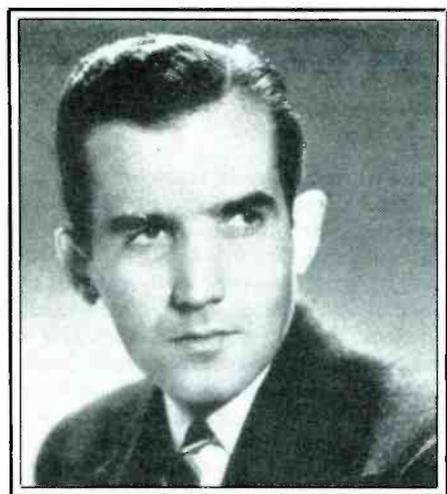
getting past the censors than something obviously encrypted.

In the broadcasters' code, "Troops now leaving Paris," could mean "Civilians soon buying gas-masks." The work in coding/decoding such messages was worth the effort as was quickly proven.

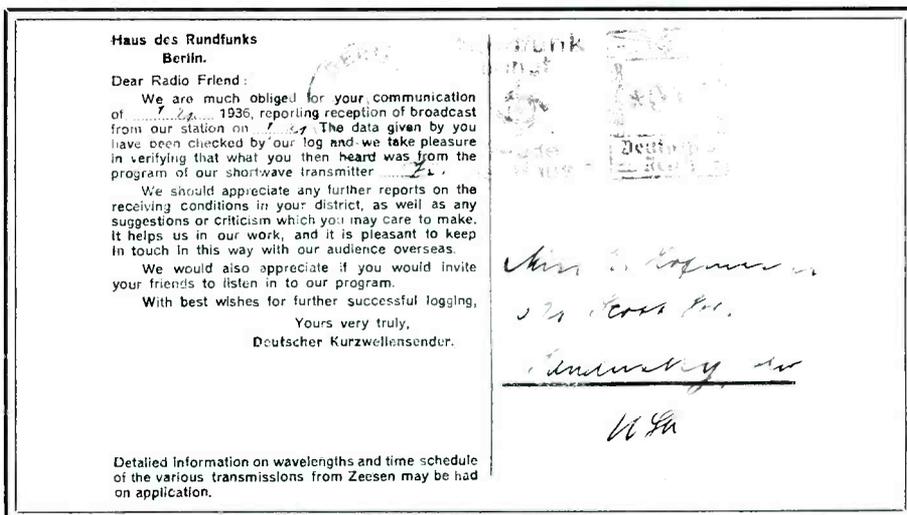
In an actual broadcast from Warsaw, an American correspondent filed the following story: "The civilians of Warsaw are determined to fight beside their soldiers. On my way to the broadcasting studio tonight I saw Polish airplanes flying westward. They were probably going to meet the invading enemy near the border. I also saw . . ."

The network's staff in New York immediately went to their books and began extracting the hidden message: "The city of Warsaw is doomed to destruction within 24 hours. On my inspection tour tonight I saw German militia flanking in the west. They will soon commence firing there near the city limits . . ."

Table I shows the broadcast code in ac-



Edward R. Murrow of CBS became a legendary figure in broadcast news because of his dramatic on-the-spot reports filed from the war zones of Europe.



A late-1930's QSL from the German broadcaster at Zeesen. Their programming combined news and propaganda in a manner so insidious and effective that its methods are still in use by many nations. QSL courtesy Eileen C. Hofmaster.

Table 1
(Read across)

Words Spoken	Approximate Meaning
From Paris	
"All Paris is quiet tonight . . ."	"Troops are consolidating their advances on the Western Front . . ."
"The moon sheds its glorious light here as in the States . . ."	"An advance is planned for the morrow . . ."
"Behind thickly covered doors, the entertainment continues as before . . ."	"A meeting of the heads of the Government is under way to . . ."
"There seems little to tell that there is a war on, if you are to judge by the scene here . . ."	"An aerial raid on German centers has been unofficially rumored . . ."
"Music cannot be heard through the doors which are covered by four thicknesses . . ."	"An attempted enemy air raid was repulsed about 40 miles (400 mi.) from Paris . . ."
"Many of the actors are using their old costumes such as we saw before the World War . . ."	"Colonial troops are being placed in the lines . . ."
From London	
"Nothing much seems to disturb this determined people . . ."	"The air raid precautions are thoroughly manned and ready for a reported air attack . . ."
"Chamberlain is standing firm on his statement . . ."	"British Airmen dropped pamphlets to try and win over the German people to overthrow Hitler . . ."
"In the suburbs, children are taking up their new residences with their usual casualness . . ."	"British Air and Sea maneuvers are going ahead in the outskirts of the German Reich . . ."
"Postal cards and letters from the children indicate that they are not only enjoying their country stay, but are healthy and well . . ."	"The latest air-raid of the British was eminently successful, and all returned without the loss of a plane . . ."
"The latest styles in gas masks are as follows . . ."	"British advances (losses) were about (blank) thousands, etc., men. Note: the number of different styles will give clue to the number to insert . . ."
"The Bobbies here are wearing their blue helmets . . ."	"Naval reconnaissance has been undertaken to locate enemy subs . . ."
From Warsaw	
"The Poles are standing firm . . ."	"No air-raid on Berlin is expected tonight . . ."
"In spite of stories to the contrary, the Poles are not disorganized . . ."	"An air-raid will be (has been) undertaken over Berlin . . ."
"The Air-raids do not seem to bother the populace which takes them in their stride . . ."	"The original plans have been adhered to . . ."
"We have not heard from Berlin today . . ."	"We have been given to understand that the Polish mission over Berlin was successful . . ."
From Berlin	
"In Berlin tonight, nothing has disturbed the placid beer-halls . . ."	"Enemy air-raiders have been over the city . . ."
"I saw some soldiers moving to the East . . ."	"Large numbers of troops moved through the city to the fronts . . ."
"People are taking the war very calmly . . ."	"Riots have been rumored in certain sections of the city . . ."
"The Chancellor was quiet, a few people gathered around to see if they could see the heads of the government . . ."	"The feeling against Hitler is mounting steadily. Steps are being taken to suppress the situation . . ."

Table 1. American war correspondents were forced to make one thing mean another in some of the reports they filed. Sometimes it was the only way to get the truth past government censors. In the left-hand column are the spoken words; in the right-hand column, what they meant.

tion. The column to the left gives the words spoken; to the right the approximate meaning. Not only were the broadcasts themselves capable of hiding messages, it was also possible to conceal information in the before/after broadcast conversations between the correspondents and their American offices, such as when getting ready to "cue" the broadcast. This impromptu banter might well be loaded with important information buried in innocuous-sounding expressions as, "We are starting to run low on letterheads and envelopes, let us know what to do when we are out of them until a new supply arrives."

By actual comparison between the American NBC and CBS networks and the BBC

in London, in 1938 and 1939, the two American networks had news releases and bulletins in the air between three and eight hours in advance of the British stations.

Propaganda

American network rebroadcasts of foreign station programming were common during the days just prior to the war and up until the week after it had begun. During that period, NBC relayed more than 150 European broadcasts, CBS provided more than 100, Mutual more than 75. By the time the war got under way, censorship had reduced the amount of worthwhile programming from Europe to only two or three international rebroadcasts in a day.

Intense propaganda replaced what the censors had removed, with the European broadcast personnel keenly aware of governmental pressure upon their broadcasts. They were not permitted to divulge military movements or official news. With a war taking place, there wasn't really much else to transmit except government-prepared texts or else their own rather boring descriptions of daily life in the various capital cities. Interestingly, some of these broadcasts nevertheless managed to conceal a certain amount of hidden information that appeared totally innocent to censors.

Basic propaganda broadcasting bolsters the morale of a nation's own people by telling them how well they are doing. It contin-

ually sings the hymns of self-glory, publicizing only its great victories and never its defeats. This was the type of propaganda going out over European stations.

In Nazi Germany, of course, shortwave propaganda had been a governmental monopoly for many years prior to the war. During the war, a devious twist to the basic propaganda approach was devised by the Nazi government. They evolved an indirect method, merely for its psychological impact on foreign listeners. German propaganda station, Reich Rundfunk, from Zeesen, openly sent out accurate news reports on the progress of the war, even referring to selected German losses and casualties! This would lead foreign listeners to believe that the Nazi government was not afraid to tell its

people the truth. Of course, since the German people were unable to hear those broadcasts (it was a criminal offense for them to own shortwave receivers) it was all window dressing. Moreover, as the war progressed, the truthfulness of the Nazi war losses, as reported over its own station, became less and less complete and accurate while the station attempted to cash in on its reputation for providing reliable data.

Germany had also established several "black propaganda" stations that gave the impression of being undercover anti-Nazi broadcasters. These stations first built their credibility by providing accurate war-loss and sabotage information. Once their listeners had been convinced of the stations' reliability as sources of truth, the stations be-

gan feeding listeners subtle propaganda as well as disinformation. It was very effective.

Nazi Germany developed broadcast propaganda into more than a science; they turned it into an art form that worked so well that the techniques are still in use today by many governments on overt and covert levels.

One cannot help but wonder if the hidden-message technique first developed by American war correspondents during that era might still be in use today by TV and print media reporters stationed in nations where the news is heavily censored and controlled by governmental edicts. Some nations provide strict censorship on all news media operating within their borders, other nations have a government-controlled news media that may release partial news items, or else hold back on items for many days before announcing them. Yet the stories do manage to get out, one way or another! The nuclear accident at Chernobyl was being reported in near-hysterical terms by the Western media while the Soviet media was still treating the incident as a very minor and highly-localized occurrence.

There have been many instances of news stories "getting out" and crossing international borders against the wishes of host-governments. Did they get out by means of bottles tossed into the ocean? Maybe there's a better method! Only the scores of resourceful American news correspondents know for sure, and they'll never tell! **PC**



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DXM on 7270 kilocycles (41.27 metres)
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 6:30 a. m., 1:30 p. m., 2:30 p. m., 5:30 p. m., 6:30 p. m.
 8:30 p. m., 9:30 p. m., 10:30 p. m., 11:30 p. m., 12:15 a. m.

Finally the following shortwave stations are employed in addition:

DXJ on 7240 kilocycles (41.44 metres) at 5:30 p. m. and 6:30 p. m.

DXZ on 9570 kilocycles (31.35 metres) at 7:30 p. m. and 8:30 p. m.

DXT on 15230 kilocycles (19.70 metres) at 1:30 p. m.

DJL on 15110 kilocycles (19.85 metres) at 2:30 p. m.

Special feature programmes are broadcast at 7:30 a. m., 3:30 p. m., 4:30 p. m., 7:30 p. m. and 8:30 p. m.

The German War Communiqué is regularly read at dictation speed every day at 5:45 p. m.

The German station at Zeesen not only broadcast in English, but circulated its schedules printed in English. This one, aimed at British listeners, is from 1943. A carefully selected mixture of propaganda and truth was custom tailored to bamboozle.

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Military stations like to use tactical callsigns for security purposes. (U.S. Army Photo.)



Tanks for the memory, but the military services don't want the enemy to learn the identity or locations of many of their stations. (U.S. Army photo.)

Tactical IDs and Military Authentication

Some Thoughts About These Two Communications Puzzlers

BY HARRY CAUL, KIL9XL

If you've got a communications receiver or a scanner and have monitored the frequencies used for military communications, you've probably come up against two elements that seldom cease to cause puzzlement. Don't fret, that's their purpose. Our purpose here is to provide some insight into the motivation and usage of these two things—tactical identifiers and authentication codes.

Tactical Callsigns

Radio stations use callsigns in order to let others know who they are. If you hear a broadcasting station telling you it is WLS or WGN, that instantly provides you with the information you need to know in order to determine if you're listening to the desired station.

With military communications, the need is also there for one station to let others know which station is transmitting, but not to let everybody in on the information as occurs with a broadcaster. Military stations therefore, take specific steps to prevent unwanted listeners (such as the enemy) from knowing very much about their exact loca-

tion, type of mission, etc. One of the ways they do this is by assigning stations "tactical callsigns" or "tactical identifiers." These identifiers, which may be changed on a daily or weekly basis, can't be looked up in any directory or registry available to unauthorized persons.

Therefore, the station you hear today identifying as "Coliseum" could well be the same station you heard only yesterday as "Jackpot." Moreover, the same station may be simultaneously using several different tactical callsigns, one for each of its different frequencies, networks, or operating modes. By tomorrow, there could be an entirely new series of identifiers in use! So long as the other stations with which they communicate are kept updated on the changes, that's all that's important.

A tactical callsign can consist of a series or combination of letters and numbers, or it may be one or more pronounceable words. The amount of time a given station may use a particular tactical identifier will depend upon the level of security of the mission combined with the quality of the enemy's traffic analysis.

Stations operating in voice and also non-

voice modes may be given short alphanumeric tactical callsigns such as 6E3 or B7V (in voice mode pronounced "6 Echo 3" and "Bravo 7 Victor"). Stations operating exclusively with voice (on a particular frequency) might be using a tactical identifier utilizing complete words, possibly combined with a number. Examples would be "Piccolo Pete," "Shark 655," "Doormat," or "Plead 02."

Sometimes a network of stations is assigned a tactical callsign that, when sent, alerts participating stations that communications affecting all stations are to be sent. A collective call is similar to a net call, but is used to group two or more (but not all) of the net stations. A collective call is useful when several stations must be called frequently on matters that are of no concern to other net stations.

In instances when a network's callsigns are to be changed periodically according to prearranged instructions, the scheduled list of alternative callsigns are given in documents circulated within the command. A change in tactical callsigns may also involve a change in operating frequency as an additional countermeasure against enemy interception and traffic analysis.



Sometimes members of a network are required to use authentication codes in order to pass traffic. This prevents entry into the network by enemy or other fraudulent stations. (U.S. Army photo.)

Those who assign callsigns to individual stations in the same network have to use care in their selection. During periods of interference, poor propagation, or malfunctioning equipment, one callsign could easily be confused with another. A station calling itself "School House," for instance, would probably not be participating in a net that already had a "Tool House," or a "School Yard." If that happened, the wrong operator, hearing only part of the call, might assume the call is from his/her own station and then tie up the frequency with an unnecessary response.

The use of a standardized phonetic alphabet reduces such confusion in alphanumeric tactical identifiers, but when full words are used it's still a problem. This can sometimes be noted in Civil Air Patrol networks as the stations often use words with numerical suffixes. Therefore, "Blue Fox 23" can be confused with "Blue Fox 25" under certain conditions. CAP stations generally retain their tactical identifiers so if there are any problems, they appear to have been taken in stride. Likewise, many U.S. Army, Navy, Marine, and Air Force tactical callsigns retain potentially confusing formats that have been in use for very long periods of time.

Hobby listeners have long been fascinated with all manners of stations using tactical callsigns, although it may require a bit of discrimination to sort out actual tactical callsigns from ships using their vessel names (instead of callsigns) for identification. Even airliners could possibly sound like stations utilizing tactical callsigns.

A few non-changing tactical identifiers have been published along with locations, frequencies and other details of their opera-



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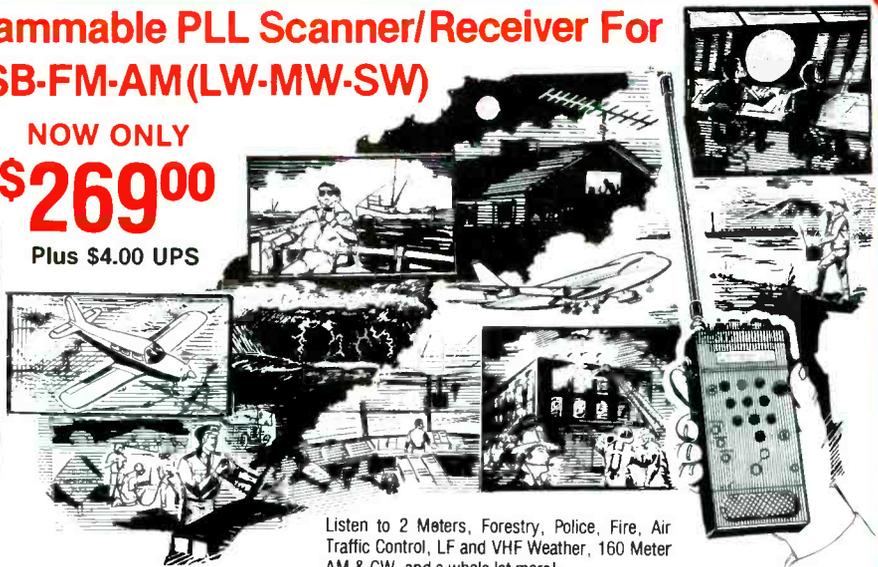
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6 Frequency Bands

Band	Frequency range	Tuning interval
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AIR	108 - 136 MHz	25 kHz
FM	76 - 108 MHz	50 kHz
AM	SW 1601 - 2194 kHz (1603 - 2194 kHz)*	1 kHz
	MW 530 - 1600 kHz (531 - 1602 kHz)*	10 kHz (9 kHz)
	LW 150 - 529 kHz (150 - 530 kHz)*	1 kHz

7 Functions on LCD Display

Indicates the band being received

Frequency being received

The large black dot indicates that the frequency is memorized to the 3 key.

The small black dot indicates that the delay function is activated for the 3 key.

Indicates that the input frequency is out of range

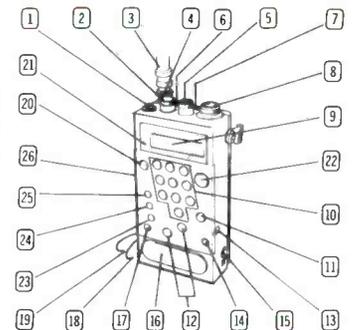
Indicates that the priority function is activated.

Indicates that the program function is activated

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Time was when hobby monitors had plenty of opportunities for QSLing military stations using tactical callsigns. It can still be done, but it's getting increasingly difficult. This QSL letter from U.S. Army station JJ-4 dates back 38 years. Courtesy Tom Kneitel.

tion. Apparently there is little concern that monitors hearing "Bearmat" on 126.2 MHz will know that it is at the Twentynine Palms USMC Base in California, nor is there much concern that anybody of sinister consequence will find out that "Raymond 31" is located at Myrtle Beach AFB in SC. These and many other tactical callsigns have appeared in literature available to the general public. Those that remain "unpublished" tend to show up in POP'COMM and in some SWL club newsletters, often without any information as to their location or operating authority. Nevertheless, some listeners have been able to not only pinpoint a few of these stations but also get them to QSL—although this trick seems to have gotten increasingly difficult in recent years.

Authentication Challenge and Reply

Authentication is a security measure designed to protect a communications system or network against fraudulent stations attempting to participate in its operations. Depending upon the needs and desires of a particular command, there may be many circumstances in which authentication would have to be used.

Stations participating in a net requiring station authentication would each have a chart on hand giving the required codes. A simple authentication sample chart is shown along with this report; this is not one known to be in actual use.

In the chart, the letters A to Z are printed in sequence on the left hand side. These are the "row designators." The numbers 0 to 9, next to the letters, represent those letters. For example, if either of the two test elements of the challenge is a number such as 4, the adjacent letter E is used.

Let's assume that an operator is challenged with two test elements, 7L or HL. The correct method of authentication is to use the *first letter to the right* of the last test element. The following procedure is used to find the correct authentication:

1. Locate the first test element, H, in the column of row designators.
2. Scan across the row designated by H to find the second test element L.
3. The "first letter to the right" of L is A. Therefore A is the authenticator and

A sample authentication chart.
This one uses a simple format.

HEADQUARTERS SECOND ARMY FORT GEORGE G. MEADE, MARYLAND

2 March 1948

Mr. Thomas S. Kneitel

Dear Mr. Kneitel:

Reference your letter of 18 February 1948 regarding radio station JJ-4 on 5305 kc.

Radio station JJ-4 is located at Harrisburg, Pennsylvania, and was operating on 5305 kc up till 27 February 1948, therefore your report is correct.

Sincerely,

Lee R. Williams
LEE R. WILLIAMS
Colonel, Signal Corps
Executive Signal Officer

Row
designator

Sample authentication system No. _____
effective 0001 to 2400 hr, 1 March

0 A	E C B X K Z O V J L M G S T F W I Y A D H P R Q N U
1 B	O T H P F W X K E D Z Y A L N S C J V B Q R M G I U
2 C	X N C E T S G Q R P H D Q Y I B W M J L V U O Z K F
3 D	T Z D E H W V J K X C A Y U I G S R Q O F B L N P M
4 E	W D V R H K X Y L N Z G E U B C J S T P M F I A O Q
5 F	M P N L B F O Q R S G I U Y A C X K J V W H E D Z T
6 G	J V U P C W O Z Y T K X S G Q E R I D A F M L N H B
7 H	U I G M R Q B V J C S N L A Y Z D E K X W F P H T O
8 I	B Q R T M G I U H P F S Y A C W K N X L E D Z O J V
9 J	B H N K M F A D I R Q G S X L T Y Z O W P U V J E C
K	K F M J P U N Y B H O A R X Z V D T C G W E S Q L I
L	Q R D A M X L N H K U I V P C J B F O S W E T Z Y G
M	H G M L D Y A T S Z K X B C O Q R P I W J V E U N F
N	V J O Z D E K X N L W C A Y S F P H U I G M T R Q B
O	A T J V E U O Q R P Y S Z K X B C I W N F H G M L D
P	M A D I K T E Q G V S O F B W H N L X Y Z J R C P U
Q	F N U E V J W I P R Q O C B X K Z S T Y A D L M G H
R	Z N T S Y J F U E C X B K W H I R Q O A V D L M P G
S	G Y Z T E W S O F B J C P V I U K H N L X M A D R Q
T	Q O A I F M P T S J C B U E G Z N L Y X K H R V D W
U	U P C R J Z Y X L N H W B F O S V G Q E T K I D A M
V	G P M L D V A O Q I H W K X B C E U F J Y S T N Z R
W	U N Q R P H D A Y I W F T S G M L J V O Z K X B C E
X	I L Q S E W G T D V C Z X R A O H B Y N U P J K M F
Y	D L M G H F N W I C B X K Z S Y P R Q O U E V J T A
Z	M P H O A R L G W E S Q K J X Z U N Y B V D T C I F

RECEIVE RTTY/ASCII/CW on your Personal Computer



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Copies all shifts (850, 425, 170 Hz shift and all others) and all speeds. Automatic noise limiter suppresses static crashes for better copy. 2 LED tuning indicator makes tuning fast, easy, positive. 4 1/2 x 1 1/4 x 4 1/4 in. 12-15 VDC or 110 VAC with optional adapter, MFJ-1312. \$9.95.

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\$79.95**



MFJ-1020 New Indoor Active Antenna sits on your desk ready to listen to the "Rivals, often exceeds, reception of outside long wire. Unique Tuned Active Antenna minimizes intermode, provides RF selectivity, reduces noise outside tuned band. Also use as preselector for external antenna. Covers 300 KHz to 30 MHz in 5 bands. Adjustable telescoping antenna. Controls: Tune, Band Selector, Gain, ON-Off/Bypass, LED, FET, bipolar circuitry. Phono jack for external ant. 6x2x6 in. 9-18 VDC or 9V battery. 110 VAC with adapter, MFJ-1312, \$9.95.

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**MFJ ENTERPRISES,
INCORPORATED**
Box 494, Mississippi State, MS 39762

CIRCLE 24 ON READER SERVICE CARD

LOG

Enter opening and closing time, frequencies, frequency checks and frequency changes, traffic delays and any incidents or conditions affecting circuit efficiency. Remarks need not be confined to one line.

STATION - ~~COMMERCIAL~~ NET (Strike out words not applicable)

DATE

FT1W - XY37

1 March

TIME	OPERATOR'S SIGN	REMARKS
0755Z	JD	PVT JOHN R DAVISON ON DUTY
0810Z	JD	XY37 DE FT1W ZNB WH BB INT ZNB BL K
		XY37 DE 2HA5 ZNB YY INT ZNB OT K
		XY37 DE C1B6 ZNB MM L
0812Z	JD	XY37 DE FT1W R AR
	JD	2HA5 DE FT1W P K
		FT1W DE 2HA5 K
		2HA5 DE FT1W -P- 010737Z
		FT1W DE 2HA5 IMI 6 K
		2HA5 DE FT1W 6 - OWMPR K
0818Z	JD	FT1W DE 2HA5 R AR
0819Z	JD	C1B6 DE 2HA5 O K
		2HA5 DE C1B6 K
		C1B6 DE 2HA5 -O- 010740Z GRNC BT
		SUPPLIES NEEDED TO COMPLETE PROJECT BRAVO BT K
		2HA5 DE C1B6 IMI WA PROJECT K
		C1B6 DE 2HA5 WA PROJECT - BRAVO K
0822Z	JD	2HA5 DE C1B6 R AR
0824Z	JD	POWER FAILURE
0835Z	JD	POWER RESTORED
0845Z	JD	FT1W DE C1B6 R K
		C1B6 DE FT1W K
		FT1W DE C1B6 -R- 010810Z
		C1B6 DE FT1W IMI 3 TO 5 K
		FT1W DE C1B6 3 TO 5 - LMPRO ALPHD SPLOR K
0850Z	JD	C1B6 DE FT1W R AR
0859Z	JD	XY37 DE FT1W ZKJL ZNB LH UU K
		FT1W DE 2HA5 ZND2 INT ZNB BX K
		XY37 DE FT1W ZKJL ZNB WW K
		FT1W DE 2HA5 R AR
0900Z		FT1W DE C1B6 R AR
0901Z	JD	<i>John R. Davison</i> OFF DUTY STATION CLOSED

U.S. GOVERNMENT PRINTING OFFICE: 1964 O-551963

A station log from a military station may be brimming over with tactical callsigns from stations called and worked. The same station may use several different tactical callsigns.

the challenged operator would reply "Alfa."

If the second test element happens to be the last letter in the row, the first letter in the same row would be the authenticator. Thus, if the challenge elements were HO, then U would be the authenticator.

When a network is using authentication, operators are warned to avoid repetition of the same pair of test elements when challenging. Unless this was done, the operator of a fraudulent station could monitor the network and have no trouble in determining the significance of the authentication test elements. Once the proper response to a set of test or challenge elements has been determined, the security of the network can be broken by enemy or other unauthorized stations.

Note, however, that while some authentication operations may be very similar in general format to our sample

chart, others are far more complex and may well involve more than one step combined with multiple-letter replies taken from a chart with regularly changed reply components.

Also note that some secure networks may not require the use of authentication charts because coded tones or data bursts are sent automatically every time the transmitters are keyed. Such signals can be used by other stations in the network to determine the identity of the station attempting to pass traffic. They can also be used to prevent unauthorized stations from activating a terrestrial repeater or one located in an artificial satellite.

These are some of the security elements commonly encountered by listeners monitoring military communications frequencies. Hopefully, this will remove some of the confusion surrounding their use inasmuch as little has ever been written about such matters, at least little that reaches the public.

Military Computer Security

Protecting Sensitive Information In A Vulnerable Storage System

BY LOLA HOBBS, AISD OFFICE OF PUBLIC AFFAIRS

Personnel in the Information Systems Security Branch of Airlift Information Systems Division headquarters are dedicated to protecting Military Airlift Command's computer hardware and software.

Microcomputers are now a common piece of equipment in nearly every office place. With the commonality of this equipment comes a greater need for awareness of the sensitivity of information stored on these systems and the physical security of the equipment itself.

According to Cindy Hicks, a Worldwide Military Command and Control Systems Automatic Data Processing System Security Officer assigned to the AISD office, "Our office gets involved in the security of the computer even before it is set up in the office place. We talk to the users and review contract specifications and proposals. Then we work with the local security officer in conducting a risk analysis in the area. From the very beginning we need to know what type of information (unclassified, sensitive unclassified, and/or classified) will be processed on the computer."

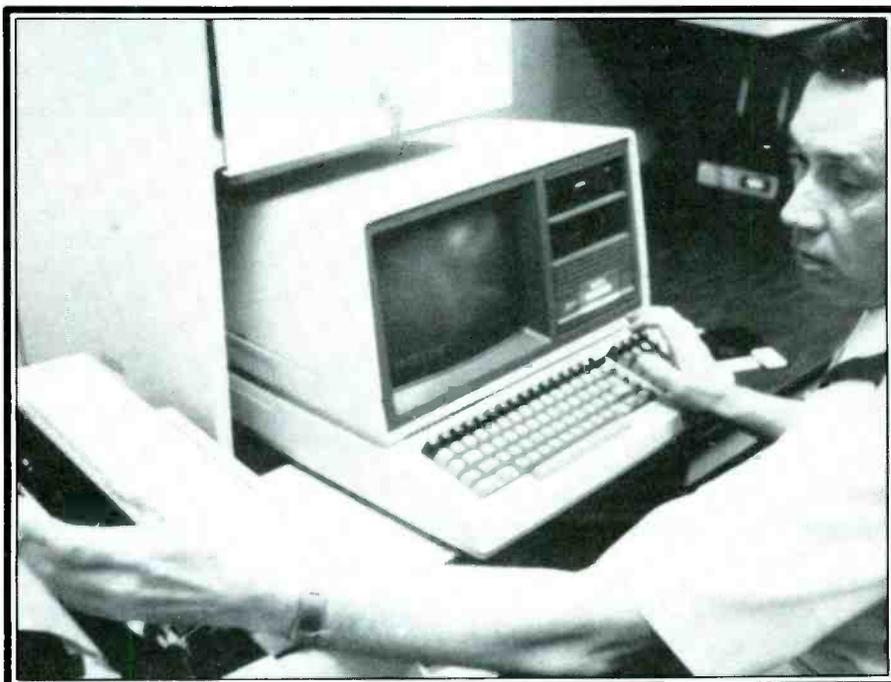
Contrary to general belief, computer security does not involve just classified information. In fact, this probably constitutes a small part of the computer security mission. It also does not deal exclusively with large mainframe computer security.

"The microcomputers in the office place are extremely vulnerable," said Ms. Hicks. "Managers need to insure that the area where the computer is housed is safe in order to preclude theft and tampering."

"Much of the information stored on computers is sensitive or proprietary, such as supply information or flight information. By itself it may not mean anything, but like a puzzle, when the pieces are joined together, they give an important picture," she said. "Another area of concern is personnel information and privacy act information."

"We also need to make sure people are aware of the sensitivity of passwords," said Ms. Hicks. "Passwords should not be stored on disk files or written down. They have to be treated as sensitive or classified the same as the data they access."

Another problem dealt with by personnel



Master Sergeant Steven A. Quinn, performs a records run to determine access availability. Sergeant Quinn is a computer security superintendent in the Information Systems Security Branch, Airlift Information Systems Division headquarters. (U.S. Air Force photo by Captain Milford A. Gutridge)

in the Information Systems Security Branch is use of computers for other than official business.

"There have been many documented cases of personnel using the computer to maintain listings of comic books or home video tapes, or using the office computer for managing an intramural sports program. These are obvious cases of fraud, waste and abuse," she said. "There are also many cases of unauthorized personnel gaining access to computer passwords and entering the system. Unfortunately, cases like these cost the government highly in terms of investigations and loss of data base integrity."

People from the AISD office attend Air Force-level computer security workshops and Worldwide Military Command and Control Systems conferences in order to keep abreast of the latest information involving computer security. Hicks is the

chairperson of the WWMCCS ADP System Security Officer Committee. In addition, she is the MAC representative at the WASSO conference.

A checklist is available that assesses the vulnerability of an organization's small computer. It provides a means of insuring the safety of hardware and software. It is a good tool when it is used.

"Unfortunately, many of the checklists are never completed," she said.

"We need to make everyone aware of computer security," she said. "Unfortunately, our greatest threat comes from within. By working with local security personnel, management, and users, we hope to make everyone aware of potential problems and alleviate them before they start. One way of accomplishing this is with total communication from the very beginning of the information system acquisition process." **PC**

Fireman Saves Five From Auto Fire

A fireman driving home from his job pulled five people from the wreckage of a two-car crash moments before it exploded in flames.

According to an account of the incident in the *New York Post*, Firefighter John Sullivan II of Bronx, New York, gave his name to police as a witness to the accident but did not mention his rescue. Other witnesses informed the police about his heroic acts.

SCAN PUBLIC SERVICE AWARD

Kenneth Hughee, a policeman on the scene, said that a van headed south on Interstate 95 in New Rochelle, New York, collided with a northbound car that had entered the southbound lanes after going through the New Rochelle toll plaza. The van rolled over the car and landed on its side with its engine on fire.

The 53-year-old Sullivan saw the blaze as he drove by. "I was coming into the toll plaza and I saw a big ball of fire," he told the *Post*.

Sullivan jumped onto the van to try and help a woman passenger pass two children out of the van. "She was screaming," Sulli-



Award winner John P. Sullivan is shown here with his family. From left to right: son John, daughter Karen, son Brian, wife Irene, and son Michael. Son John is following in his father's footsteps, having been appointed on August 2nd of this year to the New York City Fire Department.

van said. "She was hysterical. They were all on top of one another."

After helping the children out of the van, Sullivan got the woman and the man who had been driving out of the van. With the four van occupants safely away from the ac-

cident, Sullivan went to the other vehicle that had been involved in the accident.

"I forced the door," he explained. "I released the seat belt and pried the door open with my hands." The van's gas tank exploded moments after Sullivan got the driver of the car out of his vehicle.

The van passengers were identified as Pedro Vicente of Jersey City, New Jersey, and Anna Berios of Waterbury, Connecticut. The two children, Juan Acevedo Jr. and Louis Berios, were also from Waterbury. All were listed in stable condition in New Rochelle Hospital shortly after the accident.

A 39-year-old man from Rye, New York, was driving the car and was charged with drunk driving and failing to keep right.

For making this heroic rescue, John Sullivan II will receive the SCAN Public Service Award. The award consists of a special commendation plaque and a \$100 cash prize.

Harold Ort, Jr. of Staten Island, New York, will also receive a special commendation plaque for making the nomination.

Congratulations to both of you!

Send all SCAN Public Service Award nominations to SCAN Public Service Award, P.O. Box 414, Western Springs, IL 60558. Please send a letter along with background information, such as a newspaper clipping.



Best Equipped

Ed Pierce of Bel Air, MD shows how to display a large amount of equipment so that it can be used efficiently and easily. Ed has a Bearcat 250 scanner, SBE M255 78-channel marine transceiver, VIC-20 computer, Uniden CR-2021 digital receiver, MFJ 1224 teletype/Morse interface, Realistic DX-302 digital receiver and computer cartridges on the bottom two shelves of this display.

Up top, Ed uses a two-line telephone controller and monitor, answering machine and TV monitor for teletype. On the second shelf, Ed has a Craig 4103 23-channel CB,



SCAN PHOTO CONTEST WINNERS

Lafayette Telstat 40-channel AM/SSB 11-meter CB transceiver and ICOM IC-27A 2-meter Amateur Radio transceiver.

Also on display here are frequency allocation charts, circle distance map, repeater chart and various radio licenses. An ICOM 02-AT 2-meter portable synthesized transceiver, oscilloscope, frequency deviation meter, and other test equipment is not shown.

Best Appearing

This issue's best appearing radio shack belongs to Kenneth D. Holmes of Painted



Winners in the Photo Contest receive the BMI "Nite Logger" tape recorder activator. See last month's column for details on how you can win.

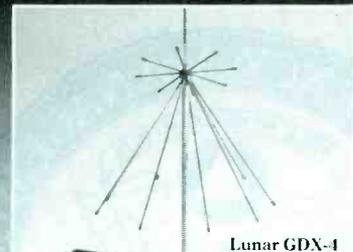
Post, New York. As this photo clearly shows, Kenneth uses a Bearcat 300 scanner, Motorola MH-10 transceiver, Realistic DX-300 communications receiver, GE World Monitor shortwave receiver, Navaho 40-channel CB transceiver, and a Realistic PRO-30 handheld scanner.

The Motorola transceiver is used for Kenneth's position as Chief Floor Forecast Officer for the Steuben County Emergency Management Office (formerly known as Civil Defense).

Kenneth also mentions that he enjoys the new "team" of SCAN and Popular Communications.



Regency "Scanner Answer" Giveaway



Here's your chance to win a complete monitoring package from Regency Electronics and Lunar Antennas. 18 scanners in all will be awarded, including a grand prize of the set-up you see above: the Regency HX1500 handheld, the Z60 base station scanner, the R806 mobile unit, and a Lunar GDX-4 Broadband monitoring/reference antenna.

55 Channels to go!

When you're on the go, and you need to stay tuned into the action, take along the Regency HX1500. It's got 55 channels, 4 independent scan banks, a top mounted auxiliary scan control, liquid crystal display, rugged die-cast aluminum chassis, covers ten public service bands including aircraft, and, it's keyboard programmable.

Compact Mobile

With today's smaller cars and limited installation space in mind, Regency has developed a new compact mobile scanner, the R806. It's the world's first microprocessor controlled crystal scanner. In addition, the R806 features 8 channels, programmable priority, dual scan speed, and bright LED channel indicators.

Base Station Plus!

Besides covering all the standard public service bands, the Regency Z60 scanner receives FM broadcast, aircraft transmissions, and has a built-in digital quartz clock with an alarm. Other Z60 features include 60



Send in a photo (like this one of Mike Nikolich and his Regency monitoring station) and receive a free gift from Regency. Be sure to include your name, address and phone number.

channels, keyboard programming, priority control, digital display and permanent memory.

Lunar Antenna

Also included in the grand prize is a broadband monitoring/reference antenna from Lunar Electronics. The GDX-4 covers 25 to 1300 MHz, and includes a 6 foot tower.



ELECTRONICS INC.
7707 Records Street
Indianapolis, IN 46226

Grand Prize (1 awarded)

- 1—Regency Z60 Base station scanner
- 1—Regency HX1500 Handheld scanner
- 1—Regency R806 Mobile scanner
- 1—Lunar GDX-4 Antenna

First Prize (5 awarded)

- 1—Regency Z60 Base station scanner
- 1—Regency R806 Mobile scanner

Second Prize (5 awarded)

- 1—Regency HX1500 scanner

Contest rules: Just answer the questions on the coupon, (all answers are in the ad copy) fill in your name and address and send the coupon to Regency Electronics, Inc., 7707 Records Street, Indianapolis, IN 46226. Winners will be selected from all correct entries. One entry per person. No purchase necessary. Void where prohibited by law. Contest ends June 30, 1987.

1. The Regency Z60 is
 - a digital alarm clock an FM radio
 - a scanner all of the above
2. The Regency R806 is the world's first _____ controlled crystal scanner.
3. The Regency HX1500 features
 - 55 channels Bank scanning
 - Liquid crystal display all of the above
4. The Lunar GDX-4 antenna covers _____ to _____ MHz.

Name: _____

Address: _____

City: _____ State: _____ Zipcode: _____

I currently own _____ scanners.

Brands owned: _____

CIRCLE NO. 158 ON FREE INFORMATION CARD

PC

Monitoring The:

Federal Emergency Management Agency

Ready For Action, FEMA Maintains One Of The Largest Federal Agency Communications Networks!

BY TOM KNEITEL, K2AES, EDITOR



If the United States were to come under military attack, the Federal Emergency Management Agency (FEMA) would be the government agency faced with the responsibility of organizing the non-military activities in the aftermath of the attack. FEMA provides a single point of accountability for all federal emergency preparedness, mitigation and response activities utilizing multiple resources at the federal, state and local levels of government. In actuality, FEMA is prepared for responding to a full range of emergencies, natural, manmade, and nuclear, and integrating their response into a comprehensive framework of activities concerned with hazard reduction, preparedness planning, relief operations, and recovery assistance.

FEMA, headquartered at 500 C Street, S.W., Washington, DC, has 2300 employees. The agency operates through ten regional offices in order to facilitate disaster assistance to states and local areas.

FEMA was created in 1979, replacing the Defense Civil Preparedness Agency (DCPA), however FEMA's lineage goes back to the earlier Federal Civil Defense Agency that had its roots in WWII Civil Defense efforts. Among its activities are the Federal Insurance Administration (FIA), the United States Fire Administration (USFA), the FEMA Training and Education Office, the Mitigation and Research Office, the Plans and Preparedness Office, and the Disaster Response and Recovery Office.

These activities are responsible for the development, coordination, and maintenance of plans to assure the continuity of federal civil authority in areas such as resource assessment, post-disaster economic recovery, stockpiling strategic materials, population relocation, etc. This mechanism is, of course, suitable for dealing with floods,

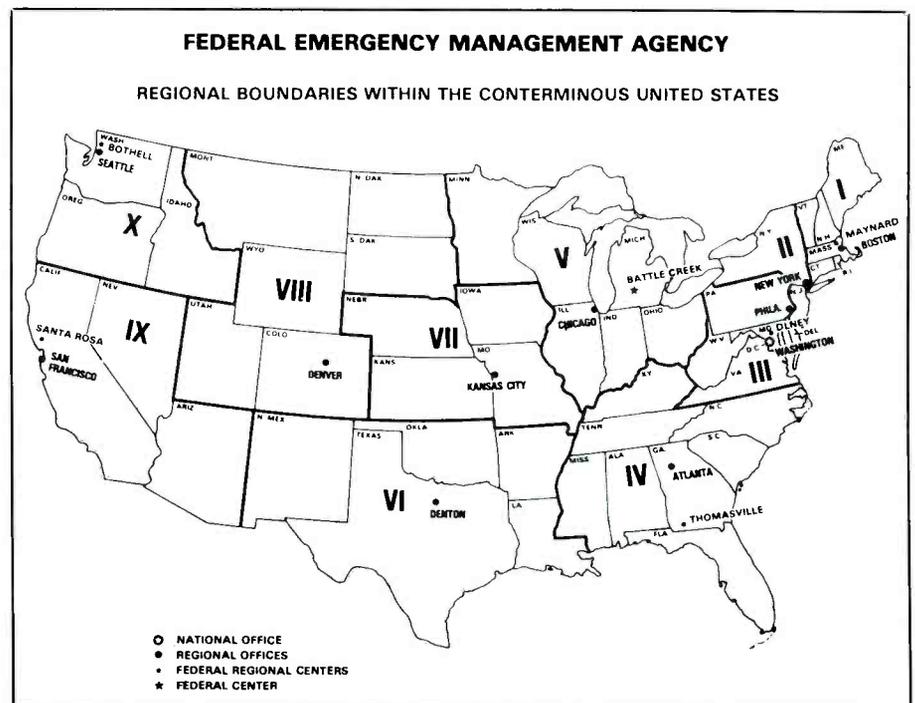
earthquakes, volcano eruptions, wide-area weather destruction, radiation and toxic material hazards in addition to enemy attack. Working with state, county and local civil defense and emergency preparedness agencies, FEMA stands ready to swing into action on short notice.

Communications

One of the earliest DCPA/FEMA communications efforts to become known to the general public was station WGU20 in Chevy Chase, MD. Operating on 179 kHz with 50

kW, this station has operated off and on for several years with voice and RTTY broadcasts of weather and other information. It is still used once in a while.

FEMA has an extensive shortwave two-way communications network in addition to a number of VHF facilities. Using SSB, RTTY and CW on its shortwave frequencies, FEMA networks are active on more than forty channels. In addition to stations operated by FEMA staff members, some participating stations are operated by state and local agency personnel (although the



This official FEMA map shows the areas included in the ten regions.

equipment is furnished, owned, and operated under the authority of FEMA).

In our callsign directory of FEMA HF stations, stations with WAR callsigns are located at FEMA's VIP relocation centers. Stations with callsigns between WGY900 and WGY915 are at various FEMA offices and regional headquarters. Stations with KNC and WGY920 to WGY998 callsigns (except WGY989) are those staffed by state and local agency personnel. VHF stations are FEMA-personnel staffed.

Station WGY915 is operated by the National Communications System (NCS) in Arlington, VA. The NCS is a confederation of federal agencies established to restore communications in the event of a national emergency. The September 1982 issue of QST magazine has additional information on the NCS.

Station WGY903 is FEMA's Network Control Station, with WGY908 as the first alternate net control. Other alternate net control stations (in order of preference) are WGY906, WGY904 and WGY905. Station WGY903 conducts network drills on 10494.5 kHz, SSB mode, at 1600 UTC (1500 UTC during Daylight Savings Time). These drills take place on Monday, Thursday and Friday. Additional WGY903 drills are conducted at the same time the first Tuesday of January, April, July, and October. A similar drill is conducted at 1600 UTC by WGY906 on the first Tuesday in February, May, August and November. Station WGY904 conducts drills at 1600 UTC (1500 during DST) the first Tuesday of March, June, September, and December. Lastly, alternate net control station WGY905 runs a drill at the same time on the second Tuesday of March, June, September, and December.

On Wednesdays at 1600 (1500 during DST), all regional stations conduct an open network drill on 10494.5 kHz. Stations can also be heard exchanging traffic at other non-scheduled times.

While most of the communications to be monitored on HF are in SSB, some RTTY (85/75N) has been noted, as well as slow,



QSL

**Defense Civil Preparedness Agency
Radio Station / WGU 20 / 179 Kilohertz
1st 50 KW / All Solid State AM Transmitter
Chase, Maryland**

An early QSL from DCPA (and later FEMA) station WGU20 on 179 kHz. This station's transmissions have been monitored throughout the Western Hemisphere.

encrypted, CW. Station WGY912 has been monitored with encrypted CW on 3338.5, 4781.5, and 18745.5 kHz. Similar transmissions from WGY908 have been reported on 3380.5, 14451.5, and 14886 kHz.

FEMA channels are usually referred to by "Foxtrot" identifiers such as "Foxtrot 22," etc. In our station roster, we have shortened this down to "F22," etc. Our roster, by the way, does not list any of the non-FEMA stations that have the capabilities of operating within the FEMA networks; this includes some of the stations operated by the Nuclear Regulatory Agency, the Department of Energy, and even the U.S. Army Corps of Engineers.

Previously presented data on FEMA stations has been vague and has implied that all such stations operated freely on all of the available HF channels. In actual fact, while stations may possibly pop up from time to time in unusual places, the ten FEMA regions are established on certain selected channels. In our presentation, we have attempted to delineate those specific channels, although we appreciate that we may

have missed out on some (especially for FEMA Regions 2 and 7). All regions seem to operate on channels Foxtrot 15, 25 and 28, as these appear to be rather universal throughout the system, even if not indicated here as such. Undoubtedly, both channels designated for calling and emergency use would be the best ones to monitor (depending upon day/night monitoring).

FEMA coordinates its activities with hundreds of state, county, and local civil defense and emergency agencies (including the Red Cross), although no attempt has been made here to enumerate the frequencies used by such agencies (most are above 30 MHz). Through the activities of groups such as RACES and the ARRL's AREC, many Amateur Radio operators also participate in emergency operations networks in cooperation with agencies that, in turn, are interfaced with FEMA.

Readers having additional detailed information on FEMA networks, stations, and operations are invited to pass along any information they have so that we can include the data in future updates.

Federal Emergency Management Agency

KC1609	Rockville MD	167.975 MHz	KNC28	Lorton VA	F10 F22
KC1611	Ft. Meade MD	167.975 MHz	KNC44	Augusta ME	F18
KC1612	Ft. Belvoir VA	167.975 MHz	KNC45	Concord NH	F18
KC1614	Fairfax VA	167.975 MHz	KNC46	Montpelier VT	F17 F18
KC1615	Arlington VA	167.975 MHz	KNC47	Albany NY	F18
KC1616	Alexandria VA	167.975 MHz	KNC48	Framingham MA	F18
KC1617	Hyattsville MD	167.975 MHz	KNC49	Hartford CT	F18
KC1618	Washington DC	167.975 MHz	KNC50	Providence RI	F18
KC1621	Falls Church VA	167.975 MHz	KNC51	N. Trenton NJ	F18
KC1624	Lorton VA	167.975 MHz	KNC52	Harrisburg PA	F10 F22
KC1625	Washington DC	167.975 MHz	KNC53	Columbus OH	F11 F14 F18 F22
KC1626	Andrews AFB MD	167.975 MHz	KNC54	Pikesville MD	F10 F22
KC1627	Fairfax VA	167.975 MHz	KNC55	Charlestown WV	F10 F19 F22
KC1629	Washington DC	167.975 MHz	KNC56	Delaware City DE	F10 F22
KFK93	San Juan PR	F-18	KNC57	Richmond VA	F10 F22
KFW624	portable in UT	167.975 MHz	KNC58	Frankfort KY	F10 F22
KGB641	Washington DC	27.850 MHz	KNC59	Raleigh NC	F08 F11 F18 F20
KGB643	Olney MD	27.850 173.1875 MHz	KNC60	Nashville TN	F08 F11 F18 F20
KGD204	Olney MD	167.975 MHz	KNC61	Columbia SC	F08 F11 F18 F20

KNC62	Atlanta GA	F08 F11 F18 F20	WGY924	Nashville TN	Region 4 freqs.
KNC63	Montgomery AL	F08 F11 F18 F20	WGY925	Madison WI	Region 5 freqs.
KNC64	Jackson MS	F08 F11 F18 F20 F21	WGY926	Oklahoma City OK	Region 6 freqs.
KNC65	Tallahassee FL	F08 F11 F18 F20	WGY928	Pierre SD	Region 8 freqs.
KNC66	Lansing MI	F11 F14 F18	WGY929	Carson City NV	Region 9 freqs.
KNC67	Madison WI	F11 F14	WGY930	Olympia WA	Region 10 freqs.
KNC68	St. Paul MN	F11 F14 F18	WGY931	Montpelier VT	Region 1 freqs.
KNC70	Springfield IL	F11 F14 F18	WGY932	St. Thomas VI	Region 2 freqs.
KNC71	Conway AR	F07 F30	WGY933	Pikesville MD	Region 3 freqs.
KNC72	Oklahoma City OK	F07 F13 F30	WGY934	Columbia SC	Region 4 freqs.
KNC73	Santa Fe NM	F07 F11 F13 F20 F22 F30 F34	WGY935	St. Paul MN	Region 5 freqs.
KNC74	Baton Rouge LA	F07 F13 F30	WGY936	Santa Fe NM	Region 6 freqs.
KNC75	Austin TX	F07 F12 F13 F20 F30 F31	WGY937	Cheyenne WY	Region 8 freqs.
KNC75	Soldotna AK	F14 F25 F28 F31 F33 F35 F40 F44 F48	WGY938	Sacramento CA	Region 9 freqs.
KNC76	Bismarck ND	F10 F20 F32	WGY940	Salem OR	Region 10 freqs.
KNC77	Pierre SD	F10 F11 F13 F20 F32	WGY941	Augusta ME	Region 1 freqs.
KNC78	Cheyenne WY	F10 F11 F13 F20 F32	WGY942	Albany NY	Region 2 freqs.
KNC79	Des Moines IA	F10 F13 F20 F32	WGY943	Charlestown WV	Region 3 freqs.
KNC80	Lincoln NE	F10 F13 F20 F32	WGY944	Atlanta GA	Region 4 freqs.
KNC82	Jefferson City MO	F10 F11 F13 F20 F32	WGY945	Columbus OH	Region 5 freqs.
KNC83	Topeka KS	F10 F11 F20 F32	WGY946	Baton Rouge LA	Region 6 freqs.
KNC84	Salt Lake City UT	F07 F31 F32	WGY947	Des Moines IA	Region 7 freqs.
KNC85	Carson City NV	F07 F31 F32	WGY948	Bismarck ND	Region 8 freqs.
KNC86	Sacramento CA	F07 F31	WGY949	Phoenix AZ	Region 9 freqs.
KNC87	Phoenix AZ	F07 F31 F32	WGY951	Hartford CT	Region 1 freqs.
KNC88	Honolulu HI	F16 F24 F26 F29 F32 F40 F41 F42 F43 F45 F46 F47 F48	WGY953	Delaware City DE	Region 3 freqs.
KNC89	Helena MT	F10 F11 F13 F20 F32	WGY954	Montgomery AL	Region 4 freqs.
KNC90	Boise ID	F06 F10 F12 F14 F18 F22 F23	WGY955	Springfield IL	Region 5 freqs.
KNC91	Olympia WA	F06 F10 F12 F14 F22 F23	WGY956	Austin TX	Region 6 freqs.
KNC92	Salem OR	F06 F10 F12 F14 F18 F22 F23	WGY957	Lincoln NE	Region 7 freqs.
KNW95	Agana GU	F16 F24 F26 F27 F29 F32 F40 F41 F42 F43 F45 F46 F48 142.35 142.375 142.975 143.00 MHz	WGY958	Helena MT	Region 8 freqs.
KPA639	Moses Lake WA	F06 F12 F14	WGY959	Honolulu HI	Region 9 freqs.
KPS301	Maynard MA	140.025 143.00 143.60 MHz	WGY960	Soldotna AK	Region 10 freqs.
KPS302	New York NY	139.825 139.925 142.95 143.00 MHz	WGY961	Framingham MA	Region 1 freqs.
KPS310	Bothell WA	142.375 143.05 MHz	WGY963	Richmond VA	Region 3 freqs.
KPS311	Boston MA	140.90 143.00 143.60 MHz	WGY964	Jackson MS	Region 4 freqs.
WAR21	Ft. Meyer VA	F19 F21 F25 F28 F35 F36 F37 F38 F39 F40 F44	WGY965	Indianapolis IN	Region 5 freqs.
WAR22	Ft. Belvoir VA	See WAR21	WGY966	Conway AR	Region 6 freqs.
WAR30	Hagerstown MD	See WAR21	WGY968	Golden CO	Region 8 freqs.
WAR42	Mt. Weather VA	See WAR21	WGY970	Juneau AK	Region 10 freqs.
WAR45	Mercersburg PA	See WAR21	WGY971	Providence RI	Region 1 freqs.
WAR46	Ft. Ritchie MD	See WAR21	WGY974	Tallahassee FL	Region 4 freqs.
WAR47	Boonsboro MD	See WAR21	WGY975	Lansing MI	Region 5 freqs.
WGY900	Operations Support Warning Div., Washington DC		WGY977	Jefferson City MO	Region 7 freqs.
WGY901	Region 1, Maynard MA	Region 1 freqs. + 169.875 MHz	WGY980	Alcantra AK	Region 10 freqs.
WGY902	Region 2, New York NY	Region 2 freqs.	WGY982	N. Trenton NJ	Region 2 freqs.
WGY903	Region 3, Olney MD	Region 3 freqs.	WGY983	Washington DC	Region 3 freqs.
WGY904	Region 4, Thomasville GA	Region 4 freqs. + 7429.5 kHz (DoE)	WGY984	Raleigh NC	Region 4 freqs.
WGY905	Region 5, Battle Creek, MI	Region 5 freqs.	WGY989	National Emergency Training Center, Emmitsburg MD	163.10 166.225 168.35 169.60 MHz
WGY906	Region 6, Denton TX	Region 6 freqs. + 169.875 MHz	WGY990	Moses Lake WA	Region 10 freqs.
WGY907	Region 7, Kansas City MO	Region 7 freqs.	WGY992	San Juan PR	Region 2 freqs.
WGY908	Region 8, Denver CO F12 +	Region 8 freqs.	WGY993	Frankfort KY	Region 3 freqs.
WGY909	Region 9, Santa Rosa CA	Region 9 freqs.	WGY997	Topeka KS	Region 7 freqs.
WGY910	Region 10, Bothell WA	Region 10 freqs.	WGY998	Salt Lake City UT	Region 8 freqs.
WGY911	Telecommunications Management Div., Washington DC			portables in AZ	142.35 142.375 142.425 142.935 143.00 MHz
WGY912	Mt. Weather VA	F14 F45		Cumberland MD	27.650 27.900 MHz
WGY914	Balboa, Panama	Region 4 freqs.		Greenbelt MD	167.975 MHz
WGY915	National Communications System Arlington VA			Hickory MD	27.650 27.900 MHz
WGY920	Boise ID	Region 10 freqs.		portables, all areas	164.8625 165.6625 MHz
WGY921	Concord NH	Region 1 freqs.		portables, Region 9	142.35 142.375 142.425 142.975 143.00 MHz
WGY923	Harrisburg PA	Region 3 freqs.			

FEMA Regions & Channels

Region 1

J.W. McCormick Post Office & Court House, 4th Floor,
Boston MA 20109.
Channels F09 F15 F18 F25 F28 F30 F35 F36 F37 F38
F39 F40 F48

Region 2

26 Federal Plaza, New York NY 10278.
Channel F18 (others not yet known)

Region 3

Curtis Building, 7th Floor, 6th & Walnut Streets, Philadelphia
PA 19106.
Channels F09 F10 F15 F20 F22 F28 F31 F35 F36 F37
F38 F39 F40 F48

Region 4

1371 Peachtree Street S.E., Suite 700, Atlanta GA 30309.
Channels F08 F11 F15 F18 F20 F25 F28 F30 F35 F36
F37 F38 F39 F40 F48

Region 5

300 S. Walker Street, 24th Floor, Chicago IL 60606.
Channels F09 F11 F12 F13 F15 F19 F21 F22 F23 F25
F28 F32 F34 F35 F36 F37 F38 F39 F40 F44 F48

Region 6

Federal Regional Center, 800 N. Loop 2, Denton TX
76201.
Channels F07 F11 F12 F15 F20 F25 F28 F30 F31 F35
F36 F37 F39 F40 F48

Region 7

Old Federal Office Building, 911 Walnut Street, Kansas
City MO 64106.
Channels F10 F11 F13 F20 F32 (others not yet known)

Region 8

Denver Federal Center, Building 7, Denver CO 80225.
Channels F10 F13 F13 F18 F19 F20 F25 F28 F30 F32
F34 F35 F36 F37 F38 F40 F44 F48

Region 9

211 Main St., Room 220, Bldg. 105, San Francisco CA
94129.
Channels F09 F12 F15 F16 F24 F25 F26 F28 F29 F31
F32 F33 F34 F35 F40 F41 F42 F43 F45 F46 F47 F48

Region 10

Federal Regional Center, Bothell WA 98011.
Channels F06 F09 F10 F12 F14 F15 F16 F18 F19 F20
F22 F24 F25 F26 F28 F29 F31 F32 F35 F36 F37 F38
F39 F40 F41 F42 F43 F44 F45 F46 F47 F48

FEMA HF "Foxtrot" Channels

Foxtrot 06	2321.5 kHz	
Foxtrot 07	2361.5 kHz	
Foxtrot 08	2378.5 kHz	
Foxtrot 09	2446.5 kHz	
Foxtrot 10	2659.5 kHz	
Foxtrot 11	3342.5 kHz	
Foxtrot 12	3380.5 kHz	
Foxtrot 13	3389.5 kHz	
Foxtrot 14	4781.5 kHz	
Foxtrot 15	5212.5 kHz	(Night: Calling/Emergency)
Foxtrot 16	5403.5 kHz	
Foxtrot 17	5822.5 kHz	
Foxtrot 18	5962.5 kHz	
Foxtrot 19	6050.5 kHz	
Foxtrot 20	6107.5 kHz	
Foxtrot 21	6109.5 kHz	
Foxtrot 22	6152.5 kHz	
Foxtrot 23	6177.5 kHz	
Foxtrot 24	6180.5 kHz	
Foxtrot 25	7349.5 kHz	(Point-to-Point)
Foxtrot 26	9463.5 kHz	
Foxtrot 27	10195.5 kHz	
Foxtrot 28	10494.5 kHz	(Day: Calling/Emergency)
Foxtrot 29	10589.5 kHz	
Foxtrot 30	11722.5 kHz	
Foxtrot 31	11802.5 kHz	
Foxtrot 32	11958.5 kHz	(Point-to-Point)
Foxtrot 33	12010.5 kHz	
Foxtrot 34	12217.5 kHz	(Point-to-Point)
Foxtrot 35	14451.5 kHz	
Foxtrot 36	14777.5 kHz	
Foxtrot 37	14837.5 kHz	
Foxtrot 38	14886.0 kHz	
Foxtrot 39	14900.5 kHz	
Foxtrot 40	14909.5 kHz	
Foxtrot 41	16202.5 kHz	
Foxtrot 42	16431.5 kHz	
Foxtrot 43	17520.5 kHz	
Foxtrot 44	17650.5 kHz	(Emergency/Secondary)
Foxtrot 45	18745.5 kHz	
Foxtrot 46	19758.5 kHz	
Foxtrot 47	19970.5 kHz	
Foxtrot 48	20028.5 kHz	

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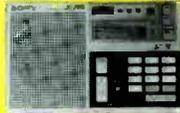


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Commercial Receiver VHF-UHF 25-2000 MHz

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- 96 programmable memories
- Scan-memory-mode-select memory-frequency
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- Narrow/wide filter selection
- Memory back-up • Noise blanker
- "S" meter or center meter for FM
- AM & FM wide, FM narrow, SSB, CW

EEB HP Options

- Front end upgrade improves sensitivity
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- More details next month's ad. Call or write for free flyer of EEB mods.

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EEB is ICOM's #1 R71A dealer and there is good reason. We offer more modification to enhance your listening pleasure and take better care of you. This is our 15th year. Buy with confidence.



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ICOM Options Free installation when purchased with your R71A from EEB

- CK-70: DC Kit for 13.8 VDC operation
- CR-64: High stability oscillator
- CK-70: DC kit for VDC operation
- CR-64: High stability oscillator
- EX309: Computer interface connector
- EX310: Voice synthesizer
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- FL63A: CW narrower filter (250Hz)
- RC-11: Infrared remote control

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 - Front end upgrade—improves dynamic range (plus) preamp enabled below 1600 KHz.
 - 4 KHz filter replaces stock. 6 KHz wide filter—improves AM selectivity.
 - Audio output modification—increases audio output; reduces distortion.
 - AGC time constant changed to better suit SW listening.
 - Spike protection added.
 - RFI line filter.
 - Installation of ICOM options purchased with your R71A HP.
 - Final alignment and overall checkout.
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Radio In Days Long Past

A Look At The Development Of A Miracle

BY ALICE BRANNIGAN

A good place to begin a story is at the beginning, and you can't get much closer to that than the wireless station in Siasconset on the island of Nantucket, MA. That was the first wireless telegraph station in the U.S. to communicate with ships at sea.

The *New York Herald* (newspaper) opened the station using the call sign SC in 1901. The Marconi System equipment was used to receive the first message from the liner LUCANIA via the South Shoals Lightship (16 August 1901). It was on 23 January 1909, however, that the "S'conset" station made national headlines. That was when the station received a CQD distress call from the famous liner REPUBLIC (call sign MKC). The REPUBLIC reported that it had been rammed by an unknown steamer twenty-six miles southwest of Nantucket Lightship and was very much in need of assistance.

The other vessel, it turned out, was the Italian flag liner SS FLORIDA. The REPUBLIC's wireless operator ("Sparks"), Jack Binns won fame in maritime annals by being the first person to use wireless to summon help for a major liner. The nearby SS BAL-TIC altered its course and picked up the passengers and crew of both liners, thus saving more than 1600 lives!

History also notes that young David Sarnof, at age 17, was a brasspounder at this station. Sarnof went on to found and become the head of RCA.

Station SC was eventually sold to the Marconi Wireless Telegraphy Company and its call sign was changed to MSC. Later it was owned by the International Radio Telegraph Company and its call sign was changed to WSC. The station, as WSC, was ultimately moved to Tuckerton, NJ where it was operated by the Radiomarine Corporation of America, a service of RCA. The current station WSC in NJ is *not* a direct descendant of the original WSC.

At the site where SC first went on the air, a small white cottage still stands. It is the actual operating building and a wooden marker out front tells about the station. But most folks around Siasconset know nothing of this site or how to find the structure.

We have two views of station SC, one (dated 27 July 1909, six months after the SS REPUBLIC incident) is a postcard with a hand-written message telling of the rescue. This shows a close view of the operating building and one of the antenna masts.

The other view, dated 3 August 1910, is a picture postcard showing a more distant view of the rear of the operating building and two three-section wooden masts, heavily guyed and supporting an elaborate antenna sys-



A New Station Opened

SIASCONSET, MASS

CALL --- W S C

Now the nearest station for vessels from Europe — day radius with ships at sea over 250 miles — night 1000 miles.

International service is complete. Stations open continuously. "Bush Radio" is a New York City station, always open — delivers traffic either direct or by land lines.

NEW LONDON, CONN. W L C	BUSH RADIO N. Y. City. — W C G NOTE HIGH
NEWPORT, R. I. W C I	CAPE MAY, N. J. W C Y

Direct Western Union and
Postal connections in all stations.

Rate 10 cents per word,
cable count — no minimum.

Cape May 6c. a word until December 1st.

Special rate for Siasconset 12 cents a word.

The International Radio Telegraph Co.

326 BROADWAY, Telephone Franklin 4640 NEW YORK CITY

This ad for station WSC appeared when the station's call sign was changed from MSC and new owners took over.

tem. By that time the station had become a tourist attraction. The postcard carries the printed inscription, "This station received the call for aid from the sinking steamship REPUBLIC."

Nothing Fancy, But Reliable

As I've mentioned before, I'm especially interested in hometown broadcasters. That's why I'm happy to share with you a look at an early view of hometown station WCDT, Winchester, TN. This station, running 1 kW on 1340 kHz (250 watts at night), went on the air in the late 1940s. The photo we have is how it looked at that time, revealing a plain rectangular building that appears to be whitewashed cinderblocks, punctuated by several windows made of "glass bricks."

Nothing at all fancy, and the only thing that distinguishes it as a broadcasting station

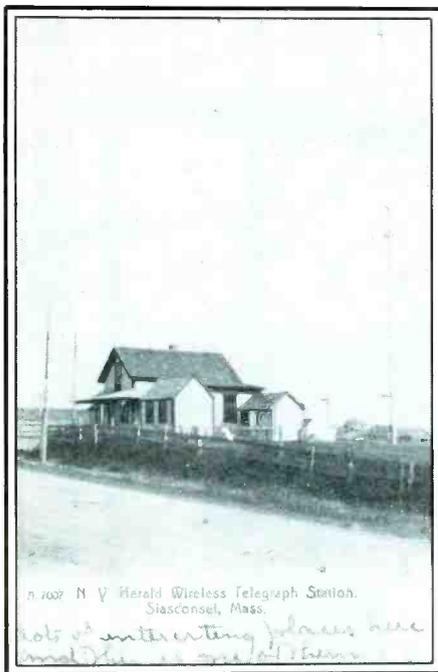
is a modest sign above the entrance that possibly may have been electrified. A printed caption on this card, dated 21 September 1949, describes the scene as "WCDT, Winchester's New Radio Station."

WCDT remains active on 1340 kHz running 1 kW. A reliable old friend to area residents and businesses, it will soon celebrate its 40th year birthday.

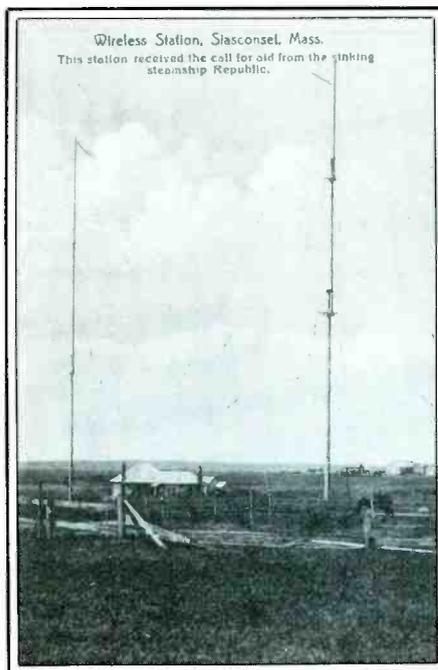
Radio Applause Cards

The original "SWL cards" were known as "Radio Applause Cards." A selection of them appears on page 121 of *Radio Station Treasury*.

Jerry Rappel, KAØBLE, sent us one that he located at a postcard show. This card was issued in 1924, during the very early years of broadcasting. Since all radio owners in those times were DXers, it became the prac-



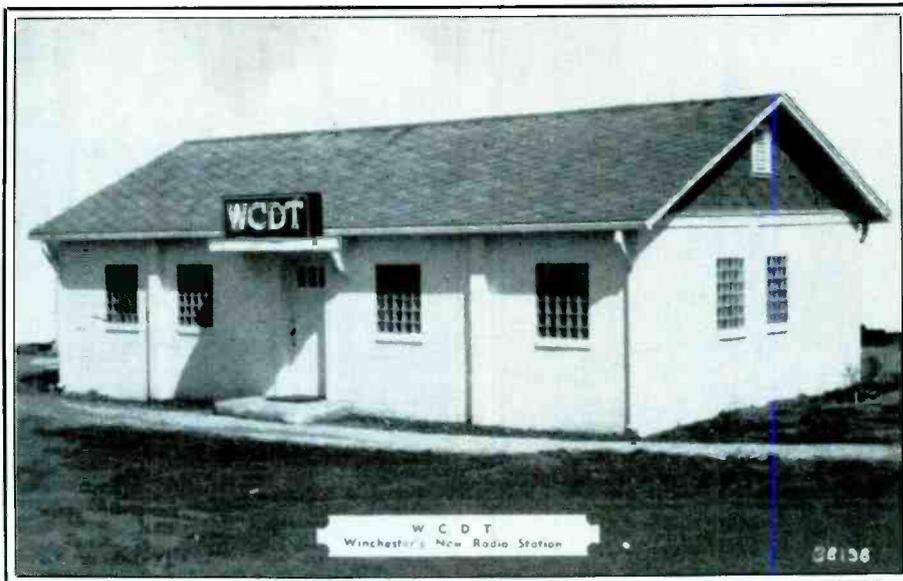
This close view of station SC, dated 1909, shows the transmitter and operating building. One of the masts is at the right.



By 1910, when this photo of the Siasconset station was taken, the station was world-famous. This view shows both masts.

tice of many listeners to send these cards out to all stations heard in order to thank them for providing programming, to let them know that their signals were "getting out," and to encourage the stations to continue broadcasting. Although the intention of such cards wasn't to solicit QSLs, some stations began sending back their own "thank you" cards.

Although the practice of sending DX signal reports and getting back QSLs had long existed with technically oriented experi-



The WCDT building in 1949. Not an original Frank Lloyd Wright design by any means, but it served its purpose. The station is still going strong!

Radio Applause Cards were the ancestors of today's SWL cards although many modern DXers may not have heard of them.

menters and Hams, the Radio Applause Cards made the non-technical listening public part of such matters. Even after it was no longer thought to serve any real purpose to thank and encourage broadcasters, some listeners retained the practice and actively sought out QSLs in return.

That was one of the tap roots of the hobby of DX listening and collecting QSLs.

Dodge's Institute

Upon several occasions we have mentioned (and shown) Dodge's Institute of Telegraphy in Valparaiso, IN. This school, now known as the Valparaiso Technical Institute, has been in operation since the earliest days of wireless telegraphy, turning out many graduates who have distinguished themselves in broadcasting and telecommunications.

The last time we mentioned Dodge's we received several letters from graduates, including one from James W. Grigg (ex-W6PK, W6FEA, W6XBD), who attended the school in 1919. He recalls Professor Packman, the school's brilliant (but "crabby") Code/Theory instructor. He also recalled a student hangout called Hardesty's. After graduating, Mr. Grigg went to work for Marconi Wireless (which was later taken



EKKO stamps, what? These are some of the QSL stamps sent out by Adventist World Radio during the period 1975-1985.

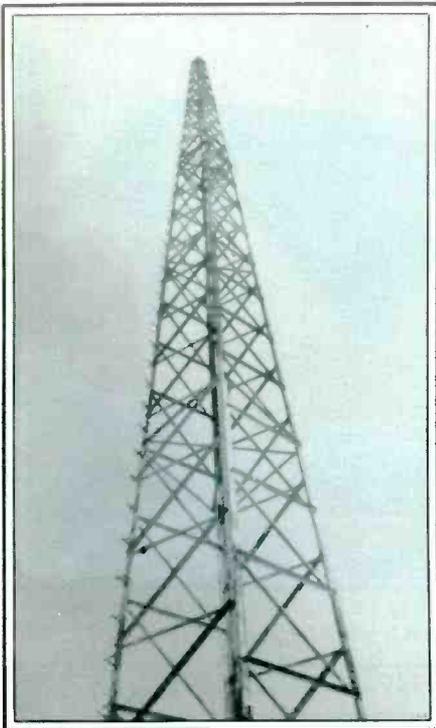
over by RCA). Last June, Mr. Grigg celebrated his 89th birthday. He's a Life Member of the IEEE and the Military Order of the Purple Heart.

Any former graduates of Dodge's or VTI might wish to drop Mr. Grigg a note to say hello. His address is: James W. Grigg, P.O. Box 2086, Montclair, CA 91763.

Radio Stamps

Our frequent references to EKKO stamps brought in an interesting letter from Adrian M. Peterson. Adrian, who hails from Marion, IN, tells us that when he was Director of AWR-Asia (in Poona, India) during the period 1975-1985, similar stamps were sent out with their own QSL certificates.

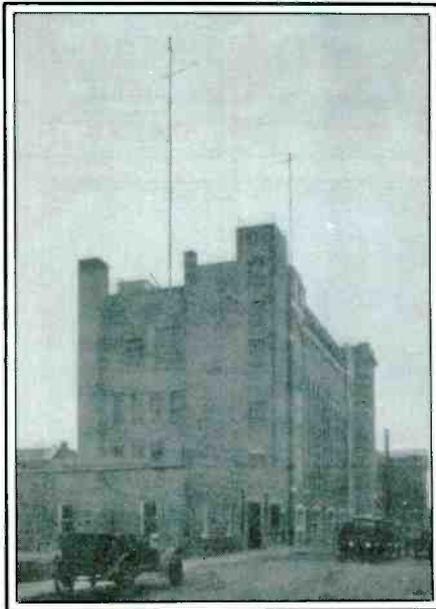
These stamps were printed in India. They had blue designs with black overprinting on



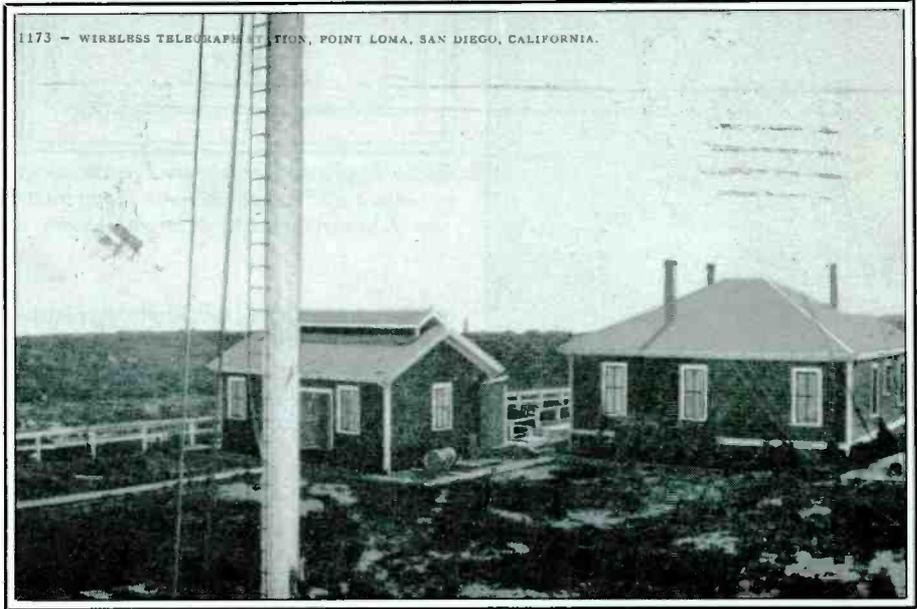
An abandoned radio tower gives up its mysteries in our text this month.



A close view of the insulated base of the Fire Island abandoned radio tower looks too modern to date back to 1918.



Alberta's own CJCA, operating since 1922. Here's how it looked in 1924.



The U.S. Navy's station at Point Loma, CA was one of many early wireless telegraph stations to dot the Pacific coast of the U.S.

white perforated stock. A sample sheet of the stamps we received shows them printed with transmitter sites and frequencies, 24 stamps to a sheet.

Wouldn't it be great if stations around the world would rekindle the practice of sending out verification stamps along with their cards and letters?

Abandoned Tower

Mark S. Foseller, Mamaroneck, NY submits a photo of an abandoned tower located near the recently restored Fire Island Lighthouse, Long Island, NY. Mark says he

asked the Fire Island Lighthouse Preservation Society about the tower and they told him that they thought that it was built about 1918 by the U.S. Navy for direction finding purposes, then later used by Western Union for signalling in-bound ships regarding hotel reservations. Later, he was told, attempts were made to use it in connection with Voice of America operations. Mark's a member of the Lighthouse Preservation Society, but he doesn't vouch for the accuracy of this information.

Our own research tells a slightly different story. A station was established at this site at

some point long ago (it was there in 1919, so your starting date may be correct). This was a "radio compass" station operated by the USN under the call sign NAH on 375 kHz. The call sign was later changed to NJY, although I strongly doubt that your tower was the original one used by NAH/NJY. After that facility was discontinued, the U.S. Coast Guard established a maritime radio beacon at this same exact location (200 yards south of the old lighthouse). This beacon operated on 291 kHz with the identification RT. About two or three years ago, the beacon was physically relocated roughly

3 miles WNW to a spot on the dunes at Oak Beach (near an area popularly known as "The Sore Thumb").

Most likely, the abandoned tower is all that's left of radiobeacon RT when it was located on that site. I couldn't find anything that would verify Western Union use of the site, and the VOA story doesn't hold much water either. Mark reports that the Light-house Preservation Society wants to rip down this tower. What a pity!

From Alberta

Those of you who have monitored station CJCA in Edmonton, Alberta, may not realize that the station goes way back to the early days of broadcasting and was a DX favorite even in the early 1920s (they received reports from Key West, FL in 1924). The station was especially famous for its deep-voiced announcer, G.A.R. Rice, who used to say, "This is CJCA speaking—CJCA, Edmonton Journal, of Edmonton, Alberta, Canada, the sunniest spot in Alberta."

CJCA first operated on 1 May 1922 using a Marconi Wireless Co., YC-3 transmitter running 500 watts on 666 kHz, grid modulated. A new transmitter was installed on 23 April 1923. *Radio Station Treasury* shows that in 1926, CJCA was on 580 kHz, on 930 kHz by 1931, on 730 kHz with 1 kW by 1936, and back on 930 kHz by 1942—a frequency still used by the station, although these days the station runs 50 kW.

In the early days, CJCA was one of the only links with civilization for residents and fur trappers located throughout Canada's more remote northern areas. Daily prices for furs from the St. Louis market were a programming staple, as were police bulletins, urgent personal messages, and other community services.

Our photo of CJCA is from 1924, showing the *Edmonton Journal* building with the CJCA antenna on the roof.

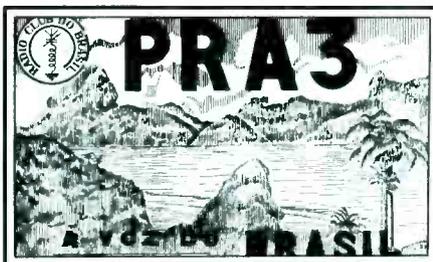
West Coast Wireless

The western shores of the United States, because of the need to communicate with ships sailing the Pacific waters, have been dotted with communications from the start. One of those early stations was operated by the U.S. Navy at Point Loma, CA. This station, which was operating before 1910, was originally identified as both TL and TM. Later on, when the Navy started using standardized call signs conforming to international agreements, the station became known as NPL, a radio compass station on 375 kHz. This station operated into the 1920s.

Our view of the Point Loma station is dated 1909, and identifies the view as "Wireless Telegraph Station, Point Loma, San Diego, California." Two small buildings are shown along with the mid-section of a mast-type transmitting tower supporting a rope ladder.

Rio Rita Calling!

William Turner, Clearwater, FL gives us a



In 1934, Brazil's SW and BCB station PRA3 sent out these QSL cards.

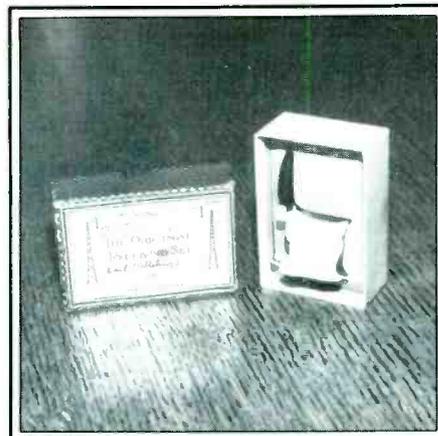
peek at a QSL from station PRA3, Rio de Janeiro, Brazil. This 1934 QSL from the station operated by the Radio Club of Brazil is what you earned if you heard the station on either 860 kHz or its shortwave version on 8185 kHz. Although the QSL gives no additional information, *Radio Station Treasury* indicates that in 1936 it ran 2.5 kW on BCB, 10 kW by 1946. The station was licensed to Dr. Rolpho Estevan de Siqueira.

This station is now part of history, and we thank William Turner for being thoughtful and sharing it with all of us.

Before We Hit The Road

Kenneth Eidnes, Eagle River, WI, sent along one of those priceless bits of radio humor from the era when it was little more than a novelty, and perhaps indoor plumbing was also making its first arrival in many rural areas.

This is a small box depicting twin towers supporting an antenna above the inscrip-



"The Original Receiving Set" was probably hilarious in 1921. Come to think of it, even today it retains a certain nostalgic charm. Bet it's worth a pretty penny as a collectable!

tion, "The Original Receiving Set." Inside the box was what undoubtedly passed for a real knee-slapper of "naughty" humor 65 years back down the line.

Interestingly, the front of the box is hand-inscribed, "To Carl and East Pittsburgh." Is it just a coincidence that East Pittsburgh was the location of KDKA, one of the world's first broadcasting stations?

What could I possibly say here to top the original receiving set? Absolutely nothing that wouldn't cause you to ask what kind of a turkey I was—and I'm sure that by the end of the month you'll have plenty of turkey!

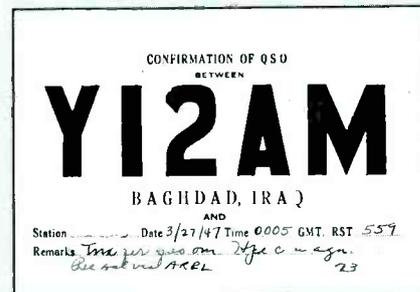
Historic Ham QSL's

It's not that YI hasn't long been the callsign prefix assigned to Iraq, it's been listed that way for many decades. Present ARRL lists show it that way, as do all such listings going back into at least the 1930s. Problem is that Ham activity in this nation has traditionally been rather silent on the Ham bands.

In 1945, this rarely heard prefix suddenly appeared on the air. This caused no little ripple of excitement throughout the world of DX hounds. It was interesting because the Iraqi government didn't have any agency that could or would issue Ham licenses. Nevertheless, a chap named Talib Rifaat commenced operation without a license. The ruler of Iraq, King Ghazi I, heard about this unlicensed station and asked for a demonstration. The King was so impressed that he had Rifaat install his station at the palace and awarded the callsign YI5KG (stood for King Ghaza). Ghaza even sent Rifaat to radio engineering school in London on at least two occasions so that he could return and construct a larger and more powerful transmitter.

When King Ghaza died, Iraq quickly returned to the dark ages insofar as Ham radio went. By late 1946, Rifaat (according to the December 1946, QST) was

hoping to someday return to the airwaves. In the meantime, his interest in radio was limited to selling and repairing receivers.



That makes our QSL from YI2AM all the more curious. It's dated 27 March 1947—a time when (as usual) there weren't supposed to be any Hams on the air in that nation. The fact that the QSL carries no return address, power, band, nor printed nor signed operator's name, would lead us to believe that the station wasn't overly anxious to be identified by local authorities. The anonymous operator simply requested to "PSE QSL VIA ARRL."

Can't say for certain if YI2AM's operator was ever identified. Car you?

AM DXing Across The Ponds

BY MARK MANUCY

So when was the last time you said, "I sure wish I could hear something besides the same ol' AM stations." Well, I am going to help you do just that. Now, it's not going to be easy, but let's give it a go and see if you can stand the excitement of hearing your first "real" DX station.

First, let me ask you what your best U.S. DX is. Have you managed cross-country yet? By that I mean 3,000 miles. Of course, if you live in the middle of the country, have you heard both coasts? Naturally, if you live on either coast you probably have a better shot at Europe or Asia. Have no dismay! I have had many write me to say how they jumped the ponds and that they live in Idaho or Michigan. It can be done! And that leads us to the second question. How good is your receiver? Now, just because you don't have the latest whizz-bang multi-knob gizmo doesn't mean you won't hear Europe. It would be easier to use state-of-the-art electronic wizardry, but what I have accomplished with my R-70, I've duplicated with a small portable (3,000 mile DX).

The most important product in any MW DXing is patience. I feel the equipment, although important, is secondary to the operator's patience and acquired skill. Anything you stick with can be improved upon, especially if you enjoy what you're doing.

Now let's lay down some ground rules for MW DXing. First, you can't go to your receiver at any old time and expect to be able to log some DX. It just doesn't work that way. If you have a light dimmer in the house, that light has to be off! If a TV set makes a racket in your receiver, no matter how little, the set also has to be turned off. The same goes for the neighbor's TV and light dimmers. If you have a noisy power line (one) we might be able to live with that. There must be some time available, several hours at a stretch, to spend on just a few different frequencies.

To start our search for MW foreign DX let's use English language broadcasts where possible. This will make identification easier. Also, for a start, pick frequencies that won't have as much interference as the normal U.S.A. frequencies. To help you get started there is a list of English language broadcasts in a separate chart. There are no guarantees on this list but it will serve as a guide for the first attempt. All English language broadcasts are not shown, only the ones that are most likely to be heard in the U.S. There are a few stations that will be hard to catch just to make it interesting.

The best time to DX will be during dark-

ness within the times shown in two columns marked EST and PST. Here is the catch: both the station and your receiver must be in the darkness of night, including sunset and sunrise hours. Actually, some of the best catches are apt to be *just before sunset* and *just after sunrise*, whether that is on your end or the station's end. You can't turn your radio on at 2 p.m. and expect to hear foreign DX. The times shown on the chart are the operating hours of the station's English language broadcasts. Times are shown for the east and west coasts to make it easier to plan your schedule. Some times shown are not during a darkness path. Some Caribbean stations might be heard during daylight in certain areas, especially where water paths are available.

Some stations have a very limited English language service as their SW facilities can provide much better coverage than MW for English speaking people in most cases. Therefore, there may only be a few five-minute newscasts or a single fifteen-minute program each day. You certainly won't waste much time listening for IDs on these stations! A few are 24-hour operations and one is even broadcasting in AM stereo!

One of the best DX times can be within about 45 minutes of sunrise or sunset at your location when the opposite is true at the transmitter. For example, when it is sunset at your house, check the dial for stations where it is sunrise at the same hour. Also there are days that conditions, due to a storm, will be better earlier than normal sundown or later than sunrise. And some of the stations can only be heard during the darkest winter months because it will be the only time that there is darkness between the station and your location.

So where do we begin? I will have to assume this is your first attempt at out-of-country MW DXing. Probably one of the easiest catches will be PJB on the Netherlands Antilles off the north coast of South America. This is especially easy in the southern half of the U.S. and most anywhere else a null on CKLW can be made. PJB is 800 kHz with 500 kilowatts. Around the southern tier of the U.S. you might try for ZNS in Nassau, Bahamas. This station runs 20 kilowatts on 1540 kHz. We all hear lots of Cuban and Mexican stations so I am discounting them. I'm working with English language broadcasts that are not stations re-broadcasting Radio Moscow. Two other Caribbean stations which seem to be heard by lots of DXers are The Valley on 1610 and St. Kitts on 825.

A few more frequencies that draw lots of reports but may not necessarily be English language broadcasts are: Grenada on 535; Venezuela on 670 and 750; Columbia on 700 and 760; Senegal on 765; Belize on 830; Spain on 855; Algeria on 891; France on 1206; Saudi Arabia on 1512 and 1521; and West Germany on 1593 kHz. These are in addition to those shown in the chart and, I repeat, may not be English language.

Winter is the best time for MW DXing since the hours of darkness are longer and static is lower. Some of the stations listed will require the long hours of winter darkness to provide the path for the signal to travel between your location and the station.

Foreign MW DXing is not an easy task. The signals being sought are not very strong but the signals on either side of the desired one generally are. The best ally for MW DXing is probably a tape recorder. Whenever you are listening have the recorder running. If something is heard that can't quite be made out, make a quick note of the digits on the tape counter (which you reset to zero before starting). Don't stop listening to check the tape as something else could be missed. Listen as long as you can if there is something being heard in the background that might be the station being sought. Only after the station is "off the air" or the darkness path has passed (if you're listening near dawn) should the tape be listened to.

By the way, if the tape recorder is a reel-to-reel without a tape counter then have small bits of paper you can stick in the take-up reel as markers to go back and find the spot to listen to again.

Antenna Considerations

Unless you have lots of acreage the beverage-type antenna is out of the question for most of us. This means we need some type of loop. The long or random wire might be great for domestic DXing, but we need to get rid of some of the hash and the only way we're going to do this is with some sort of directional antenna. We need all the help we can get! The commercial loops will do the trick. They are also small and portable as well as having built-in preamps. If the budget is tight then you might consider "rolling your own" from some of the loops that have been described in past Broadcast Topix columns. The type of antenna advertised as an "active antenna" is not a directional antenna and, though will no doubt be able to receive MW DX, it will not bring the same degree of success that a loop should.

One other point, though I have no proof

A Sample Of English Language Broadcasts

Station	kHz Freq.	Kw pwr	Local		Notes:
			EST	Hours - PST	
St. Kitts, W.I.	555	20	0600-2300	0200-1900	
England (Laser 558)	558	25		24 hrs.	
Ireland	567	500	0130-1902	2030-1402	
New Zealand (2YA)	567	100		24 hrs.	
Pakistan	585	1000	2200	1900	Newscast
India	594	1000	2025-1300	1725-1000	
Dominica, W.I.	595	10	0500-2130	0200-1830	
Bangladesh	693	1000	2000	-	Newscast
BBC	693	150		24 hrs.	
Bophuthatswana	702	100		24 hrs.	Stereo
St. Vincent, W.I.	705	10	0500-2200	1800-0000	
Japan (JOIB)	747	500	0630-0700	0330-0400	
Romania	756	400		24 hrs.*	
Iran	765	1200	2900-2100	1700-1800	
Greece	792	500	2300-0300	1800-0000	
			1400-1930	-	
Singapore	792	750		0615-0800	
Bonaire, N.A.	800	500	1715-1842	-	
			2129-0000	1829-2100	
St. Kitts, W.I.	825	50	0400-2330	0100-2030	
Japan (JOB)	828	300	0420-0500	0120-0200	
St. Lucia, W.I.	840	10	0415-2200	0115-1900	
Italy	846	540	1800-1945	-	
Germany (AFN)	873	150		24 hrs.	
Japan (JOGB)	873	500	0515-0530	0215-0230	
Malaysia	882	200	0400-1100	0100-0800	
Montserrat (ZJB)	930	200		24 hrs.	
France	945	300		24 hrs.*	
England (Caroline)	963	50		24 hrs.	
Philippines	1134	500		0600-0700	
Antigua, W.I.	1165	10	0500-2115	0200-1715	
Sweden	1179	600	1700-1900	-	
Germany	1197	300	2100-2300	1800-2000	
			0000-0015	2100-2115	
St. Lucia, W.I.	1210	10	0415-2200	0115-1900	
Cyprus	1233	600	1600-1630	-	
France	1278	300		24 hrs.*	
BBC	1296	500		24 hrs.	
Norway	1314	1200	0320	0020	Newscast
Luxembourg	1440	1200	1400-2200	1100-1900	
Monaco	1467	1400	1700-1815	-	
Malaysia	1476	700	0730-1100	0300-0800	
Anguilla, W.I.	1505	1	0530-0830	0230-0530	
			1600-2110	1300-1810	
Bahamas, W.I.	1540	20		24 hrs.	
Cayman Island, W.I.	1555	10	0700-2330	0400-2030	
Korea (HLAZ)	1566	250	0220-0230	-	
Thailand	1575	1000	0730-0800	0430-0500	
Anguilla, W.I.	1610	15	0335-0700	0035-0400	
Bermuda	1610	50 watts	Used during emergencies only.		

* = May not be all English language. W.I. = West Indies.

Here is a list of stations to listen for outside the U.S.A.

other than my own experience, the larger box loop antenna has a larger "capture" area and it has been my experience that this antenna provides more signal and has deeper nulls than the ferrite-type of loop. These are two things needed for DXing: capture and nulls.

Now the next consideration is where we do our MW DXing. Many times I mention working out of my basement. It is easier

than carrying the gear, no matter how small, to the third floor or some other location that is less congested than the basement. I'm not talking about the junk piled around, I am speaking of the plumbing and electrical conduits and wires and duct work, or whatever is normally found in a basement. All these metal "things" distort the reception of AM MW DX. For serious DXing we need to be in the clear—as clear as possible. In January or

February the back yard or back porch may be too harsh an environment even for the most avid BCB DXer, not to mention the receiver! So we find a location as much in the clear as possible, then the nulls from the loop that help eliminate interference will be clean and deep.

Sometimes it works better to null (minimize) a station causing interference rather than peak (maximize) the desired station. This trick is also used to minimize noise from power lines and other sources.

To get started, listen on several of the frequencies outlined according to the time and see which one holds the best promise—that is the least noise, splatter, etc. Camp out on this channel with tape running. MW AM signals fade in and out so just sit and be patient for a while. If you're using a directional antenna make sure the station desired is not in the null of the antenna. If you don't hear anything in 15 or 20 minutes then try another frequency. If, after another 15 or 20 minutes, nothing is heard it could be that propagation is not favorable. This could be checked ahead of time by listening for a long distance station you hear on a regular basis. If it can't be heard then you may as well not try for anything else. By long distance I mean 2,000 to 3,000 miles, at least, not 500 to 1,000 miles. Conditions can be very different from night to night.

As I said at the beginning, patience is the biggest factor. All other things being equal, the person with the most patience will log the most stations. (Well, almost.)

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JG 5 + 5 Star



UPS Shippable

"Cross" Series
JG 4 + 4 Cross



UPS Shippable



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SWR: 1.1

HORZ. TO VERT. SEPARATION: 25-30 DB

WIND SURVIVAL: 100 MPH

POWER MULTIPLICATION: 65X

AUDIO GAIN: 22 DB

WIND LOAD: 5.2

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TYPE: Horiz. & Vert. Polarization Twin Feed

GAIN: 15.5 DB

FRONT TO BACK RATIO: 45 DB True

SIDE REJECTION: 45-50 DB True

BACK REJECTION: 40 DB True

WEIGHT: 34 Pounds

LENGTH: 12 Feet

SWR: 1.1

HORZ. TO VERT. SEPARATION: 20-25 DB

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AUDIO GAIN: 20 DB

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The Computer-Shortwave Connection

Decoding International Communications

BY DR. MARK WEIGAND

Many computer and radio monitoring enthusiasts are not aware that an exciting addition to their interest is pulsating through the airwaves at the speed of light. For the price of a shortwave radio (about \$150 and up), an interface device and some readily available software, your Commodore 64/128, Vic-20 or other computer can be combined with the fascinating world of shortwave listening (or SWL). With a shortwave radio that covers approximately 100 kilohertz to 30 megahertz you can monitor and intercept a huge variety of signals, including international broadcasters such as the BBC, VOA, Voice of Germany, Radio Moscow and many others, all in English. By connecting the radio to your computer you can also decode Morse code and radioteletype (RTTY) communications from ships at sea, military services, civil airlines, government, press, amateur radio operators, emergency broadcasts, even spies! Since you will not be transmitting anything over the airwaves, no license is required. Also, it is not necessary to know Morse code—the messages are displayed like a moving billboard as they arrive at your receiver.

Recent improvements in shortwave radios such as digital frequency readouts and microprocessor controls have led to an upsurge in the popularity of shortwave listening. A 1978 estimate indicated that 25 million Americans own shortwave radios, and roughly 18 million shortwave radios were sold between 1971-1981. The shortwave bands are crowded and there is always something to be heard, whether it is oriental music from Radio Peking, propaganda broadcasting, a search and rescue operation on the high seas, or news from some "hot spot" halfway around the world.

When I purchased my first shortwave radio in 1977, inexpensive home computers such as the Vic-20 and Commodore 64 were unavailable and the use of computers to monitor and decode radio messages was limited to various government and military agencies and a few dedicated amateur radio operators. Today, anyone can use a personal computer to decode Morse code (CW) and radioteletype (RTTY) messages. The message can be displayed on your monitor or television screen, saved to tape



Yours truly experiencing, first hand, the real "global village."

or disk, or printed out using your computer's printer.

Basically, the equipment you'll need is a shortwave radio which is able to receive Morse code and single sideband (SSB) messages, a computer-to-radio interface such as the Kantronics Radiotap or MFJ1225 (that operate similar to a telephone modem), and some software which will do the actual decoding for you. Most commercial software is available on tape, cartridge, disk, or a combination of these. Also, several computer magazines have published short programs that allow you to decode CW and RTTY signals, as well as circuit diagrams for building the interface required from readily available parts. Incidentally, owners of VHF-UHF scanner radios can also receive RTTY in most cities using the methods described here.

You should be aware that Section 605 of the Federal Communications Act of 1934 prevents you from discussing the content of non-amateur and non-broadcast stations with others, or using any information you may hear for personal gain. Actually, most transmissions of a sensitive nature are encoded to prevent reception by unintended listeners. However, you will find that there is

a great variety of signals on the airwaves which you can monitor successfully. There are many books and magazines which provide up-to-date frequency lists and other helpful information.

Some of the most interesting listening on the airwaves includes the RTTY news transmissions by international press organizations such as UPI, AP, Reuters (London), USIA and the VOA, TASS, etc. In fact, most countries with radio facilities use RTTY to transmit news reports. Many of these transmit the news in several languages including English, and at regularly scheduled times. You will find that many of these reports have a strong political bias to say the least! The news stories reported over the airwaves are often one to three days ahead of local newspapers and television broadcasts, and some of them are purposely never reported for various reasons. If you have an interest in receiving news from a foreign country or improving your foreign language skills, or want to tune in on the latest crisis situation as the story unfolds, the RTTY press services make for fascinating listening.

Another source of CW and RTTY signals are the worldwide organizations that broadcast weather reports to ships and aircraft on

SHORTWAVE RECEIVING LOG 150KHZ TO 30 MHZ							
FREQ	UTC	DATE	MODE	CALL	LOCATION	CO	REMARKS
20650	1550	04/00/85	850/67	NAU	SAN JUAN	02	RYS
14523	1625	04/00/85	350/67	JANA	LIBYA	06	IN ARABIC-PRINTS MANY ' ' 'S
14928	1610	04/00/85	425/67	TASS	HAVANA	06	TASS RELAY--FORMERLY 14901 KHZ
08717	2000	04/00/85	850/100	MANY	COASTAL	04	SEE POPCOM 4/85 FOR SITOR LIST
07752	0120	04/00/85	850/67	WFA57	NEW YORK	11	UNKNOWN CONTENT
11635	2125	04/00/85	850/132	KRH51	LONDON	07	U.S. EMBASSY
15950	2110	04/00/85	850/100	?	URUGUAY	09	HAND TYPED MSG & RYS
16106	2100	04/00/85	425/67	FPQ	PARIS	06	NEWS IN ENGLISH
16137	2122	04/00/85	425/67	CML47	HAVANA	07	RYS TO ITT NEW YORK
16185	UNKN	04/00/85	425/67	FPQ843	PARIS	10	CALLING NEW YORK
19068	1343	04/00/85	425/67	CNMB3	MOROCCO	06	NEWS IN ENGLISH
15515	1900	03/00/85	850/60	AIR	?	01	MARS NET--WEDNESDAYS--ALSO 7832 KHZ
07832	0200	03/00/85	CW-15	AIR	?	01	MARS NET--THURSDAYS--ALSO 4873 KHZ
06995	0100	03/00/85	850/60	AIR	?	01	MARS NET--THURSDAYS--ALSO 13997 KHZ
14443	0255	03/00/85	170/67	70C	?	07	---
14448	1550	03/00/85	170/66	KNY37	WASH DC	09	GERMAN EMBASSY
18420	1745	03/00/85	425/67	?	BELIZE	09	BELIZE CITY--RYS
18620	2325	03/00/85	425/67	?	?	07	CUBAN EMBASSY TFC TO AFRICA
14409	0430	02/00/85	425/67	MFA	BERLIN	06	NEWS & TFC BETW 0430-0800
15996	0900	02/00/85	425/67	DPA	HAMBURG	06	NEWS 0900-1400 GMT--ALSO 18697/18700 KHZ
10899	0600	02/00/85	425/67	KUP	S.AFRICA	06	ENGLISH NEWS
17460	UNKN	02/00/85	170/100	L0L+	ARGENTIN	02	INTERAMERICAN NAVAL NET--19437/20065 KHZ
12345	0000	00/00/00	000/000	0000	----	00	XXXX

Figure 1. Sample radio monitoring log developed using an indexing program. Note that the printer is in condensed mode for using this particular log format.

a round-the-clock schedule. These include gale and hurricane warnings, weather for airports worldwide, iceberg reports, and various ship-to-shore messages. Or, you may be interested in decoding the CW and RTTY messages sent by Amateur Radio operators to each other. Many amateur operators have become interested in computers

in order to improve their transmitting and receiving capabilities, and regular "Ham nets" meet on the air at scheduled times (similar to a conference telephone call) to share information and details about their computers and programs. Since most computer interfaces and software that can decode RTTY and CW signals will also decode

ASCII, it is likely that you will eventually hear some ASCII being sent over the air as the use of computer-generated signals increases. It is even possible to receive Morse and RTTY signals from amateur radio satellites orbiting the earth.

SWL combined with a personal computer can transport the listener over thousands of miles to behind-the-scenes, and provide new insights about countries with different political and economic systems. One of the most challenging computer uses might be to write programs for analyzing coded messages such as the groups of numbers which are sent by so-called "spy numbers" stations to their agents. These stations often operate on regular schedules, and the groups of numbers which are sent are usually in plain voice or CW. Who knows, you may be the first to unravel the meaning of a "spy numbers" message with the aid of your computer. For a modest investment in hardware and software, you can tune international intrigue as it happens and let your computer do most of the work for you.

An effective RTTY/CW monitoring station could consist of a decent shortwave receiver, a RTTY/CW computer interface, and the software cartridge, tape, or disk for use with your computer. As far as receiving antennas are concerned, my shortwave antenna (believe it or not) is a metal slinky stretched out along an outside wall of my radio/computer room. Although a separate article could be written about shortwave antennas, with even a simple longwire antenna such as this, mounted indoors, I have logged shortwave stations from every continent. Outdoor antenna kits are available from electronic stores such as Radio Shack

Figure 2. A sample monthly target list for radio monitoring.

SWL MONTHLY TARGET LIST									
FREQ	UTC	IDENT	MODE	REMARKS	FREQ	UTC	IDENT	MODE	REMARKS
(MAG #1 6/86)									
02749	2310	ARGENTIN	850/100R	AERO MSG	14373	0030	IRAQ	425/50R	ENG NEWS
06880	2230	USMC	170/75R	MARS NET	14510	0035	MOSCOW	425/50N	ENG NEWS
06972	1905	ROMANIA	475/66R	ENG NEWS	14513	0040	US ARMY	170/45R	MARS NET
07425	2054	BERLIN	375/66N	ENG NEWS	14574	1338	MOROCCO	425/66R	ENG NEWS
07658	1948	BELGRADE	425/100R	ENG NEWS	14632	1333	BELGRADE	525/50R	ENG NEWS
08060	1333	HAVANA	425/66R	ENG NEWS	14760	1830	HAVANA	425/66R	ENG NEWS
08895	2311	USIA	425/75N	ENG NEWS	18160	1337	MOSCOW	425/66R	ENG NEWS
09966	1346	BERLIN	375/66N	ENG NEWS	22782	2227	USIA	425/100N	ENG NEWS
10127	1050	W.GERM	425/66N	ENG TFC	12328	UNKN	MEDICAL	CW?	INJURY
10153	1320	POLAND	400/50N	ENG NEWS	05697	2200	USCG	USB	TFC
10258	1331	MOSCOW	425/50R	ENG NEWS	05683	0056	USAF	USB	HUR.FLT.
10543	0945	BERLIN	425/66N	ENG NEWS	05205	1248	NAT.GRD.	USB	HURRICAN
10814	1941	SINGAPORE	425/66N	ENG NEWS	04835	1238	USN	USB	SHIPYARD
11006	1107	USN	850/100N	S. POLE	04623	0103	USN	CW	NUKO
11228	1332	USAF	USB/RTTY	TFC	04066	0112	USN	USB	SN DIEGO
13482	1150	DPA	525/50N	ENG NEWS	02716	1125	USN	USB	SHIPYARD
13524	1303	IRAQ	425/50R	ENG NEWS	*				
13735	0010	ADN	425/50N	ENG NEWS					

for about ten dollars. Other listening post accessories that can be very useful are: a tape recorder, world atlas, 24-hour clock and a time conversion chart, frequency lists, a station logbook, reference books and magazines, etc. The tape recorder is one way of saving RTTY/CW messages which can be played back later through your computer interface to display received messages on the monitor screen. A better method is to use software which allows you to save radio messages to tape or disk. Of course, using a tape recorder is a good way to save your favorite shortwave broadcasts or voice communication intercepts as well. It is also a valuable tool for listening to or learning foreign languages.

A world atlas is very helpful in finding the geographical location of the cities and countries your monitor. If possible, find one which has latitudes and longitudes clearly marked, since ships and aircraft often give their latitude and longitude along with any messages. Or, you can mount a large world

map on a nearby wall. A program which calculates distances using latitude and longitude would be a helpful addition.

A clock with 24-hour readout is another useful station accessory. Virtually all shortwave broadcasting schedules are given in UTC (Coordinated Universal Time) and you will need to convert your local time to UTC in order to know when to begin monitoring a particular broadcast. Conversion charts are inexpensive or you can easily make your own. Some well-organized SWLs use an index card for this purpose.

Keeping a log of your most interesting listening catches is a good practice and lets you review what you have accomplished as time goes on. Logs designed for radio monitoring may be purchased or created, and should include information such as the date, time in UTC, the type of signal heard and its strength or quality, frequencies monitored, station callsign, remarks, and anything else of interest to you. With a computer you can go much further and design a log program

that would save this information to tape or disk. How about writing a program which would sort your favorite radio frequencies by category (military, press, aviation, etc.), and put your favorite listening frequencies in order from highest to lowest? Your own needs and creativity will determine the best logging system. Along these lines I have used a simple "all-purpose" indexing/filing program to develop a logging system with excellent results.

Figure 1 is a sample log which can easily be created using many popular database and indexing programs. Note that the column labeled "CO" represents a user-defined numerical code for identifying different message sources—press, amateur, coast guard, civil aviation, military, etc. Many indexing and database programs also allow such categories to be sorted and then printed out. For example, the log can be printed out by lowest-to-highest frequency, UTC, date, and so on.

Figure 2 is a printed-out "target list" of stations to monitor which is a modified version of a magazine indexing program. Many indexing programs have been published in computer magazines or are available in stores which sell computer software. If you subscribe to several radio monitoring magazines as I do, you may find yourself with more listings of frequencies to monitor than is feasible. Each month I like to choose the frequencies in which I am most interested and enter them into a simple program which gives me a monthly "target list" by magazine and date. It is much easier to use than shuffling through stacks of magazines or hastily written notes!

Reference books are essential to an effective listening post. Books containing frequency lists help you tune into the signals which are most interesting to you and make identifying the stations heard and their locations much easier. Other books provide tips on improving your reception, building antennas and accessories for your monitoring station, and on the basics of SSB, Morse code, and RTTY communications. It is exciting to tune randomly across the shortwave bands, but eventually you will want to be able to zero in on specific stations of interest. That's where up-to-date reference books and magazines can help. Rather than listing the large number of manufacturers, books, and magazines which are available, I suggest that you simply visit your local radio electronics dealer. Many dealers serve the amateur radio community and have a full line of books, magazines, and product brochures.

Are you more than a little bored with the average listening available on television and AM/FM radio stations in your area? By investing a little time and expense in adapting your computer to process data which is beamed around the globe on the airwaves you can broaden your horizons and experience the real "global village." And yes, you may be the one who unravels some of the radio mysteries which abound on the shortwave bands.

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TIP: To increase the range of your hand-held scanner, install an extendable full-length antenna with a standard BNC base. This simple operation will noticeably increase your receiving distance.

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Tips from the expert on boosting the performance of your listening equipment



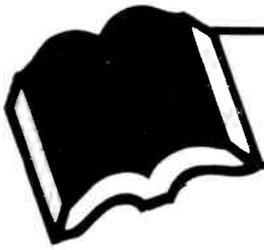
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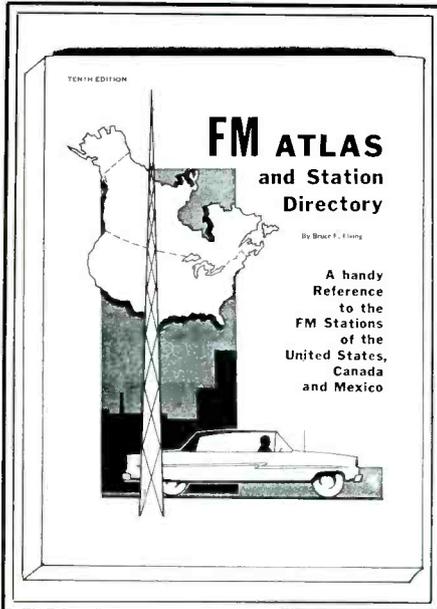
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BOOKS YOU'LL LIKE!

BY R.L. SLATTERY



On The FM Band

A thoroughly revised 10th edition *FM Atlas and Station Directory* has been compiled by Bruce F. Elving, Ph.D. Nearly two years in the making, the newest book is designed to make it easier for FM radio-equipped travelers, or those who dial around from home, to tune in their favorite sounds between 88 and 108 MHz.

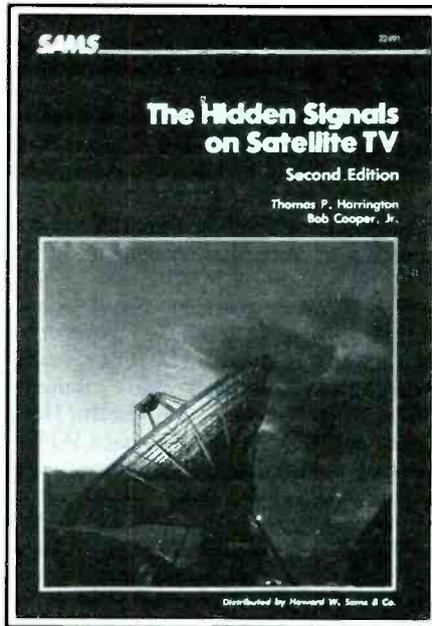
The book features 77 pages of FMaps showing exact station locations, call letters and frequencies, as well as directories arranged by frequency and geography. The directories give full technical and programming data on some 5,000 FM radio stations of the United States, Canada and Mexico. Listed, too, are stations having an SCA sub-carrier, and what they use this "hidden" closed-circuit service for. Low-power FM translators are shown, giving their frequency and call letters of the full-service station they rebroadcast. Educational, public and religious stations are shown, as are commercial stations.

Revised editorial content questions the continued longevity of AM radio, Canada's elusive stations that don't individually identify, and a look at what recent FCC rules changes might mean to the listener. Articles on "FM Piracy," improving reception, and FM DX listening round out this lively, informative reference.

First started in 1971 as the "FM Station Atlas," the *FM Atlas and Station Directory* has grown in size and reader acceptance to its presently big 164-page format. Data pub-

lished includes official information, such as FCC daily news releases, as well as contributions sent in by broadcasters and listeners throughout the United States and Canada.

This book can be ordered from CRB Research, P.O. Box 56, Commack, NY 11725. Price is \$8.95 per copy, plus \$1 postage/handling to addresses in USA/Canada/APO/FPO.



The Hidden Signals On Satellite TV

Howard W. Sams & Company, a division of Macmillan, Inc., announced the release of the second edition of *The Hidden Signals on Satellite TV*.

This is the authoritative guide for the technically-oriented hobbyist who wants to tap hidden signals. The book details satellite services available and demonstrates how to access and use the non-video transmissions available on your satellite receiver.

The comprehensive coverage includes how to access such non-video signals as audio channels, news services, teletext services, commodity and stock market reports, and more, using readily-obtainable equipment. Anyone who has or will be installing a satellite won't want to pass up the hidden world illuminated in this valuable, 190-page, softbound book retailing for \$19.95.

Author Bob "Coop" Cooper is the founder of SPACE, the satellite industry's trade show. He, and co-author Thomas Harrington, have been active in the industry since its inception.

Books are available through bookstores, educational institutions, computer retailers and electronics distributors.

THE DXers GUIDE TO COMPUTING

edition 3.0



by George Wood
Radio Sweden International

The DXers Guide To Computing

The 3rd Edition of George Wood's useful 35-page booklet is here to fully update the earlier edition. This covers all aspects of using computers in respect to DX listening, including RTTY, packet radio, computer-controlled receivers, digital radio modes, computer bulletin boards, information utilities, and so on.

There's also an introductory chapter for beginners (written by Jim Grubbs) explaining the basics and giving plenty of source addresses for those getting started. This will be very useful to those who would like to get started but don't know about computers.

Even if you're already into computers and DXing, the book has plenty of hints, kinks, ideas, and new approaches that you can use to substantially increase your enjoyment. Plenty of telephone numbers, too, that you can use to dial up all sorts of information, computer bulletin boards, etc.

A fine booklet and at a cost of only \$3 (postpaid), you can't go wrong! *The DXers Guide To Computing* can be ordered from Radio Sweden International, S-10510, Stockholm, Sweden. Please mention that you learned about it in **POP'COMM**. **PC**

PIRATES DEN

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

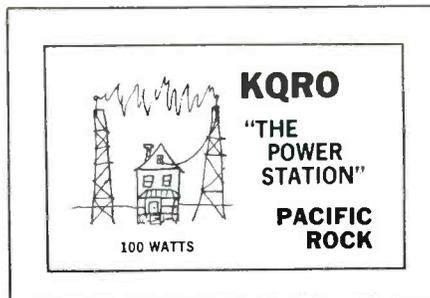
The past few weeks have seen a real upswing in pirate activity, as evidenced by the fistful of reports being delivered to the Pirate's Den. So, whatsay we waste no space and get right into the news and loggings . . .

TNFM, reported earlier as **CFTN-FM**, is proving to be one of the more widely heard pirates this year. I must have received half a dozen copies of the station's informational sheet from readers. According to the TNFM information, the shortwave outlet actually began in November 1982 but was closed by Canadian authorities in May 1984. The operator, Alan, then started up **KQRO** which he ran until last winter when he put **TNFM** back on the air on both FM and shortwave. Originally, Alan claimed to know nothing about the shortwave broadcast, saying someone was relaying it on shortwave unbeknownst to him. Now, however, he admits responsibility for both outlets and says **TNFM** broadcasts will continue sporadically and also advises listeners to "watch out for some **KQRO** programs" too.

Garth Carman in Edmonton, Alberta heard the station from 0408 to past 0600 on 7370 with an apparent party in progress (later confirmed by a call to the station). Chris Hawk in Omaha had them on 7415 taking phone calls and requests and playing rock music to 0500 tune out. Dean D. McIntyre, VE6PBO, in Edmonton also had them on 7415 from 0500-0630 and says he hears the station nearly every Saturday and Sunday. Dean adds that the station operates from Ganges, a small town on Salt-spring Island in the gulf between Vancouver and Victoria, BC. Address is Box 1345, Ganges, BC V0S 1E0. FM power is 15 watts with an ERP of 240 watts, shortwave uses 100 watts from a B&W transmitter (specifically, a B&W 5100 according to the station's literature.)

Don Feldman in Penn Valley, CA says **TNFM** was his first pirate log. He had them on 7415 with a schedule announced as 7:30 to midnight (live broadcasts) and midnight onwards, taped. Elmer J. Cronkright in Wyoming, MI found them on 7440. Dirk Prado in San Francisco had them from 0300-0720 on 7415. Evan Anderson in Evanston, IL spotted the station on 7437 (he doesn't mention the time logged) and Charlotte Brooks in Asburn, CA had them "via **KQRO**" at 0600 on 7415. So, 7415 looks like the most-used frequency and if you check around on weekend evenings chances seem pretty good you can bag this one.

Radio Dead Man was heard by Evan Anderson on 5 July from 0410 to 0440. He doesn't mention the frequency but I ex-



The **KQRO/TNFM** QSL card and **TNFM's** nice black and gold sticker.

pect it was in the 7300-7500 pirate band somewhere.

Radio North Coast International was spotted by Chris Hawk on 8 June on 7485 around 0300 featuring comedy music. Also heard on 29 June from 0115-0159 by Phil Bekkala, Larium, MI with rock and comedy records. Phil notes that reports go to P.O. Box 245, Moorhead, MN 56560.

WHOT was logged by Joey Prego in Brooklyn, NY on 1620.5 on 23 May from 2100-0400 sign-off with a 50's rock format, taking phone requests and promising QSLs. Operators were Jim Nasium, Hank Hayes and Pete Sake. Joey says **WHOT** was his first pirate logging. Jim Buchanan in Shrewsbury, MA had them from 0126-0259 sign-off. But wait! Jim tried to get through on the phone without success, then called the number two days later and this time did get through, only to be told that the station hadn't been on the air when he took his log and that someone else was

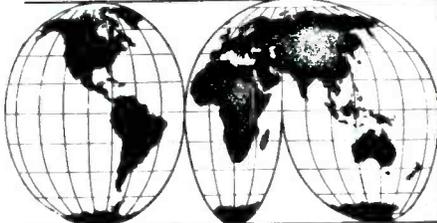
rebroadcasting their programs. The **WHOT** rep said they are mostly on FM and when they are on AM its 1630 kHz. Odd, since they've been long reported on AM—1610 and upwards. William J. Fernandez in MA noted them on 1625.6 and William says the station told him they are on the air mostly weekend evenings with no specific schedule, though generally midnight to 4 a.m. and that the transmitter drifts from 1620 to 1645 kHz.

The Voice of Communism was caught at 2200 on 1 June on 7365 by Robert Stec in Warren, MI with TV themes, talks about the low crime rate in the USSR. Also heard by Mark Carlson in Brookline, MA back in April on 7370 to 2142 sign off with funny skits involving such characters as "Marianne Rhukoff," "Vladimir Gilbert Stanvich," "Natasha Brocovich" and "Richard Nixon." The station claims to broadcast from the USSR.

Mark says that at about 2150 on the same

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DRAGON RADIO 4283 kHz. YOUR PIRATE STATION

Is Dragon Radio still on the air?

date and frequency, a few minutes after Voice of Communism signed off, he heard a station sign on and ID as **Radio Moravia** which ran until 2219.

Radio Mauser Worldwide, also ID'ing as Radio Mauser International was found on 7425 between 0148-0226 by an unidentified reporter in northeastern Indiana who says the signal strength was very good.

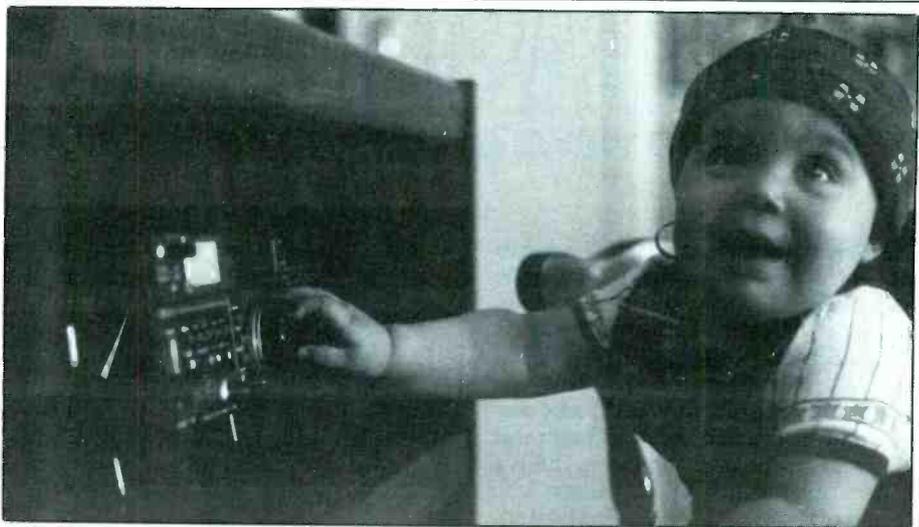
WQNR Rock'It Radio in Selden, NY sends copies of the latest exchange of correspondence between it and the FCC, in which the FCC turns down an appeal by the station for a reduction or elimination of its \$750 monetary forfeiture. WQNR believes its operations were legal and claims to have petitions from "thousands of our listeners, their parents, area merchants and business people demanding the FCC allow Rock'It Radio. WQNR to return to the FM dial." I'll try to keep you posted as the situation develops.

James Dean of Unionville, IN sends a clipping from the Bloomington, IN newspaper about the efforts of former pirate operator Bruce Quinn (**Jolly Roger Radio**) to go legit. Quinn has two applications before the FCC now—one to get another FM channel assigned to Bloomington and another to put an FM'er in Delphi, Indiana. If granted, Quinn says the first of the two stations could be on the air in a year.

Radio Clandestine is still going strong. Bradley Lucken of Cincinnati heard them back in late April on approximately 7363 from 0203-0226, with comedy songs and some risqué stuff, with usual host R.F. Burns.

Bradley also heard **Canadian Club Radio** on approximately 7454 from 0215-0240. Signal strength was poor and Bradley was unsure of the address he copied down so he put in a lot of detective work to confirm it. It's P.O. Box 140, 3090 Danforth Ave., Toronto, M1L 1B1.

Still another Canadian is **CF1P**—Radio Free West, P.O. Box 124, 25 The West Mall, Etobicoke, Ontario, M9C 4W5. CF1P calls itself "Canada's only underground shortwave broadcaster." Programming, according to info received from the station, is "various types of music and informative news-talk shows which are directed to North America and Eastern European Audiences." The station says its schedule is "semi-variant" during the week but is scheduled regularly on Sunday evenings in the 41 meter band. The transmitter is a Viking Ranger with an output of about 40 watts.



Perhaps Radio Danny would have been more aptly named "Radio Danny Boy."

CF1P wants to buy a linear amplifier if you happen to know of one that's available.

A letter sent by Eric Wilson of High Point, NC to **Radio Nova International** was returned, marked "no forwarding permit." Does anyone have any fresh information about the status of this station?

WPBR was noted on 7438 at 0210 by Johnnie P. Harper in Albertson, NC broadcasting in sideband.

Phil Bekkala caught **Zepplin Radio Worldwide** from 0038-0059 on 7436 with advertisements and march music. Reports, Phil notes, go to the Moorhead, MN address mentioned earlier.

The Voice of Qubar was heard on 6 July at 0106-0137 on 7423, also by Phil Bekkala. Qubar claimed to be broadcasting from his "secret cave in the ICOM mountains on Asteroid R-71." Programming was

hard rock and messages such as "Love each other or your planet is doomed."

An unsigned, no-return-address-letter arrived this month describing the fate of **Radio Danny**. It seems that "two burly FCC agents, armed with search warrants" broke into the facilities of Radio Danny, confiscating all the broadcast gear. "They took down his longwire antenna which he had cleverly camouflaged with diapers." Well, I'd say Radio Danny has plenty of time to make a comeback. See the photo.

We are out of space. Please keep those loggings, clippings, pirate photos, QSLs, information sheets and what-have-you coming in to us, folks. Your contributions are the backbone of this column and they help others hear and QSL more pirate stations.

Until next month, 73 and keep prowling the pirate bands!

PC

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BROADCAST TOPIK

BY MARK MANUCY, W3GMG

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

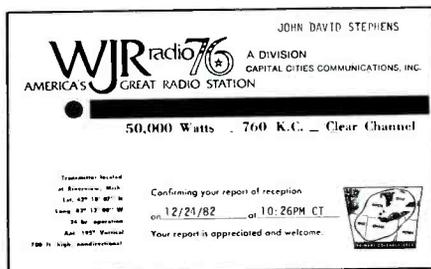
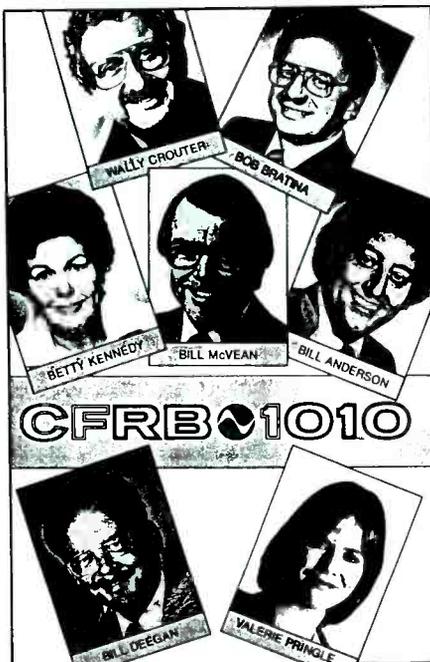
Another loop antenna?! Here is a simple loop antenna which comes ready-made and is designed to be used with a portable radio which only has a built-in antenna.

You never know what you'll hear on the radio! While listening to a talk show one night (Joe Lombardo on WBAL) a listener called and complained about not being able to hear the station after sundown. This is a frequent complaint of WBAL listeners who live west of Baltimore. A few callers later another listener mentioned an AM antenna they had heard of from the Herrington people in Kirkland, Ohio. It wasn't long before another caller mentioned he had purchased the same or similar antenna from a U.S. General Hardware store in Baltimore. Well, my curiosity got the best of me so I hiked over to a U.S. General store and plopped down \$39.80 in plastic to bring home the "Select-A-Tenna."

This turns out to be a small round plastic box, ten and one-half inches in diameter and two and a quarter inches thick with a single knob in the center of the front and a BC band scale (530-1700) around it. It is manufactured by Intensitronics Corp., P.O. Box 562, Hales Corner, WI., 53130. Best of all—it works! So, if you have a portable radio such as the Sony SRF-A100 and need a boost for the weak stations, then this gizmo will do just that. It requires no batteries as it is a passive device . . . just set it within six inches of a radio, adjust the radio to the station you want to hear and peak the Select-A-Tenna to the same frequency. Turn the antenna and radio for the best reception, re-peaking each once again for best reception.

Those of you that have a U.S. General Hardware store near you can check it out or order it from their catalog. The part number is 53512 and they call it a "radio bridge." Herrington, a mail order catalog store in Kirkland, Ohio, 44094, sells it for \$39.95 plus \$4.50 for postage and handling. Their telephone number is (216) 256-1446. This small loop is not quite as good as a larger loop, but it will be hard to beat for portability and price unless you build your own. Also be reminded that it will not work with a radio that does not have a built-in antenna.

With an antenna like this DXing becomes very portable. Using a loop with a small portable radio and a pair of headphones the world of the elusive stations is brought home to the log book. A friend of mine, Mack Green, was visiting a few weeks ago and had his Sony 2001 under his arm. This is also a nice DXing receiver and it has a pair of antenna terminals on it! Well, we had to see how it would do with my four-foot loop connected to it. Setting up the four-foot loop on my back porch, we had no trouble hearing



QSLs from CFRB Toronto, submitted by J. D. Stephens, Huntsville, AL.

WDMV, our 500-watt daytimer on 540 kHz way down on the eastern shore of Maryland. We also heard WNBC, WOR and other New York stations.

This Sony has five LEDs used as an 'S' meter and a three-position RF gain or sensitivity switch. As I recall, WNBC lit one or two of the LEDs with the sensitivity at the maximum position. That's pretty good from Baltimore for a New York station. We connected the four-foot loop and the Sony lit up like a Christmas tree. We couldn't believe it! Backing the sensitivity to the middle position the LEDs were still all lit. Sliding the switch to minimum sensitivity, four of the five LEDs were still illuminated! We were both amazed! It would have been nice to try the Intensitronics loop with the 2001 but I didn't have it at the time. I'll tell you what though, I'm saving my beninos for the Sony 2010 . . . the son of the 2001, and the 2010 has a synchronous detector to boot!

By the way, Mack is on his way back to

North Carolina with a set of plans for the four-foot loop tucked right beside his Sony! You can get yours for \$5.50 postpaid. The ferrite loop plans are \$7.50 and they include a preamp. We didn't have time to try the ferrite loop on his Sony. Maybe next time. My suggestion for the operation of any loop is a small plastic "lazy susan" pantry can turner on which the radio and/or loop may be placed and turned to adjust for best reception. For more info on loops write to me including a SASE.

Oh where, oh where have all the clears gone? In a conversation I had the other day with Packy Pickrell we thought it might be a good idea to mention to all the DXers once again about how the clear channels are becoming unclear in a fast hurry and it wouldn't hurt us all to write to the FCC and tell them how this distresses us, which indeed it should.

Let me give you a few examples. The lowest U.S. clear is 640 kHz which has been the home of KFI in Los Angeles for years with daytimers in Ames, Iowa and Akron, Ohio. You can see what 640 KHz looks like today in Table I. Not much of a clear channel anymore! Others are:

Channel:	New stations	Previous stations	unl	day
650	7	2	5	4
700	16	1	8	9
830	17	2	13	6
1030	29	2	17	14
1100	13	6	7	12
1160	26	2	26	2
1180	22	3	12	13
1200	32	1	30	3

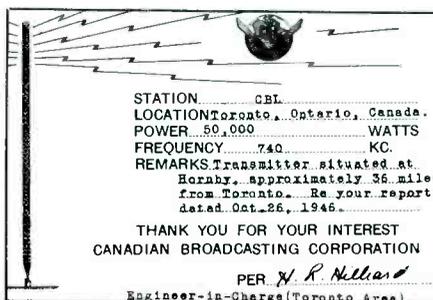
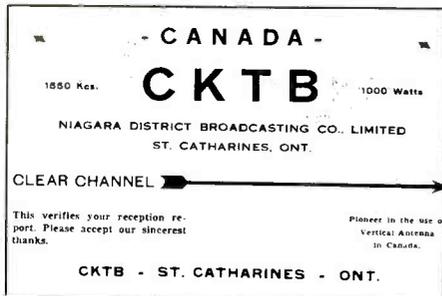
Well, I could go on and on but I think you can get the picture of what is happening to our clear channels. These new stations, for the most part, are unlimited time stations, approximately 99, the rest are daytime only with about 50 or so new ones thrown in. The daytime stations are not too much of a problem and I admit most of the fulltimers are low power at night but, even so, the frequencies are becoming cluttered.

The basic FCC reasoning is to provide more local programing. My feelings differ somewhat on this. Is the AM band the place to provide the space for additional stations? The AM staunltions are in serious trouble now. With so many stations on the air now coverage has been severely reduced, especially on the high end of the dial. Now we are cutting into the clear (?) channels. Many folks enjoy lisunltening to distance stations for reasons other than DXing. This is going to be more and more difficult as each month goes by and these new stations are approved and come on the air.

Table 1 - 640 kHz

Call	Location	Class	hrs.	power	Antenna
KFI	Los Angeles, CA	1A	unl	50/50	nda
WLVJ	R. Palm Bch, FL	2	unl	10/.5	DA-2
WPMA	Wildwood, FL	2C	unl	1/1	nda (cp)
new	Atlanta, GA	2C	unl	50/1	DA-2 (cp)
WOI	Ames, IA	2B	unl	5/1	DA-N (cp)
KTIB	Thibodaux, LA	3	unl	4/1	DA-2 (cp)
WLDM	Westfield, MA	2C	unl	50/1	DA-2 (app)
new	Berrien Spg, MI	2C	unl	.5/.25	nda (app)
new	Kingsley, MI	2C	unl	10/1	DA-2 (app)
new	Zeeland, MI	2C	unl	1/.25	nda (app)
The above three are in a hearing with the FCC.					
KGWV	Belgrade, MT	2	unl	10/1	DA-2
WWJZ	Mt. Holly, NJ	2	unl	5/1	DA-2 (cp)
new	Cohoes, NY	2	unl	10/1	DA-2 (app)
WHAZ	E. Greenbush, NY	2	unl	5/1	DA-N (app)
The above two are in a hearing with the FCC.					
WFNC	Fayetteville, NC	2	unl	10/1	nda (cp)
WHLO	Akron, OH	2	unl	5/5	DA-2
WWLS	Moore, OK	2	unl	1/1	DA-N
WNOW	Blountville, TN	2C	unl	10/1	DA-2 (cp)
WMSO	Collierville, TN	2	unl	10/.25	DA-N
WJJQ	Tomahawk, WI	2C	unl	10/1	DA-2 (app)

The abbreviation "unl" stands for unlimited time operation or license to operate 24 hours a day. "cp" means a construction permit has been issued and the station is being built and "app" means that an application has been made to the FCC for this facility.



Thanks to Mr. Robert Grubbs in Kearny, MO for these Canadian QSLs.

Several people have already mentioned to me the additional "noise" in trying to hear WBZ and other clears that they normally listen to at night. The noise they refer to is not the summer static! Bear in mind the above stations are not any of the low power stations operating with less than 250 watts. I've mentioned in a previous column how two frequencies in Baltimore are gone for night-time DXing because of low power stations. WINS will not be heard again at night in Charm City!

Make your thoughts known to the FCC at 1919 M Street NW, Washington, D.C., 20554. If you don't like the clears being cluttered and you say nothing, I can assure you the situation will get much worse. Many people that buy and/or build radio stations do so for only a couple of reasons. One, it's a way to make a lot of money and two, it's a way to promote their egos. Concern for the real reason for having a broadcasting station as outlined by the FCC years ago never enters the mind of many owners. As a result the general public suffers. Of course I'm generalizing, but I want you to know I'm up-

set about the current situation. Enjoy the clears while you can, it won't be long before they're history!

Congressional action will create a problem next April for daytime-only stations. Daylight Savings Time will begin the first Sunday in April in 1987 and this will force darkness upon the face of many daytime-only stations for an extra hour for the balance of April. For many this will mean extremely low power during a normal "drive to work time," which is normally the most listened time on the radio and therefore makes the most money for the stations. For the DXer it means an extra hour to DX in the morning without having to get up quite so early!

I haven't heard much comment about the low-power stations from readers. Are you listening to these new stations in your area or logging any which are not near you? Perhaps they can't be heard because their power is so low. Tell me what you're hearing.

Phil Stevens asks why we are not hearing more low power AM/FM stations rebroadcasting the big guys like is done on TV. Well,

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Call Letter Changes

Location	Old	New	FM Stations		
AM Stations			Flagstaff, AZ	KSOJ	KMGN
Indio, CA	KGOF	KUNA	Phoenix, AZ	KQYT	KOY-FM
Johnstown, CO	New	KZOI	Roseville, CA	KPOP	KDJQ
Gainesville, FL	WDVH	WLUS	Marathon, FL	New	WWFF
Murrayville, GA	New	WKZD	Mason City, IA	New	KRNI
Boonsboro, MD	New	WPVG	Ottuma, IA	KLEE-FM	KOTM-FM
Hattiesburg, MS	WKOJ	WGTV	Abbeville, LA	KASC	KROF-FM
Jackson, MS	WYHT	WZRX	Portland, ME	WJBQ	WWGT
Jackson, MO	KJAS	KUGT	Boston, MA	WHTT	WMRQ
Billings, MT	KOTN	KBLG	Gordonville, MO	KJAS-FM	KCGQ
Chapel Hill, NC	WRBX	WRTP	Fargo, ND	KRRZ	KFGO-FM
Mint Hill, NC	WCQR	WNOW	Rugby, ND	New	KZZJ-FM
Hot Springs, SD	KOBH	KZMX	Poteau, OK	KZZE-FM	KZBB
Blountville, IN	WNOW	WCQR	Oklahoma City, OK	KOFM	KMGL
Dunlap, TN	WSVC	WSDQ	Lakeview, OR	New	KQIK-FM
Amarillo, TX	KQIZ	KWAS	Galveston, TX	KKKX	KQQK
Ferris, TX	KLCA	KDFT	Provo, UT	KLRZ	KBNG
Kaukauna, WI	WKAU	WQWM	Buffalo Gap, VA	New	WSNV
			Keyser, WV	New	WKZG
			Westover, WV	WJCF	WMQC

Phil, must not be much money in it. Although, just recently, several U.S. short-wave stations have come on the air. Most are religious in nature but some do offer other types of programming. The long wave frequencies below the broadcast band are not allocated for broadcasting in this hemisphere by the frequency coordinators of the world. The answer to the noise problems of

the world, other than moving, Phil, is a loop antenna . . . or, get rid of light dimmers, TV sets, fluorescent lighting, fish tank heaters, automatic night-lights and need I go on!

A letter from Christopher Sweitzer, now living in Gainesville, reminisced about when he lived in this area. I remember when WDVH came on the air in 1954, Chris, I lived 70 miles east of G-ville and listened to

them a lot. Thanks for the letter. Glad to see they have kept the same call letters all these years. In Jacksonville, the letters WKTZ have been around many years also, but have moved from station to station according to Richard Boekel, Sr., who writes to say it is still the best sound in town! From Mike Burmeister of KIHx-FM in Prescott Valley, AZ comes word the station plans to run by

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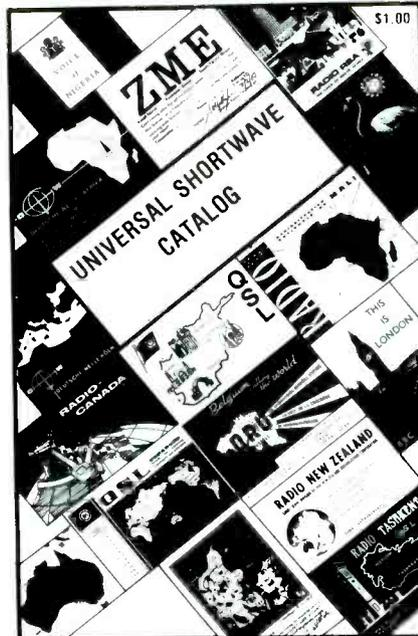
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Station Updates

Call	Location	Freq	Pwr	Ant
AM				
WKLW	Paintsville, KY	600	5/0	NDA
KURV	Edinburg, TX	710	1/.91	DA-2
WNYC	New York, NY	820	50/10	DA-2
KKIN	Aitkin, MN	930	1.5/0	NDA
WCHZ	Gulf Breeze, FL	980	2.5/1	DA-2
WMAK	Pittsburg, KY	980	.9/0	NDA
KNXX	Los Ranchos, NM	1050	1/0	DA-D
KMUV	Conroe, TX	1140	5/0	DA-D
WZBR	Amory, MS	1170	.5/0	NDA
WAYD	Ozark, AL	1190	10/0	NDA
WWWC	Wilkesboro, NC	1240	1/1	NDA
WRCP	Providence, RI	1290	5/5	DA-2
FM				
WJNY	Watertown, NY	90.9	7.09	449'
WITC	Cazenovia, NY	90.9	.129	33'
KFXI	Marlow, OK	92.1	1.7	428'
KTFA	Groves, TX	92.1	3	312'
KOEL-FM	Oelwein, IA	92.3	100	1000'
WMJS	Prince Frederick, MD	92.7	1	564'
WSCD-FM	Duluth, MN	92.9	100	603'
WMCN	Rockland, ME	93.5	.562	612'
WLJA-FM	Ellijay, GA	93.5	3	278'
WDJC	Birmingham, AL	93.7	100	1006'
WMEV-FM	Marion, VA	93.9	100	1459'
WNYC-FM	New York, NY	93.9	5.4	1418'
WDBN	Medina, OH	94.9	16.2	879'
WAYV	Atlantic City, NJ	95.1	50	331'
KEBQ	Ardmore, OK	96.5	3	328'
WSCZ	Greenwood, SC	96.7	2.1	390'
WCSF	Clifton Park, NY	96.7	3	239'
WVJZ	Orange, VA	96.7	3	320'
WPCV	Winter Haven, FL	97.5	100	986'
WCAV	Brockton, MA	97.7	3	276'
WWMZ	Fredericktown, OH	98.3	2	390'
WTHP	Thomasville, NC	98.3	1.62	429'
WCSY-FM	South Haven, MI	98.3	2.42	364'
WKTK	Crystal River, FL	98.5	100	1322'
WVHT	Elkins, WV	99.3	3	328'
WEZN	Bridgeport, CN	99.9	27.6	669'
KVUU	Pueblo, CO	99.9	87.4	2000'
WPNH-FM	Plymouth, NH	100.1	2.34	364'
WYFA	Waynesboro, GA	100.9	1.92	410'
WIXN-FM	Dixon, IL	101.7	3	328'
WZBO-FM	Edenton, NC	102.3	3	286'
WKIT	Hendersonville, NC	102.5	20	1781'
WTOJ	Carthage, NY	103.1	.535	620'
KOOV	Copperas Cove, TX	103.1	.76	630'
WLMC	Okeechobee, FL	103.1	3	288'
WKNE-FM	Keene, NH	103.7	24.5	689'
WSOC-FM	Charlotte, NC	103.7	98	1059'
WKTC	Tarboro, NC	104.3	100	605'
KUUK-FM	Wickenburg, AZ	105.5	3	-266'
WKDE-FM	Altavista, VA	105.5	3	328'
WFMX	Statesville, NC	105.7	100	1517'
KXOF	Bloomfield, IA	106.3	3	300'
KHAA	Port Sulpher, LA	106.7	100	982'
KL	Casper, WY	106.9	100	1834'
KHIT	Bremerton, WA	106.9	100	819'
KKRB	Klamath Falls, OR	106.9	51	675'
WERZ	Exeter, NH	107.1	2.5	352'
WRJT	Monterey, TN	107.1	1.25	486'
KLQZ	Paragould, AR	107.1	1.92	409'
WQLT-FM	Florence, AL	107.3	100	1000'
KAKS-FM	Canyon, TX	107.9	100	1353'

KEY: D = Daytime, N = Nighttime, DA = Directional Antenna, DA1 = Same Pattern Day & Night, DA2 = Different Pattern/Power Day/Night, O = Omni Antenna Day and/or Night, * = Special Operation or Critical Hours, N/C = No Change.

solar power, not as an experiment as have others, but all the time. I hope it works out, Mike. Keep us informed.

Mike Vickers updates us on the story earlier this year of KERG, which had to reduce power due to proximity to a fire tower. The station is off the air and it seems permanent at this time.

And, as we run out of space, let's quickly update you on AM Stereo. Kahn has added four new stations to his list. Two on 1400 kHz with 1 kw are WSTC in Stamford, CT, and KART in Jerome, ID. Next is WLEO in Ponce, PR with 250 watts full-time on 1170 kHz. The biggie is WJXW, 50 kw daytime on 1530 in Jacksonville, FL. For a complete listing of AM stereo stations send \$2.50 to me. See the address at the end of this column.

Sanyo has a new boom box which looks very nice. It has dual cassettes with dual recording (new) and AM stereo, multi-mode reception. It also has high-speed dubbing and a graphic equalizer. Model number is MW 250. I've seen Sony's boom box model CFS-6000 for under \$100 and their new multi-mode AM stereo car radio, XR-Z37, is out. One of Sansui's home stereo receivers with multi-mode AM stereo has been seen for under \$150. They have several other models as I've mentioned before.

That's about it for this month, keep those cards and letters coming, folks. My address is P.O. Box 5624, Baltimore, MD, 21210.

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SATELLITE VIEW

BY DONALD E. DICKERSON

INSIDE THE WORLD OF TVRO EARTH STATIONS



Testing The GMF Gateway System

Depot personnel at the U.S. Army's Tobyhanna Army Depot in Pennsylvania have participated in the successful test of a new system that allows communications between tactical and strategic satellite terminals.

During early June, a team of depot personnel and representatives of the U.S. Army Satellite Communications Agency (USASATCOMA) operationally tested the Ground Mobile Forces (GMF) Gateway system. It was the first time that a tactical terminal at the depot was linked with a strategic gateway via satellite.

The test consisted of an active, secure satellite link between an AN/TSC-85A tactical terminal at Tobyhanna and an AN/FSC-78 strategic terminal at Fort Detrick, MD. The link-up was achieved via the Defense Satellite Communications System (DSCS) Eastern Pacific satellite.

The test confirmed that the GMF Gateway will offer enhanced communications for operations in remote areas, improve long-haul communications for force management by rear-area commanders and meet other previously unfulfilled requirements for strategic-tactical communications by deployed forces, says Jim Mangino of the depot's Production Engineering Division.

The actual test consisted of an operational check of the TSC-85A, a loopback test of the 85A where a signal is "bounced off" the satellite and received by the transmitting terminal, and the live link between Tobyhanna and Fort Detrick. The link was maintained for two days as test personnel passed traffic over the hook-up.

Three depot personnel were at Fort Detrick during the test period to configure the GMF Gateway equipment for various test scenarios, ensure equipment operation and monitor testing. The three employees are technicians in the depot's SATCOM/Data Systems Section.

The GMF Gateway is designed and built at Tobyhanna for USASATCOMA. It was designed to augment the Digital Communications Satellite Subsystem, another major project performed by the depot for USASATCOMA. Eventually, 15 GMF Gateways, each consisting of several tele-



John Jeffrey of Tobyhanna Army Depot's Engineering Lab Section and Sp4 Charles E. Smith, U.S. Army Satellite Communications Agency, check data during an interface test of a tactical satellite terminal at Tobyhanna and a strategic terminal at Fort Detrick, MD. (U.S. Army photo by Tony Medici.)

phone booth-sized racks of equipment, will be installed at sites around the world, says Ed Hutchko, depot project coordinator for GMF Gateway.

USASATCOMA-designed tactical terminals are highly-mobile systems for rapid deployment to the most remote regions of the world. Strategic terminals are normally located at fixed sites, are larger and have greater capabilities.

The TSC-85A is installed in a shelter and is truck-mounted. It uses an 8' diameter dish. By comparison, the FSC-78 strategic terminal utilizes a 60' diameter dish.

The successful test of the GMF Gateway is the latest achievement in the long and fruitful relationship between Tobyhanna and USASATCOMA, which is headquartered at Fort Monmouth, NJ, and maintains a field office at the depot. PC

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Sensitivity And Selectivity

What To Look For In A Good Scanner Receiver

This month let's take a look at two technical figures that always accompany the specification sheet on a scanner receiver. The terms "sensitivity" and "selectivity" indicate the scanner's ability to pick up extremely weak, distant stations while at the same time discriminating against local strong stations on an adjacent channel. A scanner that lacks either sensitivity or selectivity may not give you the reception you desire, but I'm happy to say that modern name-brand scanners usually feature top-notch receivers that boast good sensitivity and selectivity figures.

Sensitivity Measurement

The ability to pick up extremely weak signals is measured in the sensitivity figure "microvolts per meter," simply abbreviated " μV ."

Two methods of rating sensitivity are available, either SINAD or the 20 dB quieting method. SINAD is usually used for FM scanner monitors and FM transceivers because we use a modulated carrier which gives an indication of not only sensitivity but receiver band width to audio power output. The word SINAD stands for signal, noise, and distortion. The Electronics Industry Association (EIA) defines SINAD sensitivity of a scanner monitor as the minimum value of a modulated RF input voltage that will produce at least 50 percent of the receiver's rated audio power output, with a SINAD ratio of 12 dB or better, where the SINAD ratio is:

$$\frac{\text{Signal} + \text{Noise} + \text{Distortion}}{\text{Noise Distortion}}$$

If the signal input level is advanced, the amount of signal required to produce full-rated audio output can be determined. If the audio output of a scanner is rated at 1 watt, the voltage across a 4-ohm output (with a speaker or 4-ohm dummy load connected) will be 2 volts. The voltage is equal to the square root of the power times resistance. At 10 mW, the voltage is .2 volts; and at 50 mW, .45 volts.

Another way of determining sensitivity is the very simple "20 dB quieting" method. A test carrier is slowly increased until the unmodulated RF input voltage reduces the unquieted scanner noise output by 20 dB—or 1/10th of its original voltage.

If the literature indicates a receiver sensitivity of .5 microvolts or 20 dB noise quieting, it means that the reception of a .5 volt signal will be 20 dB (or ten times) less than

the noise present without any incoming signal. This is why we use the word "quieting."

As sensitivity figures drop to lower values, it means that the ultimate scanner receiver sensitivity is better. In other words, a scanner rated at 1 microvolt sensitivity per 20 dB quieting is far better than a receiver rated at 2 microvolt sensitivity. Most scanners are rated well below 1 microvolt sensitivity, so .5 would be better than 1 or 2 microvolt sensitivity—.25 would be better yet! Some of the very latest scanners now give us sensitivity figures of .1 microvolts for 20 dB quieting. This is extremely good.

When looking at sensitivity figures, look for figures at .5 microvolt for 20 dB quieting, or better.

Selectivity

Selectivity is the ability of your scanner to pick out weak stations on the desired channel from very strong local stations on an adjacent channel or nearby frequencies. This is a tough task for your scanner if you live in a large metropolitan area with thousands of transmitters all on the same band. Using an outside antenna—and we hope that you all do—also adds to the job of the scanner to exclusively receive and pass through to the speaker only those on-channel calls.

You may recall the early days of citizens band when radios weren't very selective at all. A CB set with poor selectivity might pick up channels 8, 9, and 10 as well as 13, 14, and 15 when the receiver was actually set on channel 11. Those early "super regenerative" CB sets had great sensitivity, but absolutely no selectivity!

CB sets and scanner radios now feature superheterodyne circuitry that feature extremely narrow RF and IF amplifiers that only allow the reception of the emission bandwidth of a single channel to come through to the audio amplifier section. In other words, when you are listening to an ambulance company operating on 155.60, a good selective receiver won't pick up the other nearby ambulance company operating on 155.175 and 155.145—15 kHz adjacent channels.

Today's modern scanner receiver offers top selectivity through superheterodyne single, double, and triple conversion receiver techniques. Selectivity figures are expressed in minus decibel reception to an adjacent channel frequency. Selectivity measurements are usually listed 7.5 kHz and 18 to 25 kHz from center band frequency. A

scanner rated with maximum selectivity at 50 dB (± 18 kHz) can be interpreted to mean that signals beyond 18 kHz away from the center frequency will be reduced and rejected at least 50 decibels below the carrier. It's the shape factor of the selectivity crystal filter that ultimately determines how sharp a scanner receiver tunes. It's also important to look at the minimum selectivity figures for splinter frequencies that are separated very close to your desired channel. A good minimum selectivity figure might be 6 dB at ± 7.5 kHz.

When looking at the spec sheets, always look for the very highest dB rejection number for a specific kilohertz frequency. Selectivity rated at 7 dB for ± 7.5 kHz is a better figure than 5 dB for ± 7.5 kHz. A selectivity rating of 50 dB for ± 25 kHz is not as good as a 70 dB rating at ± 25 kHz. The higher the dB rating, the greater the amount of selectivity to reject adjacent channel strong signals.

Specs or Fantasies?

There has always been the joke that radio receiver manufacturers simply copy each other's sensitivity and selectivity figures when making out the sales brochures. While I doubt that this is entirely true, you will find that the majority of sensitivity and selectivity figures found on sales brochures are almost identical. Compare them for yourself.

Where you will find a real difference in sensitivity and selectivity is directly dependent on the price of the receiver. More expensive receivers generally feature additional stages of filtering for increased selectivity. The more expensive scanner monitor may also utilize more expensive field effect transistors (FET) for added sensitivity. The old "you get what you pay for" certainly holds true for scanner monitors—buy a cheap one, and it may not have the sensitivity and selectivity of more elaborate and expensive scanners.

I have found that most scanners offer a minimum of .5 microvolts per meter sensitivity throughout their tuning range. On pocket scanners that require crystals, it should also be noted that this .5 microvolt figure only applies to a very narrow band of frequencies within the main frequency spectrum. In other words, a pocket crystal scanner may indicate that it tunes all frequencies between 30 and 50 MHz—but for maximum sensitivity, the receiver must be "peaked" within 3 MHz of the desired crys-

tal channel. If you have an old crystal pocket scanner receiver, and it's not doing very well on sensitivity, chances are you can dramatically improve reception by letting a technician "peak" the receiver section for the crystal frequencies installed.

On programmable scanners, a very special receiver follows the tuning of a VCO and always presents the very best of sensitivity all the way out to the edge of each band. In Electra Bearcat scanners, this patented tuning system is called "track tuning" and it works well. No matter what frequencies you program into the scanner, "track tuning" peaks the receiver instantly to the desired channel.

More stages of filtering add to better selectivity. More filters are usually employed in physically larger scanners—which means that you may suffer a slight loss of selectivity when you use a pocket scanner as opposed to a regular programmable home scanner. While crystal filters are small, they still take up a lot of room in a scanner—and this is why most pocket scanners are indeed sensitive, but may suffer slight amounts of adjacent strong channel bleed-over.

Add-on Devices

Accessory manufacturers provide preamplifiers to boost scanner sensitivity. While indeed the preamps boost both signal and noise by as much as 10 or 20 dB, any preamplifier used on an FM scanner receiver generally does not produce a dramatically stronger signal as opposed to background noise. Quite simply, turn on the preamp and everything simply gets louder—not necessarily clearer. If a simple preamplifier really boosted the intelligibility of a weak signal, you can be sure that scanner manufacturers would simply include this type of preamplification inside their product. I'm not saying don't buy a preamplifier—just don't expect that it's really going to help out on weak signal reception when in the FM mode.

An adverse side effect of an external preamplifier to a scanner receiver is the introduction of "intermod"—out of band signals that are injected into the scanner receiver because of over-sensitivity to the scanner's normal RF input section. If you use a scanner with an external preamplifier and are plagued by random signals that you know aren't on the frequency you are receiving, turn off the preamp, turn up the volume, and use your scanner as it was originally intended. Again I repeat—if there was a simple preamp solution for better weaker signal reception, manufacturers would have surely included it in their design.

Same thing with selectivity add-on devices—these will sometimes help if you are plagued by a local FM music broadcast station coming through on selected VHF channels, but no add-on selectivity device will cure the problem of adjacent channel selectivity. That can only be achieved by the internal crystal filters already added by the manufacturer to the scanner. Again, if there was a simple way of going to a better filter or

more filtering, manufacturers would have done it. You're getting the utmost from your scanner as it was originally produced by the factory.

If you're looking for the best, buy the best model that is available. Take those extra dollars you were going to invest on add-on devices and put them into a good antenna system for added sensitivity. If you have

problems with one local company and adjacent channel selectivity, consider the very popular scanner beam antenna that will allow you to "null out" the interfering adjacent channel signal.

Today's scanners have never been more sensitive or selective. Buy the best, and you won't ever have to worry about these two figures again. **PC**



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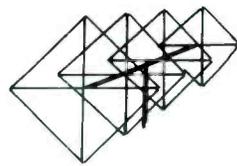
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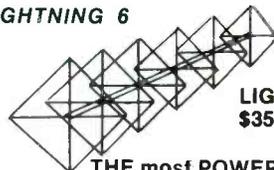
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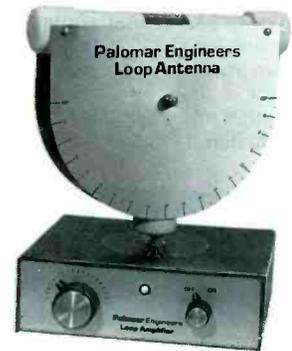
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Where Oh Where Do I Send . . .

There still is understandable confusion about what to send to SCAN and what to send to *Popular Communications*. Even we were confused at first, so don't feel alone! Here's a brief rundown you may want to save for reference.

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SCANNER SCENE

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

How good are you at being a frequency finder? When a service vehicle drives by and you see a six-inch whip antenna on top of the truck, do you know where to search to find the driver's radio frequency? When a police officer picks up a walkie-talkie that has a six-inch rubber antenna, do you know how to tell whether it is on VHF high-band or UHF?

One of the best clues in determining a user's radio frequency is to get a good view of their antenna, whether it is base, mobile or handheld. Because there are so many different antenna designs, it is impossible to determine the user's operating frequency on all occasions. The antenna manufacturers are constantly coming up with new designs to go up against the competition, thus, there are always a few weird looking antennas out there in use.

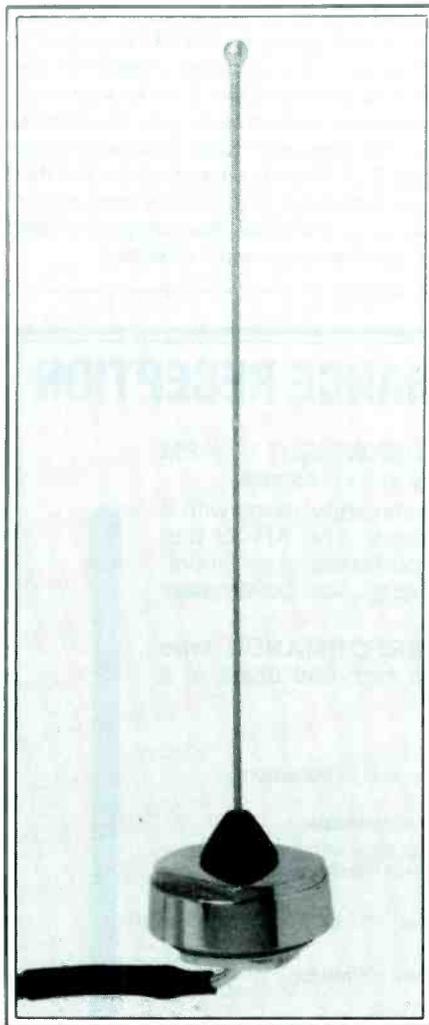
However, antennas generally fall into specific antenna designs, particularly for mobile use. The length of an antenna determines on what frequency it will operate best because the antenna is cut to the wavelength of the operating frequency. Mobile antennas are generally cut to a quarter-length of the operating frequency's wavelength. Quarter-wave antennas usually do not have a coil at their base, although some may have a spring to absorb jolts from overhead objects such as tree branches.

A simple formula will tell you the user's approximate operating frequency if you measure or guess the length of a quarter-wave antenna, providing the radio technician cut the antenna to the proper length. Divide 234 by the length of the antenna in feet (round off inches to tenths of inches) and it will give you the approximate operating frequency. For instance, if you saw a quarter-wave antenna on a police car that was about 18 inches long, divide 234 by 1.5 (that's the length of the antenna in feet) and you get 156 MHz. Chances are that the police department is using a frequency around 155-156 MHz. At least you know where to search. A listing in a local frequency directory might also help you find the exact frequency. Every serious scanner user should purchase a scanner directory from their local radio store.

Some general rules for quarter-wave antennas follow:

- VHF low band (30-50 MHz)—whip is 5 feet to about 8 feet tall.
- VHF high band (148-174 MHz)—whip is 16 to 18 inches.
- UHF (406-512 MHz)—whip is about 6 inches.
- 800 MHz—whip is about 3 or 4 inches.

If the quarter-wave antenna is just a mere 2 inches, chances are that you've stumbled



The quarter-wave antenna is the simplest mobile antenna for two-way radio. Its length can be cut to provide coverage for any frequency between 108 and 900 MHz.

across a Ham operator who uses the 1296 MHz band.

Another popular type of communications antenna is one that has a coil at the base. The coil contains wire that is wrapped around inside the plastic housing and electronically makes the antenna longer than it actually is; in essence, it fools the radio in making it think the antenna is a half-wavelength or full-wavelength. The longer the antenna, the farther the radio will transmit. Here's what to look for when determining the band a coil antenna operates on:

- VHF low band—35-inch whip with a 5-inch coil at the base of the antenna.
- VHF high band—40-inch with a 3-inch coil at the base.
- UHF—32-inch whip with a 3-inch coil in the center of the antenna. (There also is a

type of UHF antenna that is about 35 inches long and looks like a car's AM-FM radio antenna, except that it has a gray band in the center.)

- 800 MHz—18-inch whip with a coil in the center of the antenna.

Base antennas come in so many different types and designs, we really can't cover all of them here. There are omnidirectional antennas, also known as ground planes in some instances; dipole antennas (they're the stick antennas that look like they have "ears" on one or both sides all up and down the antenna); and directional antennas such as yagi antennas, which are beam antennas that are pointed in the direction they are intended to transmit to. To learn about the various types of base antennas, it might be best to get your hands on a catalog put out by a major manufacturer on commercial two-way antennas or look at the ads in some of the magazines published for two-way radio users and dealers (some can be subscribed to for free if you have a good reason for receiving it).

The majority of antennas on handheld radios are rubber-coated and are known as "rubber duckyies" these days. A big, long rubber antenna on a walkie-talkie would indicate low-band usage. A six-inch rubber antenna would indicate high-band usage, and a skinny six-inch rubber antenna would indicate UHF usage. A short, stubby rubber antenna also would indicate UHF usage. Handhelds operating on the 800 MHz band aren't in widespread use, but you can't miss it if you see one because the rubber antenna seems to be two sections, a thick base with a tapered skinny top section. There are other variations of handheld antennas, but these are the most prevalent.

There are other ways to determine frequencies. The easiest method is to use a portable frequency counter, though the cost of the equipment may be prohibitive. I have, however, seen handheld units selling for as little as \$50 that do nothing other than read out the frequency of the closest transmitter. With such a handheld unit, you could walk right up to a mobile unit while the driver was transmitting and the frequency would read out on the display—simple and painless.

The most direct method of discovering a frequency is to call up the dispatcher and ask. Explain that radio monitoring is your hobby and give a good reason why you want to monitor their communications. If you demand the information, the dispatcher will most likely exercise his or her right to hang up. One time I wanted to find out a particular hospital's new paging frequency. I called up the hospital's switch-

board, explained that I was getting interference from the paging (which I was indeed), and asked the operator to look at the radio license that was mounted above the paging terminal. After she found the license on the wall, she read off the call sign, thinking that it was the frequency. Eventually she figured out the information I was seeking and I was told the frequency as well as the power output on their transmitter.

Another time, I wrote a letter to a cable TV company to find out what frequency they were using for dispatching service crews. I then received a letter from a company vice president that asked why I wanted the information and who I was in wanting to

monitor their radio conversations. I wrote back explaining that I was a radio hobbyist who likes to know what goes on around town. I also stated that the information I requested was a matter of FCC records and that I could seek the information from that federal agency if I so desired. The veep wrote back saying that he had no intention of releasing the company's frequency. He must have thought I was a nut for wanting to listen to his workers' radio calls. Needless to say, the company's radio channels showed up in FCC files a few months later and they were licensed on two channels, not just one. I've since published that company's radio frequencies in a scanner directory!

Another way of learning a new frequency is quite a simple one. In most areas of the country, before a public agency (such as a police department or highway department) can purchase new radios, they must seek competitive prices by a process of public bidding. In many instances, an agency has already determined that they want to purchase a particular manufacturer's radio equipment. Subsequently, they will write up the bid specifications for that particular manufacturer's gear. For instance, the bid specifications may request that the mobile units transmit with a power output of 45 watts. The already chosen manufacturer's mobile radios might be the only ones on the market that have an output of 45 watts. They don't want a 30-watt radio or a 50-watt radio. Thus, no one else is able to submit a bid except that particular manufacturer. These bid specifications are public information and you have every right to walk into your town hall and ask to see the specs. Sometimes these bid specs are more general in specifying the operating frequency, such as "radio must be capable of operating on two channels in the 450-470 MHz band." With that knowledge and the knowledge that police departments generally operate in the 453 and 460 MHz bands, you'll know where to search when the new system is bought and put on the air. Other bid specs might be more specific. Not only might they mention the operating frequency, they might also mention the tone squelch (CTCSS or PL) frequency to be used in the system. Public info can be used to your advantage here.

Another trick to learning frequencies is to befriend a radio technician who repairs two-way radios. Chances are you'll find one who is also a member of your radio club, or if you're a volunteer with a fire company or rescue squad, one of the members might be a radio tech. There actually are radio techs who are diehard scanner nuts; they're out there if you look. I know of one person who has contact with several radio techs and, through them, has access to their computer-generated frequency lists in exchange for some handwritten notes and codes used by some agencies. You also might want to monitor some radio repair companies' own radio channels as they discuss the frequencies used by their clients. A lot of the radio techs are Hams and they'll be yakking away on a business band repeater just as if they were chatting on the Ham bands.

We'd like to hear from you here at POP'COMM. Tell us how you found a frequency (short of looking it up in a directory or FCC files). We can also use photographs of your monitoring posts, dispatching consoles, towers and two-way radio users. If you have ever received a unique QSL from scanner listening, we'd like to publish it for others to see (a good photocopy would suffice). We also welcome your questions, frequency lists and comments. Write to: Chuck Gysi, N2DUP, Scanner Scene, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909.

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DESIGN FEATURES:

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CIRCLE NO. 178 ON FREE INFORMATION CARD

Scanning The:

New Michigan State Police Network



Here's The Revised MSP Communications System, In Detail!

BY RICK MASLAU, KNY2GL

A POP'COMM reader from Michigan who wishes to remain anonymous (because he's a law enforcement officer) furnished us with details of the recently implemented Michigan State Police communications system.

This system differs from the earlier system that had utilized only four frequencies. The new system uses eight frequencies, with three of those frequencies in use throughout the entire state.

The mobile units operating in the MSP system are established according to a formula. MSP vehicles use identification consisting of the Post number followed by digits representing the individual unit (Unit 462 would be the second mobile unit of Post 46 in Battle Creek, for example). When digits between 1 and 59 follow the Post number, the vehicle is an MSP unit. Local agencies operating in the MSP system are numbered with 60 through 89 after their area's MSP Post number. Numbers 90 through 99 after a Post number are Motor Carrier officers. If you hear mobile units identifying with numbers between 9900 and 9999, they are federal agency vehicles.

Readers are invited to send in state and major metropolitan area law enforcement agency station rosters and/or signal codes used by those agencies.

Michigan State Police

Freq.	MHz	Usage
F-1	42.74	Car to Base (Dept. of Natural Resources, Motor Carrier Officers & those local agencies dispatched by MSP)
F-2	42.58	Base to Car (paired with F-1, also statewide frequency)
F-3	42.48	District (all posts)
F-4		Posts (see list for frequency assignment)

MSP Posts

Post #	Distr. #	Location	F-4 (MHz)
11	1	Lansing	42.94
12	1	Brighton	42.64
13	1	Ionia	42.64
14	1	Ithaca	42.02
15	1	Owosso	42.68
21	2	Northville	42.68
22	2	Romeo	42.64
23	2	St. Clair	42.68
24	2	New Baltimore	42.86
25	2	Flat Rock	42.94
26	2	Ypsilanti	42.86
27	2	Pontiac	42.94
28	2	Erie	42.64
29	2	Freeway Post	42.02/42.68
31	3	Bay City	42.68
32	3	East Tawas	42.68

33	3	Bad Axe	42.02
34	3	Sandusky	42.86
35	3	Flint	42.86
36	3	West Branch	42.86
37	3	Bridgeport	42.68
38	3	Lapeer	42.02
39	3	Caro	42.94
41	4	Jackson	42.68
42	4	Clinton	42.02
43	4	Coldwater	42.64
44	-	Tekonsha (closed)	-
45	4	Jonesville	42.94
46	4	Battle Creek	42.86
51	5	Paw Paw	42.68
52	5	White Pigeon	42.02
53	5	Niles	42.94
54	5	New Buffalo	42.64
55	5	South Haven	42.94
56	5	Wayland	42.02
57	5	St. Joseph	42.64
61	6	Rockford	42.68
62	6	Read City	42.64
63	6	Mt. Pleasant	42.94
64	6	Grand Haven	42.64
65	6	Newaygo	42.02
66	6	Hart	42.94
67	6	Lakeview	42.86
71	7	Traverse City	42.86
72	7	Cheboygan	42.68
73	7	Gaylord	42.94
74	7	Alpena	42.86
75	7	Houghton Lake	42.68
76	7	Cadillac	42.02
77	7	Manistee	42.68
78	7	Petoskey	42.02
81	8	Negaunee	42.64
82	8	Newberry	42.86
83	8	St. Ignace	42.68
84	8	Manistique	42.94
85	8	Gladstone	42.68
86	8	Iron Mountain	42.94
87	8	Wakefield	42.68
88	8	L'Anse	42.94
89	8	Stephenson	42.86
90	8	Calumet	42.86
91	8	Munising	42.02
92	8	Iron River	42.02
93	8	Sault Ste. Marie	42.94

The "I" (Intelligence) Squad and Detectives (all areas):

165.665	"Red"
154.92	"Green"
155.46	"White"
155.505	"Blue"

Michigan Emergency Public Safety Radio System (MEPSS):
155.685

PC

LISTENING POST

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

There are some interesting items on the shortwave news ticker this month.

As we alluded to last month, Radio Japan has reached an agreement with Radio Canada International whereby Radio Japan programs will air via one of RCI's "big gun" 250 kw transmitters at Sackville, NB. This was due to take effect on October 1st so be watching for increased strength and clarity on some Radio Japan broadcasts and remember, if it's *that* clear, it's probably Canada and not Japan, that you're hearing.

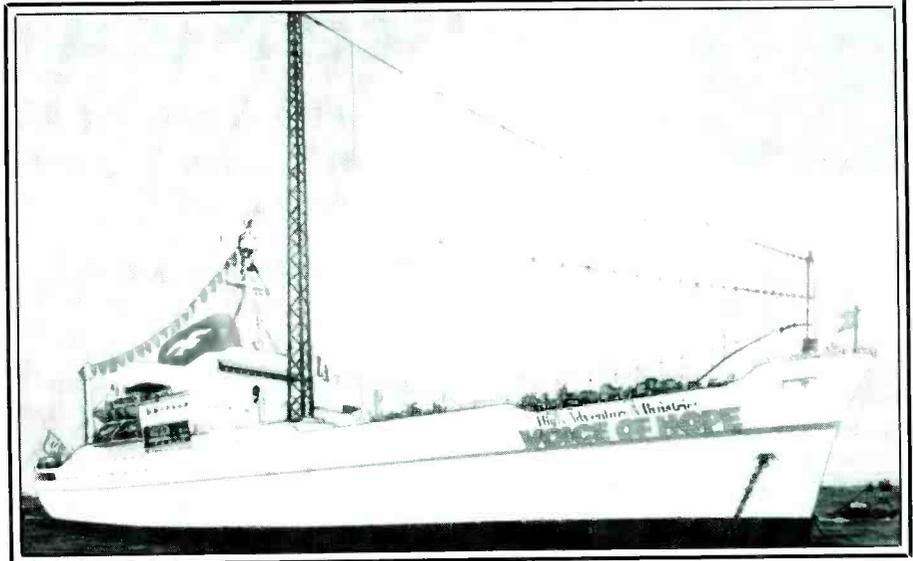
Adventist World Radio was once more testing in July, and again doing so on 15460 — as early as 1800 and as late as 0100. The tests don't seem daily, nor are they being heard with much strength. A number of DXers have picked this one up already (not us, yet!). The address announced for reception reports is P.O. Box 1177, Alajuela, Costa Rica.

The still-not-on-the-air KVOH in California had this tentative schedule beginning with the September transmitting season: 0600-0800 on 6005, 0300-0600 on 9852, 0100-0300 on 11930, 1400-1700 on 11940, 2200-0100 on 15250 and 1700-2000 on 17775. Tests were to have begun in late June (but apparently did not) using 17775 from 1700-2200.

Meantime, High Adventure Ministries, which operates KVOH, is sending out appeals now to begin the funding for their next project—the radio ship "China Clipper." The organization says it is due to be launched soon and will then be anchored off Singapore. The ship will have powerful shortwave transmitters intended for broadcasting to China, India, Japan, Australia, the Philippines, Indonesia and the rest of Asia. An on-air target date has been set for next spring. We'll keep you up-to-date on the progress of this one.

A new station is rumored to be going on the air from Honduras using 4780, a frequency formerly used by Radio Juticalpa in Honduras, as well as 6310. Tentative station name is Estacion Cultural y Educativa, operated by the Comite Internacional de Rescate from La Ceiba, Honduras.

Various groups have toyed with clandestine broadcasts to or from Colombia over the past couple of years. Now it seems there may be something a bit more longterm happening. Details on this one are still sketchy. It could even turn out to be legitimately licensed, who knows? Anyway, La Voz de Libertad is being heard on 6093, though apparently not on an everyday basis. In contrast to previous Colombian clandestines, this one is rightwing and is being heard around 1200 and 2330 on 6093. That frequency is very near to one formerly used by



The "China Clipper" from which High Adventure Ministries plans to broadcast to Asia using an effective radiated power of 1.5 million watts.

La Voz del Centro in Espinal (6095) a couple of years ago.

Speaking of clandestines, you can have yourself a pretty entertaining evening if you keep a close ear on the area around 6545-6565. The El Salvador word war is in full throttle most nights. Radio Venceremos is active for much of the evening, while the fake Radio Venceremos is sometimes to be heard, as well as the other FMLN station, Radio Farabundo Marti. If that's not enough, there's a strong music jammer floating around and one, possibly even two additional music jammers of lesser strength, according to expert DXer David Potter in Florida. One of those cases where 12 hands and four pairs of ears would come in handy!

Has someone taken a page from the Radio Earth book? Sunsplash Radio International announced a new, all-reggae music station on shortwave. But, really, it's to be a program and not an actual station with its own transmitter. "Reggae Radio" will use the transmitter of another station, as yet not chosen. There's no indication in the Sunsplash press release as to just when the broadcasts will begin. They are also seeking reggae bands who'd like to get their music on the air. Sunsplash Radio International can be reached in care of Daniel J. Miller, 1604 Plover Springs Drive, Plover, WI 54467.

Belatedly, but no less sadly, we must report the passing on April 29 of Dr. Clarence Jones who was the co-founder of HCJB. Jones, along with Dr. Reuben Larson was a pioneer missionary broadcaster. The pair started HCJB in 1931. Dr. Jones was 85 years old.



J. Ricker of Jacksonville, FL scans the bands from this well-equipped shack.

Ah, the mail! Kevin Story of Midland, Texas asks us a quart of questions. We'll try and work in just a few of the answers. The Radio Malaysia you heard in English was probably the outlet on 4985 and is in Kuala Lumpur, not Sabah. Storms and other bad weather don't really affect DX per se, except for the increased static level. Most listeners wisely unplug receivers and antennas during local storms. As for the reply time for some of the stations you mentioned, it's impossible to provide concrete answers. A reply from any one of them may range from a few weeks, to several months, to not at all. Put together the best report you can, enclose IRCs or mint stamps of the country in question and keep trying.

John Maxwell of Wichita, Kansas says he's received a QSL from the Voice of Nicaragua, despite the fact that we said recently that they weren't replying. Yes, replies seem to be coming through now, John. Could it be that the answer to tough verifiers



SISTEMA ESTATAL DE RADIODIFUSION DE NICARAGUA
LA VOZ DE NICARAGUA
 Voz Oficial del
 GOBIERNO DE RECONSTRUCCION NACIONAL

"1986: A 25 AÑOS, TODAS LAS ARMAS CONTRA LA AGRESION"

John Maxwell

Managua, May 22, 1986

Dear Compañero Listener:

From all of us at the Voice of Nicaragua- Short Wave International- I would like to thank you for your reception report.

Your report is very important to us, and we value the interest that you have in the revolutionary process evolving in this Central American country.

Despite the brutal aggression that Nicaragua suffers from the Northamerican government, which generates a very critical situation, we make every effort to emit the message of the Sandinista Popular Revolution, as well as that of neighboring Central American countries, the Caribbean and all of Hispano-America.

As a souvenir from your companion broadcaster, we are sending you a small banner, sticker and some information, in the hopes that you continue listening to us, and that the solidarity between our countries continues to grow.

I urge you to write to us again at Post Office Box 248, Managua, Nicaragua Libre. Our transmission frequency is at 6.015 kilohertz--international band of 49 meters. We broadcast at 05:00 until 12:00, and again at 16:00 until midnight (local time). Our time is 6 hours behind GMT or UTC.

Fraternally,


 Rodolfo García G.
 Director of International Short Wave
 The Voice of Nicaragua



John Maxwell landed one of the first replies from the Voice of Nicaragua.

is simply making mention of them in this column? John also got a banner, sticker and a booklet entitled *This Is the Truth* which is a copy of a speech made by Nicaraguan President Daniel Ortega.

Bruce Gilson in Silver Spring, Maryland wonders how to report relay stations to the column. Preferably, they should be listed for the country in which the relay is located, Bruce, but we know a lot of readers are unsure which is which sometimes, and frankly, we get confused too, at times. A good log such as *Radio Database International* helps immeasurably. So, if possible, report loggings by country of transmitter location. If not, we'll try and work with what we receive.

Andrew Crowell in Nashville, TN would like to hear from still more readers who like the big and heavy shack warmers—those great old "boat anchor" receivers. His address is 721 Devon Lane, Nashville, TN 37211. One Listening Post reader responding to Andrew's last request for contacts,

gave Andy two old HRO-60's! Can't beat that price!

Len Kaminski in Marshfield, WI is looking for an address for Radio Vilnius. Try this one, Len: Radio Vilnius, 49 Konarsky St., Vilnius, Lithuanian SSR, USSR.

Interference to Radio Australia's 9580 frequency has Peter R. Vermeer of Sherwood Park, Alberta upset. He asks, "Aren't there international regulatory bodies that can stop the interfering?" Would that it were so, Peter. But it is mostly in name only. The International Telecommunications Union has no enforcement powers so all you can do is write to the offending station with your complaint and hope they move. Incidentally, we haven't had any other reports of QRM to Australia on 9580.

If you DX from the Des Moines, Iowa area, then David A. Turpin, 6204 Franklin in Des Moines, zip code 50322, would like to hear from you about the possibility of forming a local/area listening group.



Catch Radio Casino in Costa Rica and you might receive this pennant as a thank-you for your report. (Courtesy of A. Crowell)

Robert Barron in River Ridge, Louisiana wonders if the VOA African feed on 15445 is still via the Liberian relay station as listed a couple of years ago. That's how it's carried in the 1986 *World Radio TV Handbook* and the 1986 *Radio Database International* listings, Robert, so as far as we know it is, indeed, via Liberia.

Robert is also curious about the South African service he heard on 4835. Radio South Africa is one of the other government broadcast services, indented for domestic use, and different from the Radio RSA external service, although both use the transmitting facilities at Meyerton.

Let's keep those cards and letters coming in! We need your loggings (by country with space between and your last name and state abbreviation after each) along with QSL copies or originals if you have extra, schedules, clippings, shack and station photos—just about anything related to shortwave!

The following deserve your applause: William L. Peterson, Muskegon, MI; Greg LaValle, Korea; Robert Barron, River Ridge, LA; Larry Rempala, Pompano Beach, FL; Ray Hafeli, Mission, BC; Michael Loftus, Springfield, OR; Mark A. Northrup, Ann Arbor, MI; George R. Neff, Niles, OH; Ed Janusz, Bricktown, NJ; Sheryl Paszkiewicz, Manitowoc, WI; Andrew Crowell, Nashville, TN; Bruce R. Gilson, Silver Spring, MD; and K.J. Hobbs, Hamilton, ONT.

'Til next month . . . good listening!

Abbreviations Used In Listening Post

AA	Arabic
BC	Broadcast/ing
CC	Chinese
EE	English
FF	French
GG	German
ID	Identification
IS	Interval Signal
JJ	Japanese
mx	Music
NA	North America/n
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

SWBC Loggings

ANTIGUA: BBC Relay on 9510 at 0605 w/nx, then British nx at 1017 (Loftus, OR).
AUSTRALIA: R. Australia, 5995 at 0455 but very poor copy due to QRM from VOA until 0800. In Pidgin 1000 to 1100, drowned by WHRI s/on at 1100. On 9580 when tuned in at 1040 (Gilson, MD); Talk & local nx at 1215 on 9580 (Northrup, MI); 15160 at 0540 (LaValle, Korea); 15230 w/nx at 2300 (Loftus, OR); 15400 at 0420 & 17715//17750 at 0436 all EE (LaValle, Korea).
AUSTRIA: R. Austria International, 9755 in EE at 0430, FF at 0400; 9770 w/"Report From Austria" at 0330 (Loftus, OR).
BELIZE: R. Belize, 3285 in EE at 0436 w/talk about scuba diving (Barron, LA). Was off the air for several weeks-- Ed.
BRAZIL: R. Globo, Rio, 6030 at 2309 in PP w/easy listening ballads, talk, ID (Paszkievicz, WI).

Radiobras, 11745 at 0230 in PP w/"Brazilian Folklife." Very strong (Hafeli, BC).
BULGARIA: R. Sofia, 7115 at 0300 w/nx (Northrup, MI); Home service via Stolnik on 7670 w/"Horizont" program-- light mx & announcements in Bulgarian at 0330 (Crowell, TN). Any reader ever able to QSL the Stolnik outlet?-- Ed.
CANADA: CFRX, Toronto, 6070 at 0700 in EE, local ads relayed from BCB station CFRB (Hobbs, Ont.); 0803 w/nx & mx (Gilson, MD).
 CKZU, Vancouver BC, 6160 heard at 2346 w/Expo 86 broadcasts (Loftus, OR).
 CKFX, Vancouver BC, 6080 w/ID's as "WX-1130" & country music, local commercials (Loftus, OR).
 CBC Northern Quebec Service, 9625 at 1145 w/relay of CBM, Montreal. Rx nx, wx, cooking program, nx (Gilson, MD).
 Radio Canada Intrenational, 5960 at 0308 in EE (Neff, OH); 0000 to USA (Barron, LA); 5965 at 0135, 9650 from 1204 w/CBC nx (Gilson, MD); 9755 at 2335, nx at 2200 (Northrup, MI); 11720 at 1300 in FF, 1330 EE (Gilson, MD); 11855 & 11955 at 1220 (Northrup, MI); 15325 at 2030 in FF (Loftus, OR).
CHAD: Radiodiffusion National Tchadienne, N'djamena on 4904.5 at 0455 w/IS, anthem & YL w/ID in FF, into mx at 0500 (Crowell, TN).
CHINA: Radio Beijing, 6010 at 0202 in EE (Neff, OH); 6550 w/nx at 0835 (LaValle, Korea); 9535 at 1205 in EE w/world & China news (Loftus, OR); 9565 at 0506 w/EE nx, 15180 in EE at 0413 (LaValle, Korea). All w/exception of 6550 & perhaps 15180 are via France's French Guiana relay transmitter-- Ed.
CHILE: R. Sistema Nacional, 15140 in SS w/sports at 2147 (Loftus, OR).
COLOMBIA: Ondas del Meta, Villavicencio, 4885 at 1002 in SS w/ID's, time checks, vocals; goad level (Paszkievicz, WI).
 Radio Macarena, Villavicencio, 5975 at 1017 in SS w/announcements, vocals, ID (Paszkievicz, WI).
COOK ISLANDS: Radio Cook Islands, 11761.3 at 0442 in language w/time checks, island vocals, pop & country/western, nx at 0502 (Paszkievicz, WI); 0534 w/island mx (Loftus, OR).
CUBA: Radio Havana Cuba, 9550 from 1116 w/SS language sports, also SS nx at 1330 on 11770 (Gilson, MD); 9740 at 0245 w/mx & reports (Northrup, MI); 11760 at 2230 w/nx & commentary in SS (Loftus, OR).

CZECHOSLOVAKIA: Radio Prague, 5930 at 0115 in EE w/mx, talks, ID, tourist info (Neff, OH); 7345 at 0100 w/EE to NA (Barron, LA); 0300 w/nx (Northrup, MI); 11990 at 0300 w/EE nx (Janusz, NJ).
EAST GERMANY: Radio Berlin International, 6125 at 0145 s/on (Gilson, MD).
ECUADOR: Radio Jesus del Gran Poder, Quito, 5049.9, tentative at 1021 to 1102 in SS. Time checks, choir, rx talk, fading by 1100 (Paszkievicz, WI).
 HCJB, Quito, 6130 w/"DX Party Line" (Hafeli, BC); 0811 w/feature (Gilson, MD); 6230 at 0230 w/"Rhythms of Ecuador" (Northrup, MI); 9870 at 0145 w/world dx, rx program (Northrup, MI); 0230 w/DXPL (Neff, OH); 1210 w/rx drama on 11745 (Gilson, MD); At 1215 (Northrup, MI); 1230 on 15115//15155 at 0030 in EE (Hobbs, Ont.); 15270 at 1948; 17890 at 1300 (Gilson, MD).
ENGLAND: BBC on 5975 at 0132, 6120 at 0050, 7325 at 0156, 9510 at 1100 (Gilson, MD); 9510 at 1225 (Northrup, MI); 9590 at 0011 (Gilson, MD); 9915 at 0220 (Northrup, MI); 11775 at 1225 (Northrup, MI); 12095 at 1247 (Gilson, MD). Some of these are from relay sites outside of Great Britain-- Ed.
FINLAND: Radio Finland International, 15400 at 1400 in EE w/nx, topics (Hobbs, Ont.); 1300 to 1320 w/ID (Neff, OH); EE to NA at 1400 to 1500 (Barron, LA).
FRANCE: Radio France International, 1145 on 15365 w/nx (Northrup, MI).
FRENCH GUIANA: RFI Relay, 9535 at 0004 to 0026 in FF, also 1145 in SS on 9790 (Gilson, MD); 9800 w/EE nx at 0315 (Northrup, MI).
GABON: Radio Japan Relay, 9645 at 2335 w/"Let's Practice Japanese" (Loftus, OR).
 Africa Number One on 15200 at 1430 in FF w/mx (Hobbs, Ont.); 15400 at 1926 w/political mx against RSA, talks in FF, some EE & Afrikaans (Hafeli, BC).
GREECE: Voice of Greece on 7430 at 0129 in EE, heavy ute QRM (Barron, LA); 0158 w/flute ID in Greek, mx at 0200. Also on 11615 w/flute mx (Crowell, TN).
HAWAII: WWVH time station on 10000 at 2110 w/YL & time announcements before WWV time checks (Hobbs, Ont.). Stations sending time sigs are actually utes and not SWBC; as such, they should be reported to the Communications Confidential column-- Ed.

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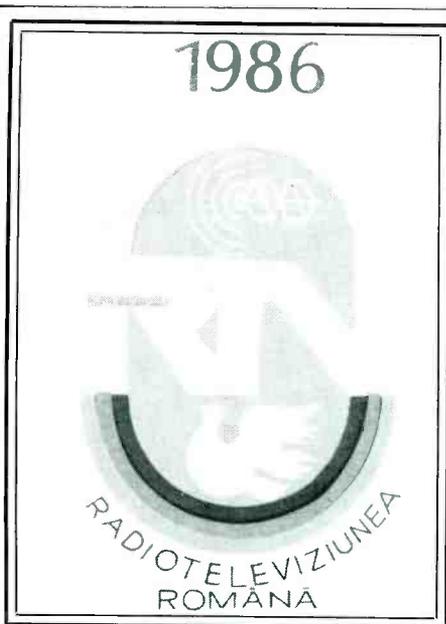
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It won't be long before stations begin sending out 1987 calendars. Radio Bucharest sent this one in 1986.

	JANUARY	FEBRUARY	MARCH
Su	5 12 19 26	2 9 16 23	3 9 16 23 30
M	6 13 20 27	3 10 17 24	3 10 17 24 31
Tu	7 14 21 28	4 11 18 25	4 11 18 25
W	1 8 15 22 29	5 12 19 26	5 12 19 26
Th	2 9 16 23 30	6 13 20 27	6 13 20 27
F	3 10 17 24 31	7 14 21 28	7 14 21 28
S	4 11 18 25	1 8 15 22	1 8 15 22 29
	APRIL	MAY	JUNE
Su	6 13 20 27	4 11 18 25	1 8 15 22 29
M	7 14 21 28	5 12 19 26	2 9 16 23 30
Tu	1 8 15 22 29	6 13 20 27	3 10 17 24
W	2 9 16 23 30	7 14 21 28	4 11 18 25
Th	3 10 17 24	1 8 15 22 29	5 12 19 26
F	4 11 18 25	2 9 16 23 30	6 13 20 27
S	5 12 19 26	3 10 17 24 31	7 14 21 28
1986			
	JULY	AUGUST	SEPTEMBER
Su	6 13 20 27	3 10 17 24 31	7 14 21 28
M	7 14 21 28	4 11 18 25	1 8 15 22 29
Tu	1 8 15 22 29	5 12 19 26	2 9 16 23 30
W	2 9 16 23 30	6 13 20 27	3 10 17 24 31
Th	3 10 17 24 31	7 14 21 28	4 11 18 25
F	4 11 18 25	1 8 15 22 29	5 12 19 26
S	5 12 19 26	2 9 16 23 30	6 13 20 27
	OCTOBER	NOVEMBER	DECEMBER
Su	5 12 19 26	2 9 16 23 30	7 14 21 28
M	6 13 20 27	3 10 17 24	1 8 15 22 29
Tu	7 14 21 28	4 11 18 25	2 9 16 23 30
W	1 8 15 22 29	5 12 19 26	3 10 17 24 31
Th	2 9 16 23 30	6 13 20 27	4 11 18 25
F	3 10 17 24 31	7 14 21 28	5 12 19 26
S	4 11 18 25	1 8 15 22 29	6 13 20 27

HUNGARY: Radio Budapest, 9835 at 0225 w/Dialogue" & s/off (Northrup, MI); 0315 w/DX program (Loftus, OR).

IRAN: Radio Baghdad, 11750 at 0300 w/western & AA mx, nx, listeners' letters in EE (Janusz, NJ); 9570x in EE 0300 to 0330, local mx, ID around 0315 (Rempala, FL).

ITALY: RAI, 9710 at 0355 in EE w/nx, vocals, bird IS (Paszkiwicz, WI); 11905 at 0138 w/IS, s/on at 0141 in Italian (Crowell, TN).

ISRAEL: Kol Israel on 7410 at 0100 in EE w/nx, mailbag program (Barron, LA).

IVORY COAST: Radiodiffusion Ivoirienne on 11920 in FF at 1837 to 1903 s/off w/highlife mx, ID, address (Paszkiwicz, WI); 7215 at 0623 w/highlife, commercials, pops, FF commentary at 0630 (Crowell, TN).

JAPAN: NSB Radio Tanpa, 9595 at 1155 in JJ w/talk by OM, ID by YL, 1 tone, nx (Paszkiwicz, WI); 0536 in JJ (Loftus, OR).

Radio Japan, at 0745 in EE on 9735//11955//15235 (Loftus, OR).

LIBERIA: VOA Relay on 15445 at 2218 w/"Issues In The News" (Barron, LA).

MEXICO: Radio Mexico International, 15430 at 0143 in SS w/sports coverage (Paszkiwicz, WI); 0019 in SS w/talks over jazz mx (Crowell, TN).

MONACO: Trans World Radio, 11735 at 0541 w/IS, ID in EE at 0545 & into AA. Splatter from Vatican on 11740 (Crowell, TN).

NETHERLANDS: R. Netherlands, 9895 at 0223 s/off (Northrup, MI).

NETHERLANDS ANTILLES: R. Netherlands Bonaire relay 6165 at 0301, also 9590 at 0305 (Loftus, OR); 9590 at 0245 (Northrup, MI). Trans World Radio, Bonaire, 11815 at 1225 w/rx program (Northrup, MI).

NICARAGUA: Voice of Nicaragua, 6015 at 0540 w/speech by Ortega translated into EE, EE nx at 0545 (Loftus, OR).

NORTHERN MARIANAS: KYOI, Saipan, 11900 at 1133, rock mx (Loftus, OR); Pops & "Super Rock KYOI" ID at 0531 on 15190 (Crowell, TN).

NORTH KOREA: Radio Pyongyang in Korean at 0247 on 4273, 3921 at 0311, 3221 at 0305, 4558 at 0320, 6250//6402 at 0424, 6598 at 0606, 9662 at 0400, 11679 at 0404, 15140//15157 at 0411, all in Korean (LaValle, Korea). Suspect your frequency readings may be off a bit, Greg--Ed.

PARAGUAY: Radio Nacional, 0200 in SS on 9750 & 8455 (SSB feeder?-- Ed.). S/off 0210 (Rempala, FL).

PHILIPPINES: Radio Veritas, 15254 at 0200 in EE w/world nx (LaValle, Korea).

PORTUGAL: Radio Free Europe, 11815 w/Hot 100 program in Rumanian at 2015. Portugal listed as site (Paszkiwicz, WI).

RUMANIA: Radio Bucharest, 5990 at 0204 w/frequencies, ID, address (Crowell, TN).

SEYCHELLES: FEBA, 11865 at 0301 to 0331 s/off. In Farsi w/talk, rx mx. ID's as Radio FEBA." IS is mx "What A Friend We Have In Jesus" (Paszkiwicz, WI).

SOLOMON ISLANDS: SIBC on 9545 at 0526

in EE w/U.S. pops, commercials (Loftus, OR).

SOUTH AFRICA (REP. OF): Radio RSA on 6010 w/EE to NA at 0200 (Barron, LA); 9615 at 0215 (Northrup, WI).

SPAIN: Spanish Foreign Radio on 9630 at 0015 w/nx, "Radio Club" historical program (Gilson, MD).

SWITZERLAND: Swiss Radio International on 12035 at 0407 w/DX program in EE, also 9725 at 0225 in EE (Janusz, NJ).

SWEDEN: Radio Sweden International sked in EE: 1400 on 11875//15345, at 2300 on 9695//11705, in Swedish at 0200 on 11705, at 1430 on 15345, 2330 on 9695 (Peterson, MI).

SYRIA: Radio Damascus, 12085 at 1936 w/AA mx, FF/YL announcer. RTTY QRL plus splatter from Kol Israel on 12080 (Crowell, TN).

TAHITI: Radio Tahiti, 11825 at 0519 w/island mx, pops, FF/OM announcer (Crowell, TN); 0526 in FF w/island mx (Loftus, OR).

TAIWAN: VOFC (via WYFR, Florida) on 5985 about 0130 w/Chinese pops (Gilson, MD); 2300 in Chinese, at 0100 in EE (Hobbs, Ont.).

UNITED ARAB EMIRATES: UAE Radio Dubai, at 1300 on 17775 in AA (Gilson, MD).

UNITED STATES: AFRTS on 9590 w/nx, mx, features, w/nx on 9700 at 1214, mx at 1345 on 11805 (Gilson, MD); 11805 at 1423 to 1510 w/mx fill (Neff, OH).

WYFR, 9605 EE lessons at 1155, on 11830 w/health program at 1245, on 11875 w/rx at 2015, in GG at 1730 on 17845 (Gilson, MD).

WRNO on 6185 at 0322 w/DX program, nx (Neff, OH); 7355 at 0125 w/jazz (Gilson, MD); 15420 at 1700, also 7355 at 0000 (Hobbs, Ont.).

Voice of America, 5995 at 0643 w/nx & talk. QRM from Australia after 0655 (Gilson, MD); 9455 at 0257 w/DX program, 11890 at 1215 in SS (Northrup, MI); 15410 at 2100 in EE to Africa (Barron, LA).

Radio Marti, 9570 in SS at 1212 (Loftus, OR). WHRI, 5995 at 1215 w/rx program (Northrup, MI); 11790 at 1335 w/rx (Gilson, MD).

KCBI on 11735 at 1703 to 1800 w/"Let's Talk" & DX program (Neff, OH).

USSR: 7115 at 0245 in EE (Northrup, MI); 0213 in EE on 7400 (Barron, LA); 0130 to 0148 on 7400, also 9600 (via Havana-- Ed.) 1130 to 1145, plus 11860 at 2030, 12060 at 2232 (Gilson, MD).

Radiostansiya Radina, 7105 at 0220 w/talk in RR, IS/ID at 0230 (Crowell, TN).

VATICAN: Vatican Radio w/rx services at 0547 on 11740 then into "Four Voices" program at 0600 (Crowell, TN).

VENEZUELA: YVTO, time station, 6100 at 0611 w/time tips, time announcements in SS (Hefeli, BC).

WEST GERMANY: Voice of Germany, 6145 at 0200 w/nx in GG (Northrup, MI); 6160 at 0815 in GG, also 6960 (via Antigua) at 1150, on 15210 at 2000 as well as on 17715 at 1300 in GG (Gilson, MD); 11730 at 0000 w/nx in GG (Northrup, MI).

YEMEN ARAB REPUBLIC: Radio San'a, 9780 in AA at 0255 w/sign off (Rempala, FL). **PC**

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You have sudden flashes of the past summer entering your mind. Golden skies. Balmy breezes. Laughter and play on the beach.

All those images remain in your memories as you glance at your video monitors with a sigh and watch lines of words pour forth from the many RTTY messages being sent by those aboard cruise ships in the Caribbean, Gulf of Mexico, and the Pacific.

Outside, the night air is becoming crispier; the temperature brings a chill to the body.

"I sure wish I could be aboard one of those ships instead of here," you tell yourself as the first snowflakes of the season drop lazily from the sky. You put on a sweater or add another chunk of wood to the flames in the fireplace and return to your video screens.

You don't have to pine any longer. Your dreams can be fulfilled for the price of a postage stamp and the following listing of cruise lines. After you monitor RTTY messages from various ships, send QSL cards and letters to them and request pictures of the vessels for your reply. Then, when you receive the pictures, you can sit back and dream of golden skies, balmy breezes, laughter and play on the beach . . .

American Cruise Lines, One Marine Park, Haddam, CT 06438. Ships: New Orleans and Savannah.

American Hawaii Cruises, 550 Kearny St., San Francisco, CA 94108. Ships: Constitution, Independence and Liberty.

Bahama Cruise Line, 4600 W. Kennedy Blvd., Tampa, FL 33609. Ships: Bermuda Star and Veracruz.

Carnival Cruise Lines, 5226 N.W. 87th Ave., Miami, FL 33166. Ships: Carnivale, Festivale, Holiday, Mardi Gras and Tropicale.

Chandris Cruise Lines/Fantasy Cruises, 666 5th Ave., New York, NY 10019. Ships: Amerikanis, Britanis, Galileo and Victoria.

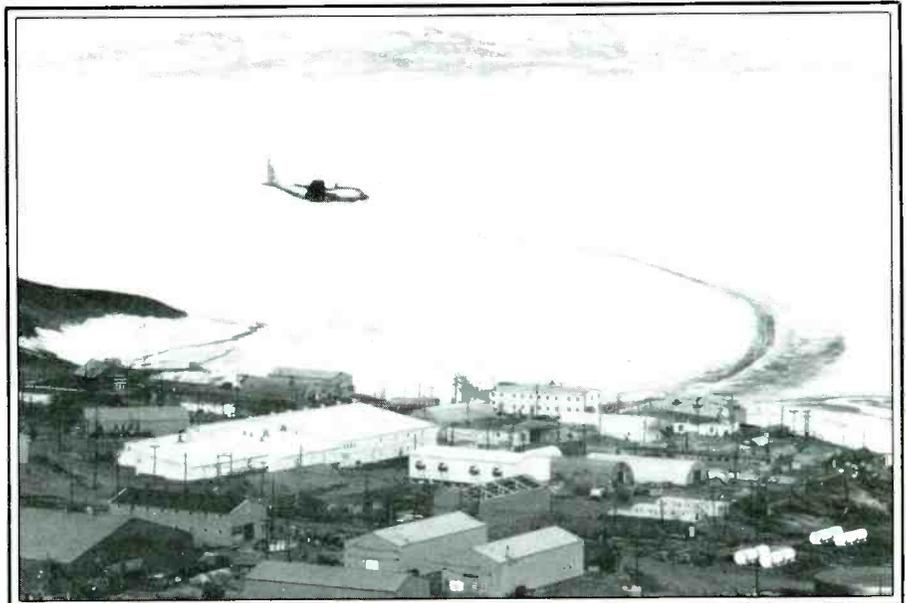
Clipper Cruise Line, 7711 Bonhomme Ave., St. Louis, MO 63105. Ships: Nantucket Clipper and Newport Clipper.

Commodore Cruise Line, 1007 N. America Way, Miami, FL 33132. Ships: Boheme and Caribe I.

Costa Cruises, One Biscayne Tower, Miami, FL 33131. Ships: Carla Coasta, Costa Riviera and Daphne.

Crown Cruise Line, P.O. Box 126968, San Diego, CA 92112-6968. Ship: Viking Princess.

Cunard Line and Cunard/NAC, 555 5th Ave., New York, NY 10017. Ships: Cunard Countess, Cunard Princess, Queen Elizabeth 2, Sagafjord and Vistafjord.



The winter months are an excellent time for monitoring distant RTTY stations such as this one—the U.S. Navy station at McMurdo Station, Antarctic. Look for its callsign, NGD, in the vicinity of 11025 kHz. (Photo courtesy U.S. Navy.)

Delta Queen Steamboat Co., 30 Robin St. Wharf, New Orleans, LA 70130. Ships: Delta Queen and Mississippi Queen.

Dolphin Cruise Line, 1007 N. America Way, Miami, FL 33132. Ship: Dolphin IV.

Eastern Cruise Lines, 1220 Biscayne Blvd., Miami, FL 33101. Ship: Emerald Seas.

Epirotiki Lines, 551 5th Ave., New York, NY 10017. Ship: Jason.

Exploration Holidays and Cruises, 1500 Metropolitan Park Bldg., Seattle, WA 98101. Ship: North Star.

Holland America Westours, 300 Elliott Ave., W. Seattle, WA 98119. Ships: Nieuw Amsterdam, Noordam and Rotterdam.

Home Line Cruises, Inc., One World Trade Center, Suite 3969, New York, NY 10048. Ships: Atlantic and Homeric.

Norwegian Caribbean Lines, One Biscayne Tower, Miami, FL 33131. Ships: Norway, Skyward, Southward, Starward and Sunward II.

Ocean Cruise Lines, 1510 S.E. 17th St., Ft. Lauderdale, FL 33316. Ships: Ocean Islander and Ocean Princess.

P & O Cruises, 2029 Century Park East, Suite 3000, Los Angeles, CA 90067. Ship: Sea Princess.

Paquet French Cruises, 1007 N. America Way, Miami, FL 33132. Ships: Mermoz and Rhapsody.

Premier Cruise Lines, P.O. Box 573, Cape Canaveral, FL 32920. Ships: Royale and Oceanic.

Princess Cruises, 2029 Century Park East, Suite 3000, Los Angeles, CA 90067.



NPX, the U.S. Navy's South Pole Station at Antarctica also can be monitored easily in the months ahead. The sign beneath the American flag reads, "Geographic South Pole. Average temp. minus 56° F. Altitude 9186 feet. Ice thickness over 9000 feet." Notice the radio transmission tower behind the flag. (Photo courtesy U.S. Navy.)

SHIP DIRECTORY

Call	Name of Ship	Call	Name of Ship
UZRC	Aleksey Tolstoy	ELBE5	Liberty Bell Venture
ENXA	Aleksandr Nevsky	OXMA	Louis A. Maersk
KHLD	American Spirit	SYVQ	Mari
6ZUP	Antares	SVDE	Merini
GNIE	Apollo (Royal Navy frigate)	BLHZ	Ming Universe
ICDE	Aquarius	PJCH	New Amsterdam
HCYL	Atlantic Ocean	LITA	Norway
JXRU	Bow Fagus	WFJK	Puerto Rico
3ELR3	Daphne	WRGO	San Juan
ELYN	David Gas	KFTU	Sea Drift
SQKG	Dzieci Polskie	9HCP2	Seawind
NRXD	USCGC Evergreen	UIFX	Svoboda
H9FU	Freedom	DNQM	Titanscan
NAAO	USCGC Glacier (ice breaker)	56CX	Viking Eagle
SVCU	Golden Flag	SLGB	World Score
HCBT	Isla Baltra	UDSN	Zenta Ozola
GBBM	Island Princess	SQMX	Ziemia Sulska
SYSG	Konkar Victory		

Greek-flag cargo vessel w/SV3211 callsign--Ed.

9166: HBD, MFA, Berne, Switzerland s/off in ARQ at 1349 (Peter, England). Kneitel's "Guide to Embassy & Espionage Communications" notes that the official callsign here is HBD20--Ed.

9190: Wx data from Moscow Meteo, USSR at 1231, 850/66N (Peter, England).

9200: INTERPOL in Rome, Italy, w/police type traffic in EE, FF & Italian, ARQ at 1515 (Peter, England). Kneitel's book lists the callsign here as IUV81--Ed.

9491: Test tape at 1549 from XINHUA, Beijing, PRC, 425/66N (Brailey, MI).

9867: Nx in AA from INA, Baghdad, Iraq, 425/66R at 1220 (Hetherington, FL). Be sure to see the unusual Iraqi QSL in Alice Brannigan's section elsewhere in this issue--Ed.

9994.5: RYRY DE CSY, Santa Maria Aeradio, Azores, 850/66N at 2122 (Brailey, MI).

10672.6: Encryp 5F t/c from MFA, Havana, Cuba to Cuban Embassy in Panama, 500/100N at 1420 (Ed.).

10710: JAG30 w/RYRY at 1727. At 1730 they sent QCA JAG-44 followed by PRENSA LATINA TOKIO JAPAN (Dallas Williams, CO).

An interesting catch but I'm puzzled by the QCA code abbreviation indicating a change in an aircraft's flight level. Maybe they meant QRA (my station name is ...) instead of QCA? JAG30 is the call registered here, but could be sharing xmttr now for relay of PL nx to Philippines where SS is spoken--Ed.

10960: Nx in EE from CNA, Taipei, Taiwan, 900/66R at 1035 (Williams, CO).

11117.5: OLO7, Prague Podedbrad, Czechoslovakia w/msg in EE at 1432 to RGE32 in Moscow & at 1436 encrypted to RAW77 "GENTEL MOSCOU" in 425/66R. The msg to RAW77 may have been 2 coded msgs in 1 because of alternating lines of 5L & 5F t/c (Ed.).

12263: TTL, ASECNA station at N'djamena, Chad, w/RYRY at 1645, 170/66R (Wolfgang Palmberger, FRG).

12492: GRUT, the British oiler BRITISH WYE w/t/c to Portishead at 1800 in ARQ (Daryll Symington, OH).

12494: OS2079, a Belgian yacht, the SWAY w/position report in ARQ at 2338 (Hartung, MD).

12921: Meteo w/"USRA10" at 0525, 425/66N (Albin Magliano, Tahiti). I'll venture a guess on this one: UFN, Navarossik, USSR, which is registered on 12919 kHz. I find only 3 places listed w/RTTY on this freq, Vancouver, Guam, and London (England), none of which would be sending Soviet wx--Ed.

13457: "Liban" (Libya) mentioned in Telex in FF from 4UZ, United Nations, Geneva, Switzerland, 170/100N at 1538 (Ed.).

13529: HMV48 w/RYRY at 1154. Was 425/66N. It's N. Korean, but what service? KCNA? (Williams, CO). No, it's PTT, Pyongyang. Was on 13729 kHz, which also used by AFP, Paris. Maybe the FF nx agency caused interference to HMV48 & caused them to leave--Ed.

13563: CNA, Taipei, Taiwan w/EE nx BC at 1106, 900/66R (Williams, CO). Could this be a // xmsn to logging on 10960 kHz?--Ed.

13585.2: Un-ID GG language station w/personalized s/off "TKS EDI FUER NICE QSO..." in ARQ at 1344. No GG-lang stations registered here. Any ideas?--Ed.

13740: KRH51, U.S. Embassy, London, w/foxes at 2100, 850/100R (Symington, OH).

14545: APN nx in RR at 0853, 425/133R. Is it ROW24? (Palmberger, FRG). Yes, in Moscow--Ed.

14647.4: The Czech embassy in Ottawa, Ontario, Canada w/Czech t/c to MFA in Prague at 1817. Was followed by nx in Czech w/items found in Canadian press (Ed.).

15977: AFP, Paris, France, nx in EE at 1612, 425/66N (Darell Lingenfield III, PA).

16100: FF msg from Noumea, New Caledonia to Base Dumont d'Urville, Terre Adelle. Was 425/66N at 2300 (Magliano, Tahiti). Must be FF naval t/c. Terre Adelle is a part of Antarctica--Ed.

16300: NNN0NRO, USN MARS at Rota, Spain, at 1748 to NNN0NRD, Puerto Rico, 170/100N (Symington, OH).

16689: URWX w/wx at 1519, 170/66N (Carol Kirk, CT). This is the SEMYON ROSHAL, a Soviet freighter out of Tallin, Estonian SSR--Ed.

16707: UEDE calling UHB, 170/66N at 1534 (Kirk, CT). UEDE is the CHOULYMLES, a Soviet freighter--Ed.

20470: CXR, Montevideo Navrad, Uruguay, w/t/c in SS to PWZ, Rio de Janeiro, Brazil, navy, 850/100N at 1930 (Tom Adams, WI).

20513: BXM51, a PRC diplo station somewhere w/RYRY at 0756. Was 425/100N (Palmberger, FRG).

Ships: Island Princess, Pacific Princess, Royal Princess and Sun Princess.

Regency Cruises, Inc., 260 Madison Ave., New York, NY 10016. Ship: Regent Sea.

Royal Caribbean Cruise Line, 903 S. America Way, Miami, FL 33132. Ships: Nordic Prince, Song of America, Song of Norway and Sun Viking.

Royal Cruise Line, One Maritime Plaza, Suite 660, San Francisco, CA 94111. Ships: Golden Odyssey and Royal Odyssey.

Royal Viking Line, One Embarcadero Center, San Francisco, CA 94111. Ship: Royal Viking Sea, Royal Viking Sky and Royal Viking Star.

Sea Goddess Cruises, Ltd., 5805 Blue Lagoon Dr., Miami, FL 33126. Ships: Sea Goddess I and Sea Goddess II.

Sitmar Cruises, 10100 Santa Monica Blvd., Los Angeles, CA 90067. Ships: Fairsea, Fairsky and Fairwind.

Sundance Cruises, Inc., 520 Pike St., Suite 2200, Seattle, WA 98101. Ship: Star-dancer.

Sun Line Cruises, Suite 315, One Rockefeller Center, New York, NY 10020. Ships: Stella Oceanis and Stella Solaris.

Western Cruise Lines, 140 W. 6th St., San Pedro, CA 90731. Ship: Azure Seas.

In case you missed the boat (pun intended), you can always settle back with a mug of hot, cinnamon-flavored apple cider in hand and read the RTTY loggings list which begins now.

RTTY Loggings

4172: WE4810, the Great Lakes bulk carrier SS ERNEST R. BEECH, on its way from Duluth to Hamilton, Ontario w/Telex to its owner, Rouge Steel Co. of Detroit. In ARQ at 1053. At 1116, in ARQ, WE3592, the bulk carrier SS PHILIP R. CLARKE of U.S. Steel w/Telex to WLC while enroute Gary, IN (Ed.).

4172.5: H9WE, floating crane & pile-driver ship SIRIUS III under Panamanian flag to WLO in ARQ at 1222 (Ed.).

Abbreviations Used In The RTTY Column

AA	Arabic
ARQ	SITOR mode
BC	Broadcast
EE	English
FEC	Forward Error Correction 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
t/c	traffic
w/	with
wx	weather

4442.8: Un-ID station at 0052 w/wx & synoptic data in .../66R (M/Sgt. David R. Freed, U.S. Army, Frankfurt, FRG). It's Kiev Meteo, USSR--Ed.

5336.7: PL nx from Hermosillo, Mexico, 800/66N just before 0100 (Fred Hetherington, FL).

5340.3: USN station NAU from Puerto Rico w/foxes at 0000, 0100 & 1020. Was 850/100 in both R & N polarities (Hetherington, FL).

5344.2: Wx at 0200 from Teheran, Iran, 400/66R (Hetherington, FL).

5457.1: RYRY at either 500 or 550/66R for "hours on end" (Hetherington, FL). Hope it didn't stop you from having dinner--Ed.

5738.2: 9GC, Accra Aero, Ghana, w/RYRY, 425/66R at 0135 (Tom Brailey, MI).

6248.7: 3ERY, the MIXTECO, Panamanian flag floating crane ship sending daily crew list in ARQ at 1255. H3LV, the HUASTECO, Panamanian floating crane & pipe laying ship at 1320 w/ARQ while enroute Mexico-Alaska (Ed.).

6908.3: YOG29, Bucharest (PTT, Feleacu--Ed.), Rumania trying without success to contact ZAO, Tirana, Albania at 1307. Gave up trying at 1430. Was .../66N (Freed, FRG). Probably because ZAO wasn't meant as a callsign, it's actually a Z-code abbreviation that requests the use of CW. This freq is part of a duplex circuit to Budapest, Hungary--Ed.

7474.2: TJK, ASECNA, Douala, Cameroon w/RYRY, 425/66N at 0030 (Brailey, MI).

7827.8: FDY, French Air Force, Orleans, France w/RYRY & "le brick" tape at 0030, 425/66N (Brailey, MI).

8344.5: ZENA, the LANTAU PEAK at 2040 in ARQ to Portishead, England (Jim Hartung, MD). This is a Hong Kong flag bulk carrier formerly AVENGER, ex-ELBR4, when it was sailing under the Liberian flag--Ed.

8357: Ship named AGHIA ELENI w/t/c in ARQ to Portishead, England, in ARQ at 0530. Any info on this ship? (Hartung, MD). It's a

BETTER SIGNALS

BY ED NOLL, W3FQJ

ANTENNAS AND SIGNAL IMPROVING ACCESSORIES

The Weird Windom

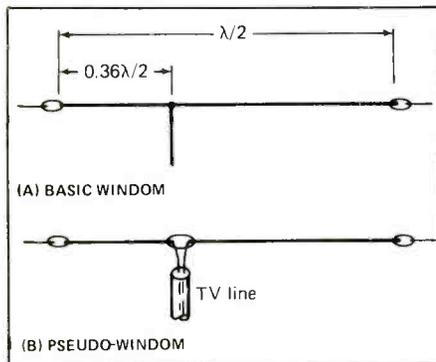


Figure 1

The windom antenna has long been a mystery aerial and I offer no confirmation or denial of its theory of operation. It does work! The windom is a half-wave antenna with an off-center feed point, Fig. 1A. In the original design by Windom, a single wire line is connected from this point to the receiver or transmitter. Theory of operation, often disputed, explains how it also operates well on the harmonics of the fundamental cut. It was used widely for Ham operations and one cut for 80 meters would also perform well for 40, 20 and 10 meters. A proper match often required some cut and try with the length of the single-wire transmission line if operation on more than one band was intended. The proper matching of

the antenna to the receiver is, in general, less critical for shortwave broadcast reception only because the various shortwave bands occupy wide spans of frequencies and some mismatch often encourages better wide band reception. Furthermore, the efficiency of transmitter operation is more dependent on a precise match and transmitter mismatch can also result in equipment damage. No such problems exist at the receiver input.

A long time ago the windom was one antenna style that fit a cramped location for me with a 40-meter half-wave wire going from the chimney to a tree. The off-center feed point was right above the entrance window, an ideal situation for using a single piece of wire for a feed line. The end of the wire was connected to the top of the untuned secondary of the parallel resonant output circuit of a CW tube transmitter. Those were the simple days when you made the match by adjusting the number of secondary turns. I remember how the 40-meter band came alive with DX signals and I was able to communicate with far away stations for the first time.

How about a windom antenna for shortwave broadcast (SWB) listening? Let's take a look at its possibilities. First of all, there are a number of SWB bands and only a few are harmonically related. However, practical results indicate a broad receiving bandwidth. For example, a windom cut for 49

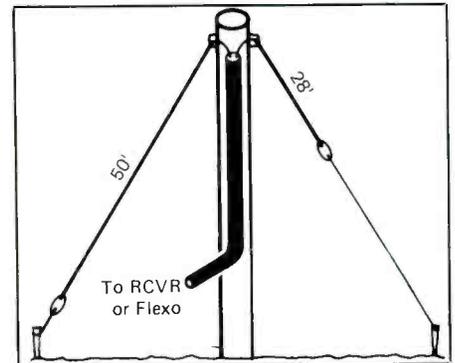


Figure 3: Windom inverted-V.

meters (6 MHz) as a receiving antenna does just as well on 41 meters (7.2 MHz) and is down but acceptable on 60 meters (5 MHz), too. When one begins to double such a wide span of frequencies other SWB bands fall into place over a range between 10 and almost 15 MHz (bands 31 through 19 meters). Actually, the antenna assembled here did perform very well on the above bands and only began to fall apart on 13 and 16 meters.

The antenna erected here is better called a "pseudo-windom," Fig. 1B because 300-ohm TV line is used instead of a single wire line for better matching into a modern receiver as well as a more favorable situation at the antenna feed point. There is a possi-

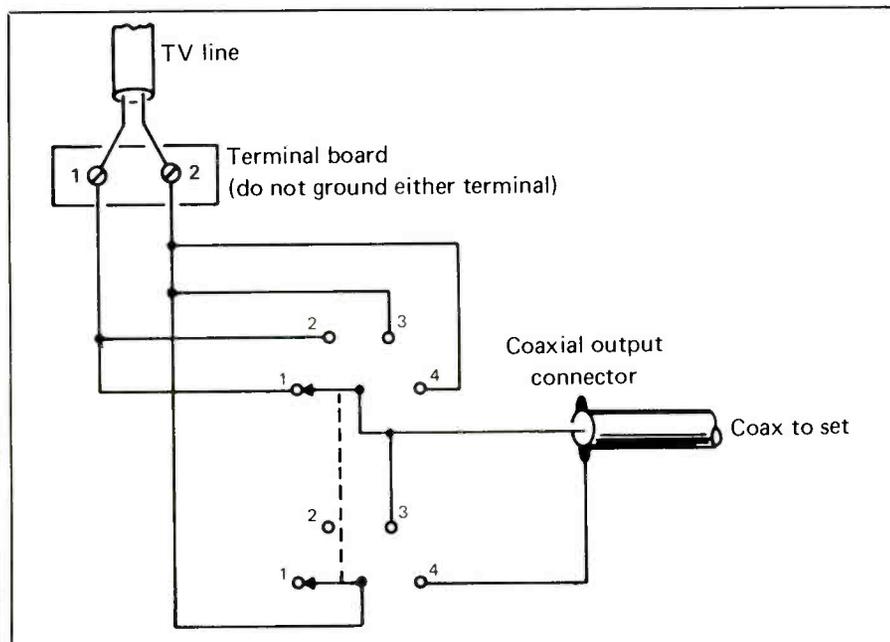


Figure 2: Noll's "Flexo" switching.

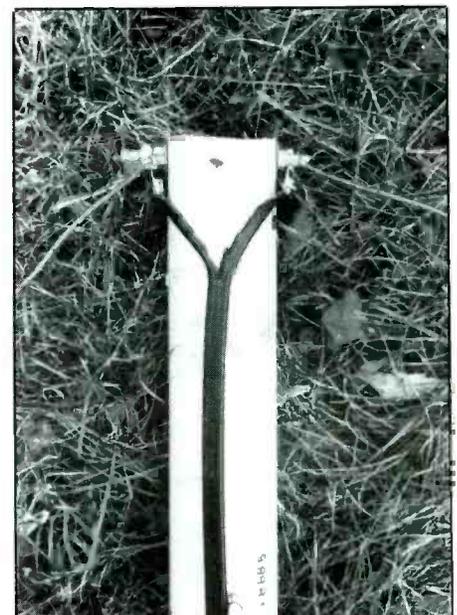


Figure 4: Antenna wires and TV line connected to terminals at top of mast.

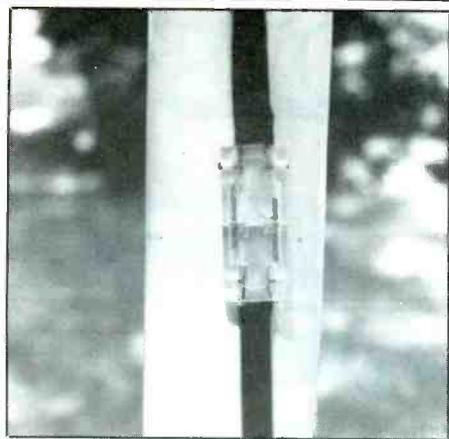


Figure 5: Use of TV line connector at base of mast.

bility the line choice also improves bandwidth although this point has yet to be confirmed. An optional addition is a Flexo switch that offers versatility and, on occasion, compensates for angle of signal arrival. Flexo plan was detailed in the September 1986 Better Signals and in other columns. Wiring is repeated here, Fig. 2, just one more time.

Windom Construction

Our pseudo-windom was erected in an inverted-V style, Fig. 3, and on several bands shows limited directivity off the sloping long end. Bolt/nut terminals were attached to the top of a PVC mast, Fig. 4, and

the antenna wires as well as the TV line wires are joined here using eye-ring solder lugs. The TV line is taped down the mast and, at an appropriate point, you can attach at TV connector, Fig. 5. A second TV line of appropriate length can be connected here for the run to the radiator room.

If you are looking for additional directivity in some favorite quadrant, erect a sloping pseudo-windom as in Fig. 6. At our location the directivity of this version was especially pronounced on 19, 41 and 49 meters. Again, the Flexo switch is helpful in making the system more omnidirectional by making limited compensation for the bearing angle of signal arrival.

You may wish to give the windom a try. It may surprise you. It won't cost very much, only the price of a couple of insulators, some #16 vinyl covered hook-up wire for the antenna and a section of 300-ohm TV line. Be sure you have another antenna for comparison. **PC**

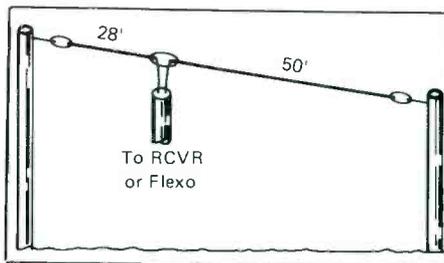


Figure 6: The windom sloper.

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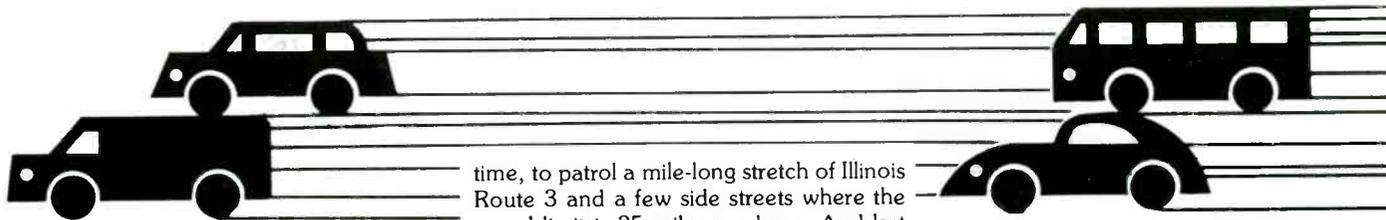
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CIRCLE 20 ON READER SERVICE CARD

RADAR REFLECTIONS

RADAR DETECTORS AND THEIR USE



Celebrities Are Not Free From The Long Arm Of The Law

Robert F. Kennedy Jr. did not have to appear in Yorktown Town court (NY) recently because he paid a speeding ticket and sent in a copy of his Massachusetts driver's license by mail, said Court Clerk Kim McClary.

"Just like any other citizen it was a cut-and-dried infraction," said Mrs. McClary. The town received Kennedy's guilty plea on a speeding charge with a check for the \$35 fine and a copy of his license.

Kennedy was one of several drivers netted by a speed trap operated by Yorktown Officer Frank Ganung within a mile of the Yorktown Police Department. The posted speed limit in the area is 40 mph. Police would not reveal the speed of Kennedy's vehicle.

Senator Edward M. Kennedy was also pulled over for speeding at 80 mph by a state police radar team in Duxbury, MA. He was fined \$50 plus another \$25 for not carrying his license.

Kennedy, the state senior senator, was clocked near his mother's residence on State Route 3.

Late-night television talk show host David Letterman recently paid a \$40 fine for using a radar detector in his home state of Connecticut.

Letterman was not speeding when he was stopped police said.

Small Town In Illinois Is Very Big On Tickets

Despite what the police chief may tell you, if you ever drive through the little town of National City, IL, on Illinois Route 3 it's a good idea to drive under the speed limit. For if you don't, the odds are stacked against you.

In other words, you probably will get a traffic ticket.

It's a fact that police in this southern Illinois stockyard town wrote 26 times as many traffic tickets last year as the place has people.

Fewer than 100 people live in the village, located across the Mississippi river from St. Louis, and home to the huge National Stockyards Co. livestock complex and related businesses.

But it has 11 police officers, seven full-

time, to patrol a mile-long stretch of Illinois Route 3 and a few side streets where the speed limit is 35 miles per hour. And last year they wrote 2,647 citations for speeding.

Of every \$50 fine levied, \$23 goes to the village coffers, but officials say revenues have nothing to do with the tough policy.

St. Clair county State's Attorney John Baricevic said he knows National City issues a lot of traffic tickets because his office prosecutes them, but, he said he has seen no evidence that the citations are written improperly.

68% Speed Limit Increased

Nearly 70 percent of people surveyed nationally want the 55-mph speed limit raised on interstate highways, with 37 percent believing it should be 65 mph or more, Northeastern University researchers said recently.

Those most likely to want a speed limit of at least 65 mph drive at least 15,000 miles a year, are between the ages 35 and 55, and have a family income of at least \$35,000 a year.

The study by three Northeastern business administration professors, based on a questionnaire completed by 384 people, found skepticism over air bags by surprising support for more sophisticated safety equipment on automobiles.

The national survey found 31 percent wanted the 55-mph limit, while 32 percent wanted 60 mph, 29 percent wanted 65 mph and 7 percent wanted 70 mph or higher.

FBI Rejoins Probe Of Allegations About Atlanta Traffic Court

The FBI rejoined the Georgia Bureau of Investigation's 18-month probe into allegations of corruption at Atlanta Traffic Court, FBI and GBI officials said recently.

The FBI, which worked on the investigation with the GBI for several months last year, re-entered the probe when the GBI began turning up evidence that federal offenses may have occurred within Traffic Court, said Joe Hardy, and FBI spokesman. GBI Director Robbie Hamrick said the GBI has been "looking at certain parts of Traffic Court on and off for a year and a half."

Neither Hardy nor Hamrick would specify what types of possible wrongdoing or which officials are under investigation. "We don't know where the investigation is going to lead or how high," Hardy said.

But he pointed out that one of the FBI's functions is to investigate instances of public officials using their position to extort money from others. "One of the things we are looking at (within Traffic Court) is the (possible) corruption of public officials who may or may not have obtained money through official right," he said. "Maybe somebody is acting under color of the law in saying they're going to get (a ticket) fixed."

Sources close to both Traffic Court and the investigations say that in addition to the possibility of actual corruption of officials, cases have arisen of people "pretending" to fix tickets. They say bogus "fixers" have been known to prey on people ignorant of the system, who don't know that judges can exercise great leeway in setting fines. In such cases, the "fixer" convinces the judge to lower the fine, and then collects the lowered fine, plus a commission, from a person who believes the ticket has been "fixed" and the offense won't appear on his or her record, the sources say.

U.S. Attorney Stephen Cowen said that he and FBI officials decided to re-enter the investigation. Neither he nor Hardy would say why the FBI was withdrawn from the probe last year.

Pennsylvania Approves Use Of Speed Detector By Local Police

A compromise measure that would allow local police to resume using a popular device for detecting speeding motorists was signed by the governor this past March.

The device determines the speed of vehicles by measuring the time it takes a car to travel between sensors on a road.

The State Supreme Court ruled last November that the Department of Transportation was wrong to classify the ESP as an electrical device that can be used by local departments.

According to the ruling, only state police could have used the machine because it was considered an electronic device.

Smile! You're Speeding

Big Brother is really watching you if you're driving in one area of South Texas.

Galveston County constables are using a combination radar unit, computer and camera that automatically photographs mo-

torists driving more than 10 mph above the speed limit. The photograph features the car's license plate, the driver's face and the date, time and speed.

The motorist later receives a violation notice in the mail.

"To me, it's a high-tech tool to do that type of work more efficiently. You can cover a lot more ground, rather than chasing down each individual," Chief Deputy Constable Harvey Melcher told *The Houston Post*.

The equipment can be set on automatic to operate on its own while placed along a highway, but a constable is monitoring the system while it is being tested. The pilot program began in one precinct of Galveston County in May.

The motorist's violation notice includes date, time and location. If they wish, they can go to the police station to see the actual photo.

Houston resident Nina Byrd, who was fined \$62 this week, was surprised by the equipment that caught her speeding.

"I can't believe it. I've never even heard about this," said Byrd, 19. "I figured I couldn't fight it [the fine] so I paid it. Big Brother is watching. What's next?"

In all, 1,200 alleged speeders have been photographed since May, more than all of those ticketed last year by police in the precinct where it is being tested. **PC**

Janice Lee is the Editor of Monday A.M., the newsletter of Electrolert, Inc.



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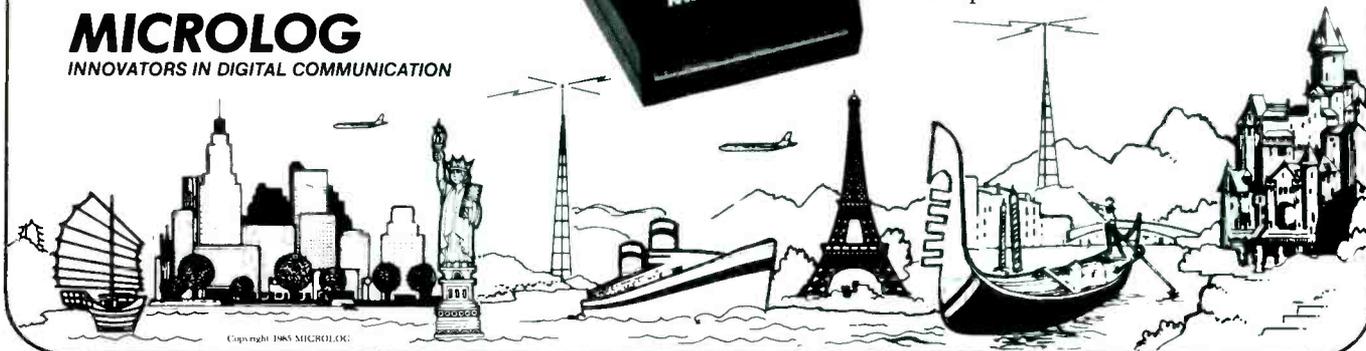
Remember the fun of tuning in all those foreign broadcast stations on the short-wave radio? Remember those mysterious sounding coded tone signals that baffled you? Well, most of those beeps & squeals are really digital data transmissions using radioteletype or Morse code. The signals are coming in from weather stations, news services, ships & ham radio operators all over the world. Our short-wave listener cartridge, the "SWL", will bring that data from your radio right to the video screen. You'll see the actual text as it's being sent from those far away transmitters.

The "SWL" contains the program in ROM as well as radio interface circuit to copy

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Morse code and all speeds/shifts of radioteletype. It comes with a cable to connect to your radio's speaker/earphone jack, demo cassette, and an excellent manual that contains a wealth of information on how to get the most out of short-wave digital DXing, even if you're brand new at it.

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NEW AND EXCITING TELEPHONE TECHNOLOGY

The Ultimate Mobile Phone

As E.T. demonstrated in the movie, it can be a bit tricky calling home when you are in a remote location. For urban dwellers who are too busy to pull up at a gas station, we have cellular phones. The phone company has call boxes in some unlikely spots like the tops of mountains and the depths of national parks. But what if you are miles from civilization or in the middle of a disaster zone? Now there is a phone system available for the explorer or disaster relief worker.

Comsat the company that supplies the INMARSAT satellite phone and data service for ships now has terminals available for land service. For the man or woman on the go, Telesystems, the manufacturing arm of COMSAT, has the TCS-9000 transportable communications systems. In two matching suitcases sits everything you need.

The TCS-9000 will provide direct dialing to any phone number in the world. It will send data at up to 56 Kb. It will also handle regular modem speeds and has one channel that will handle 1200 baud data to the V.22 standard. While the voice channel is in use, a telex channel is available separately.

The antenna is a small thirty-five inch dish which comes with a folding tripod. Included with the kit are the instruments needed to find the nearest INMARSAT geostationary satellite. Once the dish is pointed correctly, the system is ready to use and needs no further adjustment. Total set up time from suitcase to dialing a call is fifteen minutes.

As one sits reading this in a metropolitan area where there are phones in every home, on every desk and at every corner, it can be hard to visualize that there are parts of the world where any phone service at all can be days away. Even in the U.S. there can be occasions when you are hours from a phone. The western desert, Alaska and Texas have spots where the nearest phone may be at the nearest gas station and that can be hours away. Africa, Asia, Australia and Latin America have massive stretches of land where there are no utilities of any kind, let alone phones and Telex.

In the past, for rapid communications from remote spots, we have relied upon HF radio links. Bush radio in Australia is a famous example. HF links are notoriously unreliable and often only communicate to a dispatcher in the big city who relays messages. Few HF links have any patching to other communications services. The other problem with HF links has been the schedule problem. If an operator is not at both ends of the link at the right time, no communication is possible. The final problem with HF links is that many of them are simplex



The TCS-9000 unit in use in the field. The helicopter is optional.

links, with the infamous "over" at the end of each sentence. Simplex links can be difficult for an untrained operator to use. With the TCS-9000, the user gets a real telephone.

The TCS-9000 system can have several telephone instruments attached to it or can be connected up to a PBX (office phone system). Using one device on a PBX, an oil exploration camp or relief hospital can have a real, fully operating telephone system in the middle of nowhere. Disaster relief agencies have always had a problem communicating with "home office," or even the press. In the past, thousands have died because the only way to call for more relief was the old 'runner with a cleft stick' system that was perfected 3000 years ago by the Greeks.

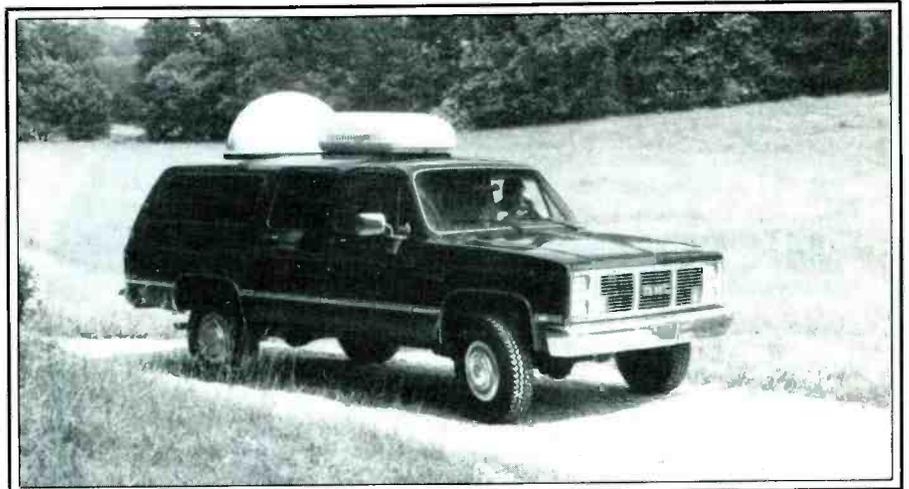
News gathering teams in remote or hostile territory now have a system to allow them to send back text, voice and photographs instantly. Now there is no excuse for not phoning mother on her birthday. "But I

was in the Sahara desert!" is no longer a valid excuse.

So what is really involved? First, all the gear fits in two large suitcases. One weighs 41 lbs., the other weighs 67 lbs. Not exactly carry-on luggage. The power requirements are 385 watts. This translates to 3.5 amps at 110 volts AC. The unit is designed to be powered by a 110V AC source from 47 to 64 Hertz. Hopefully, it will be switchable to 220 volts AC soon. There is a thirty-minute battery pack available to power the unit where no power is available or when the generator dies. Here is the really nasty part: Price? About \$40,000.

Telesystems also sells the TCS-9000 mounted in a four wheel drive, 3/4-ton Chevrolet suburban station wagon. This system is called the VCS-9100. The antenna is mounted on a gyro to track the satellite while the vehicle is in motion. The antenna will track at speeds up to 30 mph on flat terrain.

The vehicle has an onboard generator, a portable generator and a sixty-minute standby battery power supply should the generators fail. Should utility power be available, the vehicle can be run on 110 or 220 volt power from 47 to 480 Hz. The vehicle is supplied with extra air conditioning and all the comforts of home. The vehicle can be loaded and transported on a cargo plane. This vehicle is going to be a big favorite with governments and disaster relief agencies. The ultimate all terrain, all nation command vehicle. The limo for the ultimate safari. Now if they could just find room for the VCR, color TV and cocktail bar, it might be the last word for commuting around New York City. **PC**



The VCS-9100 Vehicular Communications system. The dome at the rear of the vehicle houses the antenna. The pod over the cab is the air conditioner.

PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS



Uninterruptible Power System

Kalglo Electronics Co., Inc. announced a new standby uninterruptible power system (UPS) to its "AEGIS(TM)" line of power conditioning equipment.

Designated the LINE-SAVER(R), Model LS500, it presents a standby uninterruptible power system for use in the home and small business computer market. It is engineered to give trouble free standby back-up power available in 120/240 volt, 60/50Hz, with 500WATTS-VA capacity. The unit utilizes "Pulse Width Modulation" (PWM) technology to regulate the RMS AC output voltage for greater efficiency to various load conditions. The PWM AC output will also increase battery efficiency to increase back-up time; 5-10 minutes at full load, 20-25 minutes at half load, 35-40 minutes at one-third load. In addition the unit is furnished with an internal 24V sealed rechargeable battery, two SPIKE-SPIKER(R) voltage surge protected and EMI/RFI filtered AC outlets, audible and visual power failure warning system, test mode indicator and switch, replaceable external fuses, compact in size with external 24VDC battery connectors to allow for mobility and extended hold-up time. The unit weighs only 27 pounds and has a foot-point of only 0.64 square feet. The unit comes complete with a 6-foot detachable, 3-prong, heavy-duty grounded cordset with a CEE-22 connector. The suggested retail price is \$795. For more details contact: Kalglo Electronics Co., Inc., 6584 Ruch Rd., E. Allen Twp., Bethlehem, PA 18017, or mark #105 on our Readers' Service Card.

Two Compact Radar Detectors

Uniden Corporation of America, Personal Communications Division, announced two compact radar detectors, the Uniden RD 9™ and RD 35™.

"The Uniden RD 9 is the smallest self-contained radar detector currently on the market," says Roy E. Mulhall, corporate vice president of Uniden Corporation of America. "It measures only 4.2" deep x 2.76" wide x 0.71" high. Furthermore, it



is the most advanced in terms of features. It has outstanding sensitivity and features separate X- and K-band LED and audio indicators. At its suggested retail price of \$269 for this caliber of equipment, it is also very affordable."

Like Uniden's other top-of-the-line radar detectors, the RD 9 features E.D.I.T.™ (Electronic Data Interference Terminator) circuitry, which assures accurate radar signal detection by helping to eliminate erroneous signal interference. The dual-conversion, superheterodyne, pocket-size radar detector can be installed in almost any size vehicle and comes with an attractive carrying case.

A two-position highway/city selector switch allows the user to select unfiltered sensitivity for highway travel or filtered sensitivity for urban travel, and a single three-position switch permits selection of either an audible, visual or combined alert when radar is detected. The unit may be either visor- or dash-mounted. A power cord supplied with the RD 9 can be used for either positive- or negative-ground vehicles.

The other unit, the Uniden RD 35, also features E.D.I.T. circuitry and, like the RD 9, is protected by a 12-month warranty. It is priced at \$139.95.

The RD 35 may be either dash- or visor-mounted and warns the operator by sound and a red warning light when X- and K-band police radar signals are detected. Its E.D.I.T. superheterodyne circuitry is designed to virtually eliminate false alarm sources, such as nearby microwave relay stations, radar door openers and aircraft and boat weather radars.

Check with your nearest Uniden dealer, or mark #106 on our Readers' Service Card.

New Mobile Catalog

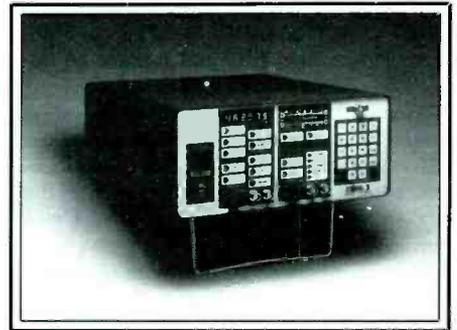
A new 56-page catalog published by Antenna Incorporated, the mobile division of CELWAVE, lists the company's complete line of mobile antennas, portables and accessories for the mobile market.

A leading mobile antenna manufacturer, Antenna Incorporated says the catalog is designed for ease of use with products listed by frequency band. Styles for every applica-

tion ranging from 25 to 1000 MHz are available. Base load, disguise, transit, quarter-wave, 3 dB gain, 5 dB gain and 5 + dB gain antennas offer a variety of uses. Special application antennas such as Tiny Tike™ and briefcase styles are featured in the new catalog. Complete mechanical and electrical specifications are offered for every model as well as product features and options, the company says.

This broad line of mobile and portable antennas is manufactured in Cleveland, OH and Marlboro, NJ.

This complete 56-page catalog can be obtained by writing CELWAVE, Route 79, Marlboro, NJ 07746, or making number 103 on our Readers' Service Card.



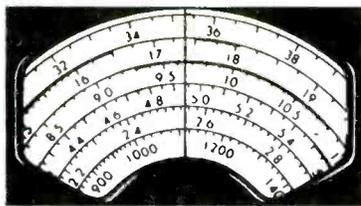
Portable Communications Service Monitor

Ramsey Electronics has introduced the COM-3 Service Monitor designed to analyze and test transceivers in the 100 KHz to 1000 MHz range. The new unit is available for immediate ordering.

The COM-3 features a programmable microprocessor memory that stores and recalls on command up to ten commonly used test setups. The new Service Monitor covers every band, frequency, and IF with parameters of 100 KHz to 1 GHz in 1 KHz steps. An easy-to-use keyboard offers programmable offset keys that simplify frequency entry for duplex or repeater radios, and incremental step keys facilitate the testing of a receiver throughout its frequency range.

One of the major benefits of the new COM-3 monitor is its portability. The unit has a built-in, rechargeable battery pack that makes it ideal for off-site testing, and the COM-3 is easy to transport since the entire unit weighs less than 10 lbs. For additional portability, a durable Cordura travel case with zippered pockets and shoulder strap is available as an optional accessory.

Manufacturer's introductory list price for the COM-3 is \$1995. For more information, contact Ramsey Electronics Inc., 2575 Baird Rd., Penfield, NY 14526, or mark #107 on our Readers' Service Card.



COMMUNICATIONS CONFIDENTIAL

BY DON SCHIMMEL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

I found the August *POP'COMM* editorial to be of great interest but also of considerable concern. The points made regarding the paucity of newcomers entering into the radio hobby ranks are, unfortunately, so true.

While commercial publications can and do play an important part in creating and maintaining interest in Ham and SWL activities, I cannot help but wonder if SWL clubs in particular could not perhaps make a more aggressive and effective contribution in attracting new followers.

How about some signs (obtain permission before posting them) on the local high school bulletin board announcing an SWL Open House which would feature equipment demonstrations plus a Q & A session? If the school also conducts Adult Education classes, your invitation will be seen by old and young alike. Other bulletin board locations should also be considered such as the local Public Library, Supermarkets, Community Center, etc.

Club members could distribute one-page flyers within their neighborhoods announcing the holding of a SWL newcomer night.

At the next local Hamfest, your SWL club could sponsor a booth and have an audio presentation of the various sounds to be heard on the airwaves. Club members could take turns manning the booth to answer questions, supervise hands-on operation of receiving equipment and furnish information hand-outs describing the club and its activities.

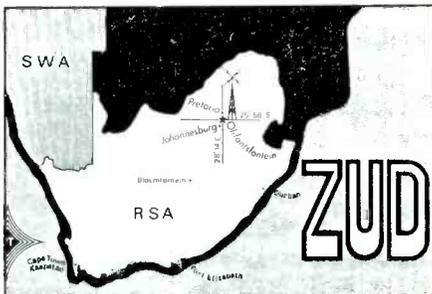
While I certainly do not claim that these measures will guarantee results, I think they could be a modest beginning in the necessary efforts to broaden the base of SWLers.

From across the Atlantic we heard from Ary Boender in the Netherlands who made some fine DX catches with his intercepts of various time signals from around the world:

kHz	Time	Location
15000	1600	WWV Boulder, Colorado
15000	1634	WWVH Hawaii
3810	0400	HD2IOA Guayaquil, Ecuador
8000	1600	JJY Tokyo, Japan
4500	0948	VNG Lyndhurst, Australia

To those readers who have asked questions regarding parts of the ITU Radio Regulations, I do not hold a copy of the Regs. I imagine that most Public Library systems probably hold reference copies of the volumes.

The mailbag brought identical requests from several readers. All were asking for



Patrick O'Connor gives us a look at some more QSLs he has received.

identification and frequencies for WOO. This is a shore station located at Ocean Gate, NJ and owned by American Telephone & Telegraph. According to the 1985 FCC Listing the station is authorized to operate on the following frequencies:

4389.8	13108.4	17311.8
4405.3	13130.1	17327.3
4423.9	13133.2	22597.4
8742.0	13185.9	22609.8
8751.3	13192.1	22625.3
8763.7	17246.7	22705.9
8797.8	17293.2	

Tim Magrann, CA sent in a tape containing 4F groups in Chinese. The recording was made at 1400 UTC on 8300 kHz and was a YL in AM voice. In listening to the tape, although I am not a Chinese linguist, my guess is that the dialect is Mandarin rather than Cantonese or Hokkien. As my reference aid, I used *Languages of Asia and the Pacific* by Hamblin.

In recent months numerous readers have asked about books for identification of LF beacons. I use a number of references, one of them being the *Radio Beacon Handbook* by Dr. Jurgen Trochimczyk, available from many *POP'COMM* advertisers. Another is the *Aero/Marine Beacon Guide* by Ken Stryker, 6350 N. Hoyne Avenue, Chicago,



IL 60659. In addition to these, I also refer to the following:

Eavesdropping on Radio's Rock Bottom, *POP'COMM*, December 1985

Tuning in The "Shadow Empire," POP'COMM, February 1985

Weather Watch, *POP'COMM*, January 1985

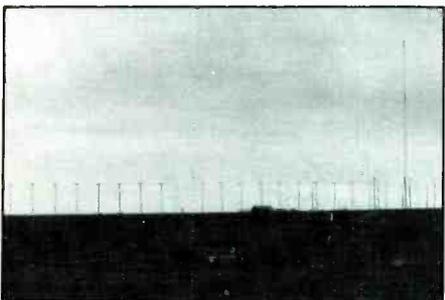
20+ Countries On A Table Radio, *POP'COMM*, February 1986

DXing The "Top End", *POP'COMM*, October 1984

I hope these will assist interested readers in locating sources of identification for LF beacon transmissions.

In addition to some QSL cards and great loggings, Patrick O'Connor, NH provided the following QSL address: USCG Eastern Shores Group, S. Main St., Chincoteague, VA 23336-1510.

"Something very puzzling has been cropping up in the HF bands, particularly in the area of 10/11 MHz." So writes Jeff Hall, WA. He has encountered numerous transmissions whereby the letter F is sent continuously (hand sent) with periodic interruptions for callups like "FUIN DE 9L3G or NRSP DE 9ZAM." Jeff also saw some use of



Press enquiries: ext 6055 Ref PR 2-86 12 May 1986

**'MSF' TRANSMISSIONS OF TIME AND FREQUENCY SIGNALS-
WITHDRAWAL OF HIGH-FREQUENCY SERVICE IN 1988**

The National Physical Laboratory's standard frequency and time signals are disseminated over a range of frequencies from 60 kHz to 10 MHz. The Laboratory now gives notification of the withdrawal of the MSF transmissions at frequencies 2.5 MHz, 5 MHz and 10 MHz in 1988. The 60 kHz MSF standard time and frequency service, which now caters adequately for the majority of users, will continue to operate unchanged.

The MSF service is used by NPL to disseminate standard frequency and time signals to users on the UK mainland, together with the air and sea approaches, and also to provide some coverage in North-West Europe. Transmissions began experimentally in 1950 with a one-hour broadcast each day on 60 kHz. The full schedule of HF frequencies on 2.5 MHz, 5 MHz and 10 MHz was inaugurated in 1953 and used extensively for some years by aircraft pilots, amateur radio users and astronomers. The 60 kHz LF transmission was extended in 1966 to give 24 hours a day coverage and was subsequently provided with a comprehensive code which gives year, month, day of month, hour and minute in digital form. The latter has proved immensely popular with a large number of users who are operating close time schedule systems such as computer installations, transport and TV networks. It is also incorporated into many commercial and military systems.

With the introduction and general availability of improved frequency and time standards, the HF services have been relatively little used. The 2.5 MHz, 5 MHz and 10 MHz MSF services will therefore be withdrawn as from 1988 February 29.

This notice of reduction in Time/Frequency Signals was sent in by Bill Harms, MD.

Patrick Griffin, CO supplied these excellent shots of the Table Mountain Installation.

other repeated letters such as "K" and "OM" and suspects them of being related to the "F" stations. The various signals were heard between 0100-0800 UTC and took place on frequencies of 10515, 11172, 11175, 11176, 11254 and 12269 kHz. In looking over the material Jeff sent in, I note the similarity to the activity described in the June 1986 POP'COMM article by William Orr entitled "A New Family of HF Radio Beacons." I also invite your attention to the series of articles by Mr. Orr carried in the December 1984, January 1985 and February 1985 issues of *Popular Communications*. These articles contain well researched information that provides an excellent analysis of HF beacons.

Tom Borawski, PA advises "I believe FEMA had an exercise with their station in Northern Virginia. They broadcast cipher messages over a family of frequencies with

what sounded like different beam settings being used."

kHz	Time	kHz	Time	kHz	Time
14675	—2255	14534	—2305	14524	—2308
14500	—2310	14494	—2312	14480	—2314
14460	—2315	12190	—2225	12180	—2225
10873	—1455	4780	—0130		

Some superb photos and a note were received from Patrick Griffin, CO. His note said in part: "Sorry to say I haven't done any utility DXing lately. I've been heavily into shortwave broadcasting the past few months. However, here are a few things that you might use. Enclosed are some photos of the antennas on Table Mountain just north of Boulder, Colorado. This site is jointly operated by several government agencies and I'm not sure what they actually do out there. There is a large vertical tower (VLF?), two very large steerable dishes, and

about 22 pole-mounted log periodics which were all aimed east during my visit. There are also several pole-mounted log periodics aimed east and upward at a 45 degree angle (meteor scatter?) as well as several wire-type antenna."

Here is a hint for finding military comms which was offered by R. Taylor, CA. "When a military air unit is going to be conducting exercises in an area near large civilian airports, the FAA will issue a warning on their 'Automatic Aviation Weather Service.' This is a telephone number that has recorded weather information. An advisory will be given on this tape recording regarding the area of the exercises. The area indicated will be rather large, but it will give you a rough 'guesstimate' of the location of the air operations. If you cannot find the number in your phone book, look for the number of the local FAA representative. He can give you the



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10th March 1986

Gerald Brumm
U.S.A.

Dear Mr. Brumm,

This confirms that the transmission you received 26th January 1986 between 1640 and 1644 UTC on Frequency 13065 KHz did originate from this station.

The transmitter used was a 1KW Redifon with a Conical Monopole Antenna attached.

Yours truly,

O.L. Cunningham
Supervisor/Kingston Radio.

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Confirmation of a reception report from Gerry Brumm, IL.

number of the weather information recording. Most recordings have an announcement about such activity approximately one week before it takes place. The information only indicates which days, and what area pilots should avoid."

INTERCEPTS

- 198: Beacon DIW, Dixon NC at 0242 (Pat O'Connor, NH).
- 217: Beacon CLB, Carolina Beach NC at 0936 (Crowell, TN).
- 227: Beacon YEO, Loc Eon PQ at 0355 (O'Connor, NH).
- 236: Beacon GNI, Grand Isle LA w/wx for New Orleans area at 1025 (Crowell, TN).
- 254: Beacon YSU, Summerside PEI, Canadian Forces base at 0351 (O'Connor, NH).
- 257: Beacon SGT, Melbourne FL at 0341 (O'Connor, NH).
- 272: Beacon LD, Laredo TX at 0510 (Homuth, AZ).
- 278: Beacon XSD, Tonopah NV loud & clear every nite (Homuth, AZ).
- 284: Beacon DPG, Dugway Proving Grounds UT at 1145 after several months' absence (Homuth, AZ).
- 295: Beacon BDA, Gibbs Hill Light Station, Bermuda at 0412 (O'Connor, NH).
- 296: Beacon G, Galveston TX at 1042 (Crowell, TN).
- 300: Beacon C, Mobile Pt. AL, at 0830 (Crowell, TN).
- 302: Beacon L, Loma Light Station CA weak sigs with fading during local daylight hrs so must be ionospherically propagated; 50 secs of L in CW then a 10 sec dash, then silent for 2 mins. Running 700 watts into a vertical antenna (Homuth, AZ).
- 306: Beacon R, St. John Light Station FL. At 0425 (O'Connor, NH).
- 314: Beacon F, Farrallon Islands Light Station CA continuous w/USCG 50/10 format. Running 40 watts into fiberglass vertical (Homuth, AZ).

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)

- 310: Beacon H, Egmont Key Light Station FL. H repeated in CW for 50 sec, then 10 sec of steady signal a/k/a USCG 50/10 format. Located 30 miles off Tampa (Homuth, AZ).
- 344: Beacon CQL, Carbondale CO at 0500 w/strange chirpy keying that makes it stand out on this overpopulated freq (Homuth, AZ).
- 352: Beacon RG, Rarotanga, Cook Islands (South Pacific) heard best just before local sunrise last summer. Runs 5 kW so might be nabbed by listeners in many areas of NA (Homuth, AZ).
- 357: Beacon EGE, Eagle CO. Miskeyed-- long dash, a dit, then EGE 3 times. Perfect Canadian CG format! Some QRM from beacon HS but can be peaked with a 1 kHz audio filter. Heard beacon HS, Standard, Alta., w/400 Hz dash after ID (under EGE) at 0530 (Homuth, AZ).
- 371: Beacon TS, Memphis (Elvis International) w/local area wx at 1000 (Crowell, TN).
- 378: Beacon RJ, Roberval PQ, at 0252 (George Osier, NY).

383: Beacon SH, Smith Falls, Ont., at 0254 (Osier, NY).

388: Beacon NXX, Willow Grove NAS, PA at 0425; also beacon CFJ, Crawfordsville IN at 0425 (O'Connor, NH).

390: Beacon JT, Stephenville Airport, Nfld. at 0259 (Osier, NY).

392: Beacon OO, Oshawa Muni, Ont., at 0303 also beacon ML at Charlavoix PQ at same time (Osier, NY).

394: Beacon YB, No. Bay Airport, Ont., at 0308 (Osier, NY).

396: Beacon ZBB, Bimini, Bahamas at 0839 (Crowell, TN).

404: Beacon YSL, St. Leonard NB at 0313 (Osier, NY).

407: Beacon H, St. Hubert PQ at 0315 (Osier, NY).

409: Beacon YTA, Pembroke, Ont., at 0317 (Osier, NY).

413: Beacon OEG, Yuma AZ w/powerhouse sigs 24-hours (Homuth, AZ).

415: Beacon IEE, Union Oil Platform off the CA coast. Heavy QRM from OEG on 413 kHz (Homuth, AZ).

453: 3EHO, Panamanian ship (ORION HIGHWAY?) w/CW t/c at 0505 (Borawski, PA).

1665: Beacon LAG, Lago Agrio, Ecuador w/ID repeated at 1024, lots of fading as sunrise begins (Vogt, VA).

2031.5: WSP7228, Yacht SERO to Miami (on 2490 kHz) w/phone patch. QSL'd in 10 days! (Symington, OH).

2598: VOJ, Stephenville CG, Nfld., w/wx BC at 0335 (Symington, OH).

4131.2: WRB5822, Yacht RENEGADE in USB to Miami w/phone call (Symington, OH).

4194: 59HOK in CW at 0150 (Borawski, PA). This may be another of those Spanish Navy stations-- Ed.

4243: WKM, New Haven CT in CW to un-ID ship at 0232 (Brown, MD).

4305: 5L groups in CW at 0220. Repeated message heading elements twice (Brown, MD).

4667: KCU, un-ID station calling WAP, AUL, JFB from 0236 to 0307. JFB & WAP responded w/QSA's but were neg copy to KCU (Brown, MD).

4670: VLB2 (phonetics) in AM mode at 0147 & also 0245. Also YL/SS in AM mode repeating 608 608 608 1-0 at 0300 & YL/SS repeating 565 565 565 1-0 at 0230 (Brown, MD). Kneitel's book "Guide To Embassy & Espionage Comms" pinpoints VLB2 as a transmission from Mossad (Israeli Intelligence) at this time w/no t/c for its overseas operatives; also listed on 7539 & 7606 kHz-- Ed.

5757: Beacon A, un-ID at 0525 (Borawski, PA).

5811: YL/SS in AM mode w/4F groups (Borawski, PA).

5922: Beacon X, un-ID CW station ran some 5F groups at 0420 then back to repeating "X" (Borawski, PA).

6206: USB net must be some sort of coastal command such as ROCC, prob Gulf of Mexico reveals static CS Echo Control & Charlie Sierra working F51, Z1W, K3M, etc. These were mobile units investigating un-ID targets, all were given #'s in series (i.e., 7040, 7042, 7046, etc.). Each mobile unit gave "Whiskey Report" such as "Quebec 3 Hotel" says "My latest Whiskey is Green 139 034 GM AUWEB" (prob position report). Alternate freq given as "TA 201B" (Hall, WA).

6245: Marker U in FSK at 0128, very strong (Brown, MD).

6391: Beacon OSN, Oostende Navrad, Belgium in CW w/call marker at 0320 (Jackson, OK).

6480: EE/YL in AM mode w/phonetic 5L groups at 0206 (Brown, MD).

6730: Poker 59 in USB from 0328-0359 to McClellan AFB w/patch to Poker Ops. Poker 59 was a helo that made an emerg landing in a field 15 miles west of Reno, was seeking assistance. They were advised to find the nearest pay telephone & place a collect call to Poker Ops! (Symington, OH).

6775: CW station continually repeating "6260" at rapid speed, very loud. Suddenly off at 0635 (Hall, WA).

6805: SS/OM in AM mode w/4F groups at 0220 (Brown, MD).

6840: EE/YL in AM mode w/5L groups at 0208 to 0222. Then 4F groups (cut #'s: AU4E6--BDNT = 1 to 0) at 0332 (Brown, MD). Kneitel's Embassy/Espionage guide lists the 5L groups station as the Mossad's "CIO" xmsn-- Ed.

8055: SS/YL in AM w/5F groups at 0535 (Borawski, PA).

8241.5: KGXA, vessel PRESIDENT CLEVELAND at 0215 to USCG San Francisco in USB; also noted USCGC MONHEGAN to Miami CG (O'Connor, NH).

8441: 70A, Aden, South Yemen in CW w/VVV marker at 1850 (Peter, England).

8469: CUB, Funchal Madeira in CW w/CQ tape at 0115 (Peter, England).

8530: IAR, Rome, Italy in CW w/VVV marker at 2250 (Heraghty, NY).

8670: Beacon U in FSK at 0210 (Borawski, PA). FSK intercepts should rightfully be directed to POP'COMM's RTTY column-- Ed.

8737.5: 5BA42, Nicosia, Cyprus at 2312 w/OM EE & Greek voice marker (O'Connor, NH).

8745: 5AB, Tripoli, Libya in CW w/call tape at 0216 (Brown, MD).

8825: Aircraft CUBANA 1490 in USB at 2152 contacting Paramaribo (Surinam) w/position & altitude (Symington, OH).

8971: 3RJ & C3W in USB at 0110, asked for authentication signals (Heraghty, NY).

8975: RAAF tactical net w/Air Force Sidney working aircraft QUEENSBIRD 8 for course adjustments in USB at 0707 (Hall, WA).

8993: REARRANGE calling McDill AFB in USB at 0200. Bagpipe type data tones after voice (Heraghty, NY).

9525: Jammer IG, massive signal at 0557, presumed Soviet. Target unknown but ceases at 0600 when Radio Havana signs on (Hall, WA).

9021: LOCKHEED 3 & 5796 in SSB at 0540 w/t/c exchange about radar contacts (Kratzer, WA).

9072: SS/YL w/4F groups in AM mode at 0218 (Borawski, PA).

11032: HMO calling MAU (both un-ID) in CW at 1500 (Borawski, PA) Poss mil-- Ed.

11110: GG/YL in AM at 1810 w/5F groups led off by "achtung" ("attention") (Borawski, PA).

11182: DANDA 58 (MAC C-141B Starlifter aircraft) in USB at 1816 to Scott AFB (O'Connor, NH).

11236: Yakota Air Base (US), Japan, contacting HOTEL NOVEMBER 800 w/encrypted 3F groups in USB at 0654. Told to stand by for "Flash Traffic" (Hall, WA).

11238: DRAGNET MIKE to McClellan AFB w/patch to SHAMROCK; interestingly, ID's self as D-TONE MIKE when patch commences. In USB at 2101 (Hall, WA).

11475: HMF36/HMF52, KCNA in Pyongyang, N. Korea w/CQ in CW at 2340. Was //13580 kHz (Hall, WA).

11605: Jammer VT all over KOL Tel Aviv at 1835. Presumed Soviet (Hall, WA).

11950: Jammers XA, PF & GU all having a go at the VOA's Polish Service at 1904. Presumed Soviet (Hall, WA).

12378: Marker U in FSK at 0025 (Borawski, PA).

12662: 7TA8, Algiers, Algeria w/CQ tape in CW at 1100 (Peter, England).

12700: XSQ, Guangzhou, PRC, w/CQ tape in CW at 1120 (Peter, England).

12714: CBV, Valparaiso, Chile, w/CQ tape in CW at 2231 (Jackson, OK).

12684: XSW, Kaoshiung, Taiwan, in CW w/CQ tape at 1115 (Peter, England).

12994: VIP04, Perth, Australia at 1925 in CQ w/VVV (O'Connor, NH).

13008: JOR, Nagasaki, Japan, calling CQ in CW at 1752 (O'Connor, NH).

13385: EE/YL in AM mode w/phonetic 4F groups at 1615 (Brown, MD).

13393: YFF (un-ID tactical) in CW at 1430. Variably strong to fadeout; sending long string of ungrouped crypto lettered t/c followed by VVV DE YFF VAA UFL. Transmitted for at least 90 min; QRM from VOA feeder on 13399 kHz (Hall, WA).

13651: Un-ID station w/5F groups at 0115 (Borawski, PA).

13935.7: CLP1, MFA in Havana calling CLP2 in CW at 1505 & tells CLP2 to QSY 17517 kHz (Margolis, IL). Kneitel's Embassy guide shows CLP2 as Cuban Embassy in Panama-- Ed.

14826: TRS, Libreville, Gabon in CW at 1656 w/FF t/c. This is an Interpol station (Margolis, IL).

16522: Sailing vessel SOUTH AMERICA working 8RB, Demerara, Guyana in USB at 1636 (Margolis, IL).

16587.1: KUF773, Sun Services, Marcus Hook PA working KLAC, tanker TROPIC SUN in USB at 2009; also WEHJ the WESTERN SUN noted at 2016 (Margolis, IL).

16629: Piccolo transmission at 1652 (Margolis, IL).

16845: 9VPN, Singapore in CW at 2010 to un-ID station (Hall, WA).

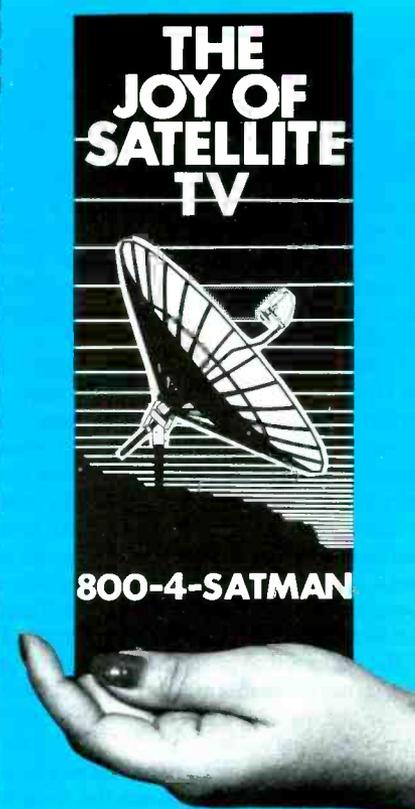
16961: HZY, Ras Tanura, Saudi Arabia in CW w/call marker tape at 1115 (Peter, England).

18293: Un-ID station w/encrypted alphanumeric t/c to a station on 11507 kHz (Margolis, IL).

22250: HCBT, Ecuadorian container ship, the ISLA BALTRA in CW w/Telex to HCG, Guayaquil, Ecuador at 2011 (Margolis, IL).

31.35 MHz: Radio paging station in Buenos Aires, Argentina. Two tones then YL/SS announcement in NBFM mode at 2121 (Homuth, AZ).

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Beaming In (from page 4)

preposterous law that will be as laughable as the 55 MPH federal speed limit. Take a drive on an Interstate at 55 MPH and you'll be run off the road by everything from 18-wheelers to 1964 Volkswagens!

What happens, then, when they get around to pass the next law that says it's OK to watch TV Channels 7 and 9, but illegal to watch TV Channels 2, 4, 13, and 21? Then are we to be told that we can't listen to Radio Moscow or other broadcasters somebody doesn't like?

Hitler passed laws forbidding reception of the BBC. Right now, it's against the laws of certain nations for its citizens to hear the Voice of America, Radio Marti and other stations operated by or affiliated with our government. Interestingly, while our government cries out loudly against such laws and efforts to deliberately jam the signals of those stations, it simultaneously considers the establishment of virtually identical laws that would apply to its own citizens! Ironically, the stations that would be "protected" by this Act are those that are turning a tidy profit from the use of the electromagnetic spectrum—and that's a natural resource. I'd like to see the government's response to a lumber company chopping down the trees in Yellowstone Park!

Something here smells like a mackerel in the moonlight!

And another thing, does the Electronic Communications Privacy Act seek to stop us from monitoring only those signals transmitted by American stations? Is the intention of the Act to prevent us from monitoring signals from stations (including ships) licensed by other governments? This is another unclear point that further exemplifies the gaping holes in a proposal put together by people who appear to know far too little about the deep waters into which they are wading.

In all, there's a lot more at stake here than one piddling little piece of badly-conceived, stupidly written, and unenforceable legislation. The Act, in fact, as a significant contribution to the privacy of anything or anybody, is a joke. But what it represents in the overall scheme of things is absolutely terrifying and seems to be following a route that I had long forseen and mentioned in these pages.

Back in our July '83 issue, long before the Electronic Communications Privacy Act was thought of, I was discussing efforts being made by those who were seeking to get federal laws passed to ban home reception of satellite TV signals. Sensing rather sinister potentials in that line of thought, in that issue I wrote, "... I can't help but feel that all of this carries the potentials or seeds for an entire series of yet unmentioned problems that could possibly arise concerning the right of individuals to listen to all non-broadcast and non-Ham signals by means of scanners and communications receivers . . . it could end up with the rights of individual citizens abridged and restricted. Once something

like that happens, just wait and see what they'll come up with next—and they'll have lots of new laws to give it teeth! . . . I can assure you that this is a right you will eventually miss . . ."

The TVRO industry successfully fought off attempts to pass such legislation, but the thinking that inspired it didn't die. This Electronic Communications Privacy Act is merely one more link in a chain of events that has been in the making for the past few years. You don't want to know what the next link is, or the one after that!

This month there's a day that is special to Americans. On that day, when you are sitting with your loved ones around a table overflowing with turkey and all of the trimmings, please allow yourself to take a few moments to remember that there are many other Americans whose Thanksgiving feast will be a can of cat food or whatever they can scavenge from the rear of a fast-food place. Then, picture in your mind the halls of Congress, filled with your elected representatives attending to the problems facing our nation—like whether or not you may monitor a CMT call or a remote broadcast pickup station.

" . . . there's a lot more at stake here than one piddling little piece of badly conceived, stupidly written, and unenforceable legislation."

Hopefully, you'll be inspired to write to your Senators and Congressional Representatives to tell them what you think about this Act, it's sinister and insidious portents, and the amount of valuable time they're wasting while many vital and important matters cry out for their attention.

While I'm on the subject of writing to Washington, I want to comment upon the efforts from within the DX hobby to squash this Act. Several DX clubs are thoughtful enough to send me monthly copies of their excellent newsmagazines. I normally see the publications of SPEEDX, AOSC, ASWLC, GCSS, ANARC, LWCA, NASWA (FRIENDX), ADXR and (of course, since we carry it in POP'COMM) SCAN.

DX clubs have universally opposed the passage of this Act, imploring their members to write to Washington. This is to be applauded, but it seems that there was perhaps too little original thought or creativity when it came to hitting them with both barrels. The focus of the hysteria was somewhat misdirected.

At some point, one member of a club (I know not which) came up with a reason for the Act to be rejected. The idea was along the lines that radio signals invade and pervade people's homes and bodies even though nobody invited them to do so.

Therefore, people shouldn't be diminished in their right and ability to examine those signals to see what they're all about. It's like if you get a splinter in your finger, you always look at it to see if it was metal, glass, or wood (although nobody ever figured out what difference it made). Perhaps I've oversimplified the whole thing, but that's mostly what it was all about.

Some clubs, rather than originating their own thoughts, took the easy way out and simply picked up on this particular theme with the barest possible variation. The members of those clubs, when writing to Washington, used this as the focal point of their objections to the Act. Countless Senators and Representatives are now imbued with fantastic visions of their constituents walking around with dots and dashes, rock music, CMT calls, and images of Ted Koppel flowing in and out of all of their body orifices.

Oops! I just sneezed and out came an unidentified 10,778 kHz RTTY station, and an 89.5 MHz FM signal of Bob Dylan singing *Blowin' In The Wind*.

This "signal-invading-the-body" argument is feeble stuff; it's too tame, and lacking the sting to cause anybody to see the Act in its true light and then decide to vote it into oblivion. Sure, if you had a barrage of many other strong arguments, this could have been tossed into the stew for good measure, but as the centerpiece or focal point it's a sure loser.

Aside from its basic tenuousness, it doesn't even claim that the invading signals need to be examined because they are suspected of causing a threat to mental or physical well being. At least it might have been claimed that we thought that they were giving us bursitis, gallstones, halitosis, or causing CMT calls to come through the fillings in our teeth. Moreover, by extending the very same logic, one could take the position that they no longer wish to allow specific signals to continue invading home and body, and therefore certain transmitters must immediately stop operating. At that point, this whole concept totally falls apart.

Many readers sent me copies of the letters they wrote to Washington. Some wrote directly to me expressing their opposition to the Act. A majority of the letters were based upon this line of logic and looked as though they had been copied almost verbatim from some "master" form letter. Inasmuch as I opposed the Act anyway, nobody had to convince me to change my mind about anything. Had I been a Senator or Representative, I think that I would have believed the authors were unconvincing, and didn't feel very strongly about the Act to the extent of having any of their own opinions.

Yes, the intentions were all fine, but there should have been much more individual thought and variation, less cribbing of this one rather flimsy argument. Washington should have been lambasted with a rich cornucopia of varied reasons as to why this Act is a bad idea.

Even if you've written before, why not try again—now!

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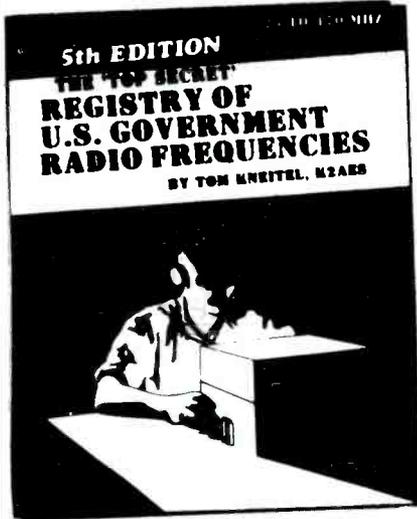
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